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

Caer Felin, Pencarnisiog, Ynys Môn

NGR SH 35438 73870

Report Number CR201-2020

CR ARCHAEOLOGY

Compiled by C. Rees and M. Jones

On Behalf of Mr. A. Kelly

Summary

CR Archaeology were commissioned by the owner to undertake a desk based assessment and geophysical survey on land at Caer Felin, Pencarnisiog. The work was undertaken in October 2020.

The Desk Based Assessment identified a number of known Prehistoric features within the vicinity of the site.

The geophysical survey suggested at least three phases of activity were represented within the survey. The probable rectilinear field system which can be demonstrated to predate the fields recorded in the 1844 Tithe Map of Llanfaelog which shows a field pattern the same as the current pattern. Probably post-dating this field system (but predating the Tithe Map) is the possible lane.

A series of circular anomalies are probably prehistoric in origin, as are the associated areas of magnetic disturbance which appear to possibly be a series of circular buildings and their associated enclosures. Also, within this possible phase of activity is the high value, dipolar anomaly which may be an in situ high temperature feature such as a hearth, oven or furnace.

The proposed development site is considered to be of high archaeological potential.

Crynodeb

Dirprwyodd Archeoleg CR gan y perchennog i ymgymryd asesiad wrth ddesg ac arolwg geoffisegol ar dir yn Caer Felin, Pencarnisiog. Roedd y gwaith ei ymgymryd yn Hydref 2020.

Dynodwyd yr Asesiad Wrth Ddesg nifer o nodweddion hysbys cyn-hynaseddol tu fewn cyffiniau'r safle.

Wnaeth yr arolwg geoffiseg awgrymu fod oeliaf tri chofnod o weithgaredd ei chynrychioli tu fewn i'r arolwg. Mae'r gyfundrefn cae petrunlion posib yn gallu dangos i cyn-dyddio y caeau sydd wedi cofnodi yn y Map Degwm 1844 o Llanfaelog sydd yn dangos patrwm cae yr un a'r patrwm presennol. Posibilrwydd o ôl-ddyddio'r gyfundrefn cae (ond cyn-dyddio'r Fap Degwm) yw'r llwybr posib.

Mae cyfres o anomaleddau crwn yn bosib fod yn cyn-hynaseddol yn wreiddiol, fel yr ardaloedd cysylltiedig o aflonyddiad magnetig sydd yn ymddangos i fod cyfres o adeiladau crwn ac amgaeadau cysylltiedig. Yn ogystal, tu mewn i'r cyfnod gweithgareddau posib ydy'r anomaledd deubegynol, gwerth uchel sydd efallai nodwedd tymheredd uchel fel aelwyd, popty neu ffwrnais.

Mae'r safle datblygiad awgrymedig yn ystyried i fod o botensial archeolegol uchel.

Results of Archaeological Works at Caer Felin, Pencarnisiog, Ynys Môn

Planning Application Number:	FPL/2020/168
National Grid Reference:	SH 35438 73870
Client:	Mr. A. Kelly
Report Author:	Catherine Rees and Matthew Jones
Report Number:	CR201-2020
Date:	01/11/2020

Contents

1.0 Introduction

CR Archaeology were instructed by Mr. A. Kelly to conduct an Archaeological Desk Based Assessment and Geophysical Survey at the proposed site of a touring caravan and glamping scheme (See Appendix A).

The site is located on land adjacent to Pencarnisiog Farm, Llanfaelog, Ynys Môn (Figure 1). The proposed development area is currently in agricultural use.

It is noted that an "*early map regression shows the site as undeveloped throughout recent history, with the same irregular field boundary present as early as the Tithe map (1838-50). Along with Cae'r Felin itself (a medieval mill directly south-east of the site), an additional post medieval mill is located to the north-west – suggesting an industrial landscape in the vicinity of the field*". The letter continues "*investigative works across Anglesey over the last decade have shown that the island has a high potential for unknown archaeological sites, especially in greenfield sites ancillary to settlements. Just 700m to the east is a series of cropmarks suggesting earlier phases of settlement now only remnant below the surface, and less than 1km from the site is a prehistoric burial chamber*" (GAPS Letter Ref: 0929tf01/D3506).

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.

The Desk Based Assessment examined the historic context and archaeological potential of the proposed development area and determined the possible impact of the development on the setting of the local area.

The geophysical survey suggested at least three phases of activity were represented within the survey. The probable rectilinear field system which can be demonstrated to predate the fields recorded in the 1844 Tithe Map of Llanfaelog which shows a field pattern the same as the current pattern. Probably post-dating this field system (but predating the Tithe Map) is the possible lane.

A series of circular anomalies are probably prehistoric in origin, as are the associated areas of magnetic disturbance which appear to possibly be a series of circular buildings and their associated enclosures. Also, within this possible phase of activity is the high value, dipolar anomaly which may be an in situ high temperature feature such as a hearth, oven or furnace

The proposed development site is considered to be of high archaeological potential.

2.0 Project Aims & Objectives

This phase of works for the development site aimed to undertake a desk-based assessment, walkover survey and geophysical (gradiometer) survey. 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 included a map progression. Archival research was not possible to current Covid 19 travel and opening restrictions.

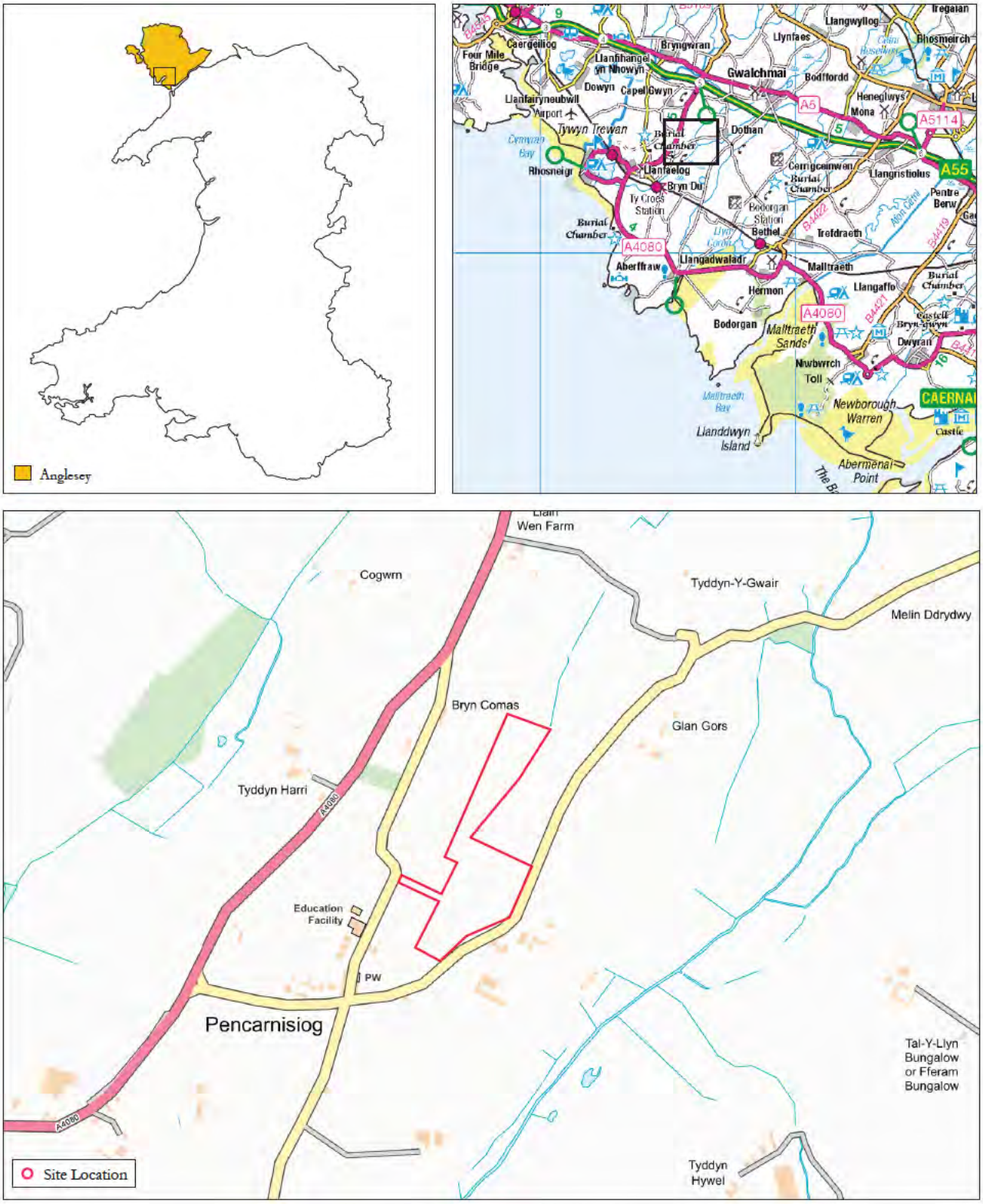


Figure 1. Site Location Map

(Source: OS Open Data Mapping. Contains Ordnance Survey data © Crown copyright and database right [2020])

The Gwynedd Historic Environment Record (HER) was be consulted to compile a record of known archaeological sites in the vicinity. The data gathered during this phase of works was also be utilised in the interpretation of the gradiometer results.

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, all 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 and each is detailed separately below.

3.1 Desk Based Research

A history of the site was compiled utilising material sourced from the Gwynedd Historic Environment Record (HER) and the Royal Commission on the Ancient and Historical Monuments Wales (RCAHMW) database. Due to Covid 19 restrictions it was not possible to visit the Anglesey Archives. A map progression of the area was undertaken using online resources. Please note that due to copyright restrictions it was not possible to reproduce the images in the report. The information included is restricted to descriptions and links to the online material.

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. The RCAHMW database and aerial imagery of the site were examined. The information collected is discussed within the main report text.

The works were carried out accordance with the CIfA Standards and Guidance for historic environment desk-based assessment (CIfA 1994 (Revised 2009 & 2014).

This material forms the historical background for a full archaeological report and will be 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.

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*" (2011 Revised 2014).

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 will be gridded with a 20 x 20 m grid. These squares will be marked by plastic pegs and the grid will be 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 interpret 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 showed the general topography of the site. Further photographs were taken to illustrate the setting of the site. This was undertaken using a 20 mega-pixel Sony Alpha digital camera with a variety of standard and other lenses. Images were 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 24/25th October 2020. 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 & Matthew Jones.

All staff have a skill set equivalent to the CIfA ACIfA/MCIFA 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 was subject to monitoring by Gwynedd Archaeological Planning Services.

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 was 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 Walking Boots & Waterproofs

All staff have passed at least a CITB health and safety test at least operative level and will carry a Construction Related Organisation (CRO) White Card for Archaeological Technician (Code 5363).

Due to the current Covid 19 situation additional safety measures were put in place. Strict social distancing was observed with no car sharing. Alcohol handwash was utilised to ensure that good hygiene was employed. As an open air activity with no close working required it was considered that mitigation measures could be put in place to allow for safe working.

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. 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 includes:

- 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 bound paper copy and PDF digital copy of the report will be submitted to GAPS 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 fieldwork.

3.7.1 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.

4.0 Topographical and Geological Background
4.1 Topography
The application site is located on land adjacent to Pencarnisiog Farm, Llanfaelog, Ynys Môn. The proposed development area is currently in agricultural use.

4.2 Geology
The bedrock geology at the site is recorded as "*Coedana Granite - Granite. Igneous Bedrock formed approximately 541 to 635 million years ago in the Ediacaran Period. Local environment previously dominated by intrusions of silica-rich magma. Setting: intrusions of silica-rich magma. These igneous rocks are magmatic (intrusive) in origin. Rich in silica, they form intruded batholiths, plutons, dykes and sills*" (www.bgs.ac.uk).

The superficial geology at the site is recorded as "*Till, Devensian - Diamicton. Superficial Deposits formed up to 2 million years ago in the Quaternary Period. Local environment previously dominated by ice age conditions. These sedimentary deposits are glacigenic in origin. They are detrital, created by the action of ice and meltwater, they can form a wide range of deposits and geomorphologies associated with glacial and inter-glacial periods during the Quaternary*" (www.bgs.ac.uk).

5.0 Historical Background
5.1 Results of Historic Environment Record Search of Surrounding Area
A search of Historic Environment Record returned 8 entries within a 1000m radius of the central point of the proposed development site. There were 2 entries recorded as of unknown date, but which would most likely be of Prehistoric origin, 0 entries of Roman date, 2 entries of Early Medieval/Medieval date and 4 of Post Medieval date.

There are no Listed Buildings within the 1000m radius of the proposed development, and there is a single Scheduled Ancient Monument.

5.1.1 Prehistoric
At 1000m there were 2 entries recorded as of unknown date, but which would most likely be of Prehistoric origin. PRN 3042 is a circular cropmark near Ty Newydd. It is recorded as a "*circular ditch like feature about 85m diameter visible on RAF Aps at SH 34807412*". It is noted that there is nothing visible on the ground to account for this cropmark.

PRN 71171 is also a cropmark reference, in this instance located to the east of Ty Newydd. In this instance there are nine possible crop marks recorded as identified from aerial photographs.

The Early Medieval inscribed stone PRN 2749 described below could well have prehistoric origins, and a cup mark is noted on the stone. It is also noted that antiquarian excavations identified a curvilinear feature and cist burials. Given the other crop marks noted in the area it would seem plausible that this stone could have formed part of a wider Late Neolithic/Early Bronze Age monument complex within the area and there may have been a barrow on the site.

The site is a Scheduled Ancient Monument AN021.

Immediately outside the 1000m search area is PRN 3030 - Ty Newydd Neolithic chambered tomb. It is recorded as a "*burial chamber comprising a cracked capstone 12 3/4ft by 5 1/4ft, resting on three uprights, one of which is broken. A second and larger chamber forming part of the monument was destroyed. There is no visible evidence of the original mound.*

The chamber was excavated in 1935. A two inch thick deposit of black earth, containing much charcoal, 110 pieces of broken white quartz, 5 flint flakes, and part of a barbed and tanged arrowhead badly burnt, a chip from a polished flint axe and fragments of pottery, almost certainly Beaker, were found. Part of the dry-stone walling of chamber and passage were also found in position and the site of a fire at the entrance of the chamber. Most of the charcoal fragments were of hazel wood".

