**Results of Archaeological Works (Desk Based Assessment, Walkover Survey & Geophysical Survey) at**

# Land off Ffordd Glanffynnon, Llanrug, Gwynedd

**NGR SH 53649 63021 (Central Point)**

**Report Number CR249-2024**


CR ARCHAEOLOGY

Compiled by C. Rees and M. Jones

On Behalf of Adra (Tai) Cyfyngedig

## *Summary*

*CR Archaeology were instructed by Adra (Tai) Cyfyngedig to conduct an Archaeological Desk Based Assessment, Walkover Survey, and Geophysical Survey at the proposed site of a new residential development. The site is located on land adjacent to Ffordd Glanffynnon, Llanrug.*

*The proposed development site is an area of archaeological potential. An examination of the known archaeological background of the immediate and wider area shows that there is the potential for stray finds or isolated features/feature groups of prehistoric, early medieval or medieval date given the previously undeveloped nature of the site.*

*The fluxgate gradiometer survey identified a limited number of magnetic anomalies, largely ferromagnetic responses thought to be from modern disturbance. One anomaly is distinctly rectangular in plan and may be the result of archaeological activity.*

*The fieldwork took place on 2nd October 2024.*

## *Crynodeb*

*Cyfarwyddwyd CR Archaeology gan Adra (Tai) Cyfyngedig i gynnal Asesiad Desg Archaeolegol, Arolwg Cerdded, ac Arolwg Geoffisegol ar safle arfaethedig datblygiad preswyl newydd. Lleolir y safle ar dir gerllaw Ffordd Glanffynnon, Llanrug.*

*Mae'r safle datblygu arfaethedig yn ardal o botensial archaeolegol. Mae archwiliad o gefndir archaeolegol hysbys yr ardal gyfagos ac ehangach yn dangos bod potensial darganfyddiadau crwydr neu nodweddion/grwpiau nodwedd ynysig o ddyddiad cynhanesyddol, canoloesol cynnar neu ganoloesol o ystyried natur nas datblygwyd gynt y safle.*

*Mae'r arolwg gradiometer ffwcs yn dangos dim ond nifer gyfynedig o anomaleddau magnetig a ganfuwyd, a chredir bod ymatebion fferromagnetig yn bennaf yn deillio o aflonyddwch modern. Mae un anghysondeb, fodd bynnag, yn hollol unionlin ei gynllun a gall fod o ganlyniad i weithgarwch archaeolegol.*

*Gwnaed y gwaith maes ar 2 Hydref 2024.*


# Results of Archaeological Works at Land off Ffordd Glanffynnon, Llanrug, Gwynedd

| | |
|---|---|
| **Planning Application Number:** | Pre-Application (Reference 2023.128_02) |
| **National Grid Reference:** | SH 53649 63021 (Central Point) |
| **Client:** | Adra (Tai) Cyfyngedig |
| **Report Author:** | Catherine Rees and Matthew Jones |
| **Report Number:** | CR249-2024 |
| **Date:** | 24/10/2024 |

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## 1.0 Introduction

CR Archaeology were instructed by Adra (Tai) Cyfyngedig to conduct an Archaeological Desk Based Assessment, Walkover Survey, and Geophysical Survey at the proposed site of a new residential development (Appendix A).

The village of Llanrug is a settlement associated with the slate industry and is described as a "*nineteenth century village superimposed on an earlier, possibly eighteenth century, pattern of enclosure on the river meadows by the Afon Rhyddallt*" (Gwynedd HER PRN 15846).

This document has been prepared to supply the client and statutory bodies including the Local Planning Authority Archaeologist with information as to the archaeological potential, impact and constraints on the aforementioned scheme.

This Desk Based Assessment, Walkover Survey and Geophysical Survey examined the historic context and archaeological potential of the proposed development area. The Desk Based Assessment showed that whilst there is relatively little archaeological activity recorded in the vicinity of the site, the rural location and previously undeveloped nature of the site would make it a potential location for stray finds or isolated features/feature groups of prehistoric, early medieval or medieval date.

Gradiometer survey identified a limited number of magnetic anomalies, largely ferromagnetic responses thought to be from modern disturbance. One anomaly was distinctly rectilinear in plan and measured approximately 16.5m x 14.5m and is believed to be of possible archaeological origin. It was unclear as to the precise nature of this anomaly but it possible it represents the remains of a building – although there are none shown in this area on historic mapping and does not align with the field boundaries. An alternative possibility is that this may be a burnt mound – a hypothesis supported by the proximity of the anomaly to a stream.

This document has been prepared to supply the client and statutory bodies including the Local Planning Authority Archaeologist with information as to the archaeological potential, impact and constraints on the aforementioned scheme. It is intended that the results of this work will inform decisions as to the nature of any additional heritage considerations/consultations which the scheme must be afforded and archaeological mitigation strategies or evaluation methodologies which may be required.

## 2.0 Project Aims & Objectives

This phase of works for the development site aimed to undertake a Desk Based Assessment, a Walkover Survey, and a Geophysical Survey (gradiometer). It aimed to examine the potential archaeological resource surviving on the site, and to provide information which will be utilised to determine an appropriate methodology for any further archaeological mitigation or evaluation methodologies which may be required.

The first aim of this scheme of works was to undertake desk based historical research exploring the history/archaeology of the site. This information includes a map progression and archival research in order to compile a coherent narrative history of the site and its environs.

The Gwynedd Historic Environment Record (HER), Gwynedd and Bangor University Archives, and relevant publications were consulted to compile a record of known archaeological sites in the vicinity. The data gathered during this phase of works was utilised in the interpretation of the gradiometer results.

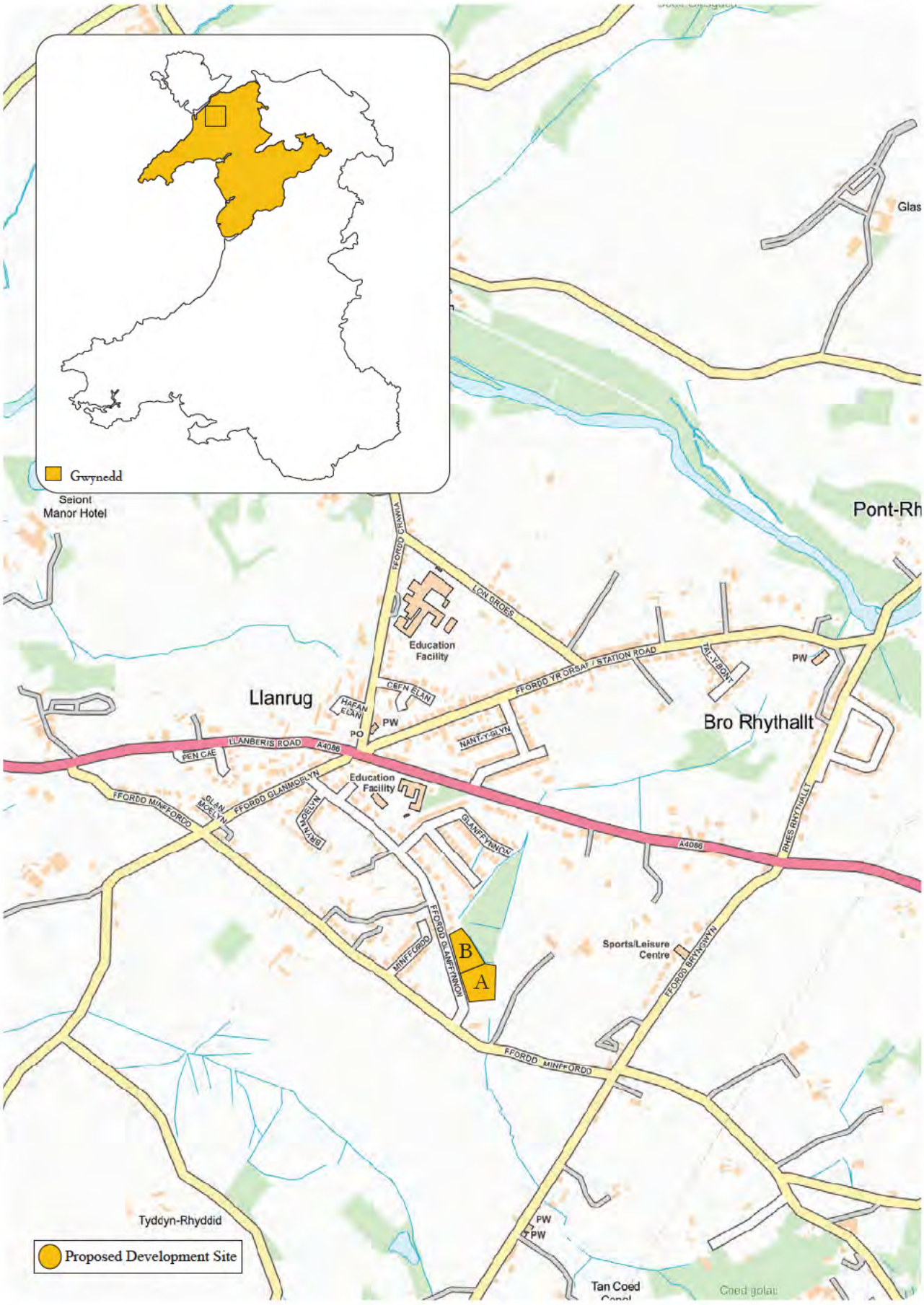


*Figure 1. Site Location Map*
*(Source: OS Open Data Mapping Contains Ordnance Survey data © Crown copyright and database right 2018)*

The second aim of this archaeological investigation was to undertake a walkover and geophysical survey of the site in order to identify and locate buried features.

It is intended that this document be utilised to inform further archaeological planning decisions and conditions at the site.

The objectives of this programme of works were:

- To locate and describe, by means of desktop analysis, a walkover survey, geophysical prospecting and subsequent evaluation trenching, archaeological features which may be present within the development area
- To make full and effective use of existing information to establish the archaeological significance of the site
- To help inform future decision making, design solutions, further evaluation & mitigation strategies

## 3.0 Scheme of Works - Methodology

The archaeological works were conducted in two sections. Each is detailed separately below.

### 3.1 Desk Based Research

A complete and coherent history of the site was compiled utilising material sourced from the Gwynedd Historic Environment Record (HER), the Royal Commission on the Ancient and Historical Monuments Wales (RCAHMW) database, Gwynedd and Bangor University Archives, and relevant publications. This allowed as comprehensive a history of the site as possible to be compiled. A map progression of the area was undertaken. The archive information was supplemented with information from local libraries and specialist interest websites & journals.

In order to identify the character of archaeological remains in the vicinity of the site a search of the Gwynedd HER was conducted examining an area within a 500m radius of the proposed works (the grid reference for the search is taken as the centre point of the development area). This was expanded to 1000m to examine general trends, but this data has not been discussed in detail. Aerial imagery of the site was also examined. The information collected is discussed within the main report text.

The works were carried out accordance with the CIfA Standards and Guidance for desk-based assessment (CIfA 1994 (2014, updated 2020).

This material forms the historical background for the full archaeological report and was utilised to aid the interpretation of the results of the geophysical survey.

### 3.2 Geophysical Survey

Prior to the commencement of works a brief written record of the site was compiled. This included a note on any features/elements which may have an impact on the survey results - for example weather, geological features, fencing & overhead cables.

The survey was carried out in accordance with English Heritage's guidance "*Geophysical Survey in Archaeological Field Evaluation*" (2008) and the CIfA "*Standard and Guidance for Archaeological Geophysical Survey*" (2014, updated 2020) and "*Universal Guidance for Archaeological Field Evaluation*" (2023).

A survey grid was established over the site, orientated to provide a best possible fit to the area to be surveyed and to minimise the effects of the slight slope of the ground level on the site. The survey areas was gridded with a 20 x 20 m or 30 x 30 m grid. These squares were marked by plastic pegs and the grid was tied to local features. Readings were taken at 0.25 m intervals along transects 1.0 m apart with a zig-zag pattern being walked. The data was downloaded on to a laptop computer in the field.

A number of small soil samples were taken for magnetic susceptibility analysis as an aid to the interpretation of the results of the Fluxgate gradiometer survey.

**3.2.1 Equipment**
The survey was undertaken using a Geoscan FM 256 Fluxgate Gradiometer.

Sensitivity: 0.1nT
Sample Interval: 0.25m
Traverse Width: 1m
Traverse Method: Zig-Zag
Grid Square Size: 30m x 30m or 20x20m where possible, downsized to 20x10m where necessary.

Geoplot v. 3.00v was used to download and manipulate the geophysical data. Minimal processing was applied to all images to ensure no false results are created by excessive image manipulation. Data was downloaded to a portable computer during each rest period for the course of the day, to ensure data integrity and check ongoing results.

Grey scale plots were produced using Geoplot v. 3.00v. X - Y plots were produced using Golden software "Surfer" v. 10

A basic photographic record was compiled prior to the commencement of the survey which detailed any above ground features and show the general topography of the site. Further photographs will be taken to illustrate the setting of the site. It will be undertaken using a 20 mega-pixel Sony Alpha digital camera with a variety of standard and other lenses. Images will be captured in RAW format for later processing into high resolution JPG and TIF files.

**3.3 Timetable for Proposed Works**
The geophysical survey was undertaken on the 2nd October 2024. Further time was allotted for archive research, report compilation and site archiving.

**3.4 Staffing**
The project was managed by Catherine Rees (MCIfA, BA (Archaeology), MA (Archaeology) Postgraduate Diploma (Historic Environment Conservation) & Matthew Jones (BA (Archaeology), MA (Archaeology). The geophysical survey was conducted by Dr Ian Brooks and Matthew Jones.

All staff have a skill set equivalent to the CIfA ACIfA/MIFA level. C.Vs for all staff employed on the project can be provided on request. All projects are carried out in accordance with CIfA *Standard and Guidance* documents.

**3.5 Monitoring**
The project will be subject to monitoring by Heneb (Planning). A projected time-scale and copy of the risk assessment can be provided on request to the monitoring body prior to the commencement of works.

### 3.6 Health and Safety

A risk assessment was conducted prior to the commencement of works and site staff were familiarised with its contents. A first aid kit will be located in the site vehicle.

All staff were issued with appropriate Personal Protective Equipment (PPE) for the site work. This consisted of:

- Hi-visibility vests (EN471)
- Mobile telephone (to be kept in site vehicle)
- Suitable footwear & waterproofs.

### 3.7 The Report

The report clearly and accurately incorporates information gained from the programme of archaeological works. It presents the documentary evidence gathered in such a way as to create a clear and coherent record. This includes illustrations of cartographic sources. The report contains a site plan showing the locations of any photographs taken.

The desk-based assessment considered the following:

- the nature, extent and degree of survival of archaeological sites, structures, deposits and landscapes within the study area
- the significance of any remains in their context both regionally and nationally
- the history of the site
- the potential impact of any proposed development on the setting of known sites of archaeological/historic importance
- the potential for further work with appropriate recommendations

In accordance with English Heritage guidelines the geophysical survey results element included:

- a survey location plan demonstrating relationships to other mapped features (minimum scale 1:2500);
- an image of minimally processed survey data (minimum scale 1:1000);
- where appropriate a trace (or X–Y) plot of raw magnetic data
- a greyscale plot, or dot density plot (minimum scale 1:1000);
- one or more interpretative plans/diagrams (minimum scale 1:1000).

