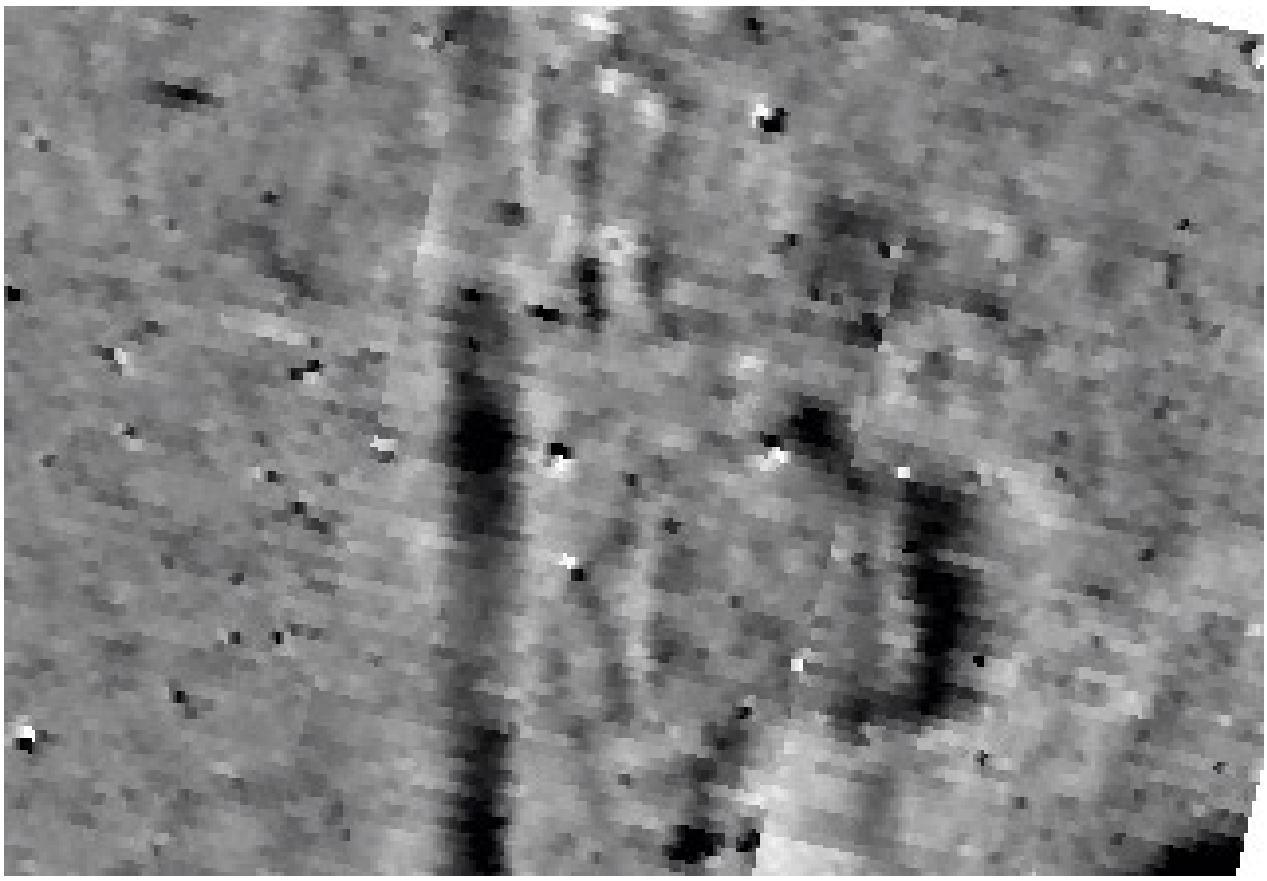
VILLAGE GREEN, TEMPLETON, PEMBROKESHIRE

GEOPHYSICAL SURVEY 2010



Prepared by Dyfed Archaeological Trust
For: Owen & Owen Chartered Surveyors
(obo. Mr B. Lewis of the Henllan Estate)

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VILLAGE GREEN, TEMPLETON, PEMBROKESHIRE GEOPHYSICAL SURVEY

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SUMMARY

A planning application has been submitted to Pembrokeshire County Council develop a parcel of land to the north of the Village Green, Templeton, Pembrokeshire (NGR SN 1120 1155; Planning Application 09/0188/PA). The archaeological advisor to the planning authority has requested that archaeological evaluation of the site be undertaken prior to a decision being made on the application, to include geophysical survey as part of an archaeological evaluation of the land. The archaeological evaluation was deemed necessary due to the site's location within the medieval settlement of Templeton and its proximity to a medieval castle Motte and potential Knights Templar Hospice.

Owen & Owen Chartered Surveyors (obo. Mr B. Lewis of the Henllan Estate) commissioned Dyfed Archaeological Trust Field Services to carry out the geophysical survey. The survey was undertaken in January 2010 using a fluxgate magnetometer (gradiometer).

Several features of archaeological interest were recorded throughout the proposed development area. Rectilinear features towards the eastern end of the site have been initially interpreted as possible building remains, presumably part of a medieval or post-medieval (pre 19th century) development along the street frontage. These presumed structures are enclosed on their western side by a large ditch that appears to align with a series of rear-property boundaries along the western side of the road throughout Templeton that may be of medieval origin. To the west of this property boundary, the survey has revealed further field boundaries dividing the area into three fields, within which evidence of ploughing and other general archaeological activity can be discerned. A further ditch or trackway with a possible associated building were also revealed that may predate these boundaries. A small circular feature was recorded at the western end of the area of unknown date and function, but superficially prehistoric in appearance.