Early references to the site may indicate the previous existence of a second chamber close by and there are well defined cup marks noted on the remaining portion of the capstone. The site is a Scheduled Ancient Monument AN013.

5.1.2 Roman/Romano-British
There are no Roman/Romano-British sites or artefacts recorded within a 1000m search radius of the proposed development site.

5.1.3 Early Medieval/Medieval
There is a single site of Early Medieval date within the 1000m search radius. PRN 2749 - Bodfeddan Inscribed Stone, Llanfaelog, is described as "*inscribed stone 1500yds NE of Ty Newydd burial chamber. Upright at roadside, 6 1/2ft high x 2 3/4ft x 3ft. On the N side is a two-line inscription in Roman capitals reading downwards: CVNOGVSH/HIC IACIT: (Cunogusi) early 6th century*".

It is also noted that in the centre of the E face is a well-defined cup mark which would be indicative that the inscription was added to a pre-existing cup marked stone and is therefore presumably of possible prehistoric origin.

The site is also known as Capel Bronwen and it appear that there was a circular earthwork and possible cist graves uncovered associated with the stone (Longley & Richards, 2000: 18).

PRN 36102 relates to documentary evidence for the site of a possible former mill - Melin Conysiog. The HER entry notes that "*No mill visible - may be Cae'r Felin shown on the first edition of the 1" OS map. However, no river runs near, so perhaps this was the site of a medieval windmill. There was a windmill close by at Fferam, but that was still standing in 1973, so is unlikely to have been medieval*".

5.1.4 Post Medieval
There are 4 measures of Post Medieval date within the 1000m search area.

Two of these records are related to artefact findspots with PRN 32879 as the findspot for a Post Medieval coin and PRN 81378 as the findspot for an unidentified object – possibly a fitting or clasp of unknown date.

A standing building – PRN 7739 Maelog, Llanfaelog is recorded. The structure is a Non-Conformist Chapel. The site is not a Listed Building.

The final Post Medieval record within the 1000m search radius was Melin Ddrydwy, Bryngwran. This site is recorded as "*Slight remains of a building still stand, but the area has been largely landscaped by the owner, and the leat is no longer visible. As the mill was in use into the 19th century, then medieval remains are unlikely*".

5.1.4.1 Cartographic Sources

Due to the current coronavirus restrictions in place it was not possible for a search of the Anglesey Archives to be made. It was however possible to examine the Tithe and historic Ordnance Survey maps online – although the links rather than images have been included due to copyright restrictions.

The Tithe map which covers this area of Anglesey is dated 1844. The distinctive shape of the current plot is clearly shown on this map. The land is recorded as in the ownership of Meyrick Owen Fuller Esquire and tenanted by Thomas Williams as part of Caer Nant (www.places.library.wales). The historic Ordnance Survey map editions between 1887 and 1949 were examined and no changes between the Tithe map/current field layout are shown.

5.2 Statutory and Non-Statutory Designations – SAM's and Listed Buildings

There are no Listed Buildings within the 1000m radius of the proposed development. There is a single Scheduled Ancient Monument – AN013 (Bodfeddan Inscribed Stone) located within the 1000m search radius, and a second Scheduled Ancient Monument – AN021 (Ty Newydd chambered tomb) located immediately outside the search area.

The proposed works will therefore have no direct physical impact on these heritage assets. There is also no intervisibility between the proposed development site and any of the aforementioned heritage assets.

5.3 Archaeological Works Carried Out in the Vicinity of the Proposed Development

There are no archaeological excavations recorded as having been carried out within the 1000m radius of the proposed development.

6.0 Results of Archaeological Works

6.1 Walk-Over Survey (Plates 1-8)

A walkover survey was conducted on 24th October 2020. The location and direction of photographic plates are shown in appendix B. The site is a curious shape, and it may have been the case that the north-eastern portion of the site had been utilised to provide access to/from the larger southern site area (plates 1 & 2).

The north-eastern site portion was a narrow strip of land which was slightly fluted at the northernmost end, narrowing where it connects with the southern area of the field. In the northmost end of the development area the ground was damp with some marshy points. There is a pond at the end of this strip, and there are two streams which feed into it and which run along the field boundary of the lower portions of this strip.

The main area of proposed development plot slopes gently towards the east (plates 3-5). There is a concrete gate post near its western boundary and roughly inline with this feature is a linear disturbance running directly across to the opposite side of the field (plate 6). The disturbance is characterised by slight undulations in the ground and at by a grassed over 3m by 2m scoop near the gatepost. It is presumed this feature is relatively modern. The site is bounded to the south-east by a lane and a small cluster of housing. The remainder of the site is bordered by grazing lands. The site itself is in use as grazing and is bounded by clawdd walling (plates 7 & 8). This is presumably at least of the date of the Tithe mapping, although conceivably of greater antiquity. Modern fencing has been erected alongside the clawdd.

6.2 Results of Geophysical Survey

Report compiled by Dr Ian Brooks – included in full.

Plate 1. Proposed Development Site Taken Facing North Along the Narrower Land Strip to the North of the Site

Plate 2. Proposed Development Site - Widening of the Land Strip to the North of the Site

Plate 3. Proposed Development Site Taken Facing South Across the Main Field

Plate 4. Proposed Development Site Area of Adjoining Site Portions

Plate 5. Proposed Development Site Taken Facing North-East Across the Main Field

Plate 6. Proposed Development Site Taken Facing West Along Disturbed Area and Gate Post

Plate 7. Example of Field Boundary in Main Field

Plate 8. Example of Field Boundary Along Strip

eas

Engineering Archaeological Services Ltd.

Land at Cae'r Felin, Pencarnisiog, Ty Croes, Ynys Môn

Geophysical Survey

Commissioned by

CR Archaeology

Analysis by

I.P. Brooks

Engineering Archaeological Services Ltd

EAS Client Report 2020/10

CONTENTS

List of Illustrations

NGR

Centred on: SH 35455 73798

Location and Topography (Figures 1 and 2)

The survey area is located approximately 280 m NW of the village centre of Pencarnisiog, Ynys Môn. The eastern side of the survey area is defined by a minor road between Pencarnisiog and Dothan, whilst the other boundaries divide the survey area from other fields. The survey occupies the northern sector of a large, rectilinear field and the attached linear extension which runs to the north-east. There is a low ridge, approximately 6 m high, running SW – NE with its ridge along the northern side of the survey area. At the time of the survey the field was under pasture with relatively short grass.

The survey took place on 25th – 26th October 2020.

Archaeological Background

It is intended to construct a new camp site for 31 touring caravans and 6 camping pods, together with the associated access tracks, landscaping, toilet and shower block and private treatment plant at Cae'r Felin, Pencarnisiog, Ty Croes, Ynys Môn (Planning Application SCR/2020/59). As part of the planning process the Gwynedd Archaeological Planning Service recommended an initial evaluation comprising a geophysical survey and desk-top study.

Aims of Survey

1. To investigate, define and record any potentially archaeological features within the survey areas.

SUMMARY OF RESULTS

An extensive complex of magnetic anomalies has been located within the proposed development area which appears to represent a previous field system together with a series of circular anomalies which probably pre-date the field systems. Marked magnetic disturbance along the eastern boundary of the field can be related to materials stored along this boundary seen on the Google Earth images between 24/3/2017 and 7/8/2018.

Patrwm helaeth o anomaleddau magnetig wedi'u lleoli yn yr ardal ddatblygu arfaethedig. Ymddengys fod hwn yn cynrychioli system o gaeau blaenorol. Cyfres o anghysonderau crwn sydd fwy na thebyg yn hyn na'r systemau caeau. Gall aflonyddwch magnetig amlwg ar hyd ffin ddwyreiniol y cae fod yn gysylltiedig â deunyddiau a gafodd eu storio ar hyd y ffin hon a welir ar ddelweddau Google Earth rhwng 24/3/2017 a 7/8/2018.

Methods

The survey was based on a series of seventy-five, 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 filled colour contour plot of Anomaly G was also produced using Golden Software "Surfer" v. 10.7.972.

The survey area was divided into two areas, for ease of access (Figures 2 and 3). Area 1 comprised the bulk of the development area, whilst Area 2 included the narrow neck of land leading towards the pond, north east of the main survey area.

A limited number of soils samples were taken, within Area 1, to access the Magnetic Susceptibility on the site. These were dried in a warming oven, sieved and processed using a Bartington MS2 Magnetic Susceptibility Meter.

Survey Results:

Area

Area 1: 1.89 Ha.

Area 2: 0.51 Ha

Display

The results are displayed as grey scale images (Figures 3, 4 and 8) and as X-Y trace plots (Figures 5 and 9). The filled colour contour plot of Anomaly G is shown as Figure 7. The interpretation plots are shown as Figure 6 and 10. The location of the Magnetic Susceptibility samples are shown on Figure 11 and the results on Figure 12 and the survey, as a whole, is summarised on Figure 13.

Results:

Fluxgate Gradiometer Survey

Area 1 (Figures 4 – 7)

Area 1 comprised the bulk of the survey area, covering the large, sub-rectangular field immediately east of the minor road between Pencarnisiog and Dothan. The ferromagnetic responses within the survey are shown in blue on Figure 6. Anomalies A and B, area alongside the roadside boundary of the survey area and also correspond to stacked items along the field boundary seen in the Google Earth images between 24/3/2017 and 7/8/2018. Anomaly C, however, is probably the result of the proximity of the fence along the boundary. There are also five, discrete, high value anomalies (Anomalies D, E, F. G and H) which group along the western side of the Area 1. Most of these are probably the result of metal object within the plough-soil, however, Anomaly G has a different magnetic signature. The survey of this anomaly was re-processed as a filled colour contour plot (Figure 7) which suggests it may be the result of an *in situ* burnt feature such as a hearth or oven.

This technique was developed by Crew (1997, 1998) at the prehistoric ironworking site of Crawcwellt, Merioneth, to clarify the location and nature of strong magnetic anomalies, particularly to identify the location of *in situ* burnt features associated with ironworking, such as furnaces, smithing hearths and ore roasting areas.

The raw gradiometer data is imported into Golden Software Inc. "Surfer" v.10.7.972and is used to produce a filled contour plot, with a non-linear scale, so that the high positive and low negative readings are emphasised. The scale is selected according to the maxima and minima of the readings, to show *in situ* features in the best possible manner. The clearest results are generally achieved with a scale which doubles, or halves, at each step. In colour the positive readings are represented in shades of yellow to red and the negative readings in shades of blue. The mid-range positive values are represented as grey tones. Areas of burning such as furnaces or hearths, which are still *in situ*, give north-south oriented dipolar signals because of the relatively strong remanent magnetism of the feature. The key element for the recognition of *in situ* features is the occurrence of a discrete negative signal, which in well-defined features can occur as a halo around the northern side of the positive signal.

The survey area is divided into a series of rectilinear area by a series of linear anomalies (Anomalies I - M) which presumably mark a series of lost field boundaries. Each of these anomalies consist of two parallel anomalies between 3 and 3.5 m apart suggesting significant field boundaries, possibly clawdd wall type boundaries. Possibly cutting this field system is a similar, parallel anomaly feature (Anomaly N), however the two linear anomalies run approximately 4.5 – 5.0 m apart suggesting this may be a lane rather than a field boundary. It runs WNW for 47.5 m before turning to the south to run SW for at least 37 m and probably 52 m where it extends beyond the survey area.

Within the survey area are a series of ten possible circular anomalies varying in diameter between 6 and 25 m (see below)

Anomaly	Approximate Diameter
O	12 m
P	13.5 m
Q	11 m
R	7.5 m
S	13 m
T	10 m
U	19.5 m
V	25 m
W	6 m
X	14.5 m

These circular anomalies appear to fall within three rough size ranges, below 8 m, between 12 and 14.5 m and above 19 m. The smaller and middle range sizes could represent possible circular buildings, whilst the larger anomalies are probably enclosures. It is noticeable that the majority of these circular anomalies fall within areas of variable magnetic background (Anomalies Y and Z) which may reflect the level of activity in these areas.

There are also a series of feint, parallel, linear anomalies which are shown in green on Figure 6. It is assumed these are the result of modern agricultural practices and probably reflect the direction of ploughing within the field.

Area 2 (Figure 8 – 10)

Area 2 consists of a narrow neck of land running SSW – NNE towards a pond, just outside the survey area. At its southern end this area is only 11.75 m wide, whilst it widens to 50.26 m towards its northern end. The restricted space means that it is difficult to define and magnetic anomalies, at least in part because of the effect of metal fences on either side of the survey area. One anomaly, however, (Anomaly AA, Figure 10) was located at the northern end of the survey area. This was a feint, circular anomaly approximately 27 m in diameter, which given its size is likely to be an enclosure.

Magnetic Susceptibility (Figures 11 - 12)

Twenty-five, small, soil samples were taken for Magnetic Susceptibility analysis. It was not possible, however, to obtain a subsoil sample for comparison. Both volume susceptibility (direct reading of the samples) and mass susceptibility (reading compensated for the varying mass of the samples) is given below. The location of the samples is shown on Figure 11 and the results on Figure 12.

Sample	Volume susceptibility χ_v	Mass susceptibility χ_m
Grid 1	104	146.1
Grid 3	110	162.5
Grid 6	132	185.1
Grid 8	193	220.1
Grid 10	126	160.5
Grid 12	162	185.1
Grid 14	147	207.0
Grid 16	127	178.6
Grid 18	179	229.5
Grid 21	179	242.9
Grid 23	185	228.1
Grid 25	178	331.5
Grid 27	145	206.8
Grid 29	169	249.6
Grid 31	183	261.1
Grid 33	214	296.8
Grid 35	170	245.3
Grid 37	156	251.2
Grid 39	175	236.2
Grid 41	125	197.2
Grid 43	157	226.2
Grid 45	133	206.5
Grid 47	132	186.2
Grid 49	195	331.6
Grid 51	129	214.3
Grid 53	166	251.1

The samples, as measured, are generally of moderate to high values suggesting that, the conditions for magnetic survey were suitable.