It is intended that this report will inform decisions as to the necessity and/or nature of any further archaeological mitigation strategies which may be required.

A copy of the report in Adobe PDF format will be sent to the appropriate monitoring archaeologist for approval before formal submission. A PDF digital copy of the report will be submitted to Heneb as part of the formal submission. A digital Adobe PDF version and a bound paper copy of the final report and will be lodged with the Gwynedd Historic Environment Record within six months of completion of the project.

#### 3.7.1 Copyright

## 4.0 Topological and Geological Background

### 4.1 Topography

The site is located on Ffordd Glanffynnon, Llanrug on the southern outskirts of the village. The proposed development area is currently in agricultural use.

### 4.2 Geology

The bedrock geology at the site is recorded as "*Fachwen Formation - Siltstone and limestone, interbedded. Sedimentary bedrock formed between 635 and 508 million years ago during the Ediacaran and Cambrian periods*" (https://geologyviewer.bgs.ac.uk/).

The site superficial geology is recorded as "*Glaciofluvial Deposits, Devensian - Sand and gravel. Sedimentary superficial deposit formed between 116 and 11.8 thousand years ago during the Quaternary period.*" (https://geologyviewer.bgs.ac.uk/).

## 5.0 Historical Background

In order to identify the character of archaeological remains in the vicinity of the site a search of the Gwynedd HER was conducted examining an area within a 500m radius of the proposed works (the grid reference for the search is taken as the centre point of the development area). This was expanded to 1000m to examine general trends, but this data has not been discussed in detail.

There were 7 HER entries for sites within a 500m search radius of the centre of the proposed development area (figure 2) - 0 entries of Prehistoric date, 1 entry of Roman date, 1 entry of Medieval date, 4 entries of Post Medieval date, and 1 entry of Multiperiod date.

When the search area was extended to a 1000m radius the HER returned 39 entries – 1 entry of Prehistoric date, 4 entries of Roman date, 2 entries of Medieval date (one of Medieval & Post Medieval date), 25 entries of Post Medieval date (one of Medieval & Post Medieval date), 3 entries of Modern date, 1 entry of Multiperiod date and 4 entries of Unknown date.

### 5.1 Prehistoric

There were no records of prehistoric date was recorded within the 500m search radius.

When the search area was expanded to 1000m a single record was returned. PRN 81553 records the findspot of a flat axe. The period attribution is Bronze Age although the artefact summary records the find to have been "*a Roman flat Axehead*".

### 5.2 Roman/Romano-British

There was a single record of Roman/Romano-British date recorded within the 500m search radius. PRN 17596 records a proposed element of the Segontium to Canovium Roman Road. It is described as "*The inland deviation of the Caernarfon to Caerhun road would become intelligible if it were to link up with a road through the Llanberis pass. Although this route would be open to the same objections as that through the Aberglaslyn pass. There is some structural evidence*".

When the search area was extended to 1000m and additional 3 records were returned. PRN's 17594 and 17595 both relate to the Segontium to Canovium Roman Road. PRN 17594 records "*The inland deviation of the Caernarfon to Caerhun road would become intelligible if it were to link up with a road through the Llanberis pass. Although this route would be open to the same objections as that through the Aberglaslyn pass. There is some structural evidence. Projected linking section only*". Similarly PRN 17595 records "*The inland deviation of the Caernarfon to Caerhun road would become intelligible if it were to link up with a road through the Llanberis pass. Although this route would be open to the same objections as that through the Aberglaslyn*

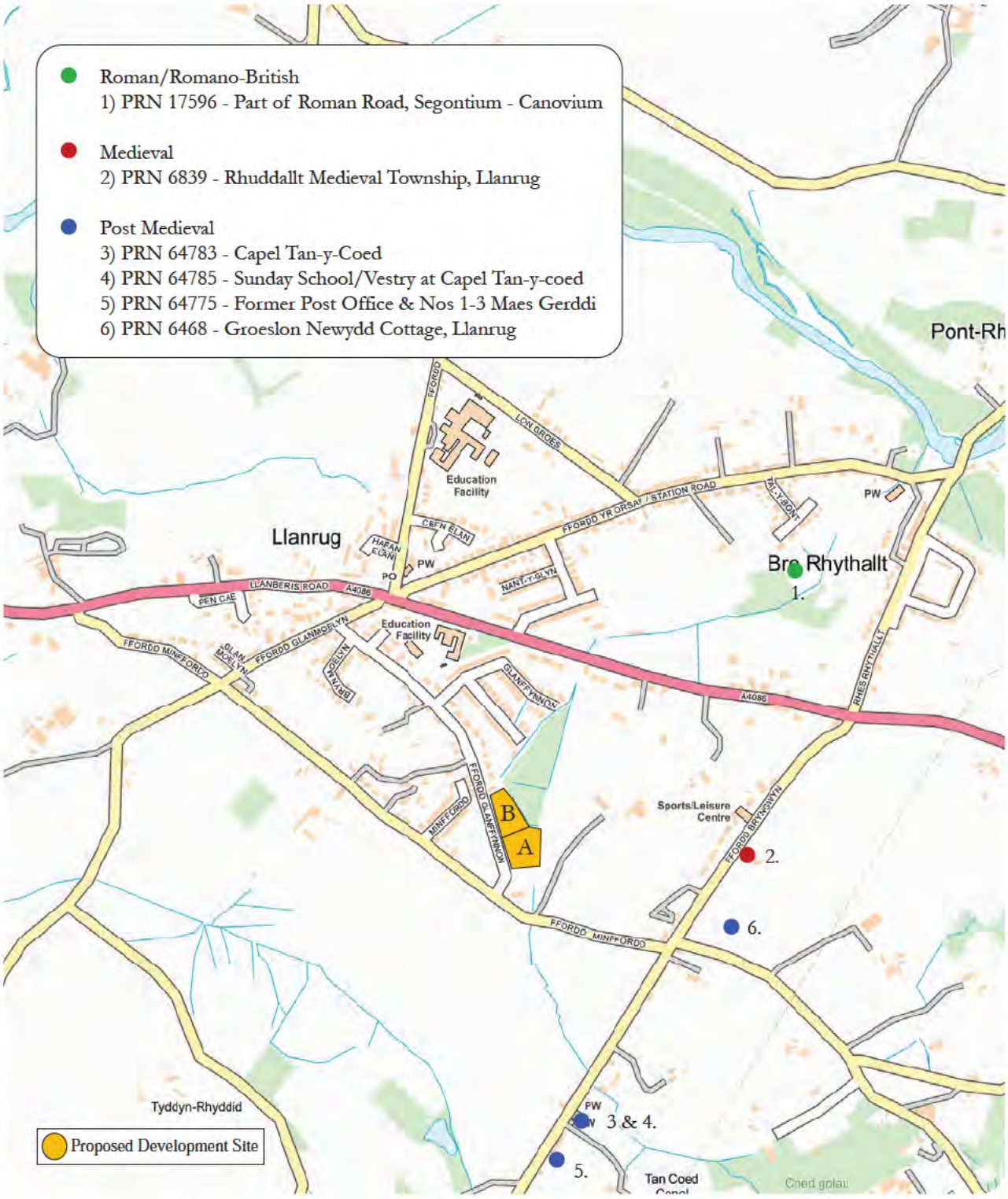


*Figure 2. HER Entries for Sites Within a 500m Search Radius of the Centre of the Proposed Development Area (Data Source: HENEB Enquiry GAHER2)*

*(Source: OS Open Data Mapping Contains Ordnance Survey data © Crown copyright and database right 2018)*

*pass. There is some structural evidence. A section of bank may be part of the Roman Road but it could be due to modern cultivation*".

PRN 96704 records the findspot of a Roman brooch.

**5.3 Medieval**
There was a single record of Medieval date recorded within the 500m search radius. PRN 6839 records the Rhuddallt Medieval Township, Llanrug.

A second entry was recorded when the search was expanded to cover a 1000m radius. PRN 7033 records the Llanrug Parish Church, St. Michael's. "*Llanrug parish church is dedicated to St. Michael and is located in the diocese of Bangor. A medieval church cruciform in plan, with short transepts, a north porch, and south vestry. It has been much restored and retains few original features*". As the church has later remodelling it is recorded as being of Medieval and Post Medieval date.

**5.4 Post Medieval**
There are 4 records of Post Medieval date recorded within the 500m search radius. Three of the four records are for Grade II Listed Buildings:

PRN 64783 – Capel Tan-y-Coed (Listed Building ID 22244). "*A Calvinist Methodist Chapel built in 1901 with contemporary Sunday School/Vestry directly adjoining*".

PRN 64785 – Sunday School/Vestry at Capel Tan-y-Coed (Listed Building ID 22245). "*A Sunday School/Vestry built in 1901 to the adjoining contemporary chapel*".

PRN 64775 - Former Post Office & Nos 1-3 Maes Gerddi (Listed Building ID 21640). "*A small late 19th century development consisting of former post office and attached terraced cottages*".

The fourth record was PRN 6468 - Groeslon Newydd Cottage, Llanrug.

When the search area was expanded to 1000m 21 additional HER results were returned reflecting the construction of the town as an element of the slate industry in the area. Eleven of these structures are Listed Buildings.

**5.5 Modern**
There are no records of Modern date recorded within the 500m search. When the search area was expanded to 1000m 3 HER results were returned. None of these structures were Listed Buildings.

**5.6 Multiperiod Date**
The multiperiod record – PRN 15846 summaries the Llanrug landscape, providing a brief overview of the town and locality. It records:

"***Llanrug Historic Background***
*A nineteenth century village superimposed on an earlier, possibly eighteenth century, pattern of enclosure on the river meadows by the Afon Rhyddallt. Settlement is not marked on the Vaynol map of 1778, but mills appear to have been established in the area in the early nineteenth century, and the village appears to have expanded after the opening of the LNWR branch in 1869 and the provision of passenger services on the Padarn Railway.*

***Key Historic Landscape Characteristics***
*Industrial settlement (slate quarry)*
*The village, effectively three ribbon developments forming a triangle, contains examples of every variety of dwelling from early nineteenth century vernacular to modern hacienda dwellings. However, the housing has not coalesced to form an entirely urban community, but has developed within open fields, many of which remain and continue to be farmed*".

**5.7 Unknown Date**
There are no records of Unknown date recorded within the 500m search radius. When the search area was expanded to 1000m 4 HER results were returned.

**5.8 Cartographic Sources**
The earliest cartographic source which could be sourced showing the proposed development plot was the 1841 Tithe Map (figure 3). The proposed development plot is shown as part of a much larger plot named 'Rhos Rug'. The owner is recorded as the "Incumbency of Bryncroes" with the plot occupied by "Owen Jones and others". The area may therefore have been subdivided at this time but the subdivisions are not shown.

The First Edition Ordnance Survey map of the area (published 1889, figure 4) shows that the current field outlines had been established by this time. Farmsteads have been established to the north (Glan-ffynnon) and south (Afon-Rhôs) of the proposed development area.

Later Ordnance Survey map editions (1900, figure 5 and 1914, figure 6) show no changes to the proposed development plots.

A 1921 sale catalogue held at Conwy Archives (reference CSC14/116, figures 7 and 8) shows the plots are associated with the Afon-Rhôs small holding. The development area is an element within a plot of "*7 acres, 1 rood, 32 perches (or thereabouts)*". The land is described as "*divided into small arable and pasture enclosures of good quality*".

**5.9 Potential Impact of the Proposed Development Scheme on Designated Historic Assets - Scheduled Ancient Monuments and Listed Buildings**
There are three entries for Grade II Listed Buildings within a 500m search radius of the centre of the proposed development site.

PRN 64783 – Capel Tan-y-Coed (Listed Building ID 22244). "*A Calvinist Methodist Chapel built in 1901 with contemporary Sunday School/Vestry directly adjoining*".

PRN 64785 – Sunday School/Vestry at Capel Tan-y-Coed (Listed Building ID 22245). "*A Sunday School/Vestry built in 1901 to the adjoining contemporary chapel*".

PRN 64775 - Former Post Office & Nos 1-3 Maes Gerddi (Listed Building ID 21640). "*A small late 19th century development consisting of former post office and attached terraced cottages*".

These structures will not be affected by the proposed development works.

When the search radius was expanded to 1000m the number of Listed Buildings increased to 11. These structures will not be affected by the proposed development works.

There are no Scheduled Monuments within the 500m or 1000m search radii of the centre of the proposed development site.

*Figure 3. 1841 Tithe Map Showing Proposed Development Area*
*(Source: Gwynedd Archives, Caernarfon)*

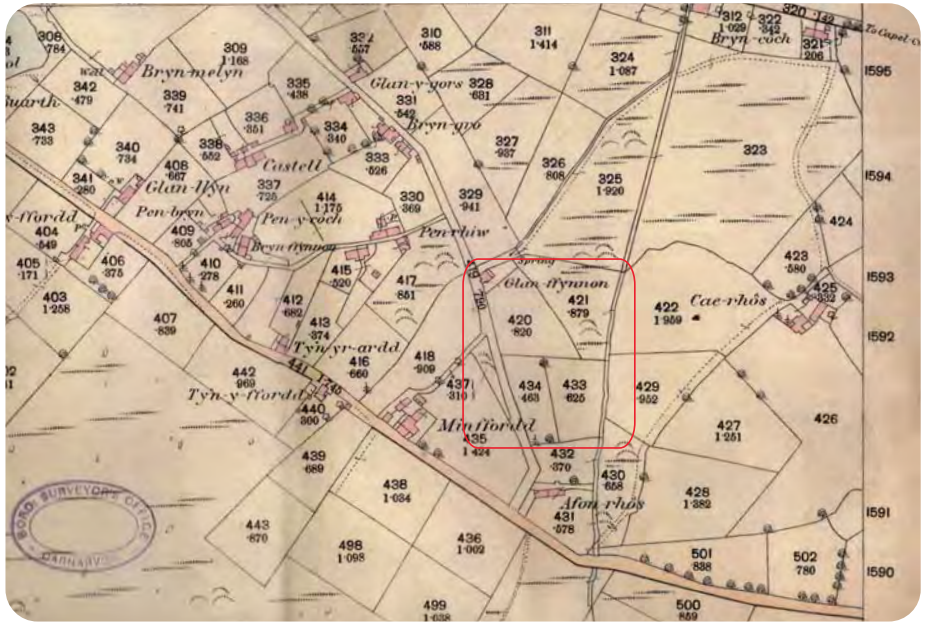


*Figure 4. 1889 Tithe Map Showing Proposed Development Area*
*(Source: Gwynedd Archives, Caernarfon)*