All interpretation at this stage is speculative and further archaeological investigation would be required in order to obtain a better understanding of the function and date of these archaeological features.

INTRODUCTION

Project commission

Planning permission has been sought for development of a parcel of land to the north of the Village Green, Templeton, Pembrokeshire (Planning Application No. 09/0188/PA, NGR SN11201155). Following advice from Dyfed Archaeological Trust Heritage Management (DAT-HM), in their capacity as archaeological advisors to Pembrokeshire County Council, a requirement for pre-determination evaluation has been placed on the application. The evaluation will comprise geophysical survey followed by an appropriate level of trial trench investigation. A brief detailing the required works was prepared by DAT-HM [1].

The proposed development area lies close to the site of a medieval castle and within the medieval settlement of Templeton. Given the site's location it was considered that there was a potential for important archaeological resources within the development area that could be adversely affected by the proposed development, and thus the requirement for predetermination evaluation was placed on the development proposals.

Owen & Owen Chartered Surveyors (obo. Mr B. Lewis of the Henllan Estate) commissioned Dyfed Archaeological Trust Field Services (DAT-FS) to carry out the geophysical survey in November 2009. The fieldwork was undertaken in January 2010. A Written Scheme of Investigation was prepared by DAT-FS detailing the scope of the works.

Scope of the project

The project was designed to establish whether a geophysical survey, using a gradiometer, could detect below-ground archaeological features and deposits on this site that could be affected by any subsequent development. This in turn will be used to inform the rationale for any further intrusive archaeological evaluation work (Stage 3[2]).

Report outline

Because of the limited nature of this project, together with the considerable archaeological evidence in the area, this report is restricted solely to the results of the geophysical survey.

Abbreviations

Sites recorded on the Regional Historic Environment Record (HER) are identified by their Primary Record Number (PRN) and located by their National Grid Reference (NGR). Some sites have also been registered as a Scheduled Ancient Monument (SAM). Gradiometer readings are measured in nanoTesla (nT).

[1] Dyfed Archaeological Trust Heritage Management 2009 *Brief for an Archaeological Field Evaluation at Land North of Village Green, Templeton, Narberth*
[2] As above

THE SITE

Location and Archaeological Potential

The site is located in a gentle southward sloping pasture field at the southern end of the village of Templeton, Pembrokeshire (NGR SN 1120 1155; **Figure 1**). The site area lies on the western side of the main road, bounded by the Village Green to the south; residential development to the southwest; open fields to the west; Sentence Castle to the northwest; gardens, small paddocks and properties to the north; with the main road to the east. The village hall lies on the road frontage in the southeastern corner of the site. The field is accessed by a gated trackway to the north of the village hall.

The proposed development area lies to the southeast of the site of Sentence Castle, a medieval Motte castle (Scheduled Ancient Monument No. PE110, PRN 3750), and survives as a fairly substantial earthwork. The castle is thought to have been established in the 12th century, and would have been a focal point for an extended settlement in the vicinity which has evolved into the village of Templeton as it exists today. The medieval street plan of the village is partially fossilised in the current village layout, comprising properties along the main north-south road, with rectangular plot boundaries running east-west from the road line. The street plan is shown clearly on the 1820 and 1889 maps of Templeton (**Figures 2 and 3**), which also indicate that the proposed development area was subdivided into three separate fields. No structures of development is shown within the site area. The name of Templeton is derived from the 'Templar's Town' based on the establishment of a Knights Templar Hospice on the site of the present church (to the east of the site area, PRN 24436), for which there is documentary evidence.

The underlying geology comprises of interbedded argillaceous rocks, sandstone and conglomerates of the Milford Haven Group, overlaid with acid loams and clays.

METHODOLOGY

A fluxgate gradiometer was used for the survey, which detects variations in the earth's magnetic field (full specifications are in **Appendix 1**). Readings were taken on traverses 1m wide and every 0.25m within a 20m x 20m grid across the whole site. In total an area of *c*.1.16ha was surveyed. Small strips close to the field boundaries were left un-surveyed due to the presence of post and wire fencing and known electrical services that would have obscured any geophysical results.

RESULTS

Limitations

The survey was undertaken over a total of 2 days on 28th and 29th January 2010. Weather conditions were fine and generally dry. The fields were bounded by post and wire fencing amongst the hedgebanks that may have obscured some of the readings taken in their immediate vicinity. An electricity pylon stood along the northern field boundary, with underground services running along the northern edge of the field. A strip *c*.16m wide lay between the field and the road, this was covered in dense scrub preventing any surveying in this area.

The underlying geology and subsoil did not appear to cause any geological distortions of the geophysical survey results.

Processing and presentation

Processing was performed using *ArchaeoSurveyor 2*, detailed explanation of the processes involved are described in Appendix 1. The data is presented with a minimum of processing but the presence of high values caused by ferrous objects and wire fencing tends to hide fine details and obscure archaeological features, thus the values were 'clipped' to a range from 15nT to −15nT to remove the extreme values allowing the finer details to show through. During the survey various processes such as changes to instrument set-up, instrument drift, variations in orientation amongst others cause directional effects that are inherent to magnetometers that can produce 'striping' in the processed data, thus much of the survey was 'destriped'.