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). The reading from Cae'r Felin generally follow the density of archaeological anomalies recorded in the Fluxgate Gradiometer survey with higher readings in areas with greater numbers of magnetic anomalies. The exception is Grid 25, on the eastern boundary of Area 1 which has an enhanced reading of 331.5. It is possible that this reading may be related to relatively modern activity close to the boundary, however, this is speculation.

Conclusions (Figure 10)

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.

The is evidence for considerable archaeological activity within the survey area at Cae'r Felin, Pencarnisiog, Ty Croes, Ynys Môn. Whilst it is not possible to determine the stratigraphical relationship between magnetic anomalies, the form and style of the anomalies would suggest at least three phases of activity represented within the survey. The probable rectilinear field system (Anomalies I - M) can be demonstrated to predate the fields recorded in the 1844 Tithe Map of Llanfaelog which shows a field pattern the same as the current pattern (https://places.library.wales/browse/53.235/-4.464/14?page=1&alt=&alt=&leaflet-base-layers_66=on). Probably post-dating this field system (but predating the Tithe Map) is the possible lane (Anomaly N) which appears to disrupt the magnetic signature of Anomaly M which is part of the rectilinear field system.

Probably prehistoric in origins are the series of circular anomalies (Anomalies O – X and AA) and the associated areas of magnetic disturbance (Anomalies Y and Z) which appear to possibly be a series of circular buildings and their associated enclosures. Also, within this possible phase of activity is the high value, dipolar anomaly (Anomaly G) which may be an *in situ* high temperature feature such as a hearth, oven or furnace.

References

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

Crew, P. 1997. Geophysical surveys and furnace location at ironworking sites. in Crew, P. and Crew S. (eds.) *Early ironworking in Europe: archaeology and experiment.* Occasional Paper No. 3, Plas Tan y Bwlch, Maentwrog, 113 – 115.

Crew, P. 1998. Excavations at Crawcwellt, West Merioneth. 1990 – 1998: a late prehistoric upland ironworking settlement. *Archaeology in Wales 39,* 22 – 35.

Acknowledgements

This survey was commissioned by CR Archaeology, based on recommendations made by Tom Fildes of the Gwynedd Archaeological Planning Service. The help of Matt Jones with the fieldwork is gratefully acknowledged

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:

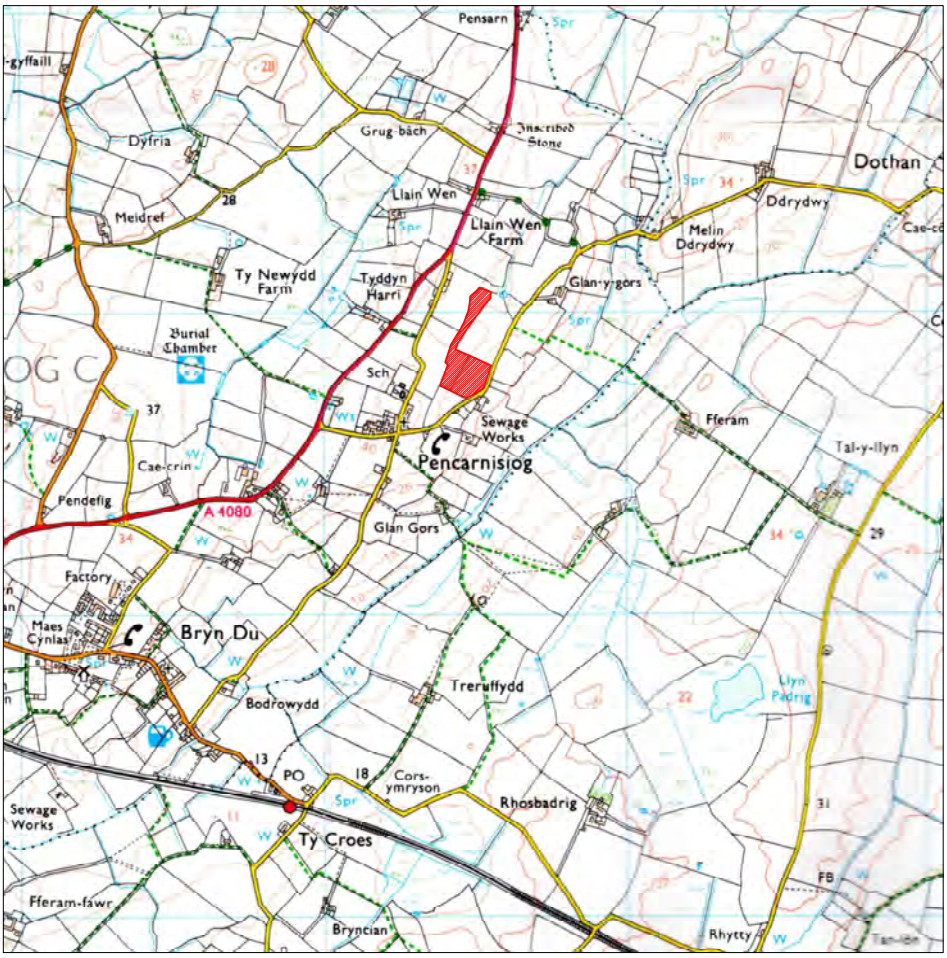


Figure 1: Location
Scale 1:25,000

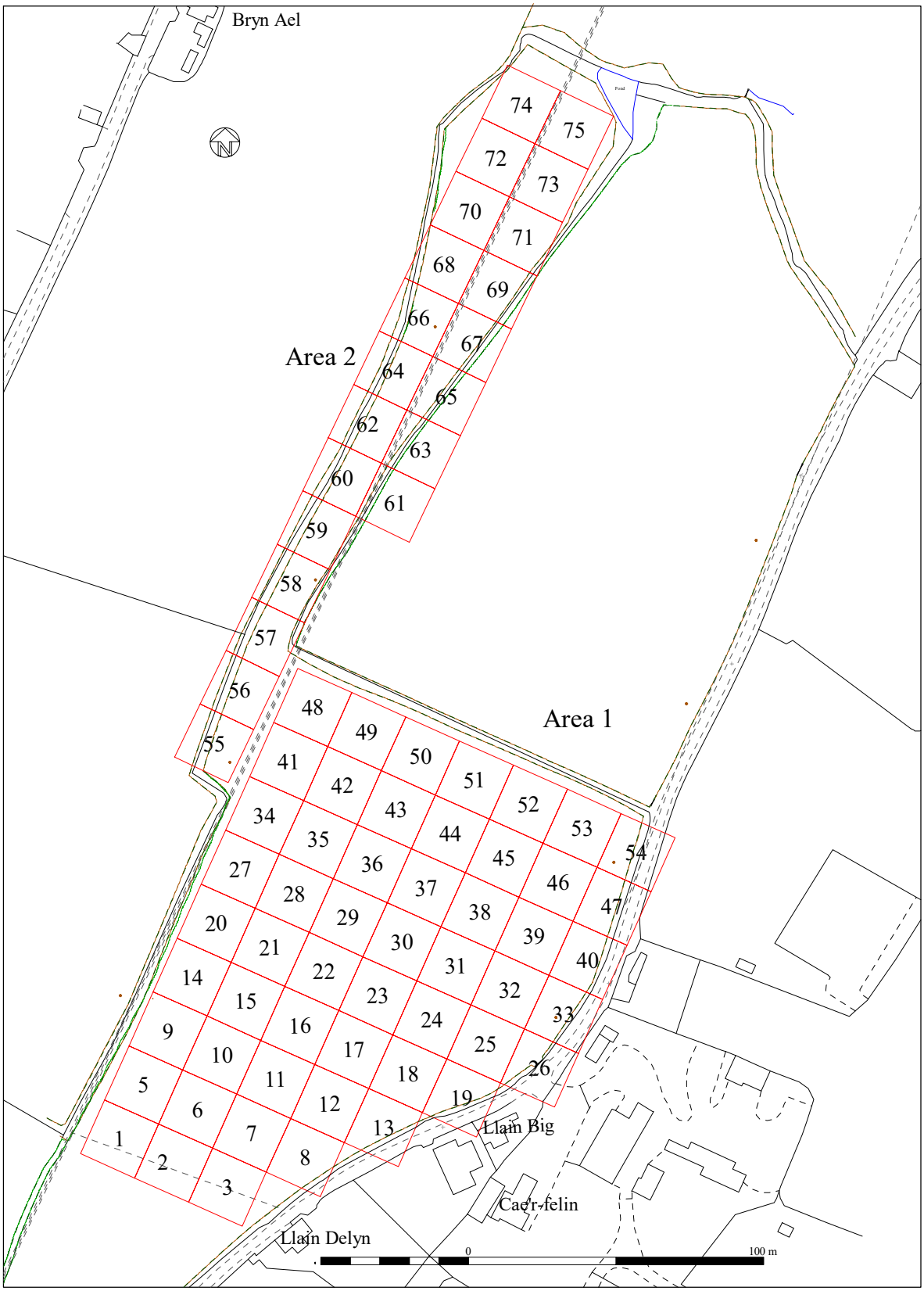


Figure 2: Location of the Survey Grid
Scale 1:2,000

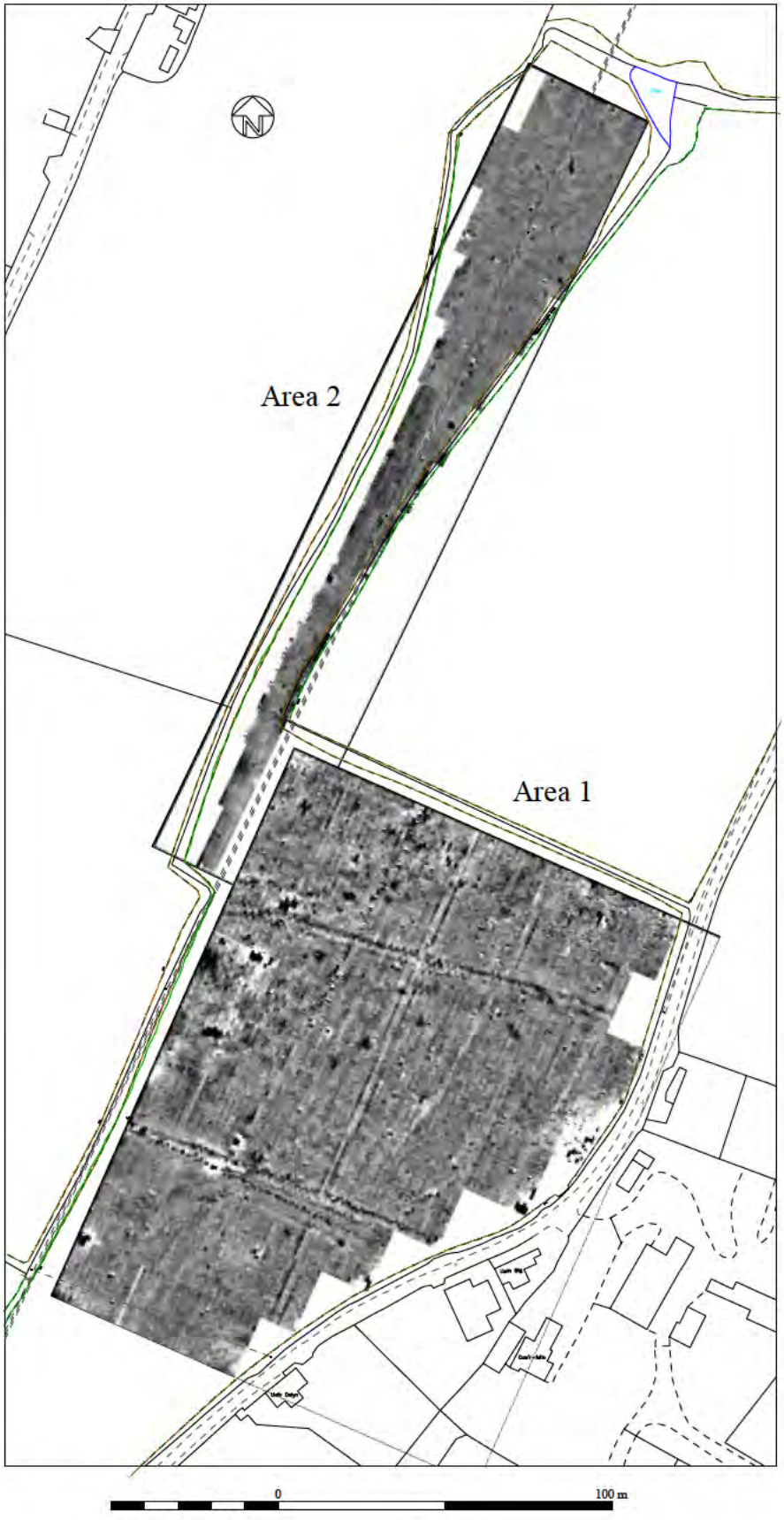


Figure 3: Location of the Survey
Scale 1:2,000

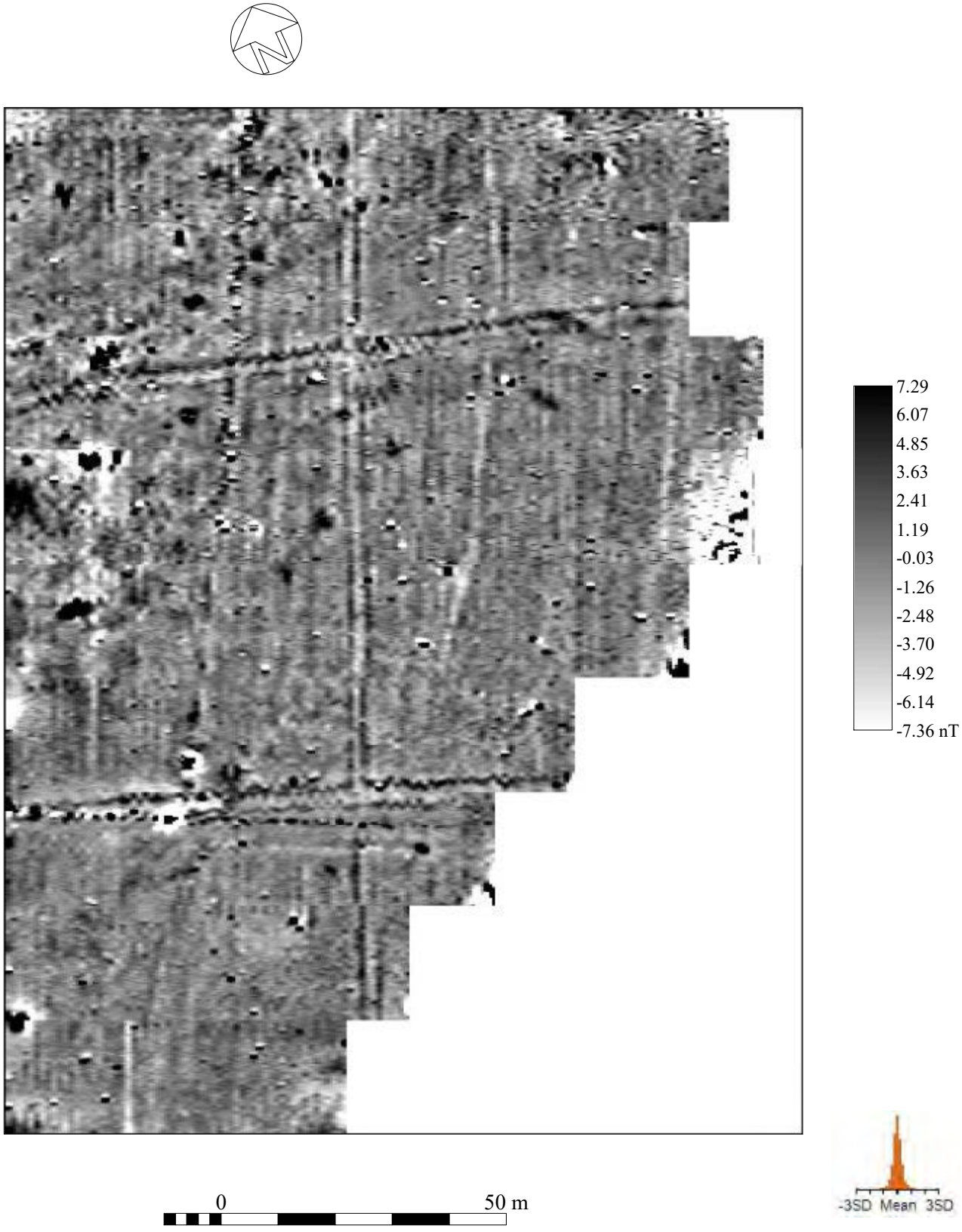


Figure 4: Area 1, Grey Scale Plot
Scale 1:1,000

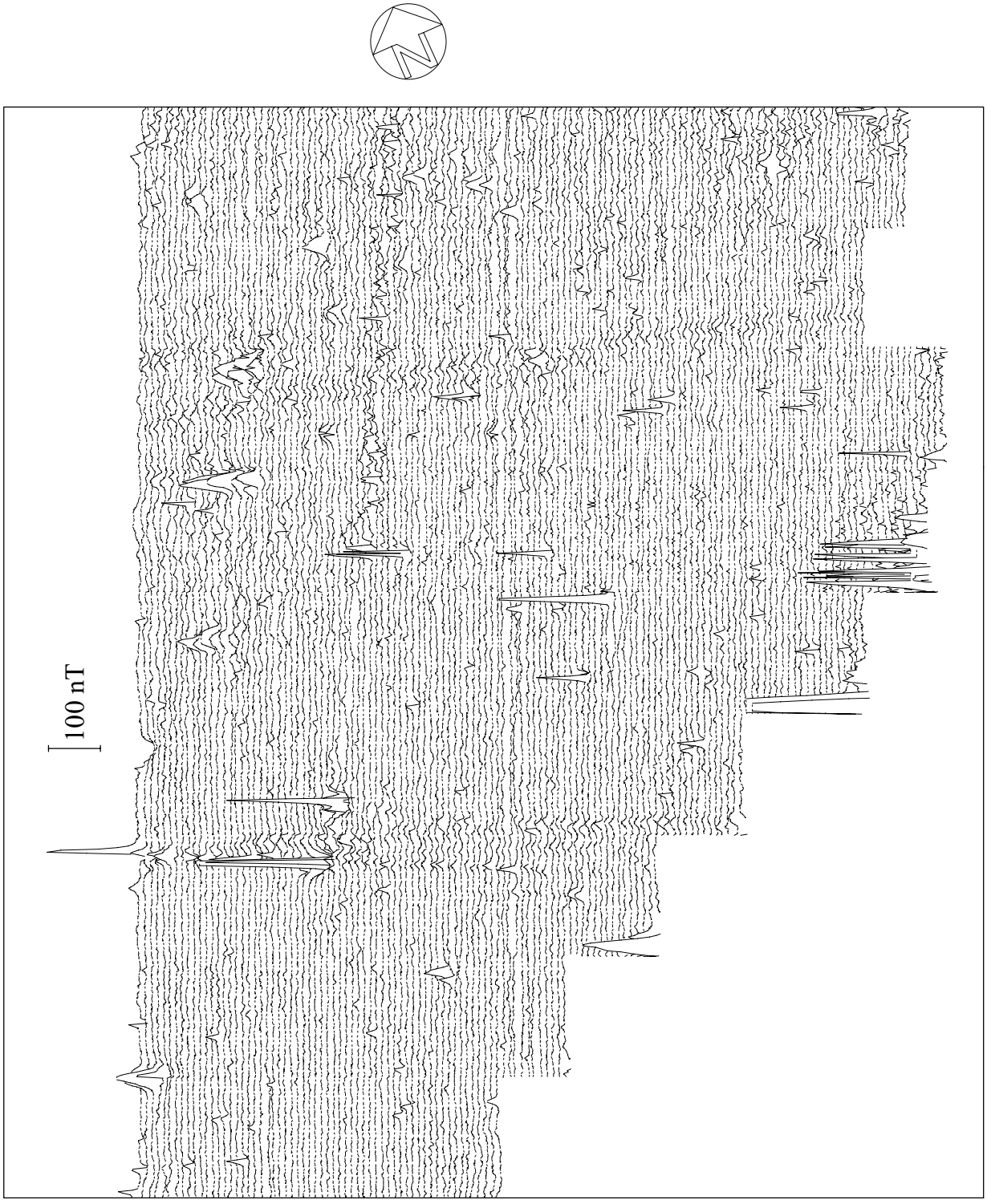


Figure 5: Area 1, X - Y Plot
Scale 1:1,000

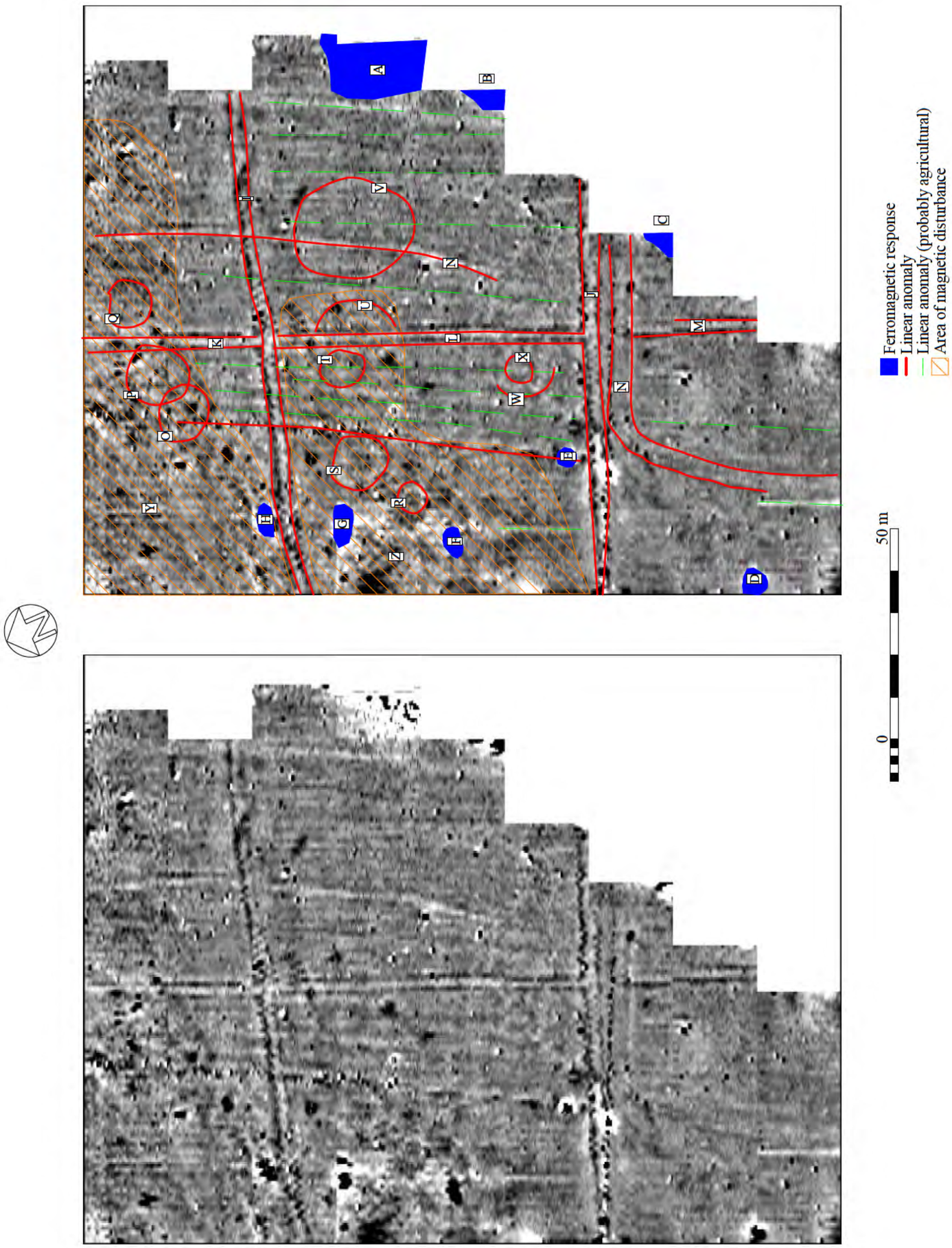


Figure 6: Area 1, Interpretation
Scale 1:1,000

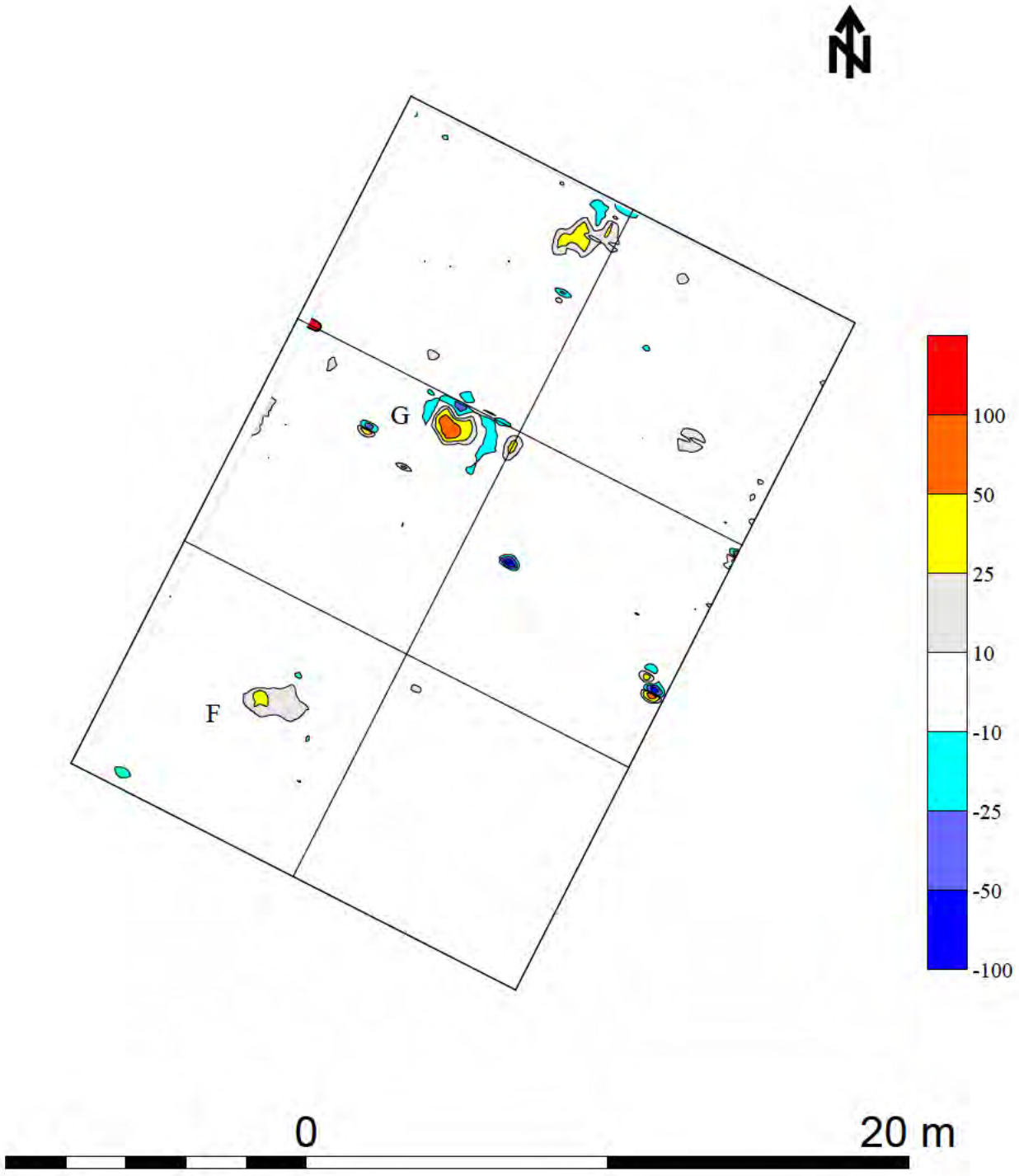


Figure 7: Colour Contour Plot of Anomaly G
Scale 1:500

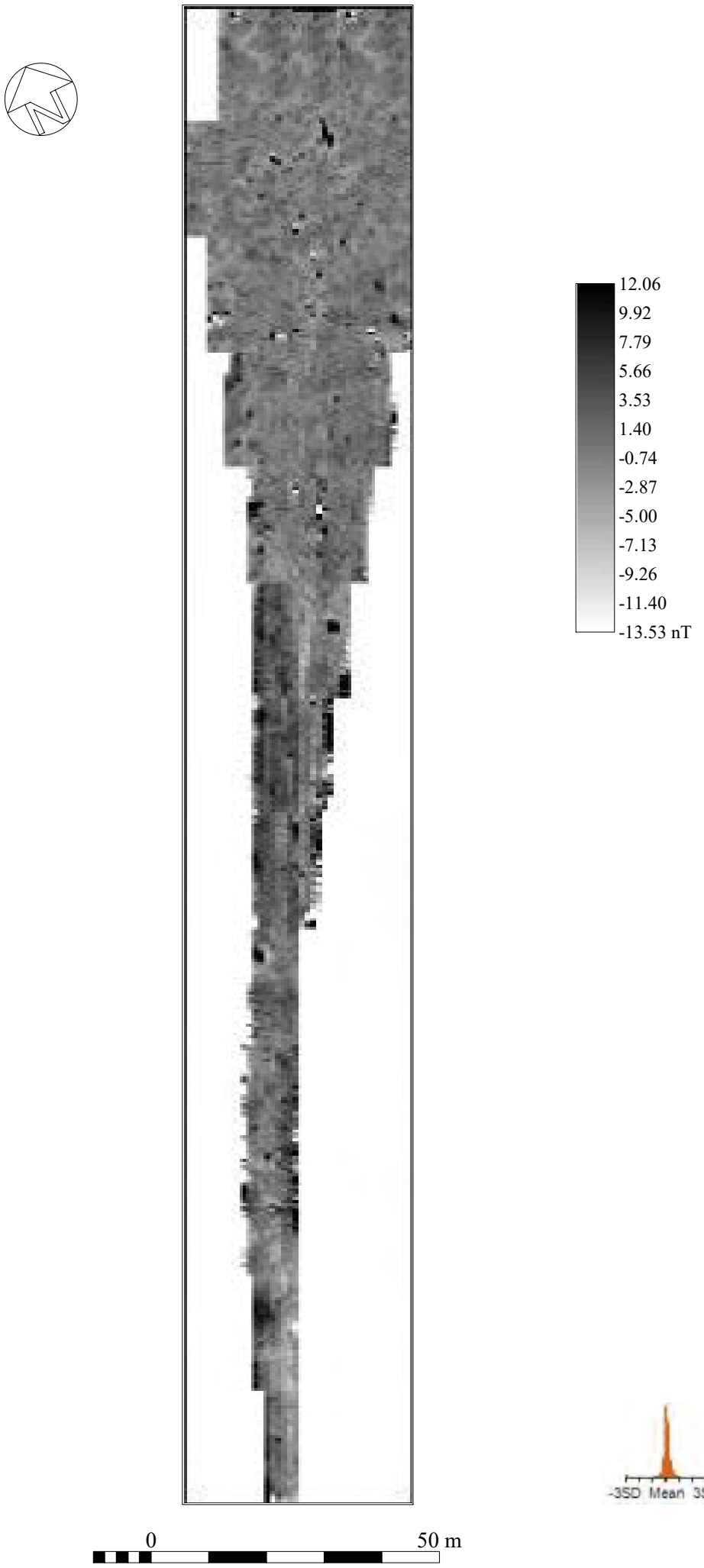


Figure 8: Area 2, Grey Scale Plot
Scale 1:1,000

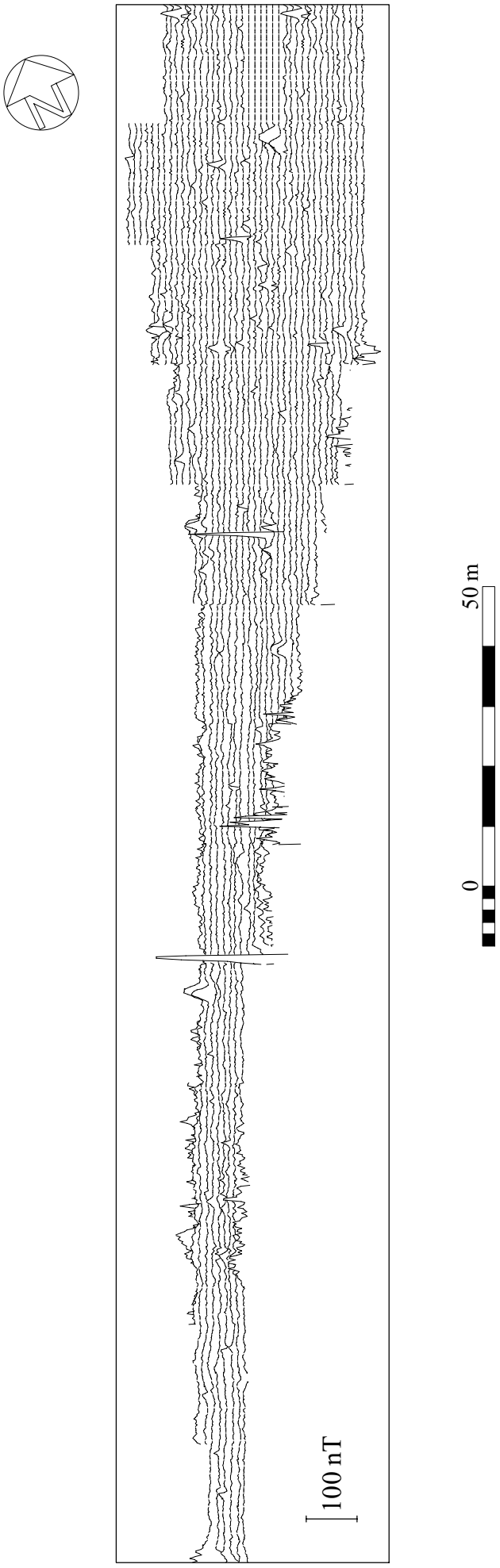


Figure 9: Area 2, X - Y Plot
Scale 1:1,000

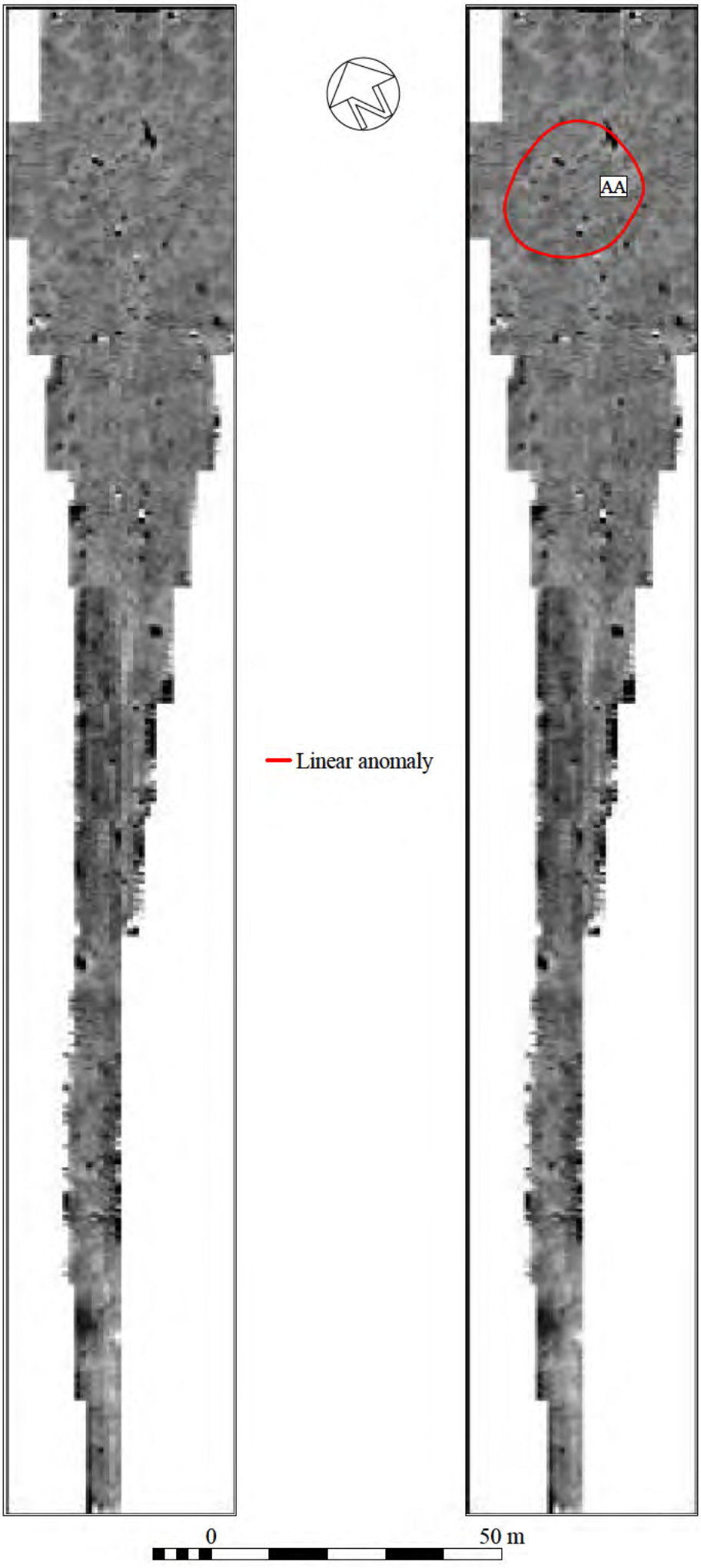


Figure 10: Area 2, Interpretation
Scale 1:1,000

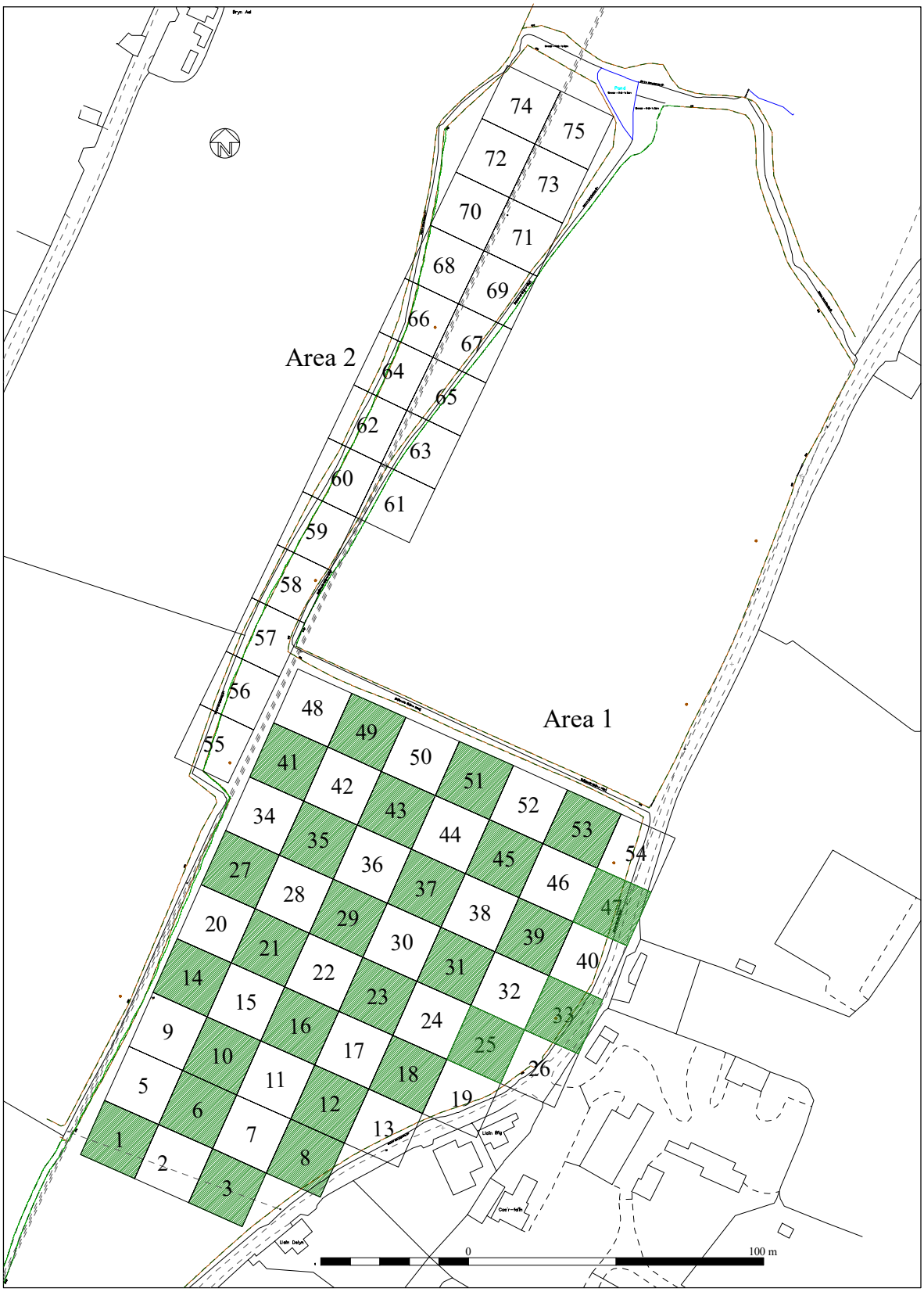


Figure 11: Location of the Magnetic Susceptibility Samples
Scale 1:2,000

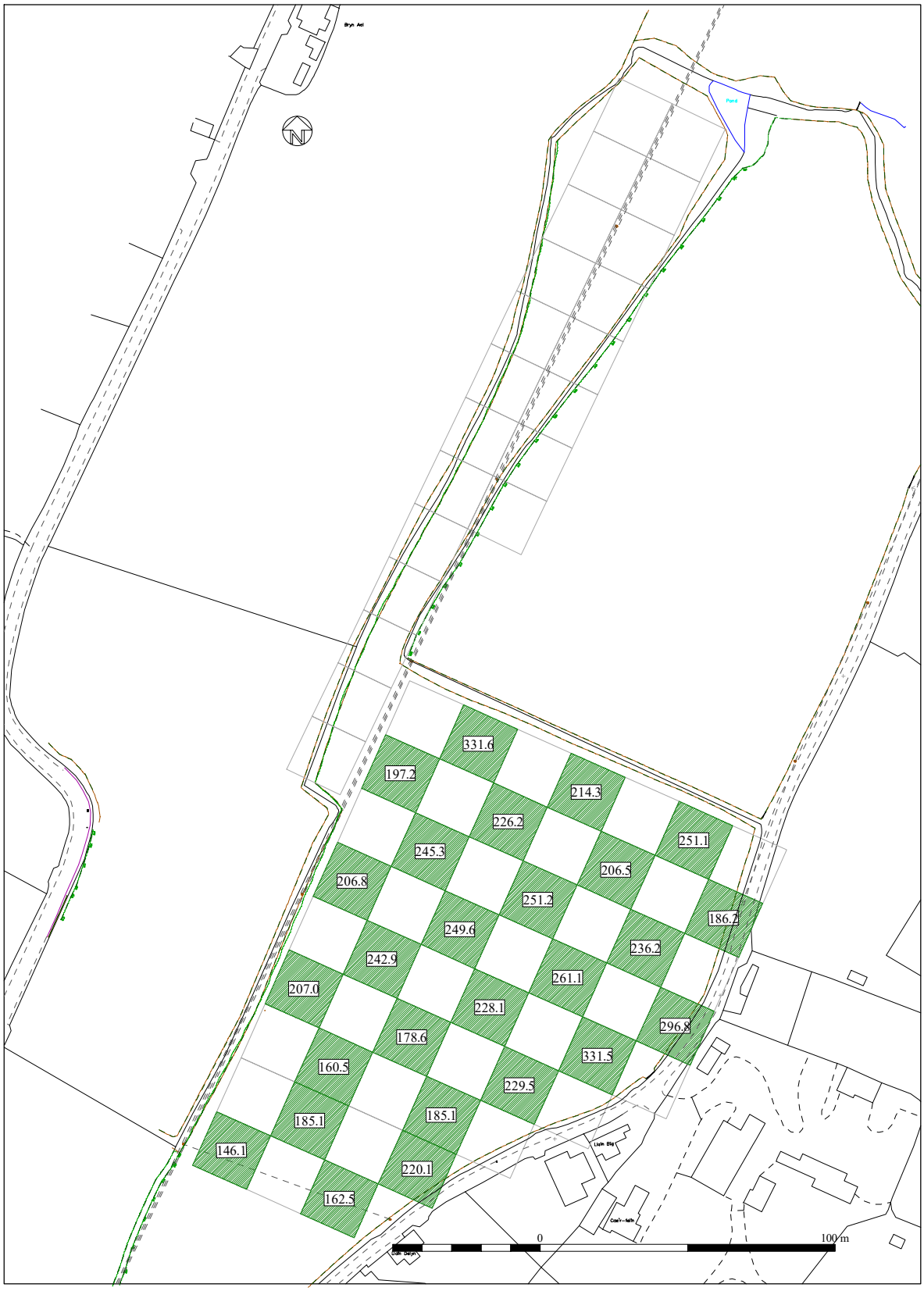


Figure 12: Magnetic Susceptibility Results
Scale 1:2,000

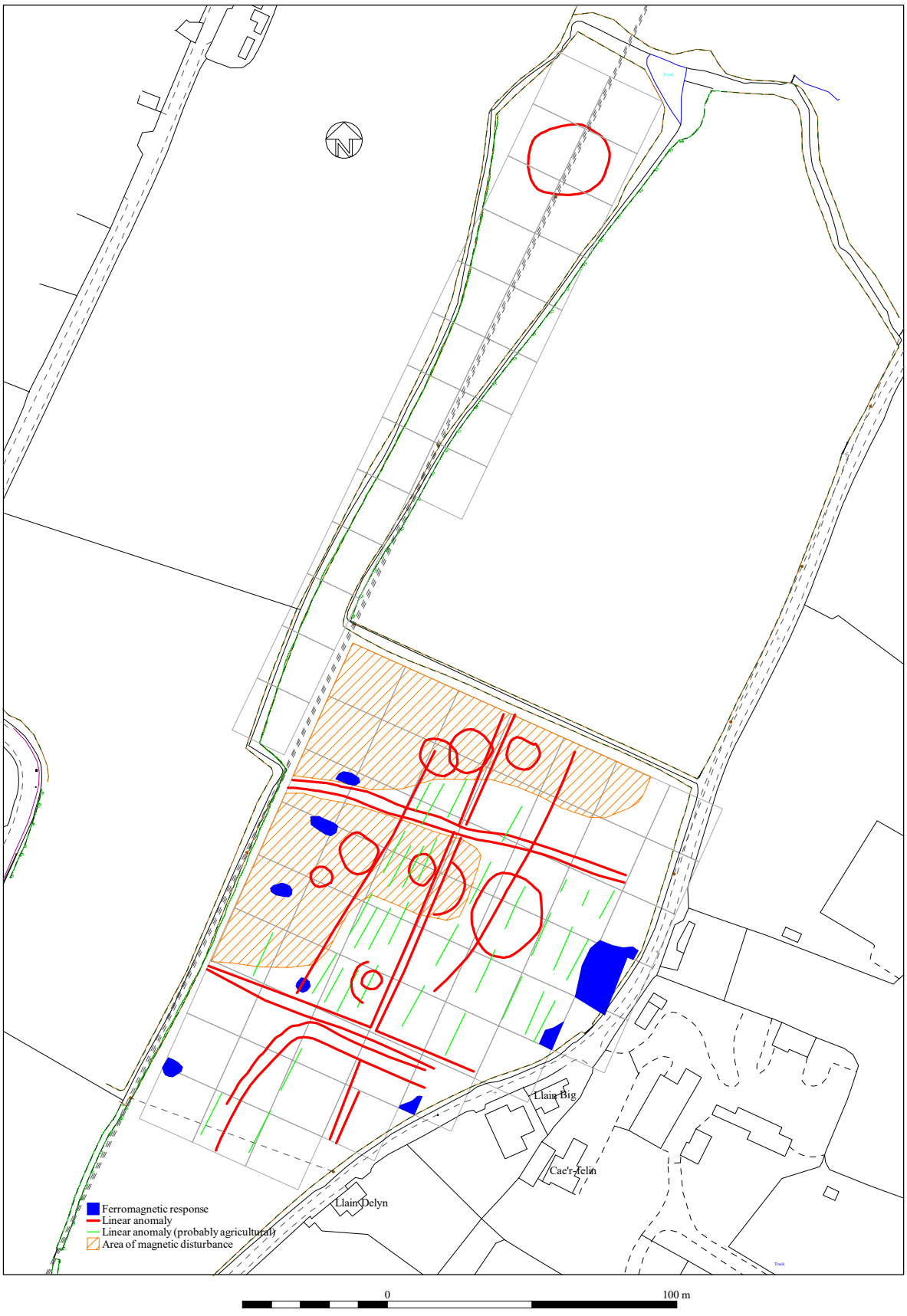


Figure 13: Summary
Scale 1:2,000

7.0 Conclusion

The conclusions of the geophysical survey are as follows "*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.*

The is evidence for considerable archaeological activity within the survey area at Cae'r Felin, Pencarnisiog, Ty Croes, Ynys Môn. Whilst it is not possible to determine the stratigraphical relationship between magnetic anomalies, the form and style of the anomalies would suggest at least three phases of activity represented within the survey. The probable rectilinear field system (Anomalies I - M) can be demonstrated to predate the fields recorded in the 1844 Tithe Map of Llanfaelog which shows a field pattern the same as the current pattern (www.places.library.wales/browse/53.235/-4.464/14?page=1&alt=&alt=&leaflet-base-layers_66=on). Probably post-dating this field system (but predating the Tithe Map) is the possible lane (Anomaly N) which appears to disrupt the magnetic signature of Anomaly M which is part of the rectilinear field system.