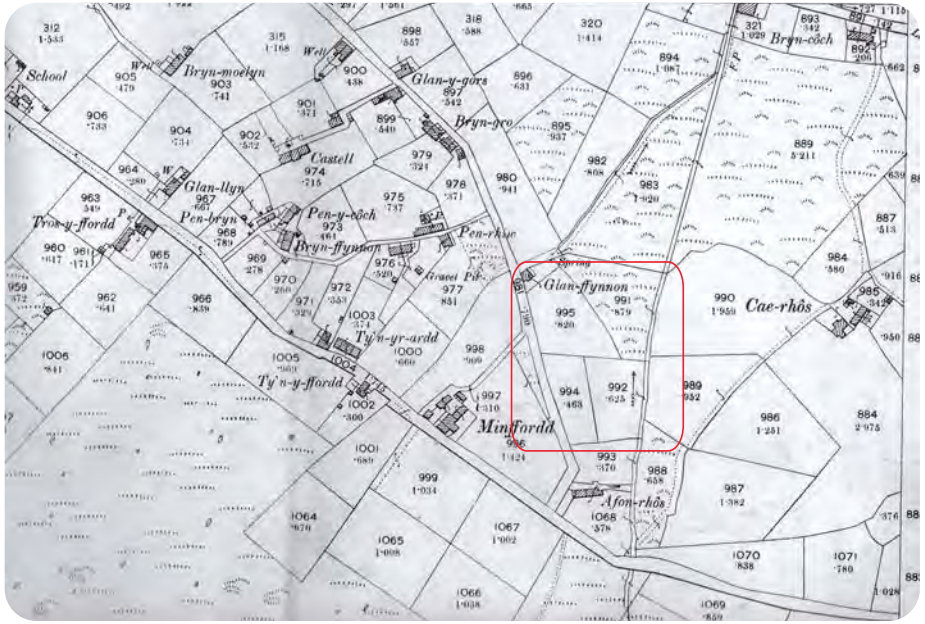


*Figure 5. 1900 Tithe Map Showing Proposed Development Area*
*(Source: Gwynedd Archives, Caernarfon)*

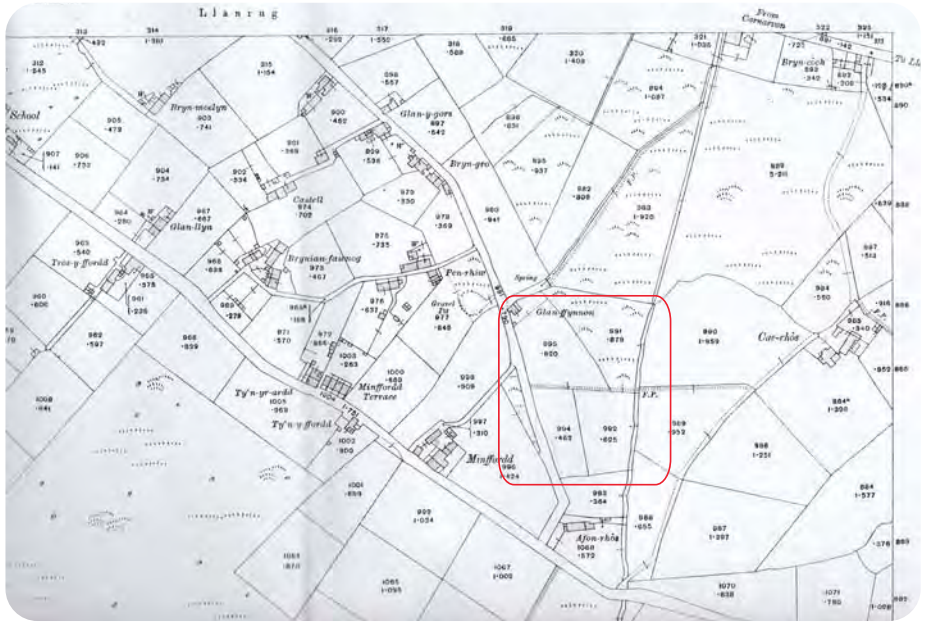


*Figure 6. 1914 Tithe Map Showing Proposed Development Area*
*(Source: Gwynedd Archives, Caernarfon)*

There are no Local Authority Conservation Areas within the 500m or 1000m search radii of the centre of the proposed development site.

## 6.0 Results of Archaeological Works

### 6.1 Results of Walkover Survey (Plates 1-16, Appendix C)

The proposed development site is comprised of three neighbouring fields on the eastern outskirts of the village of Llanrug, Gwynedd.

The western site boundary runs along Ffordd Glanffynnon, a single track lane. To the south of the proposed development area is the modernised farm Afon Rhos Bach (originally Afon Rhos). The site is surrounded by enclosed fields to the north and east.

The fields have been labelled Areas 1, 2 and 3 (see geophysical survey). Access was via a public right of way off Ffordd Glanffynnon in the southwestern corner of Area 1.

**Area 1 (Plates 1-3)**

This field slopes gradually to the east. The ground cover is grass, with rush grass running along north to south along the field eastern boundary.

The boundary along the lane has a locked double farm gate at its northern end.

The boundary between Areas 1, 2 and 3 is a clawdd type (an earth bank with stone facing).

**Area 2 (Plates 4-8)**

Area 2 can only be accessed via Areas 1 or 3. As in Area 1, Area 2 is an area of pasture, with the ground cover turning from grass to rush grass running along the eastern field boundary. This boundary is defined by a stream which looks recently cleared/re-cut.

The north-south boundary between Areas 2 and 3 is of clawdd type with gated access into Area 3 at its southern end.

In the southern corner of the Area 2 there is a breezeblock shed.

**Area 3 (Plates 9-12)**

Area 3 was accessed via the southern gate along the north-south boundary between Areas 2 and 3. There is a parallel gate on the lane boundary. As previously noted the boundaries between Areas 1 and 2 are of clawdd type with a hedge along the lane. The field has no features and is in use as pasture.

### 6.2 Results of Geophysical Survey

A geophysical survey was undertaken by Engineering Archaeological Services Ltd. The report has been included in full.

*Plate 1. Area 1 - General View Facing North*

*Plate 2. Area 1 - General View Facing East*

*Plate 3. Area 1 - General View Facing East*

*Plate 4. Area 2 - Clawdd Boundary Wall*

*Plate 5. Area 2 - General View Facing North*

*Plate 6. Area 2 - Clawdd Boundary Wall*

*Plate 7. Area 2 - Southern Facing South*

*Plate 8. Area 2 - Breeze Block Shed in Southern End*

*Plates 9 & 10 (Left). Area 3 Field Boundary*

*Plates 11 & 12 (Below). Area 3*

*eas*

*Engineering Archaeological Services Ltd.*

# Land off Ffordd Glanffynnon, Llanrug, Gwynedd:
# Fluxgate Gradiometer Survey

**Commissioned by**
**CR Archaeology**

**Analysis by**
**I.P. Brooks**
**Engineering Archaeological Services Ltd**

***EAS Client Report 2024/21***

*Engineering Archaeological Services Ltd is*

*Registered in England No 286978*

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## NGR

**Centred on:**

**Area 1: SH 53630 63091**
**Area 2: SH 53634 63031**
**Area 3: SH 53668 63039**

## *Location and Topography* (Figures 1 and 2)

The survey area was located, approximately 420 SSE from the centre of the village of Llanrug in three small fields to the east of Ffordd Glanffynnon and approximately 50 m north of the property known as Afon Rhos Bach. All three of the fields were under pasture at the time of the survey, with stone fronted, earthen bank, with hedges, forming the majority of the boundaries. The south eastern field has a small stream running along its eastern boundary and a linear hollow along this side of the field suggests the stream had other courses in the past. In general, the survey area slopes gently down towards the east, with steeper slopes in the south eastern corner of the northern field and along the eastern side of the south eastern field.

A small number of obstructions were noted. In the south western corner, of the south western field, there was a metal feed trough and in the south west corner, of the south eastern field, was a manure heap and the corrugated iron roof from the small building in this corner of the field.

Survey took place on 2nd October 2024.

## *Archaeological Background*

Adra intended to develop the survey area for housing. The survey area is within the Rhuddallt Medieval Township. Although the fields are not shown on the 1848 Tithe Map for Llanrug they are represented on the First Edition Ordnance Survey mapping published in 1888.

## *Aims of Survey*

1. To record any geophysical anomalies within the survey area which may be related to archaeological activity.

## SUMMARY OF RESULTS

*The fluxgate gradiometer survey, totalling approximately 0.43 Ha in three small field, off Ffordd Glanffynnon, Llanrug was commissioned by CR Archaeology in advance of a proposed housing development by Adra. Only a limited number of magnetic anomalies were located, largely ferromagnetic responses thought to be from modern disturbance. One anomaly, however, is distinctly rectilinear in plan and may be the result of archaeological activity.*

*The fieldwork took place on 2nd October 2024.*

*Comisiynwyd arolwg gradiometer fflwcs, ar gyfanswm o dua 0.43 Ha mewn tri chae bach, oddi ar Ffordd Glanffynnon, Llanrug gan CR Archaeology cyn datblygiad tai arfaethedig gan Adra. Dim ond nifer gyfyngedig o anomaleddau magnetig a ganfuwyd, a chredir bod ymatebion fferromagnetig yn bennaf yn deillio o aflonyddwch modern. Mae un anghysondeb, fodd bynnag, yn hollol unionlin ei gynllun a gall fod o ganlyniad i weithgarwch archeolegol.*

*Gwnaed y gwaith maes ar 2 Hydref 2024*

### *Methods*

The survey was based on a series of sixteen, 20 x 20 m squares laid out as in Figure 2. Readings were taken with a Geoscan FM256 Fluxgate Gradiometer at 0.25 m intervals along transects 1 m apart. The surveys were downloaded onto a laptop, on site, and processed using Geoscan Research "Geoplot" v.4.00. The X - Y plots were produced by exporting the data and processing it using Golden Software "Surfer" v. 10.7.972. The survey was undertaken in three areas which were separated by a stone-faced, earthen, banks with hedges on top.

A limited number of soil samples were taken to access the Magnetic Susceptibility on the site (Figure 13). These were dried out in a warming oven, sieved, and processed using a Bartington MS2 Magnetic Susceptibility Meter.

### *Survey Results:*

### Area

Area 1: 0.15 Ha
Area 2: 0.12 Ha
Area 3: 0.16 Ha

### Display

The results are displayed as a grey and colour scale images (Figures 3, 6, 9 and 10) and as a X-Y trace plot (Figures 4, 7 and 11). The interpretation plots are is shown as Figures 5, 8 and 12. The Magnetic Susceptibility results are summarised on Figure 14 and the survey, as a whole, is summarised on Figure 15.

## *Results*:

### Fluxgate Gradiometer Survey

#### *Area 1*

The grey scale plot of Area 1 (Figure 3) has numerous ferromagnetic anomalies which are shown in blue on Figure 5. These are dominated by a large, anomaly (Anomaly A), approximately 24 x 8 m in size which runs in an NNE – SSW from the south western corner of the field. In such, it is likely that this anomaly may be related to the footpath which enters the field at this point. Anomaly A has a highly variable magnetic signature with readings varying between – 200 and + 200 nT suggesting it contains magnetic materials such as burnt ceramics (possibly bricks) or other burnt deposits.

The majority of the other ferromagnetic anomalies are probably the result of modern metal objects in the topsoil; however, Anomaly B can be directly related to a series of bricks seen in the field and Anomaly C is related to rubbish in the corner of the field and the proximity of metal fencing.

#### *Area 2*

Area 2 was a relatively flat field with a trough and metal gate in the south western corner and another metal gate in the south eastern corner. These gave rise to ferromagnetic anomalies F G and H (Figure 8). There are also two possible linear anomalies (Anomalies D and E) within the grey scale plot of the area.

#### *Area 3*

Area 3 is within the south eastern field which contained similar areas of ferromagnetic disturbance as the other two fields. Of these, Anomaly I (Figure 12) is the result of the small building in the south western corner of the field and the adjacent dump of corrugated iron sheets that is thought to have been the roof to the building. Anomalies J and K can be related to the proximity of the gates and fences incorporated into the boundaries of the field.

One anomaly, however, dominates the grey scale plot (Figure 9). Anomaly L (Figure 12) is an area of highly variable magnetic readings varying between + 50 and -50 nT forming a rectilinear area approximately 16.5 x 14.5 m in size. The rectilinear nature of this anomaly is particularly noticeable when the data is reprocessed into a colour contour plot with a logarithmic scale (Figure 10). Surrounding Anomaly L is a zone of minor magnetic disturbance, approximately 2 – 2.5 m wide. This combined anomaly is clearly structured and would therefore be of archaeological origins. It is not certain what the underlying feature is, but it is possibly a demolished building given the occasional brick seen in the field. However, if this is a building it does not align with any of the local field boundaries. Another possibility is that this may be a burnt mound given the proximity of the stream and damp area along the eastern side of this field.

**Magnetic Susceptibility (Figure 10)**

Seven, small, soil samples were taken for Magnetic Susceptibility analysis. (Figure 13).

Both volume susceptibility (direct reading of the samples) and mass susceptibility (reading compensated for the varying mass of the samples) is given below. The results are shown on Figure 14.

| Sample | Volume susceptibility $\chi_v$ | Mass susceptibility $\chi_m$ |
|---|---|---|
| **Area 1** | | |
| 2 | 34 | 55.5 |
| 6 | 61 | 87.8 |
| **Area 2** | | |
| 8 | 73 | 120.5 |
| 10 | 61 | 86.9 |
| **Area 3** | | |
| 11 | 76 | 110.6 |
| 13 | 38 | 60.8 |
| 15 | 9 | 15.3 |

The readings are generally of moderate levels suggesting that the area is suitable for magnetic survey. One sample, however, (Grid Square 15) has a markedly lower reading. This is from the wet ground along the eastern side of the south eastern square and presumably this reading reflects a change in the underlying geology.

Assuming a consistent geological regime across the survey area the magnetic susceptibility can be used as a proxy for the level of archaeological activity (Clark, 1996, 99). Two noticeably higher readings were recorded, those from Grid Squares 8 and 11 which are both towards the northern end of the southern fields. Grid Square 8 also includes the two linear anomalies (Anomalies D and E) possibly suggesting a level of archaeological activity in this area.

## *Conclusions (Figure 8)*

It is a fundamental axiom of archaeological geophysics that the absence of features in the survey data does not mean that there is no archaeology present in the survey area only that the techniques used have not detected it.

Only a limited number of magnetic anomalies of potential archaeological origins have been located within the survey. Two linear anomalies (Anomalies D and E, Figure 8) were located in Area 2; however, these do not make a consistent pattern that can be interpretated. Otherwise, there are only two large areas of ferromagnetic responses that are thought to be significant. Anomaly A (Figure 5), in Area 1, is a broad band of highly variable responses running NNE – SSE from the south western corner of the field. Its origin is uncertain; however, it may be related to the footpath which enters the field at this point.

Anomalies L and M (Figure 12), in Area 3, is probably the most significant anomaly within the survey. Forming a distinct rectangle approximately 16.5 x 14.5 m in size it is clearly a structured anomaly of human origins. The rectilinear shape may suggest a building; however,

it is not aligned on any of the field boundaries making this less likely unless it is a building from before the current layout. Another possibility is that it is burnt mound, near to the stream and damp ground in this field. If so the magnetic signature would suggest the mound may be confined to a rectangular shape.