The processed data is presented as grey-scale plots overlaid on local topographical features. The main magnetic anomalies have been identified and plotted onto local topographical features as a level of interpretation.

All measurements given are approximate as accurate measurements are difficult to determine from fluxgate gradiometer surveys. The width and length of identified feature can be affected by its relative depth and magnetic strength.

Geophysical interpretation

(Results **Figure 4** and interpretation **Figure 5**)

The geophysical survey clearly shows a complex range of archaeological activity throughout the surveyed area, therefore only the major features are discussed. Any interpretation from these geophysical results is by its nature speculative and precise details about the context, function, state of preservation and date of any archaeological features would require further intrusive investigation.

No.1

Towards the eastern end of the area surveyed is a range of geophysical anomalies indicating a cluster of archaeological activity in this area closest to the main road.

Linear anomalies with a higher magnetic reading than the surrounding subsoil are often indicative of buried ditches. In this area these linear anomalies appear to form a sub-square feature up to *c*.15m north-south, by *c*.17m. There is also the suggestion within this feature of linear anomalies with lower magnetic responses, these can often be indicative of buried banks or walls.

Extending to the south of this, but on the same alignment are a series of further adjoining positive and negative linear anomalies, indicating a complex of buried ditches along with possible banks or walls. These southernmost features lie in an

area of high magnetic disturbance, presumably caused by the current adjoining building, which is obscuring much of the finer detail in this area. Given the location of these features it would appear likely they relate to earlier buildings and structures close to the main road.

To the north of the main sub-square feature lie further negative linear anomalies suggestive of more banks or walls, along with a discrete area of positive magnetic responses that may represent a large pit or sunken feature, or a series of closely packed ditches. These northern features appear to be separated from those to the south by a bank and ditch, presumably a continuation of **No.3** (see below), although it is unclear from the geophysical results if these features are contemporary.

No.2

A wide linear anomaly with higher magnetic readings than the surrounding subsoil runs across the site from north to south, appearing to demarcate the above area (**No.1**) containing the possible building remains. This is likely to represent the remains of a buried ditch which runs for at least 65m, *c*.55m to the west of the current road line. This possible ditch is aligned with some rear property boundaries visible on 19th century map sources (**Figures 2 & 3**). Many of these rear property boundaries have now gone, although the alignment survives in a property boundary immediately to the north of the survey area.

No.3

Running east-west across the centre of the survey area is a positive linear anomaly likely to indicate the line of a ditch. In places along its length there are traces of a negative linear anomaly running adjacent to the ditch. This is likely to represent the remains of a bank, and together appear to represent the remains of a bank and ditch field boundary, running parallel to many similar boundaries visible to the north. This boundary is also shown on early 19th century maps (**Figure 2**). The boundary runs from the western extent of the field up to the wide north-south ditch (**No.2**), but there also appears to be faint traces of it extending to the east of the ditch. The eastwards extension is not marked on the 19th century maps, indicating this section was removed at some point, which presumably also explains why the readings should be fainter on this side of the ditch.

No.4

A positive linear anomaly runs north-south from the southern edge of the survey area as far as the east-west bank and ditch (**No.3**). This would appear to represent a ditch acting as a field boundary, contemporary with the east-west boundary (**No.3**). This north-south boundary is also marked on the early 19th century maps as a continuation of a curving boundary still partly in situ to the south (**Figure 2**). This section within the study area had been removed by the time of the 1st edition Ordnance Survey map of 1889 (**Figures 2 & 3**).

No.5

A wide positive anomaly runs in a SW-NE direction across the southern half of the survey area. Faint traces of this anomaly appear to continue further to the north, although any northern responses are very slight. This would appear to represent the remains of a buried ditch, or possibly, given its relatively low magnetic responses, a worn hollow-way or similar trackway. The feature crosses the line of a north-south field boundary (**No.4**) suggesting the two features are not contemporary. Although it cannot be ascertained from the geophysical survey results which is the earlier feature, although as it is not marked on 19th or 20th century map sources this is likely to be the earlier feature. A narrower linear

anomaly appears to branch off at a slight angle from the southern end of this feature.

Also at the southern end of this linear anomaly, on its western side, is an L-shaped positive linear anomaly, although the magnetic responses from this feature are relatively low. This may represent a further buried ditch, and the L-shape may even suggest a small enclosure or building remains, although due to only a slight difference in the magnetic responses to the surrounding subsoil it is difficult to be confident about a feature at this point. This possible feature does appear to be aligned with the wider positive anomaly, suggesting the two may be contemporary.

No.6

In the south-western corner of the survey area a positive curvilinear anomaly marks the site of a circular ditched feature *c.*7m in diameter. It is difficult to establish from the geophysical survey results whether this feature represents a ditched enclosure of some kind, or represents the remains of a drainage gully around a domestic structure (possibly of prehistoric date).

No.7

There are a variety of responses from within the limits of old field boundaries visible on the geophysical survey results (**Nos.3 & 4**) indicating a range of archaeological activity. The largest field to the north contains linear positive and negative responses running roughly east-west and respecting the boundaries **Nos.3 & 4**. Given their context within a presumed field it is likely these responses represent evidence of ploughing, the positive responses suggesting furrows, the negative responses indicating ridges.