Probably prehistoric in origins are the series of circular anomalies (Anomalies O – X and AA) and the associated areas of magnetic disturbance (Anomalies Y and Z) which appear to possibly be a series of circular buildings and their associated enclosures. Also, within this possible phase of activity is the high value, dipolar anomaly (Anomaly G) which may be an in situ high temperature feature such as a hearth, oven or furnace".

8.0 Bibliography

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

The Chartered Institute for Archaeologists. 1985 (Revised 2014). ***Code of Conduct***

The Chartered Institute for Archaeologists. 1990 (Revised 2014). ***Code of Approved Practice For the Regulation of Contractual Arrangements in Field Archaeology***

The Chartered Institute for Archaeologists. 1994 (Revised 2014). ***Standard and Guidance for Archaeological Desk-Based Assessment***

The Chartered Institute for Archaeologists. (Revised 2014). ***Standard and Guidance for the Creation, Compilation, Transfer and Deposition of Archaeological Archives***

The Chartered Institute for Archaeologists. 2011, Revised 2014. ***Standard and Guidance for Archaeological Geophysical Survey***

Royal Commission on the Ancient and Historical Monuments in Wales. 1914. ***An Inventory of the Ancient Monuments in Wales and Monmouthshire: IV - County of Denbigh Volume 4***

Websites – all sites were visited 16/10/2020

www.bgs.ac.uk/geologyofbritain/home.html
www.cadw.gov.wales/advice-support/cof-cymru/search-cadw-records
www.data.gov.uk/data/map-preview
www.maps.nls.uk/view/101604217
www.places.library.wales/browse/53.235/-4.466/16?page=1&alt=&alt=&leaflet-base-layers_66=on

Appendix A. Specification for Archaeological Works

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

Caer Felin, Pencarnisiog, Ynys Môn

NGR SH 35438 73870

Report Number CR201-2020

CR ARCHAEOLOGY
Compiled by C. Rees and M. Jones
On Behalf of Mr. A. Kelly

Specification for Archaeological Works at Caer Felin, Pencarnisiog, Ynys Môn

Planning Application Number:	FPL/2020/168
National Grid Reference:	SH 35438 73870
Client:	Mr. A. Kelly