## *References*

Clark, A. 1996. *Seeing beneath the soil prospecting methods in archaeology.* Routledge, London

## *Acknowledgements*

This survey was commissioned by CR Archaeology. The project was monitored by T. Fildes for the Development Control Section of Heneb, Gwynedd Archaeology.

## *Techniques of Geophysical Survey:*

### Magnetometry:

This relies on variations in soil magnetic susceptibility and magnetic remanence which often result from past human activities. Using a Fluxgate Gradiometer these variations can be mapped, or a rapid evaluation of archaeological potential can be made by scanning.

### Resistivity:

This relies on variations in the electrical conductivity of the soil and subsoil which in general is related to soil moisture levels. As such, results can be seasonally dependant. Slower than Magnetometry this technique is best suited to locating positive features such as buried walls that give rise to high resistance anomalies.

### Resistance Tomography

Builds up a vertical profile or pseudo-section through deposits by taking resistivity readings along a transect using a range of different probe spacings.

### Magnetic Susceptibility:

Variations in soil magnetic susceptibility occur naturally but can be greatly enhanced by human activity. Information on the enhancement of magnetic susceptibility can be used to ascertain the suitability of a site for magnetic survey and for targeting areas of potential archaeological activity when extensive sites need to be investigated. Very large areas can be rapidly evaluated and specific areas identified for detailed survey by gradiometer.

### Instrumentation:

1. Fluxgate Gradiometer - Geoscan FM256

2. Resistance Meter - Geoscan RM15

3. Magnetic Susceptibility Meter - Bartington MS2

4. Geopulse Imager 25 - Campus

### Methodology:

For Gradiometer and Resistivity Survey 20m x 20m or 30m x 30m grids are laid out over the survey area. Gradiometer readings are logged between 0.25m and 1m intervals along traverses 1m apart. Resistance meter readings are logged at 0.5m or 1m intervals. Data is down-loaded to a laptop computer in the field for initial configuration and analysis. Final analysis is carried out back at base.

For scanning transects are laid out at 10m intervals. Any anomalies noticed are where possible traced and recorded on the location plan.

For Magnetic Susceptibility survey, a large grid is laid out and readings logged at 20m intervals along traverses 20m apart, data is again configured and analysed on a laptop computer.

## *Copyright:*

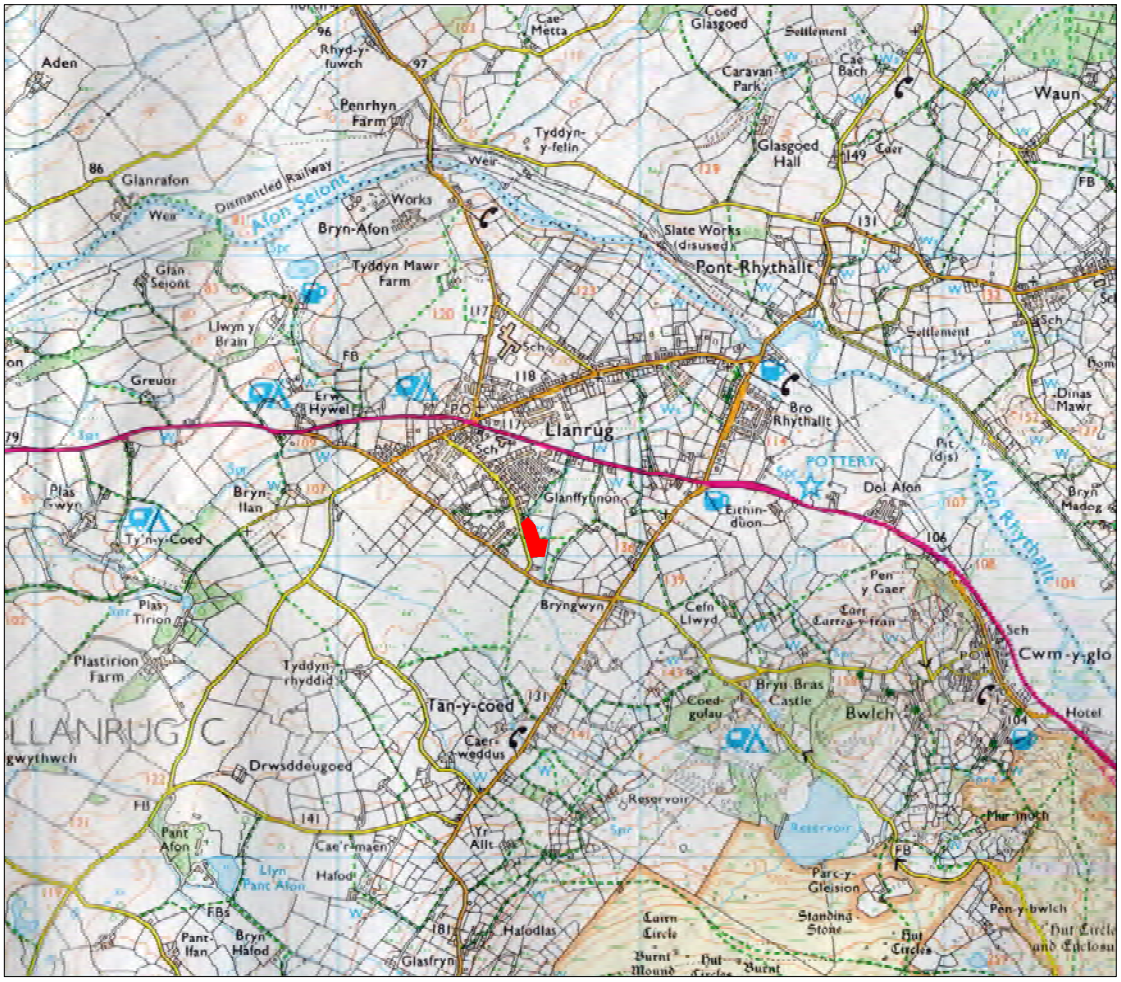





Figure 1: Location
Scale 1:25,000

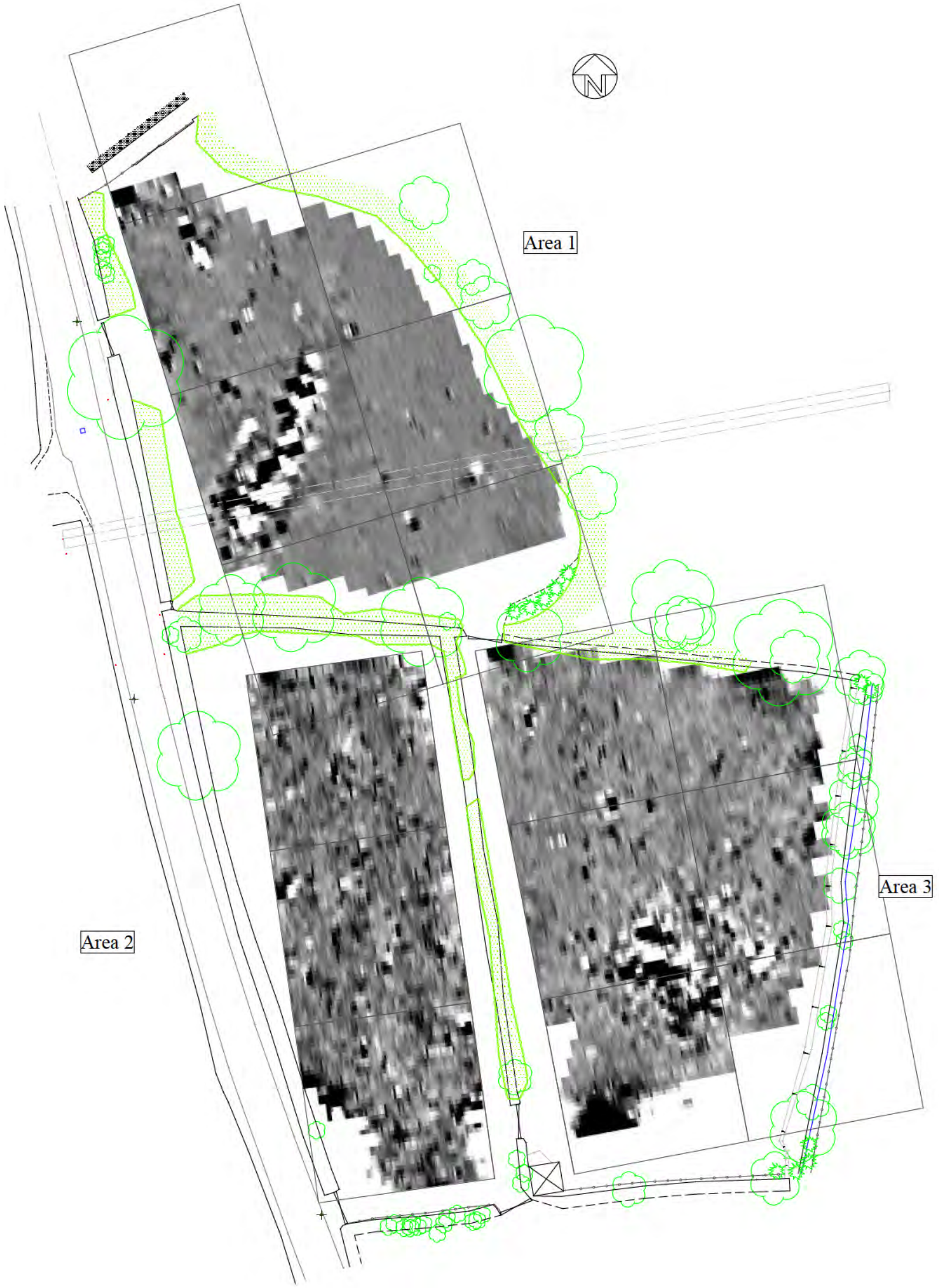



Figure 2: Location of the Surveys
Scale 1:500

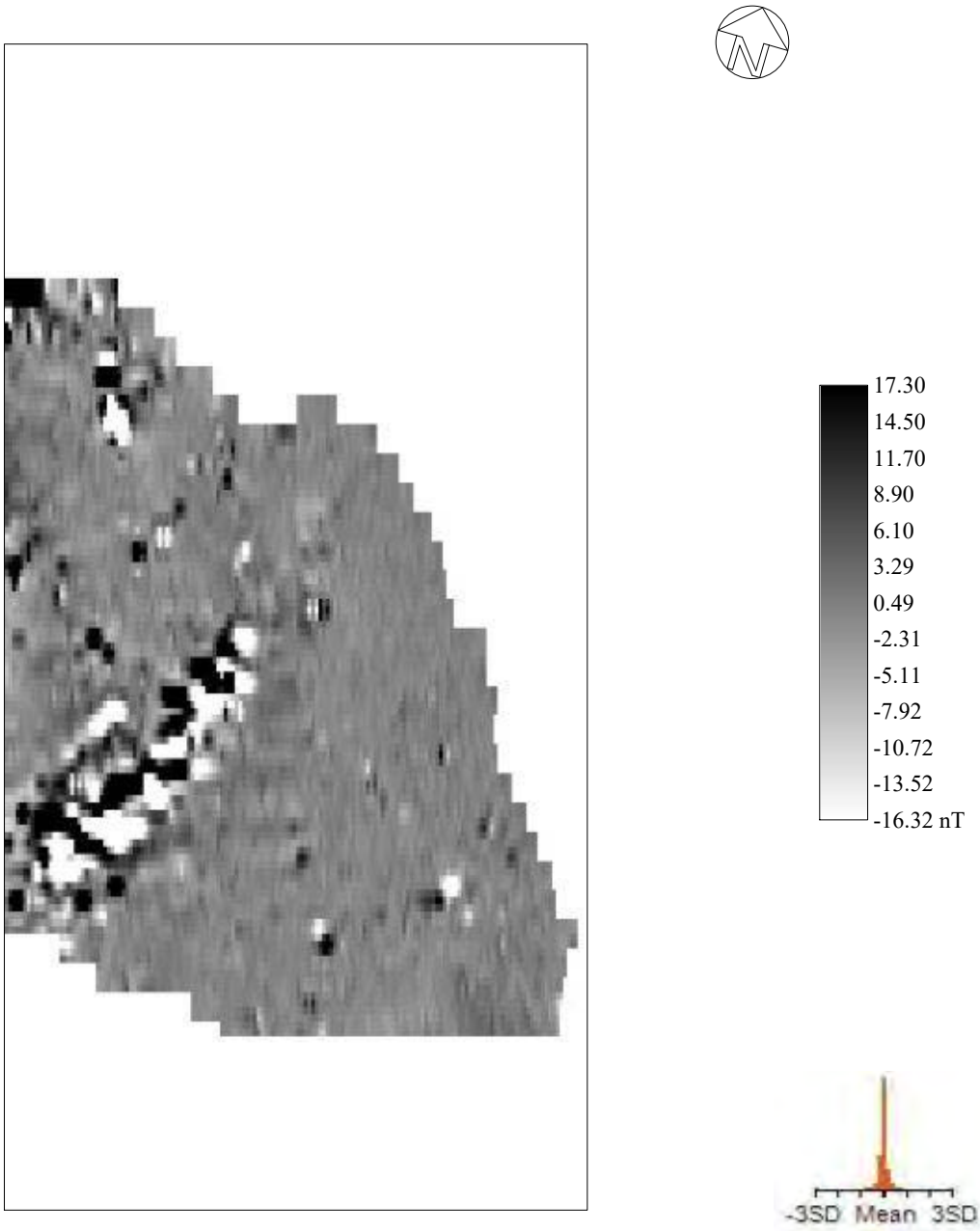
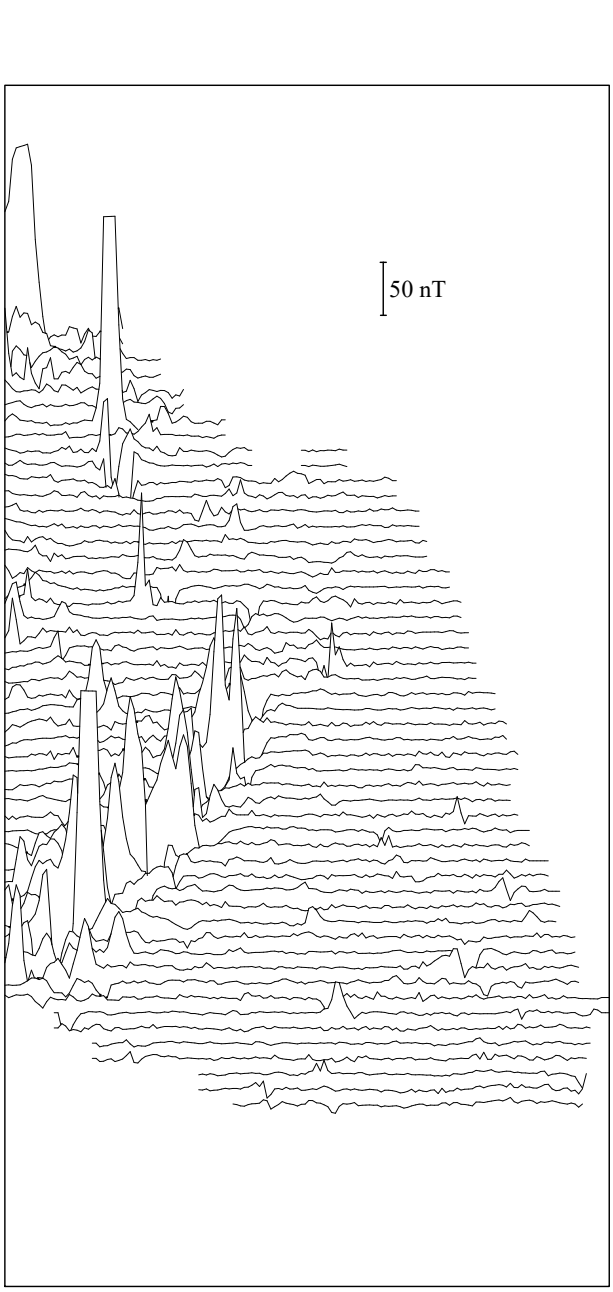