Several small discreet areas of positive responses are visible throughout this field. Such responses are often indicative of cut features and may represent buried pits, or perhaps more natural anomalies such as tree bowls. There also appears to be a general area of mixed responses located centrally within this field. This may also represent a general area of archaeological activity, or perhaps changes in the underlying geology, it is difficult to establish clear archaeological features from the geophysical results.

There is the suggestion of positive linear anomalies running north-south across this area towards the western end of the field. These do not appear to correspond to the ploughing remains mentioned above and may represent an unconnected archaeological feature of unknown function.

No.8

This area comprises the south-eastern of the three probable fields within the survey area, as demarcated by boundaries **No.3** and **No.4**. There is some suggestion of ploughing marks visible within this field although these magnetic responses are weaker than those visible within the larger northern field. Discrete areas of positive responses may suggest buried pits or naturally cut features.

No.9

The south-western of three possible fields within the study area. Again there is some suggestion of ploughing marks within the field although these traces are very faint compared to the northern field.

No.10

Running north-south across the western end of the survey area is a bipolar linear anomaly (alternating strong positive and negative responses). Such responses indicate an underground ferrous pipe or wiring, most likely associated with modern services.

CONCLUSIONS

The geophysical survey results show a variety of archaeological activity across the survey area. Boundary banks and ditches (**Nos.2-4**) appear to demarcate the survey area into at least three separate fields (**Nos.7-9**), within which are evidence of agricultural activity and other, possibly more domestic activity. These boundaries are shown on the map of 1820 (**Figure 2**), but they also align with a series of boundaries emanating from the main road throughout Templeton that are likely to have been established during the medieval layout of the town in front of Sentence Castle. By the later 19th century some of these boundaries within the study area had begun to disappear, being amalgamated into a single field by the end of the 19th century.

The agricultural activity initially appears to extend as far as a wide ditch running north-south across the study area (**No.2**). This ditch also aligns with boundaries visible on 19th century map sources forming the rear of properties fronting the main street, also likely to be medieval in origin. Such boundary ditches to the rear of street front properties would collect rubbish and general detritus from the settlement activity, and as such are often rich in archaeological evidence.

To the east of this north-south boundary ditch, the geophysical results suggests a series of structures and archaeological activity (**No.1**), possibly divided by a continuation of the main east-west field boundary bank and ditch (**No.3**). These structures lie in an area set back from the road frontage, however, it would be expected to find the main domestic structures fronting the street, as can be seen on the 1820 map. This may suggest these structures are outbuildings or workshops behind the main street frontage, although they appear unusually large for outbuildings, and the magnetic responses do not suggest industrial activity. These structures do not appear on 19th century map sources, and they also appear to be on a different alignment to the current buildings fronting the street in this area, known to date from at least the early 19th century (PRN 34729 & 10033). These structures therefore appear to predate the current buildings, suggesting an earlier post-medieval, or possibly even medieval date given their location within supposed medieval boundaries. Their occurrence and location also suggests further street frontage properties may exist in the unsurveyed area of dense scrub at the north-eastern corner of the proposed development site. Their location opposite St John's church, the site of a supposed hospice belonging to the Knights Templar, may also suggest a more unusual function to these structures.

To the west lie several features that do not necessary appear contemporary with this possible medieval/post-medieval settlement and agricultural activity. A wide ditch or trackway runs across the site that does not appear to respect the regular layout of field boundaries associated with the medieval/post-medieval activity. There is also the suggestion of an associated rectangular structure on its west side. The date and function of these features are unclear.

To the west lies a circular ditched feature, also of unknown date and function. Such ditched circular features are often typical of prehistoric sites, such as Bronze Age burial mounds or Iron Age houses, although it appears to be in an isolated location and no internal features have been revealed through the geophysical survey. Such circular features could however have a variety of other explanations, for example a circular dovecote, tree-guards, or even remains of a circular cattle feeding station.

Although the geophysical survey has clearly demonstrated features of archaeological interest exist within the area of proposed development, further targeted intrusive archaeological investigation would be required in order to better categorise the function and date of these features.

ACKNOWLEDGEMENTS

The survey was undertaken by Mike Ings and Phil Poucher.

ARCHIVE DEPOSITION

The archive will initially be held by DAT, before being passed to the National Monument Record, Aberystwyth.

SOURCES

Anon 1820 *Map of South Narberth*

British Geological Survey 1994 *The Rocks of Wales* 1:250,000

Clark A J 1996 *Seeing Beneath the Soil* (2nd edition). Batsford, London

Ordnance Survey 1889 *1st edition 1;2500 Pembrokeshire XXIX.14*

Parker Pearson M 2005 *Bronze Age Britain*. Batsford, London

APPENDIX 1: METHODOLOGY AND INSTRUMENTATION

Geophysical Survey Instrumentation

A fluxgate gradiometer survey provides a relatively swift and completely non-invasive method of surveying large areas.

The survey was carried out using a Bartington Grad601-2 dual Fluxgate Gradiometer, which uses a pair of Grad-01-100 sensors. These are high stability fluxgate gradient sensors with a 1.0m separation between the sensing elements, giving a strong response to deeper anomalies.