Report Author:	Catherine Rees and Matthew Jones
Report Number:	CR201-2020
Date:	16/10/2020

Contents

1.0 Introduction

CR Archaeology have been instructed by Mr. A. Kelly to conduct an Archaeological Desk Based Assessment and Geophysical Survey at the proposed site of a touring caravan and glamping scheme (Appendix A).

The site is located on land adjacent to Pencarnisiog Farm, Llanfaelog, Ynys Môn (Figure 1). The proposed development area is currently in agricultural use.

It is noted that an "*early map regression shows the site as undeveloped throughout recent history, with the same irregular field boundary present as early as the Tithe map (1838-50). Along with Cae'r Felin itself (a medieval mill directly south-east of the site), an additional post medieval mill is located to the north-west – suggesting an industrial landscape in the vicinity of the field*". The letter continues "*investigative works across Anglesey over the last decade have shown that the island has a high potential for unknown archaeological sites, especially in greenfield sites ancillary to settlements. Just 700m to the east is a series of cropmarks suggesting earlier phases of settlement now only remnant below the surface, and less than 1km from the site is a prehistoric burial chamber*" (GAPS Letter Ref: 0929tf01/D3506).

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 examines the historic context and archaeological potential of the proposed development area and determines the possible impact of the development on the setting of the local area.

2.0 Project Aims & Objectives

This phase of works for the development site aims to undertake a desk-based assessment, walkover survey and 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), Anglesey 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.

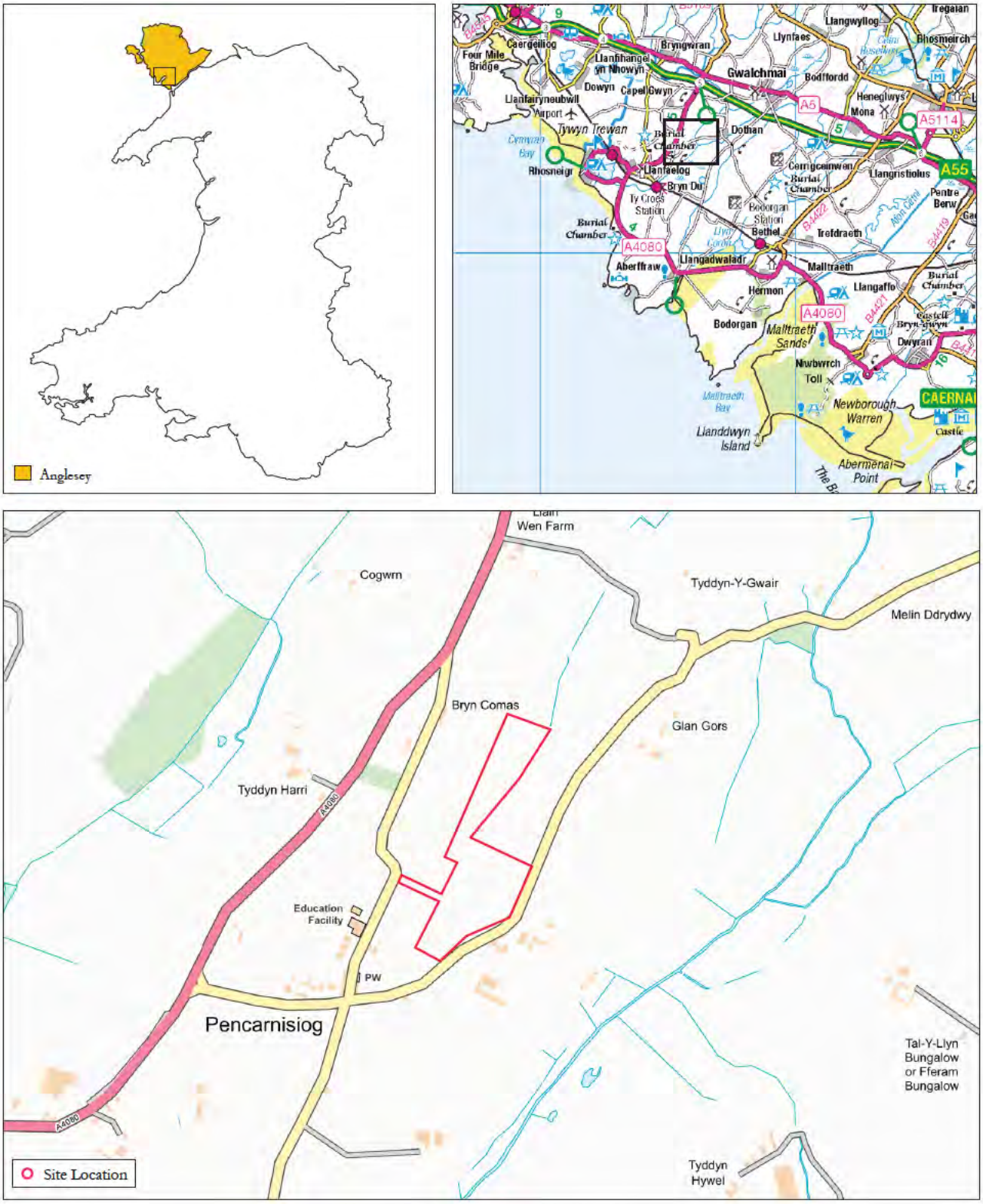


Figure 1. Site Location Map

(Source: OS Open Data Mapping. Contains Ordnance Survey data © Crown copyright and database right [2020])

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, all 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 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.