Figure 3: Area 1, Grey Scale Plot
Scale 1:500




0 20 m

Figure 4: Area 1, X-Y Plot
Scale 1:500

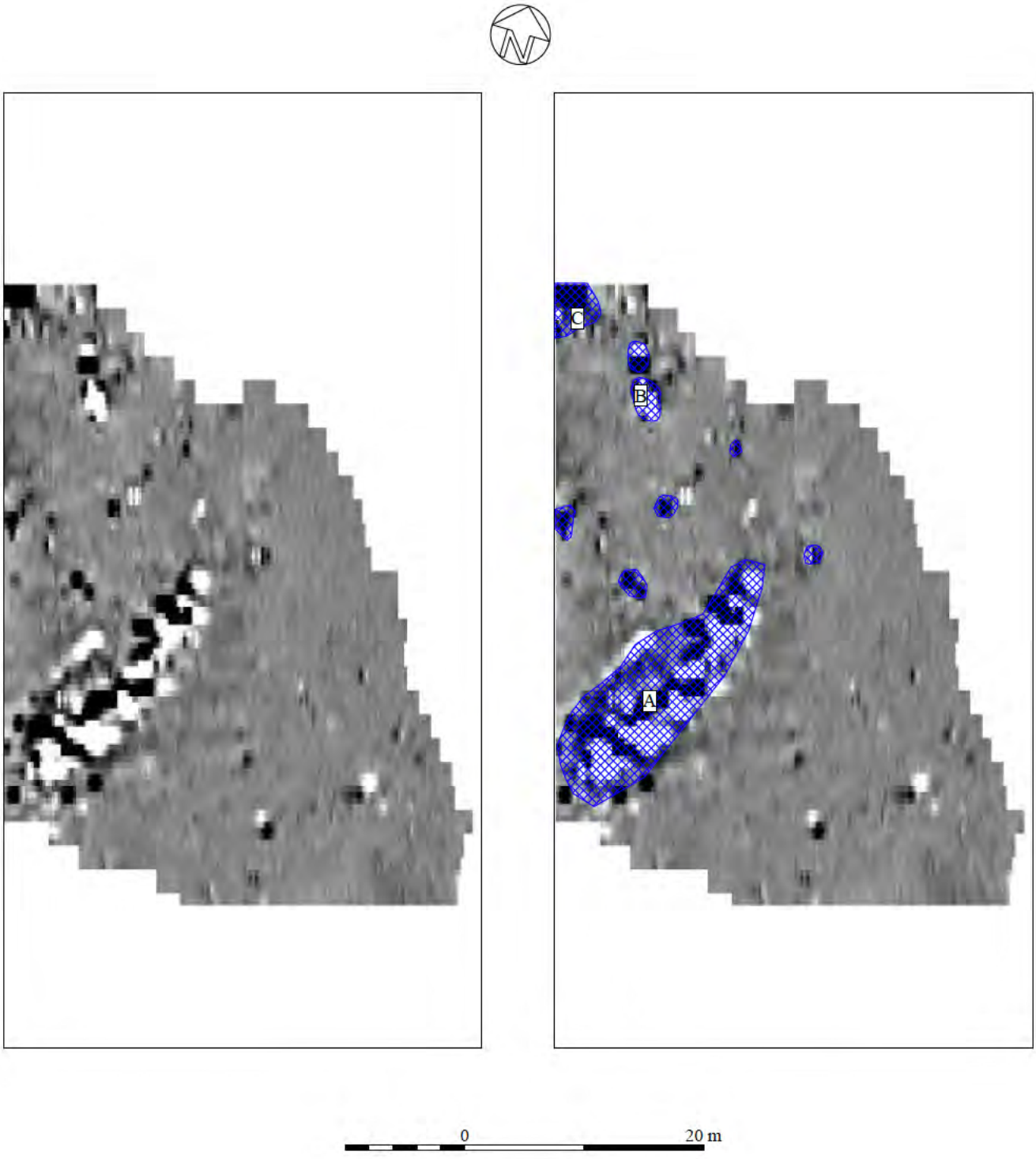



Figure 5: Area 1, Interpretation
Scale 1:500

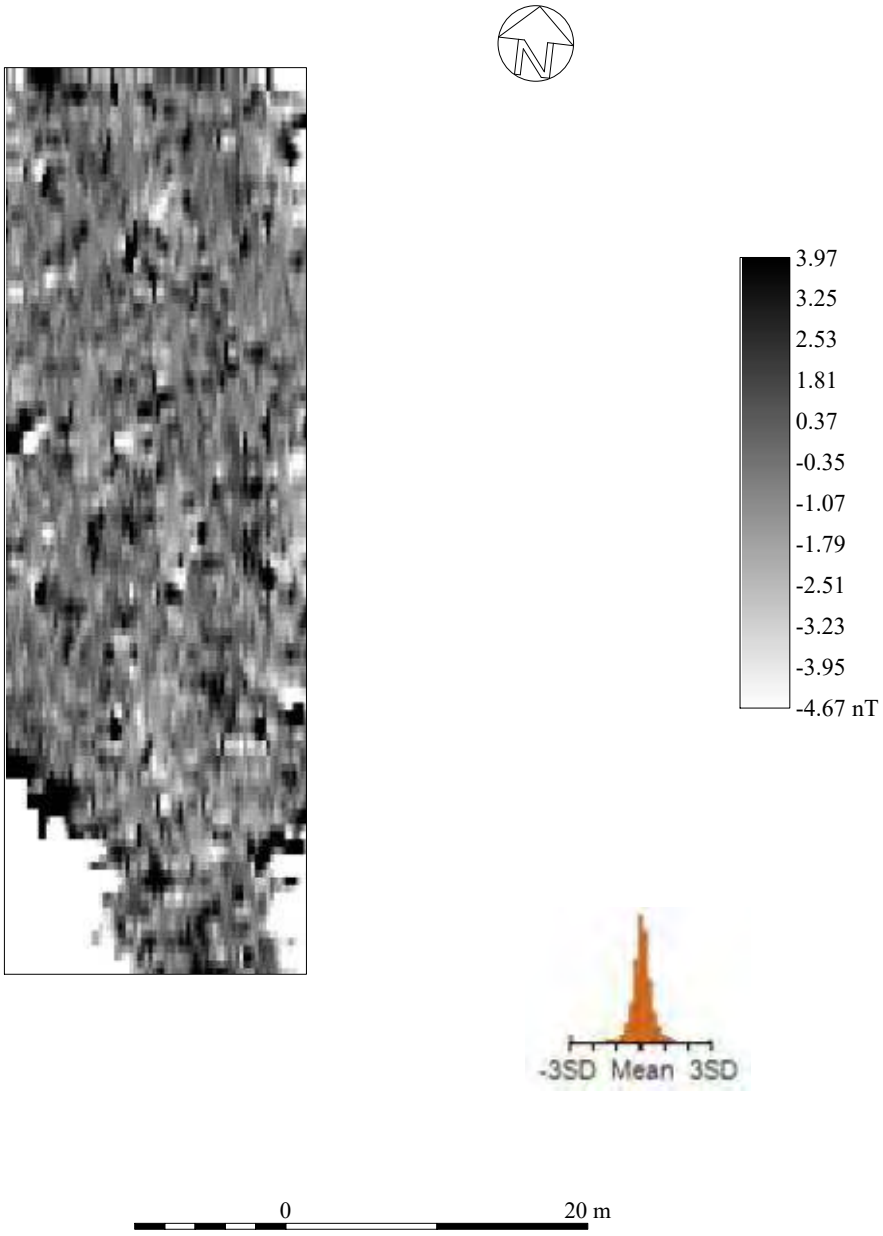



Figure 6: Area 2, Grey Scale Plot
Scale 1:500

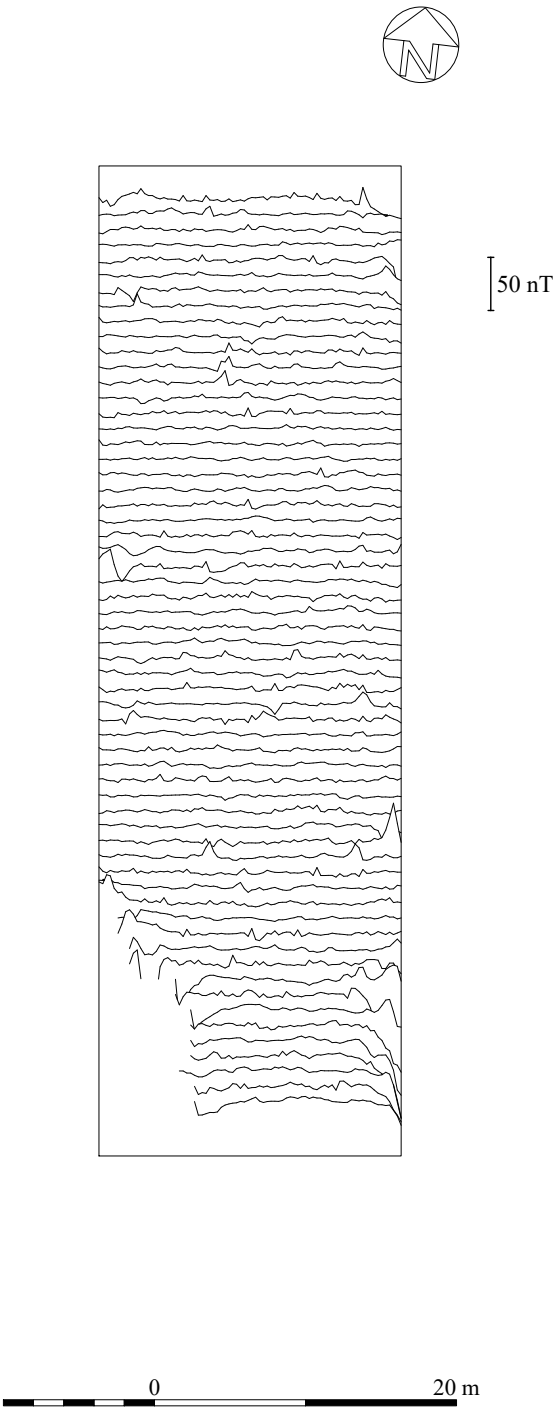