The instrument detects variations in the earth's magnetic field caused by the presence of iron in the soil. This is usually in the form of weakly magnetised iron oxides, which tend to be concentrated in the topsoil. Features cut into the subsoil and backfilled or silted with topsoil therefore contain greater amounts of iron and can therefore be detected with the gradiometer. There are, however, other processes and materials that can produce detectable anomalies. The most obvious is the presence of pieces of iron in the soil or immediate environs which usually produce very high readings and can mask the relatively weak readings produced by variations in the soil. Archaeological features such as hearths or kilns also produce strong readings because fired clay acquires a permanent thermo-remnant magnetic field upon cooling. This material can also get spread into the surrounding soil leading to a more generalised magnetic enhancement around settlement sites.

Not all surveys produce good results as anomalies can also be masked by large magnetic variations in the bedrock or soil or high levels of natural background "noise" (interference consisting of random signals produced by material within the soil). In some cases, there may be little variation between the topsoil and subsoil resulting in features being un-detectable. It must therefore be stressed that a lack of detectable anomalies cannot be taken to mean that that there are no below ground archaeological features.

The Bartington Grad601 is a hand-held instrument and readings can be taken automatically as the operator walks at a constant speed along a series of fixed length traverses. The sensor consists of two vertically aligned fluxgates set 1.0m apart. Their Mumetal cores are driven in and out of magnetic saturation by an alternating current passing through two opposing driver coils. As the cores come out of saturation, the external magnetic field can enter them producing an electrical pulse proportional to the field strength in a sensor coil. The high frequency of the detection cycle produces what is in effect a continuous output (Clark 1996).

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

Geophysical Survey Data Collection

The gradiometer includes an on-board data-logger. Readings in the surveys were taken along parallel traverses of one axis of a grid made up of 20m x 20m squares. The traverse intervals were either 0.5m or 1.0m apart. Readings were logged at intervals of 0.25m along each traverse giving 3200 readings per grid square (medium resolution on 0.5m traverses), or 1600 readings per grid square (low resolution on 1.0m traverses).

Geophysical Survey Data presentation

The data was transferred from the data-logger to a computer where it was compiled and processed using ArchaeoSurveyor 2 software. The data is presented as grey-scale plot where data values are represented by modulation of the intensity of a grey scale within a rectangular area corresponding to the data collection point within the grid. This produces a plan view of the survey and allows subtle changes in the data to be displayed. A separate grey-scale plot with interpretation of the main features is also included as necessary.

Geophysical Survey Data Processing

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

Reliability

Geophysical survey is an immensely useful tool but it should be realised that while a survey will detect a wide range of features, it may not detect *all* buried features. A gradiometer survey detects changes in magnetic flux density and relies on there being a detectable difference between the archaeology and the substrate. This may not occur for many reasons (e.g. a cut feature being backfilled with subsoil). It must therefore be stressed that a lack of archaeological responses from a geophysical survey does not prove that there is no archaeology present.

Grid locations

The survey grids were located by measurements to surveyed fixed points such as field boundaries and the local church building.