It is noted in correspondence with Gwynedd Archaeological Trust that "*early map regression shows the site as undeveloped throughout recent history, with the same irregular field boundary present as early as the Tithe map (1838-50). Along with Cae'r Felin itself (a medieval mill directly south-east of the site), an additional post medieval mill is located to the north-west – suggesting an industrial landscape in the vicinity of the field*" (GAPS Letter Ref: 0929tf01/D3506).

The letter also highlights that "*700m to the east is a series of cropmarks suggesting earlier phases of settlement now only remnant below the surface, and less than 1km from the site is a prehistoric burial chamber*" (GAPS Letter Ref: 0929tf01/D3506).

3.1 Topography

The application site is located on land adjacent to Pencarnisiog Farm, Llanfaelog, Ynys Môn. The proposed development area is currently in agricultural use.

3.2 Geology

The bedrock geology at the site is recorded as "*Coedana Granite - Granite. Igneous Bedrock formed approximately 541 to 635 million years ago in the Ediacaran Period. Local environment previously dominated by intrusions of silica-rich magma. Setting: intrusions of silica-rich magma. These igneous rocks are magmatic (intrusive) in origin. Rich in silica, they form intruded batholiths, plutons, dykes and sills*" (www.bgs.ac.uk).

The superficial geology at the site is recorded as "*Till, Devensian - Diamicton. Superficial Deposits formed up to 2 million years ago in the Quaternary Period. Local environment previously dominated by ice age conditions. These sedimentary deposits are glacigenic in origin. They are detrital, created by the action of ice and meltwater, they can form a wide range of deposits and geomorphologies associated with glacial and inter-glacial periods during the Quaternary*" (www.bgs.ac.uk).

4.0 Scheme of Works - Methodology

It is proposed that the archaeological works be conducted in two sections and 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, Anglesey 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. It must be noted that due to the changing situation regarding Covid 19, in the event of further lockdown measures archive access may become limited. In this instance online map resources will be consulted but please note that due to copyright restrictions it will not possible to reproduce the images in the report. The information included will be restricted to descriptions and links to the online material.

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. 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 historic environment desk-based assessment (CIfA 1994 (Revised 2009 & 2014).

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*" (2011 Revised 2014).

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.

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.

4.3 Timetable for Proposed Works
It is envisaged that the geophysical survey will be undertaken on the 24/25th October 2020 with an estimated time frame of 1-2 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 & Matthew Jones.

All staff will have a skill set equivalent to the CIfA ACIfA/MCIFA 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 Gwynedd Archaeological Planning Services. 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 Walking Boots & Waterproofs

Any further PPE required will be provided by CR Archaeology. All staff will have passed at least a CITB health and safety test at least operative level and will carry a Construction Related Organisation (CRO) White Card for Archaeological Technician (Code 5363).

CR Archaeology staff will also comply with any Health and Safety Policy or specific on-site instructions provided by the client or their appointed Principal contractor or H&S coordinator.

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 where available. 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 bound paper copy and PDF digital copy of the report will be submitted to GAPS 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 fieldwork.

4.7.1 Copyright

8.0 Bibliography

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

The Chartered Institute for Archaeologists. 1985 (Revised 2014). ***Code of Conduct***

The Chartered Institute for Archaeologists. 1990 (Revised 2014). ***Code of Approved Practice For the Regulation of Contractual Arrangements in Field Archaeology***

The Chartered Institute for Archaeologists. 1994 (Revised 2014). ***Standard and Guidance for Archaeological Desk-Based Assessment***

The Chartered Institute for Archaeologists. (Revised 2014). ***Standard and Guidance for the Creation, Compilation, Transfer and Deposition of Archaeological Archives***

The Chartered Institute for Archaeologists. 2011, Revised 2014. ***Standard and Guidance for Archaeological Geophysical Survey***

Royal Commission on the Ancient and Historical Monuments in Wales. 1914. ***An Inventory of the Ancient Monuments in Wales and Monmouthshire: IV - County of Denbigh Volume 4***

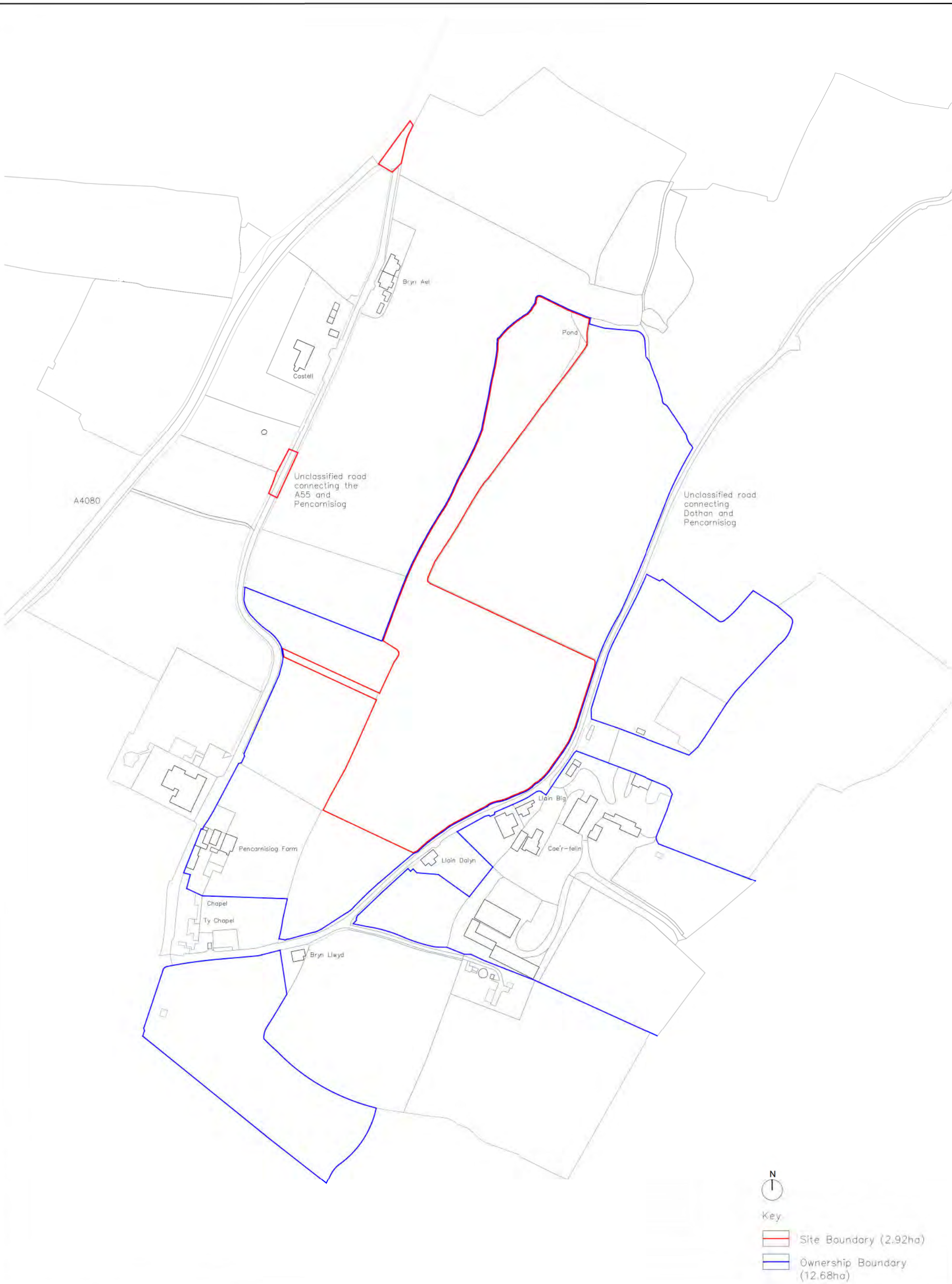
Websites – all sites were visited 16/10/2020

www.bgs.ac.uk/geologyofbritain/home.html

www.cadw.gov.wales/advice-support/cof-cymru/search-cadw-records

www.data.gov.uk/data/map-preview

Appendix A. Proposed Development Plans



REVISIONS				
Rev.	Description	Date	By	Chk'd
A	ownership boundary amended	19.11.08	BR	BR

PLANNING

client:
OWEN DAVENPORT LTD

project:
CAER FELIN, PENCARNISIOG

drawing title:
LOCATION PLAN

land | studio

scale: @ A3 1:2,500

Rev ODL 001

CAD FILE NAME: C:\Users\Ben Riley\Dropbox (Land Studio)\05 Projects\052 Cae'r Felin\01 CAD\Location Plan.dwg

Original paper size (A3) 420x297mm

PLANTING SCHEDULE

TREES

Species	Specification	No.
Quercus petraea	Girth 18-20cm, height 300cm, RB	22
Salix alba	Girth 18-20cm, height 300cm, RB	8
Salix viminalis	Multi-stem, height 200cm, bareroot	22
Sorbus aria	Girth 16-18cm, height 250cm, RB	17
Sorbus aucuparia 'Sheerwater Seedling'	Girth 16-18cm, height 250cm, RB	20

HEDGING

Species	Specification	No.
Crataegus monogyna	40-60cm, 1+1, BR, double staggered, 6 per lin.m	3,115
Ilex aquifolium	40-60cm, 1+1, BR, double stagered, 6 per lin.m	2,015

WILDFLOWER MIX

Specification
Emorsgate Seeds: EM2 – Standard General Purpose Meadow Mixture

Wildflower species	%
Achillea millefolium	0.5
Centaurea nigra	4.5
Galium verum	3
Leucanthemum vulgare	1
Lotus corniculatus	0.5
Plantago lanceolata	1
Plantago media	0.5
Primula veris	0.2
Prunella vulgaris	2
Ranunculus acris	4.2
Rhinanthus minor	1.5
Rumex acetosa	1
Trifolium pratense	0.1

Grass species	%
Agrostis capillaris	8
Cynosurus cristatus	40
Festuca rubra	28
Phleum bertolonii	4

Sowing rate: 4g per m²
Total required: 12kg

WOODLAND MIX

Mix of 40-60cm tall, 1+0, broad-leaved saplings inlcuding:

Species	%	No.
Prunus avium	10	47
Corylus avelana	40	187
Cornus sanguinea	20	94
Dryopteris filix-mas	15	70
Pteridium aquilinum	15	70

Tree Tube protection and treated tree stakes installed at the base of each sapling.
Planted at 2m spacing.

NOTES

All plants & planting to comply with current BS specifications including BS 3936: Part I 1992, Part II 1990 and Part IV 1984. Where applicable BS 4428: 1989. All plants to be supplied in accordance with the schedule. All planting material to be British grown stock and fully hardened off. Tree root protection barriers to be incorporated in all tree pits. Working should only be undertaken in suitable conditions.

Where tree planting is to be undertaken outside the optimum planting season container grown stock should be substituted for root balled stock.

For 12 months following practical completion, maintain all planted areas in a weed & litter free condition, to include watering, pruning, pest & disease control & re-mulching (or according to contract).