Figure 7: Area 2, X-Y Plot
Scale 1:500

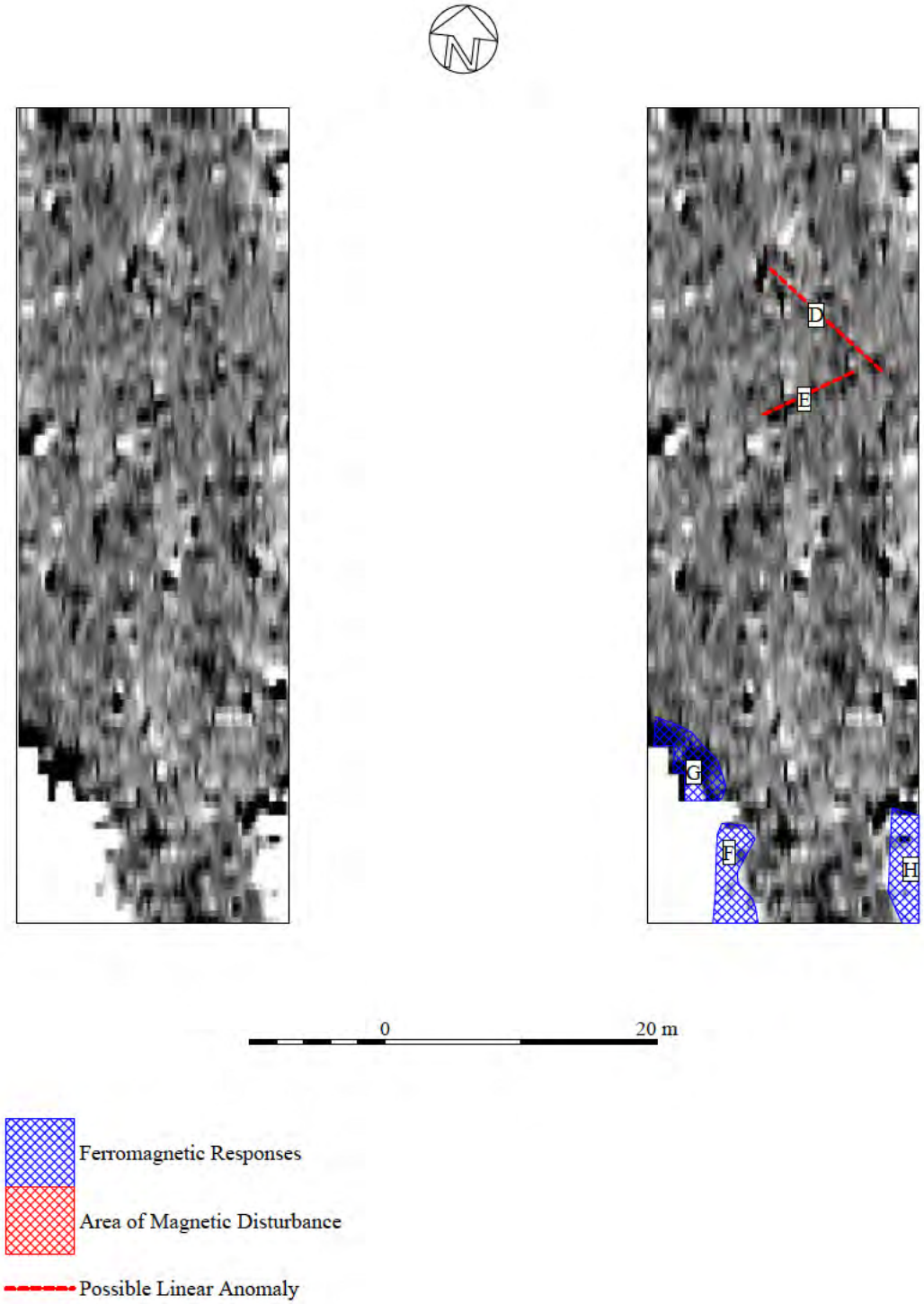



Figure 8: Area 2: Interpretation
Scale 1:500

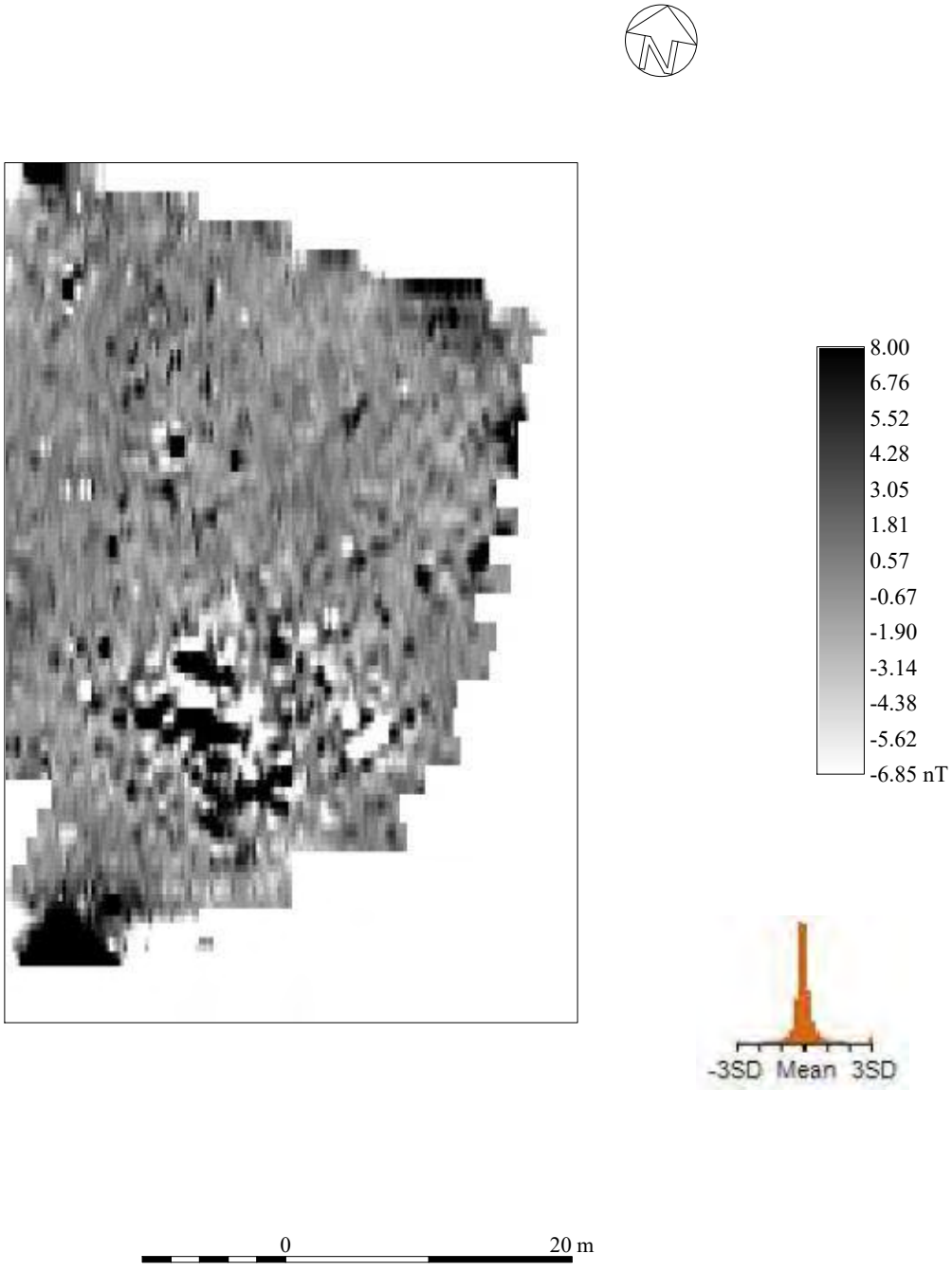



Figure 9: Area 3, Grey Scale Plot
Scale 1:500

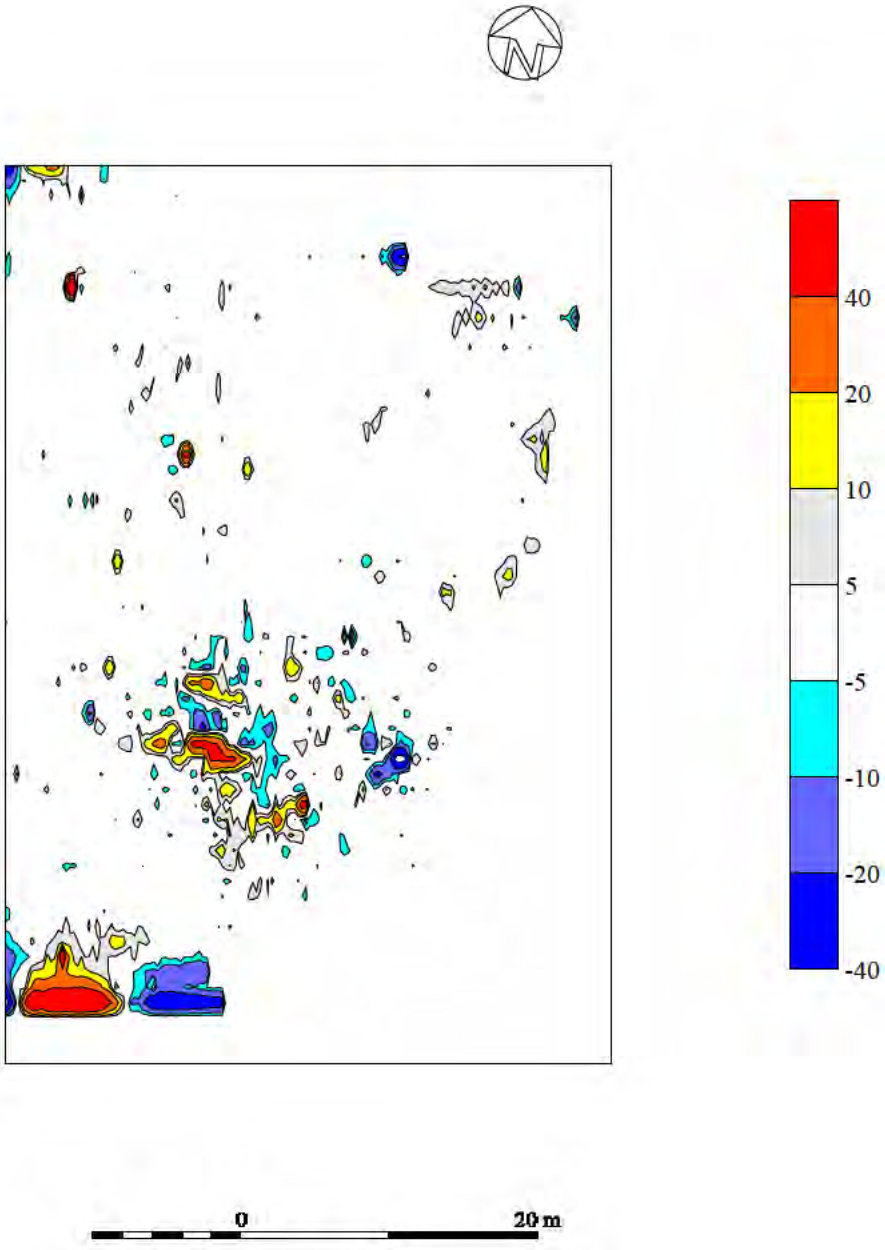
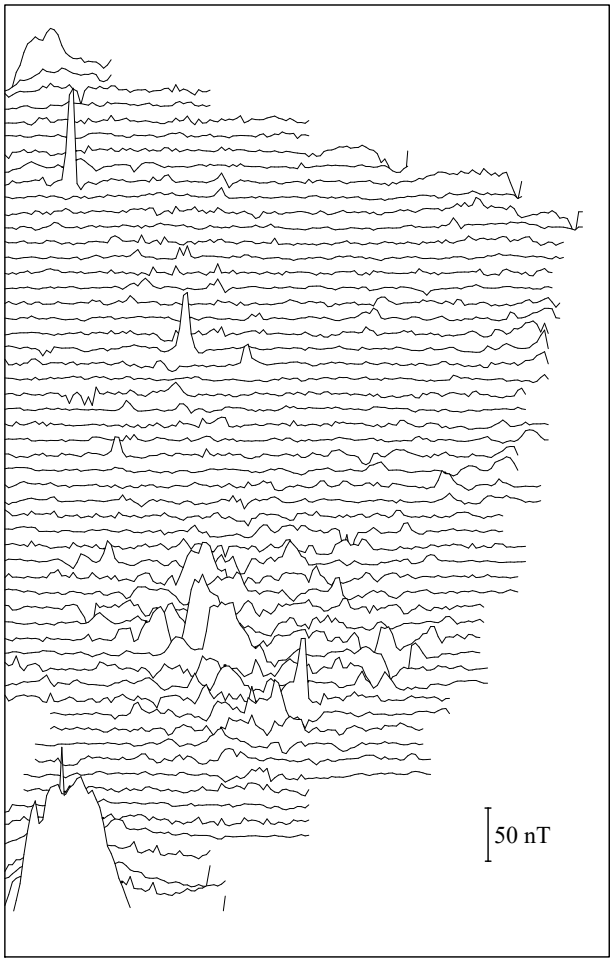