Bibliography

Clark A J 1996 *Seeing Beneath the Soil* (2nd edition). Batsford, London

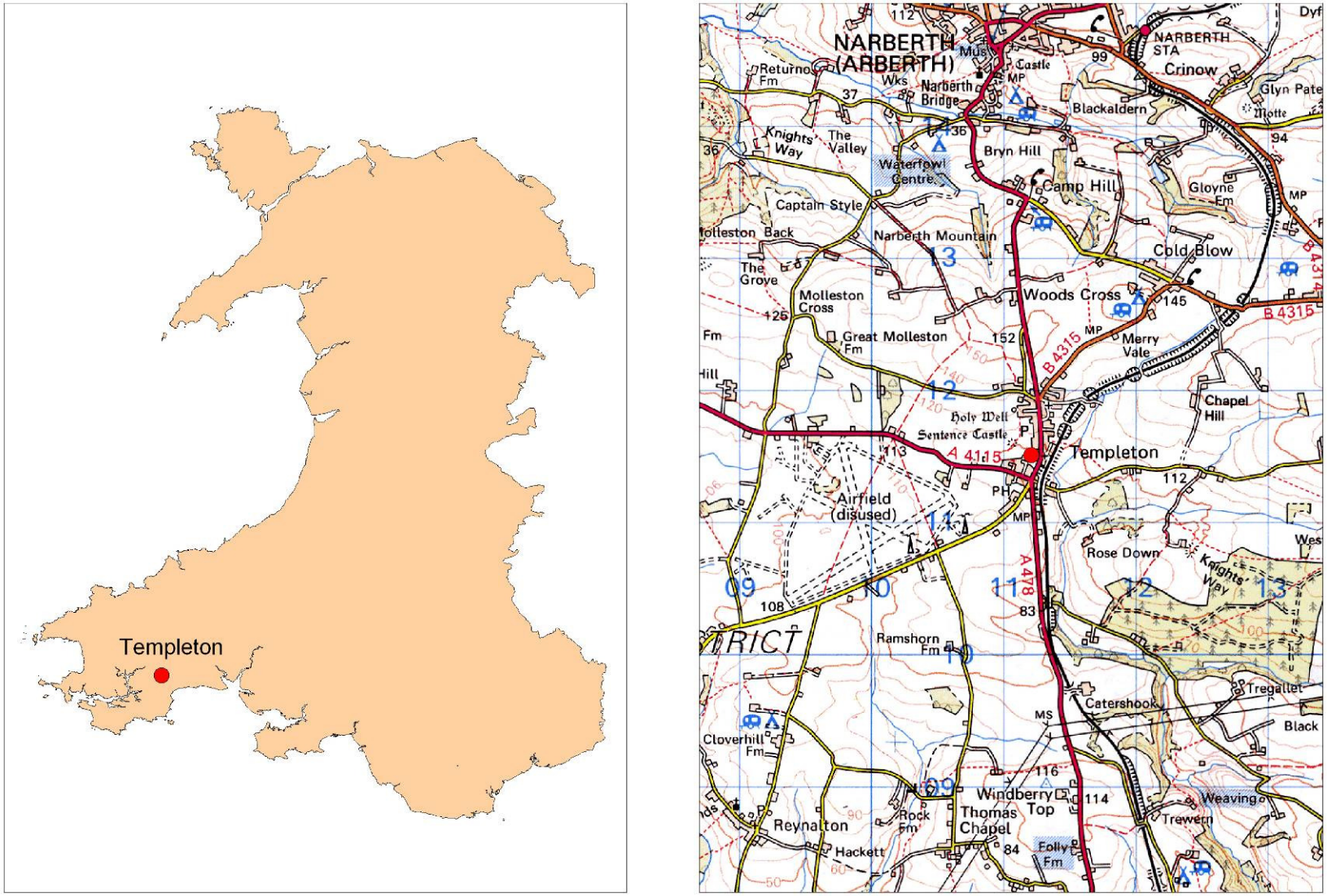

Figure 1: Location map, based on the Ordnance Survey.

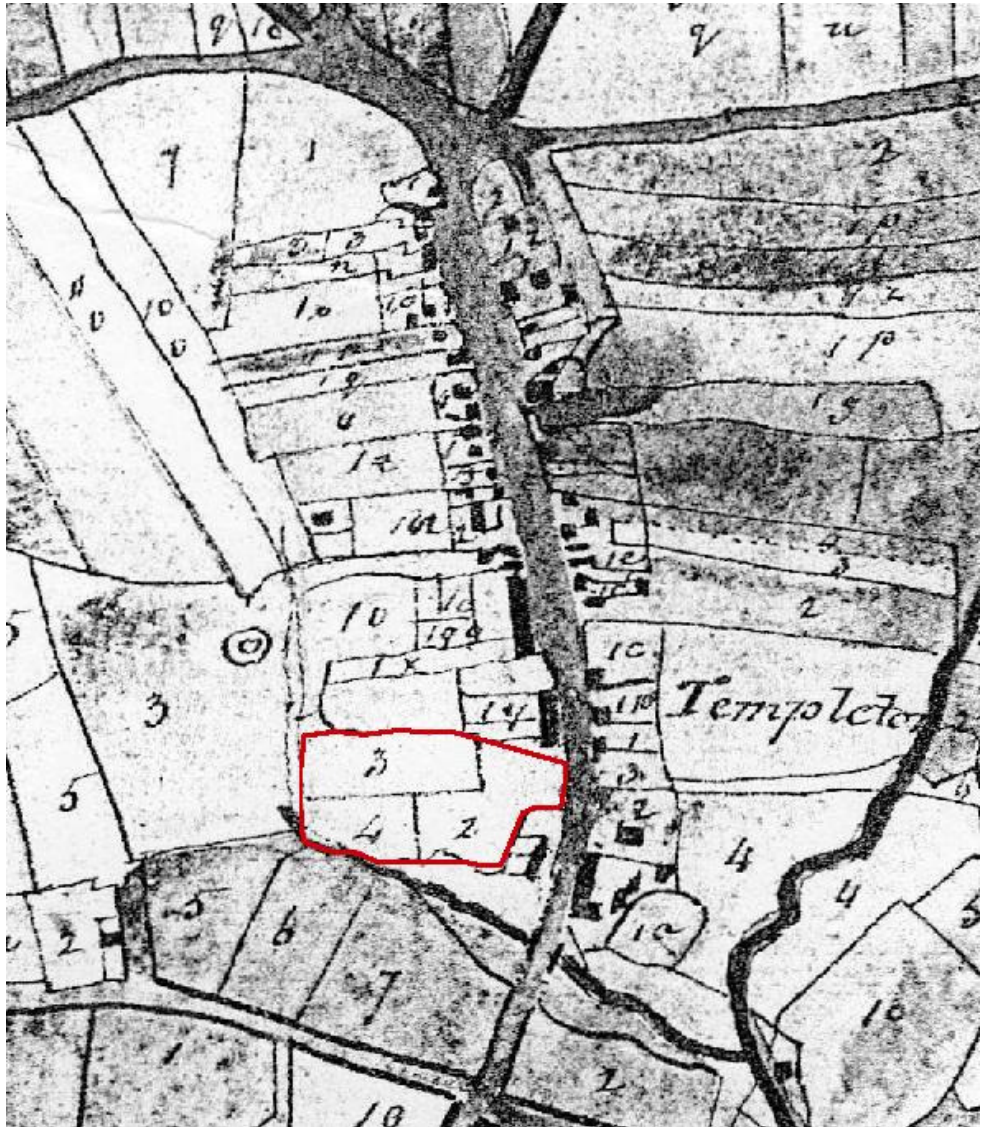

Figure 2: An extract from the 1820 Map of South Narberth, showing Templeton. The survey area is outlined in red.