KEY

HARD LANDSCAPE

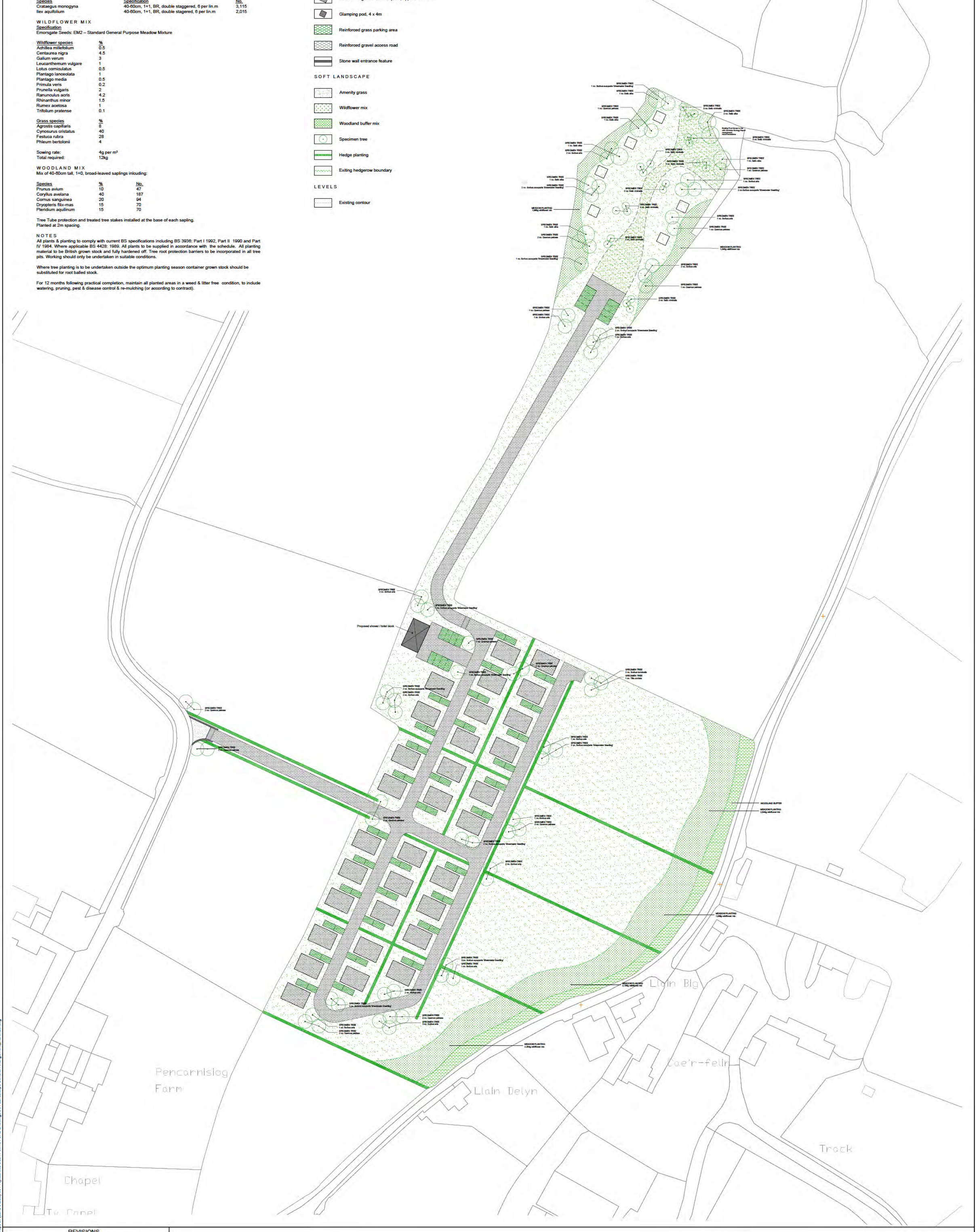
- Asphalt road entrance
- Cobble threshold
- Reinforced gravel caravan pitch, approx 10 x 7m
- Glamping pod, 4 x 4m
- Reinforced grass parking area
- Reinforced gravel access road
- Stone wall entrance feature

SOFT LANDSCAPE

- Amenity grass
- Wildflower mix
- Woodland buffer mix
- Specimen tree
- Hedge planting
- Exiting hedgerow boundary

LEVELS

- Existing contour



REVISIONS				
Rev.	Description	Date	By	Chk'd
A	Road layout amended	09.11.18	SR	SR
B	Shower Block amended / Plant species amended	11.06.19	SR	SR
C	Road junction realigned with ownership boundary	03.03.20	SRo	SR

DRAFT

client: ALAN KELLY
project: CAER FELIN
drawing title: LANDSCAPE GENERAL ARRANGEMENT

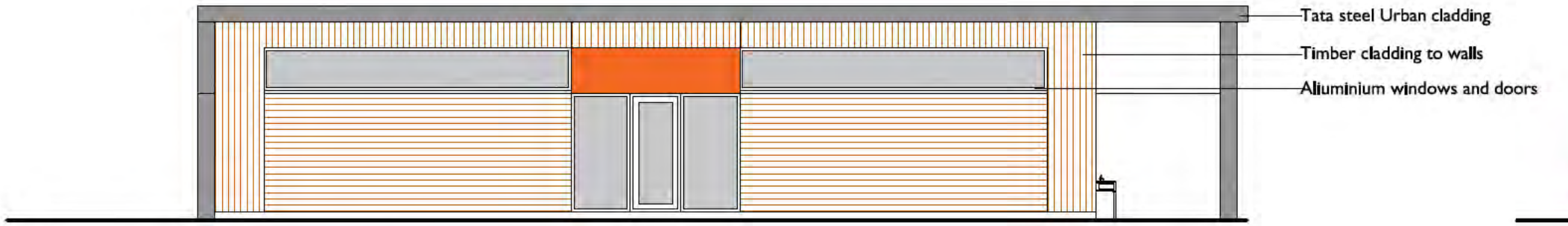
land | studio

scale: @ A2 1:1,000
date: 17.09.2018
drn: SR
chk'd: SR

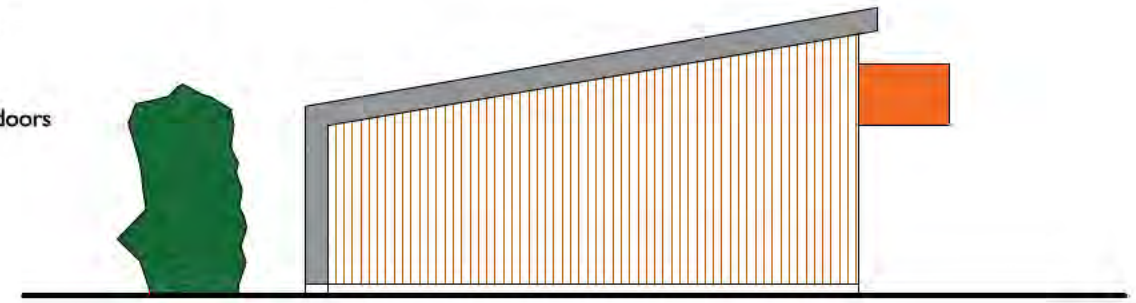
001 C

CAD FILE NAME: C:\Users\Sian Rossiter\Dropbox (Land Studio)\05 Projects\052 Cae'r Felin\01 CAD\Drawings\001 Landscape General Arrangement_March20.dwg

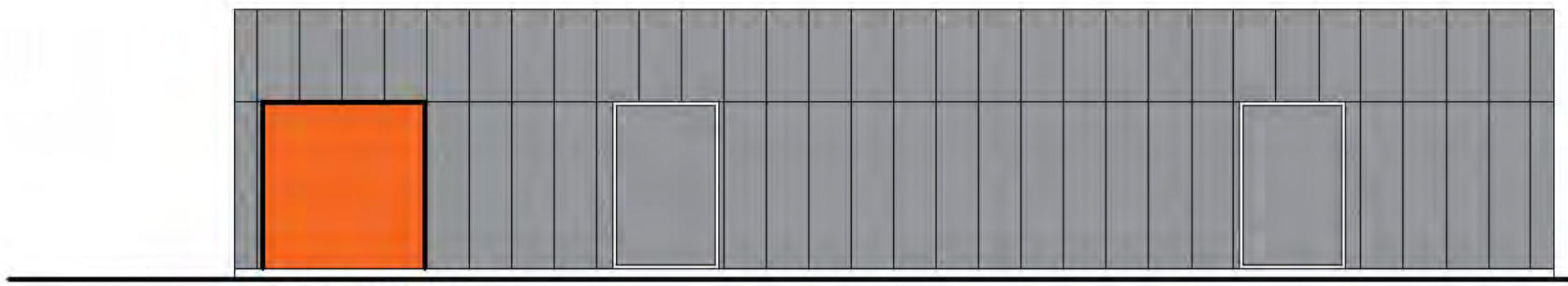
Original paper size (A2) 420x594mm



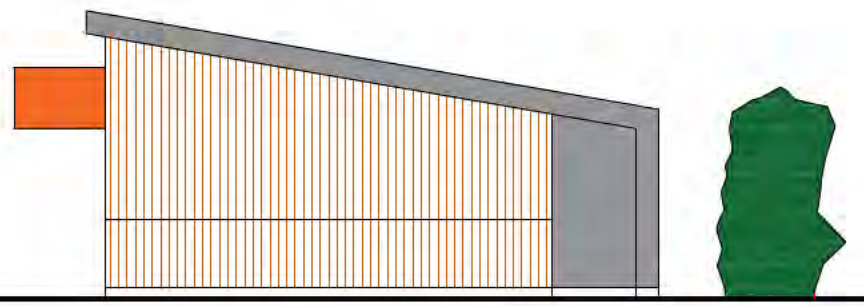
FRONT ELEVATION



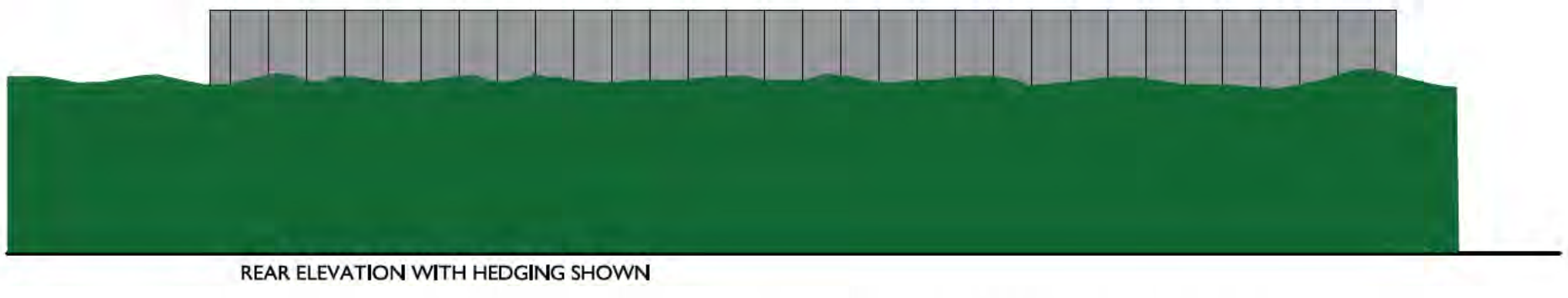
SIDE ELEVATION



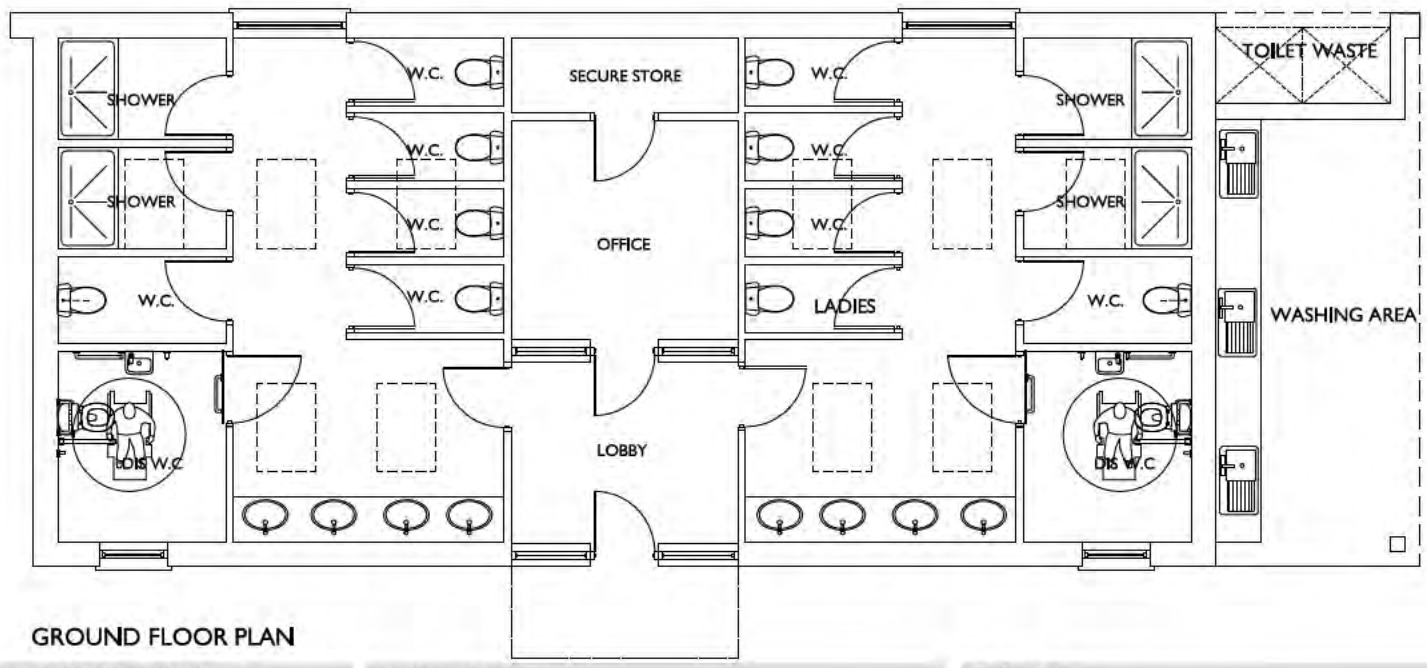
REAR ELEVATION



SIDE ELEVATION



REAR ELEVATION WITH HEDGING SHOWN



GROUND FLOOR PLAN

Peidiwch a chymryd mesuriadau graddfa oddi ar y dyluniad hwn
Os yn amau - gofynnwch
Do not scale from this drawing
If in doubt - ask

Mae'r dyluniad hwn yn hawlfraint Penseiri Russell-Hughes ac ni chaniateir ei gopio neu ei atgynhyrchu heb ganiatad
This drawing is the copyright of Russell-Hughes architects and must not be copied or reproduced without permission

Newidiadau - Amendments

Cynllun - Job
CAE'R FELIN
PENCAERNISIOG

Dyluniad - Drawing
PROPOSED SHOWER BLOCK.

Rhif Dyluniad - Drawing No.
2676:17:4

Graddfa - Scale
1:100@A3

Dyddiad - Date
May 2019

russell-hughes cyf
penseiri/architects

56 Bridge Street,
Llangefni,
Ynys Mon
LL77 7HH

Tel: 01248 722333
Fax: 01248 750600
E-mail: info@russellhughes.co.uk