Figure 10: Area 3, Colour Contour Plot
Scale 1:500




0 20 m

Figure 11: Area 3, X-Y Plot
Scale 1:500

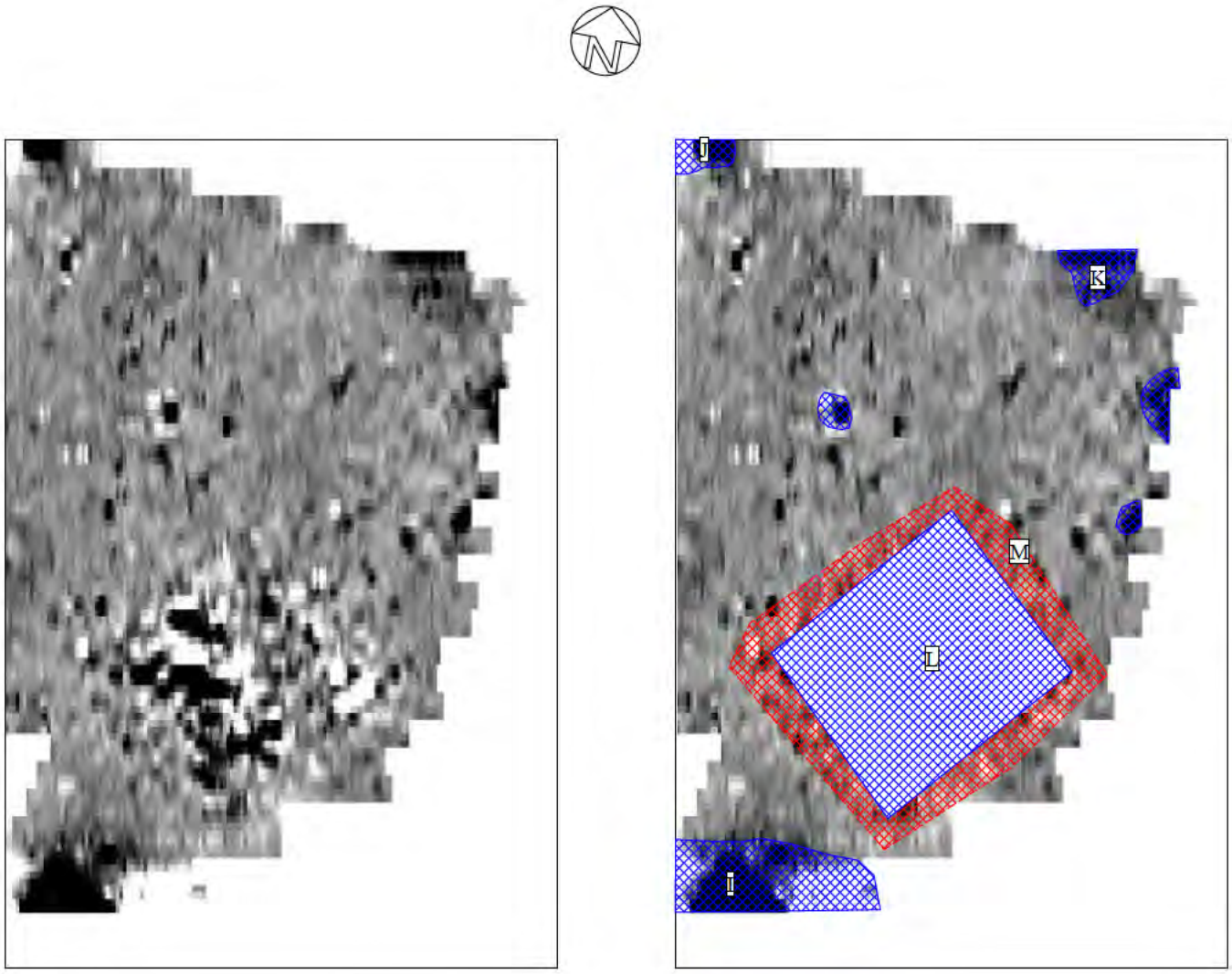



Figure 12: Area 3, Interpretation
Scale 1:500


Figure 13: Location of the Magnetic Susceptibility Samples
Scale 1:500


Figure 14: Magnetic Susceptibility Results
Scale 1:500

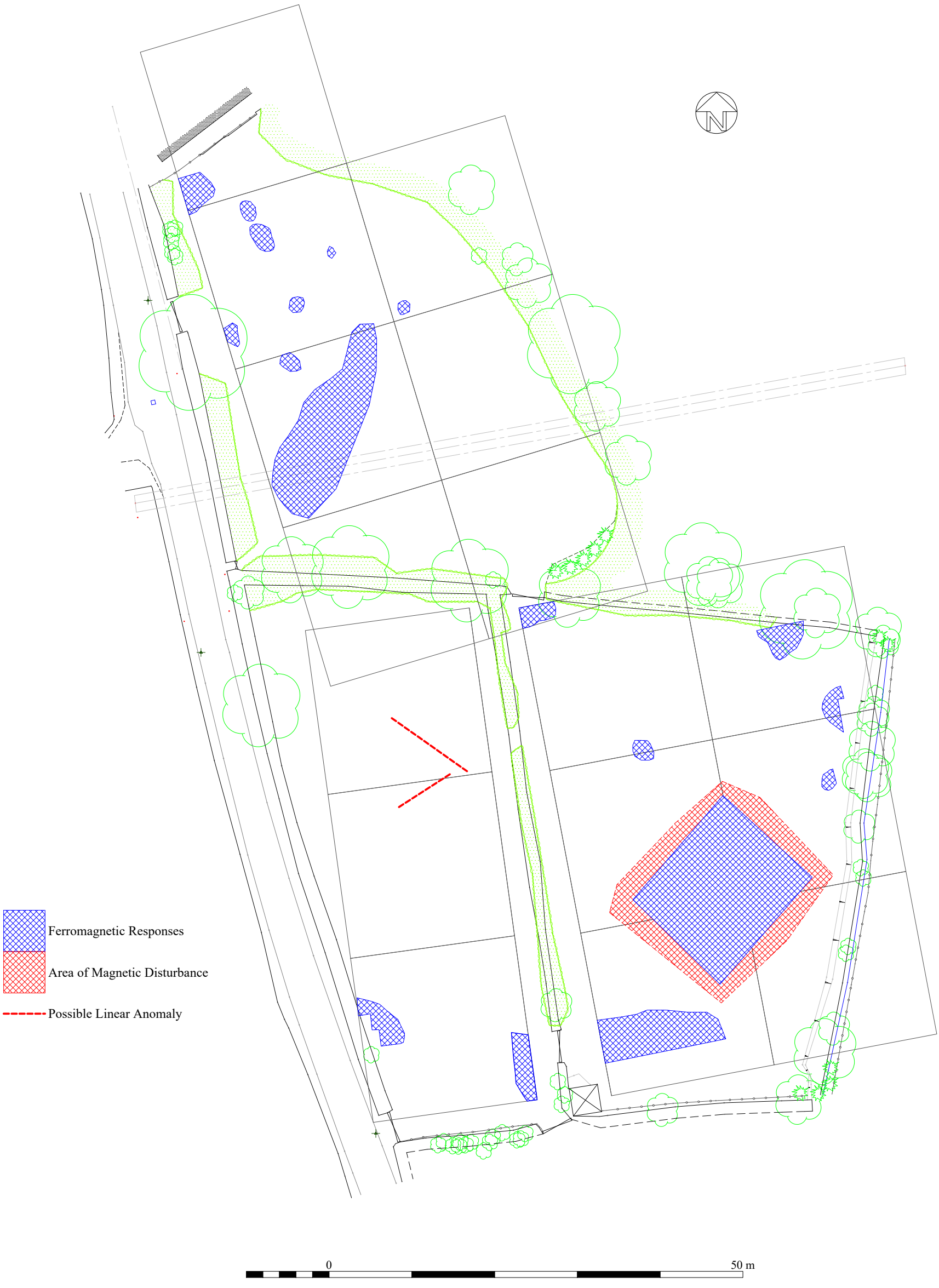



Figure 15: Summary
Scale 1:500

## 7.0 Conclusion

The proposed development site is within an area of archaeological potential. There is relatively little archaeological activity recorded in the vicinity of the site, but the rural location and previously undeveloped nature of the site would make it a potential location for stray finds or isolated features/feature groups of prehistoric, early medieval or medieval date.

Gradiometer survey identified a limited number of magnetic anomalies, largely ferromagnetic responses thought to be from modern disturbance. One anomaly was distinctly rectilinear in plan and measured approximately 16.5m x 14.5m and is believed to be of possible archaeological origin. It was unclear as to the precise nature of this anomaly but it possible it represents the remains of a building – although there are none shown in this area on historic mapping and does not align with the field boundaries. An alternative possibility is that this may be a burnt mound – a hypothesis supported by the proximity of the anomaly to a stream.

## 8.0 Bibliography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The Chartered Institute for Archaeologists. 2019 (Revised 2021). ***Regulations for Professional Conduct.***

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The Chartered Institute for Archaeologists. 2023. ***Universal Guidance for Archaeological Field Evaluation.***

**Gwynedd Archives, Caernarfon**
1841 Tithe Map
1889, 1900, 1914 Edition Ordnance Survey Maps

**Conwy Archives**
CSC14/116 1921 Sales Catalogue

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https://archwilio.org.uk/her/chi3/report/page.php?watprn=GAT15846&dbname=gat&tbname=core&sessid=CHI3ufn0lk8&queryid=Q621986001727261100

https://geologyviewer.bgs.ac.uk/

# Appendix A. Specification for Archaeological Works

# Specification for Archaeological Works (Desk Based Assessment & Geophysical Survey) at

# Land off Ffordd Glanffynnon, Llanrug

**NGR SH 53649 63021 (Central Point)**

**Report Number CR249-2024**

CR ARCHAEOLOGY
Compiled by C. Rees and M. Jones
On Behalf of Adra (Tai) Cyfyngedig

**Specification for Archaeological Works at Land off Ffordd Glanffynnon, Llanrug**

| | |
|---|---|
| **Planning Application Number:** | Pre-Application (Reference 2023.128_02) |
| **National Grid Reference:** | SH 53649 63021 (Central Point) |
| **Client:** | Adra (Tai) Cyfyngedig |
| **Report Author:** | Catherine Rees and Matthew Jones |
| **Report Number:** | CR249-2024 |
| **Date:** | 25/09/2024 |

**Contents**

## 1.0 Introduction

CR Archaeology have been instructed by Adra (Tai) Cyfyngedig to conduct an Archaeological Desk Based Assessment and Geophysical Survey at the proposed site of a new residential development (Appendix A).

The site is located on land adjacent to Ffordd Glanffynnon, Llanrug on the southern outskirts of the village (Figure 1). The proposed development area is currently in agricultural use.

The village of Llanrug is a settlement associated with the slate industry and is described as a "*nineteenth century village superimposed on an earlier, possibly eighteenth century, pattern of enclosure on the river meadows by the Afon Rhyddallt*" (Gwynedd HER PRN 15846).

This document has been prepared to supply the client and statutory bodies including the Local Planning Authority Archaeologist with information as to the archaeological potential, impact and constraints on the aforementioned scheme.

It is intended that the results of this work will inform decisions as to the nature of any additional heritage considerations/consultations which the scheme must be afforded and archaeological mitigation strategies or evaluation methodologies which may be required.

This Desk Based Assessment and Geophysical Survey examines the historic context and archaeological potential of the proposed development area.

## 2.0 Project Aims & Objectives

This phase of works for the development site aims to undertake a desk-based assessment, a walkover survey, and a geophysical (gradiometer) survey. It aims to examine the potential archaeological resource surviving on the site, and to provide information which will be utilised to determine an appropriate methodology for any further archaeological mitigation or evaluation methodologies which may be required.

The first aim of this scheme of works is to undertake desk based historical research exploring the history/archaeology of the site. This information will include a map progression and archival research in order to compile a coherent narrative history of the site and its environs.

The Gwynedd Historic Environment Record (HER), Gwynedd and Bangor University Archives, and relevant publications will be consulted to compile a record of known archaeological sites in the vicinity. The data gathered during this phase of works will also be utilised in the interpretation of the gradiometer results.

The second aim of this archaeological investigation is to undertake a walkover and geophysical survey of the site in order to identify and locate buried features.

It is intended that this document be utilised to inform further archaeological planning decisions and conditions at the site.

The objectives of this programme of works are:

- To locate and describe, by means of desktop analysis, a walkover survey, geophysical prospecting and subsequent evaluation trenching, archaeological features which may be present within the development area.

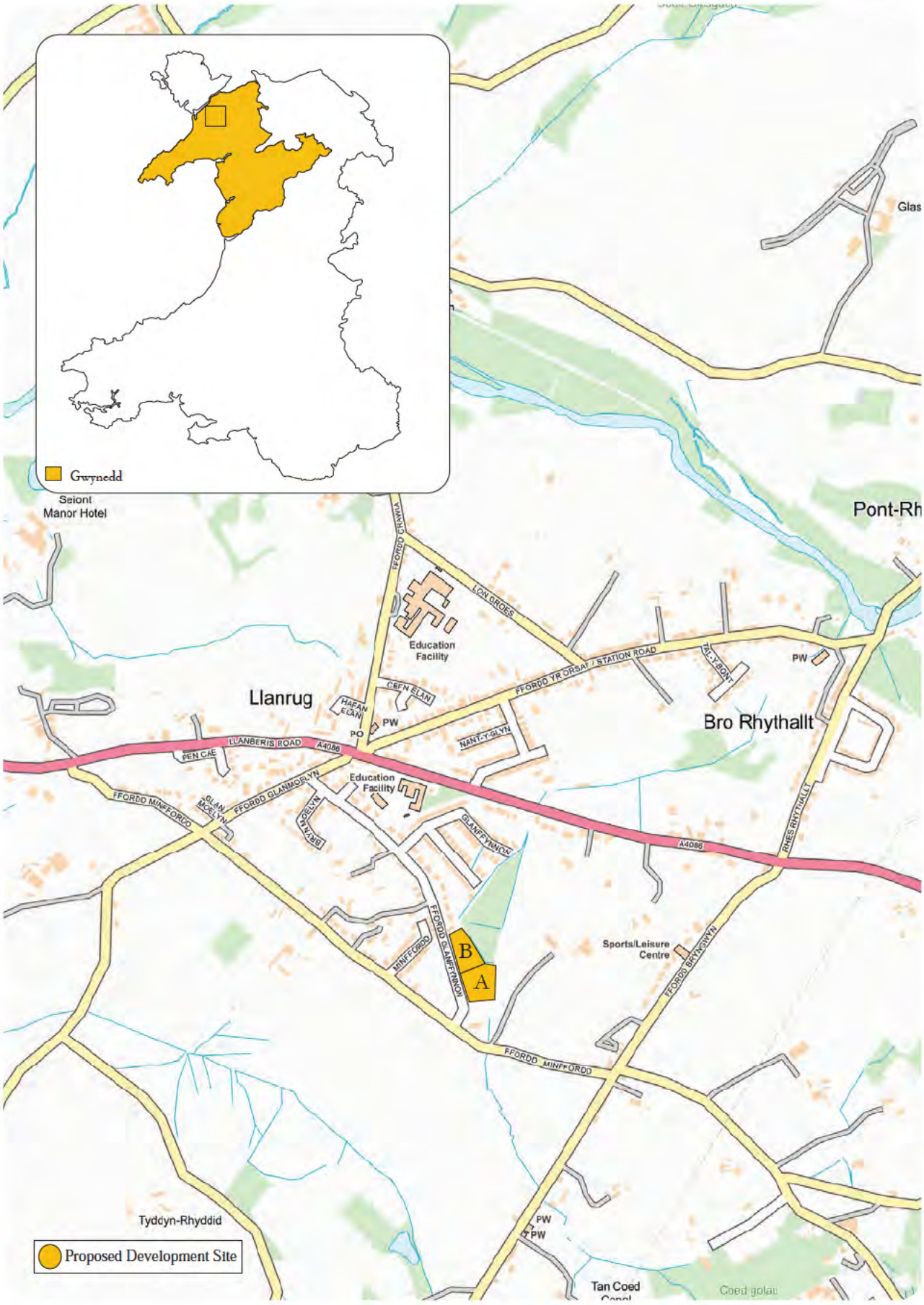


*Figure 1. Site Location Map*
*(Source: OS Open Data Mapping Contains Ordnance Survey data © Crown copyright and database right 2018)*

- To make full and effective use of existing information to establish the archaeological significance of the site.
- To help inform future decision making, design solutions, further evaluation & mitigation strategies.

## 3.0 Brief Historical Background

The following section is, through necessity, very brief and is intended to merely place the site in context. A more detailed history of the site will form a key element in the proposed works.

The village of Llanrug is a settlement associated with the slate industry and is described as a "nineteenth century village superimposed on an earlier, possibly eighteenth century, pattern of enclosure on the river meadows by the Afon Rhyddallt" (Gwynedd HER PRN 15846).

There is little known of the archaeological resource surviving in the immediate vicinity of the site.

### 3.1 Topography

The site is located on Ffordd Glanffynnon, Llanrug on the southern outskirts of the village. The proposed development area is currently in agricultural use.

### 3.2 Geology

The bedrock geology at the site is recorded as "*Fachwen Formation - Siltstone and limestone, interbedded. Sedimentary bedrock formed between 635 and 508 million years ago during the Ediacaran and Cambrian periods*" (https://geologyviewer.bgs.ac.uk/).

The site superficial geology is recorded as "*Glaciofluvial Deposits, Devensian - Sand and gravel. Sedimentary superficial deposit formed between 116 and 11.8 thousand years ago during the Quaternary period.*" (https://geologyviewer.bgs.ac.uk/).

## 4.0 Scheme of Works - Methodology

It is proposed that the archaeological works be conducted in two sections. Each is detailed separately below.

### 4.1 Desk Based Research

A complete and coherent history of the site will be compiled utilising material sourced from the Gwynedd Historic Environment Record (HER), the Royal Commission on the Ancient and Historical Monuments Wales (RCAHMW) database, Gwynedd and Bangor University Archives, and relevant publications. This will allow as comprehensive a history as possible to be compiled. A map progression of the area will be undertaken. Where appropriate the archive information will be supplemented with information from local libraries and specialist interest websites & journals.

In order to identify the character of archaeological remains in the vicinity of the site a search of the Gwynedd HER will be conducted examining an area within a 500m radius of the proposed works (the grid reference for the search is taken as the centre point of the development area). This will be expanded to 1000m to examine general trends, but this data will not be discussed in detail. The RCAHMW database and aerial imagery of the site will be examined. The information collected will be discussed within the main report text.

The works will be carried out accordance with the CIfA Standards and Guidance for desk-based assessment (updated 2020).

This material will form the historical background for a full archaeological report and will be utilised to aid the interpretation of the results of the geophysical survey.

**4.2 Geophysical Survey**
Prior to the commencement of works a brief written record of the site will be compiled. This will include a note on any features/elements which may have an impact on the survey results - for example weather, geological features, fencing & overhead cables.

The survey will be carried out in accordance with English Heritage's guidance "*Geophysical Survey in Archaeological Field Evaluation*" (2008) and the CIfA "*Standard and Guidance for Archaeological Geophysical Survey*" (2014, updated 2020) and "*Universal Guidance for Archaeological Field Evaluation*" (2023).

A survey grid will be established over the site, orientated to provide a best possible fit to the area to be surveyed and to minimise the effects of the slight slope of the ground level on the site. The survey areas will be gridded with a 20 x 20 m or 30 x 30 m grid. These squares will be marked by plastic pegs and the grid will be tied to local features. Readings will be taken at 0.25 m intervals along transects 1.0 m apart with a zig-zag pattern being walked. The data will be downloaded on to a laptop computer in the field.

If possible, a limited number of small soil samples will be taken for magnetic susceptibility analysis as an aid to interpret the results of the Fluxgate gradiometer survey.

**4.2.1 Equipment**
The survey will be undertaken using a Geoscan FM 256 Fluxgate Gradiometer.

Sensitivity: 0.1nT
Sample Interval: 0.25m
Traverse Width: 1m
Traverse Method: Zig-Zag
Grid Square Size: 30m x 30m or 20x20m where possible, downsized to 20x10m where necessary.

It must however be noted that these settings may have to be adjusted dependant on ground conditions, but all changes will be recorded. A proposed grid layout is shown in figure 2.

Geoplot v. 3.00v will be used to download and manipulate the geophysical data. Minimal processing will be applied to all images to ensure no false results are created by excessive image manipulation. Data will be downloaded to a portable computer during each rest period for the course of the day, to ensure data integrity and check ongoing results.