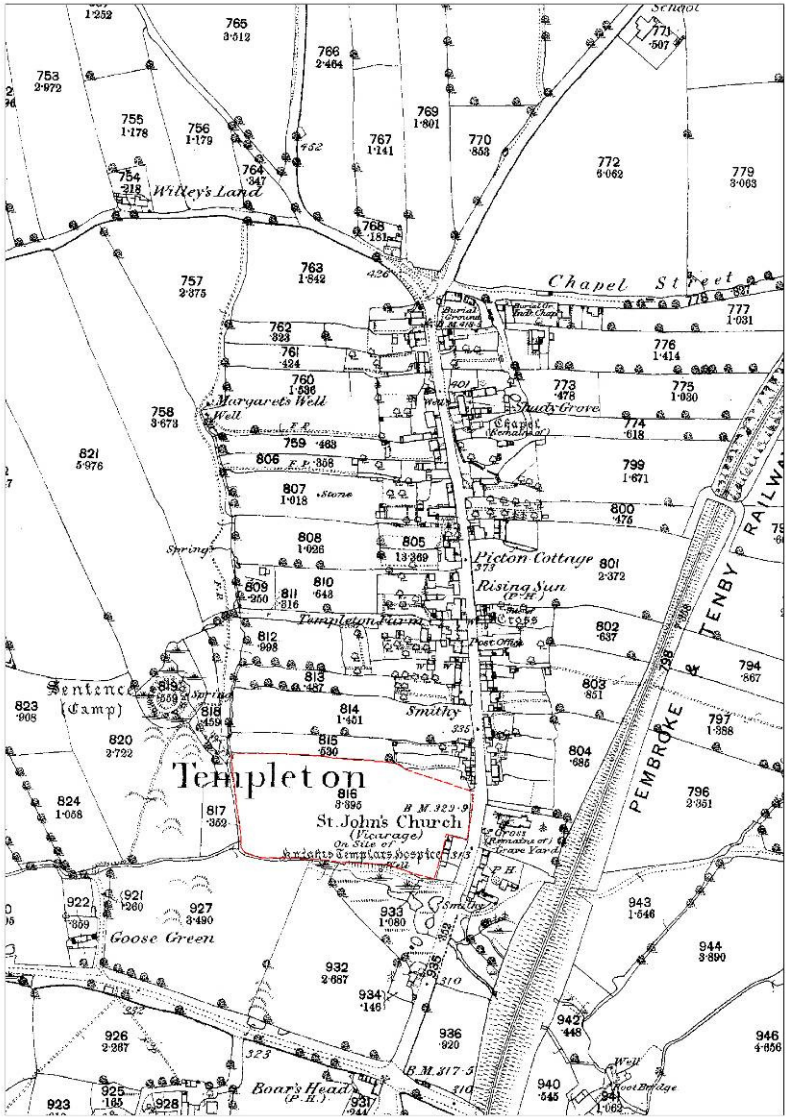

Figure 3: An extract from the 1889 1st edition Ordnance Survey map, showing Templeton. The survey area is outlined in red.