Grey scale plots will be produced using Geoplot v. 3.00v. X - Y plots will be produced using Golden software "Surfer" v. 10

A basic photographic record will be compiled prior to the commencement of the survey which will detail any above ground features and show the general topography of the site. Further photographs will be taken to illustrate the setting of the site. It will be undertaken using a 20 mega-pixel Sony Alpha digital camera with a variety of standard and other lenses. Images will be captured in RAW format for later processing into high resolution JPG and TIF files.


*Figure 2. Proposed Geophysical Grid Arrangement*

**4.3 Timetable for Proposed Works**
It is envisaged that the geophysical survey will be undertaken in October 2024 with an estimated time frame of 2-3 days. Further time has been allotted for archive research, report compilation and site archiving.

**4.4 Staffing**
The project will be managed by Catherine Rees (MCIfA, BA (Archaeology), MA (Archaeology) Postgraduate Diploma (Historic Environment Conservation) & Matthew Jones (BA (Archaeology), MA (Archaeology). The geophysical survey will be conducted by Dr Ian Brooks and Matthew Jones.

All staff will have a skill set equivalent to the CIfA ACIfA/MIFA level. C.Vs for all staff employed on the project can be provided on request. All projects are carried out in accordance with CIfA *Standard and Guidance* documents.

**4.5 Monitoring**
The project will be subject to monitoring by Heneb (Planning). A projected time-scale and copy of the risk assessment can be provided on request to the monitoring body prior to the commencement of works.

**4.6 Health and Safety**
A risk assessment will be conducted prior to the commencement of works and site staff will be familiarised with its contents. A first aid kit will be located in the site vehicle.

All staff will be issued with appropriate Personal Protective Equipment (PPE) for the site work. Initially this is anticipated to consist of:

- Hi-visibility vests (EN471)
- Mobile telephone (to be kept in site vehicle)
- Suitable footwear & waterproofs.

**4.7 The Report**
The report will clearly and accurately incorporate information gained from the programme of archaeological works. It will present the documentary evidence gathered in such a way as to create a clear and coherent record. This will include illustrations of any cartographic/pictorial sources. The report will contain a site plan showing the locations of any photographs taken.
The desk-based assessment will consider the following:

- the nature, extent and degree of survival of archaeological sites, structures, deposits and landscapes within the study area
- the significance of any remains in their context both regionally and nationally
- the history of the site
- the potential impact of any proposed development on the setting of known sites of archaeological/historic importance
- the potential for further work with appropriate recommendations

In accordance with English Heritage guidelines the geophysical survey results element will include:

- a survey location plan demonstrating relationships to other mapped features (minimum scale 1:2500);

- an image of minimally processed survey data (minimum scale 1:1000);
- where appropriate a trace (or X–Y) plot of raw magnetic data
- a greyscale plot, or dot density plot (minimum scale 1:1000);
- one or more interpretative plans/diagrams (minimum scale 1:1000).

It is intended that this report will inform decisions as to the necessity and/or nature of any further archaeological mitigation strategies which may be required.

A copy of the report in Adobe PDF format will be sent to the appropriate monitoring archaeologist for approval before formal submission. A PDF digital copy of the report will be submitted to Heneb as part of the formal submission. A digital Adobe PDF version and a bound paper copy of the final report and will be lodged with the Gwynedd Historic Environment Record within six months of completion of the project.

### 4.7.1 Copyright

CR Archaeology and sub-contractors shall retain full copyright of any commissioned reports, tender documents or other project documents, under the Copyright, Designs and Patents Act 1988 with all rights reserved; excepting that it hereby provides a licence to the client and the local authority for the use of the report by the client and the local authority in all matters directly relating to the project as described in the Project.

## 8.0 Bibliography


English Heritage. 2006. ***Management of Research Projects in the Historic Environment (MORPHE)***

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**Websites – all sites were visited 25/09/2024**

https://archwilio.org.uk/her/chi3/report/page.php?watprn=GAT15846&dbname=gat&tbname=core&sessid=CHI3ufn0lk8&queryid=Q621986001727261100

https://geologyviewer.bgs.ac.uk/

# Appendix A. Proposed Development Plans

| PRINTED: | | 15/03/2024 15:08:05 | | |
|---|---|---|---|---|
| REV: | DESCRIPTION: | DATE: | BY: | CHK: |
| P1 | FIRST ISSUE | 15/03/2024 | ME | DP |


**OPTION 4**

HOUSE TYPES

| TYPE | | AMOUNT |
|---|---|---|
| 6P4B WCB | 6P4B WC BUNGALOW | 1 |
| 3P2B BUNG | 3P2B BUNGALOW | 4 |
| 4P2B | 4P2B HOUSE | 7 |
| 5P3B | 5P3B HOUSE | 7 |

**TOTAL 19**

POS PROVISION BASED ON PRE PLANNING APPLICATION COMMENTS (FIT BENCHMARK) : 24000m² PER 1000 POPULATION

24m² (AREA PP) x 81 (SITE POPULATION ) = 1944m²

REQUIREMENT: 1944m²
POS ACHIEVED: 1316m²

N

0 5 10 15 20 25 m

1:500 @ A2

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PROJECT:
FFORDD GLANFFYNNON, LLANRUG

CLIENT:
ATTICUS LAND AND DEVELOPMENT

DRAWING TITLE:
FEASIBILITY OPTION 4

| DRAWING STATUS: | STATUS: |
|---|---|
| FOR COMMENTS | S3 |
| DRAWING No: | PROJECT No: |
| FGL-SAL-A1-ZZ-DR-A-0SK04 | P1212 |
| SCALE: | REVISION: |
| 1 : 500@A2 | P1 |


## Legend

### Symbols

- Bollard
- Direction of Watercourse
- Electricity Pole
- Fire Hydrant
- Gas Tap
- Gate
- Gully
- Lamp Post
- Manhole/Inspection Chamber
- Manhole/Inspection Chamber
- Manhole/Inspection Chamber
- Osbm
- Rain Water Gully
- Road Sign
- Shrubs
- Slope
- Stop Tap
- Stop Valve
- Survey Station
- Telegraph Pole
- Tree (Spread to scale)
- Tree Stump
- Utilities Marker Post

### Abbreviations

| | |
|---|---|
| AV | Air Valve |
| BED | Flower Bed |
| BH | Bore Hole |
| BOL | Bollard |
| BT | British Telecom Inspection Chamber |
| BT | Telegraph Pole |
| BS | Bus Stop |
| CCTV | Closed Circuit Television Furniture |
| CEB | Control Electricity Box (Above ground) |
| DK | Drop Kerb |
| ER | Earth Rod |
| EP | Electricity Pole |
| FH | Fire Hydrant |
| GU | Gully |
| IC | Inspection Chamber |
| LP | Lamp Post |
| LB | Letter Box |
| MP | Utilities Marker Post |
| MH | Manhole |
| P | Post |
| RS | Road Sign |
| RE | Rodding Eye |
| RWG | Rain Water Gully |
| SOP | Setting Out Point |
| ST | Stop Tap |
| SV | Stop Valve |
| TCB | Telephone Call Box |
| TL | Traffic Light |
| WM | Water Meter |

### Boundary Abbreviations

| | |
|---|---|
| B/W | Barbed Wire Fence |
| C/B | Close Boarded Fence |
| Cr/Br | Crash Barrier |
| C/L | Chain Link Fence |
| C/P | Chestnut Paling |
| C/I | Corrugated Iron Fence |
| I/R | Iron Railing |
| L/L | Larchlap Fence Panel |
| P/W | Post & Wire Fence |
| P/C | Post & Chain |
| RTW | Retaining Wall |
| S/PAL | Steel Palisade Fence |
| S/P | Stock Proof Fence |
| W/M | Wire Mesh Fence |

Title:

TOPOGRAPHIC SURVEY
LAND OFF FFORDD GLANFYNNON
LLANRUG

Client:

Notes:
1. Grid - tied into OS grid using OSGB 36
2. Datum - tied into OS datum using OSGB 36
3. Contour vertical interval = 1m
4. Survey orientated to grid north

SCALE: 1:200@A0 DATE: 05/07/24 CHECKED: SR DWG NO. 24091/01


Survey data and drawings produced by,

CURVASURE
PROFESSIONAL CONSTRUCTION

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## Appendix B. Data Management Plan

**Data Management Plan**

**Project Outline**

| | |
|---|---|
| **Project Manager** | Catherine Rees |
| **Project Number** | CR249-2024 |
| **Project Name** | Ffordd_Glanffynnon_Llanrug |
| **Author(s)** | C. Rees |
| **Origination Date:** | 23-09-2024 |
| **Reviser(s)** | C.Rees |
| **Date of last revision** | 26/10/2024 |
| **Project stages covered** | Desk based assessment<br>Walk over survey<br>Geophysical survey |
| **Version** | 1.0 |
| **Status** | Complete |
| **Summary of Changes** | |
| **File Name/Location** | H: CR Archaeology 2024-2025 Projects: CR249-2024_ Ffordd_Glanffynnon_Llanrug |
| **Related Policies** | - |

**Data Collection/Creation**

| | |
|---|---|
| **Data to be Collected/Created** | The CR Archaeology standard pro forma recording system used on site. Images will be created according to standards set out in ADAPt Guidance. All file formats created will meet the standards set out in ADAPt.<br><br>The documentary archive will consist of: Text: Various Word Documents; including Project Design, Assessment Reports, Site Archive Completion Report.<br><br>Images: Hard copy drawings, digital images - site photography (JPEG & TIFF), scanned drawings |
| **How Data will be Collected/Created** | The data will be created according to the CR Archaeology Recording Manual, and ADAPt |
| **Relations** | References to the original material have been supplied. |

**Documentation and Metadata**

| | |
|---|---|
| **Metadata** | Metadata will be created to the standard set out in ADAPt |
| **Documentation** | Describe the types of documentation that will accompany the data to help secondary users to understand and reuse it. |

**Ethical and Legal Compliance**

| | |
|---|---|
| **Data Security Issues** | No data security or sensitive data. |
| **Intellectual Property Rights** | The data and reports created by any external specialists are CR Archaeology Copyright; this will be managed through their contracts. |

**Data Storage**

| | |
|---|---|
| **Storage and Backup** | Data will be stored on the CR Archaeology Network and during excavation will be managed in line with Project Procedures for backing up data and transfer to network. |
| **Access and Security** | Data will be made available to the project team through the CR Archaeology network. There are no security issues. |

**Selection and Preservation**

| | |
|---|---|
| **Preservation Plan** | A copy of the digital archive will be sent to the RCAHMW.<br><br>In the event of a negative result or no artefactual material being recovered the documentary and digital archives will be deposited with the RCAHMW.<br><br>Copies of the project report and photographs will be deposited with the appropriate HER (GAT). |

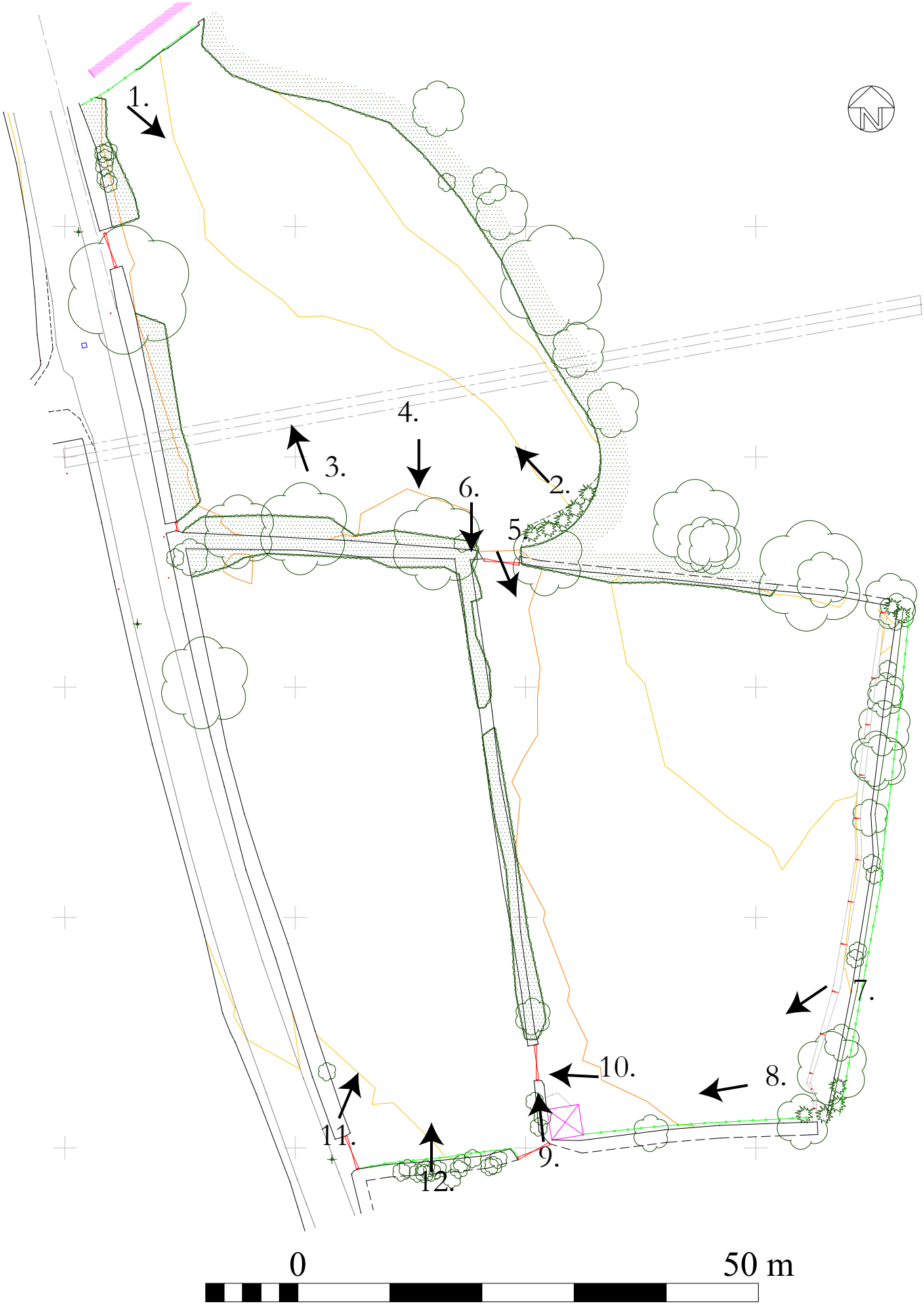
**Data Sharing**

| | |
|---|---|
| **Data Sharing Plan** | The data generated from this project will be made publicly available through the digital repositories. Awareness of the work will be raised through publication, and documentation with the HER. |
| **Data Sharing Restrictions** | There are no restrictions on the use of this data after project completion. |

**Responsibilities and Resources**

| | |
|---|---|
| **Responsibilities** | The Project Manager is responsible for ensuring the data management plan is followed. |
| **Resources** | Resources required to deliver this plan are covered by standard CR Archaeology resources and the project design. The costs of |

| | |
|---|---|
| | deposition of the archive are covered by the client. |




*Appendix C. Location and Direction of Photographic Plates*