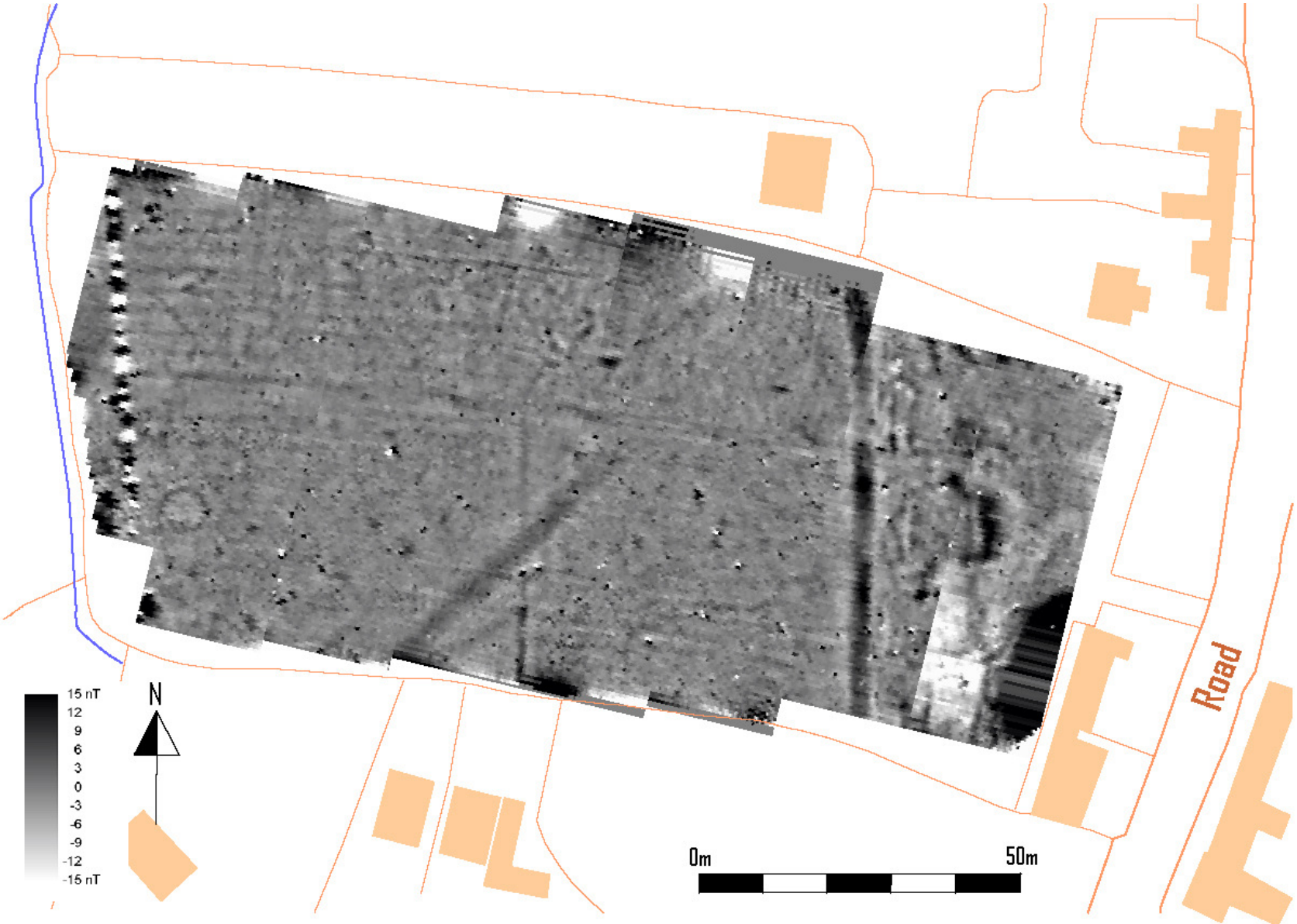

Figure 4: The processed geophysical survey result, grey-scale, overlaid on local topographical features.

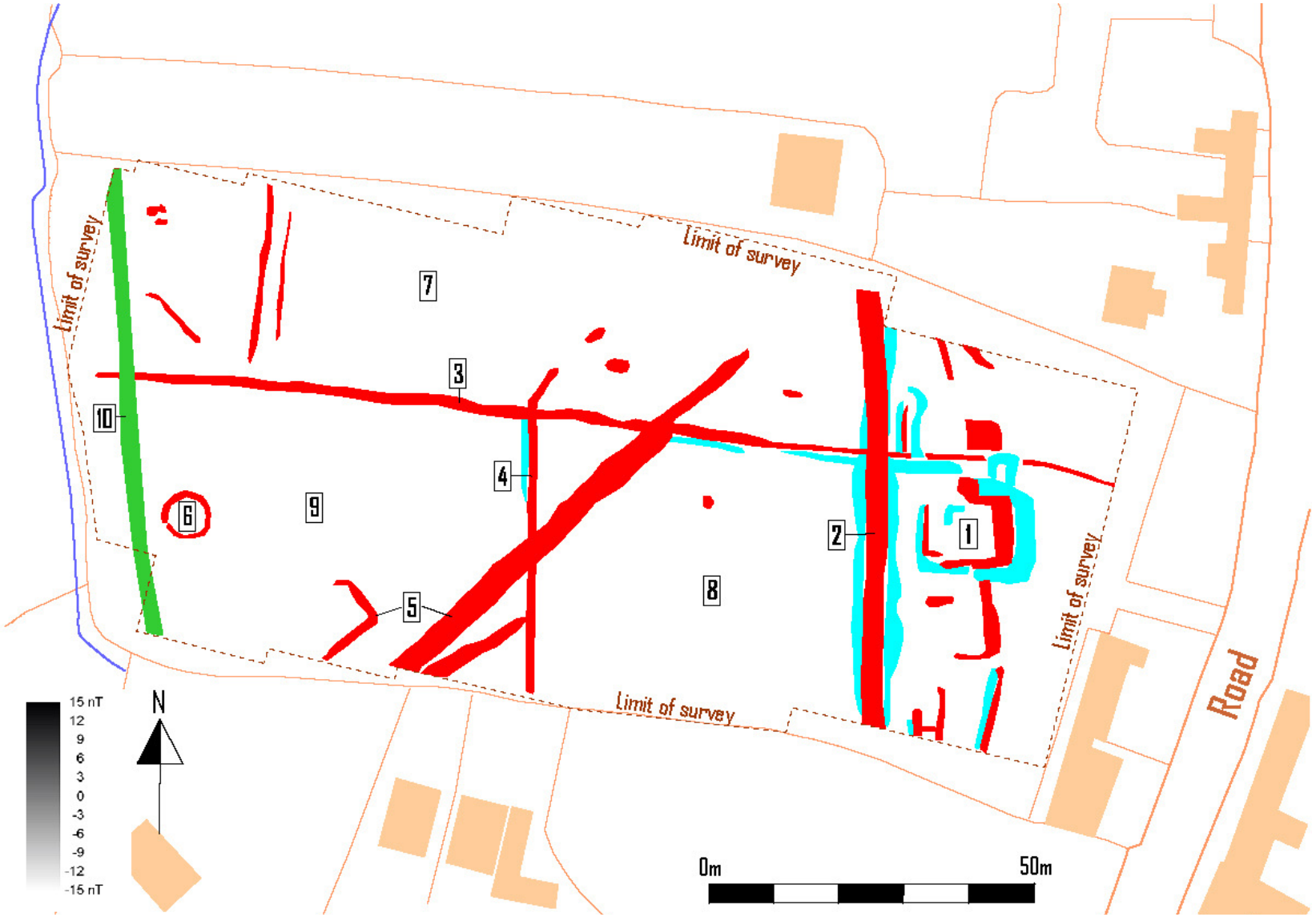

Figure 5: Interpretation of the geophysical survey. Numbers relate to 'Geophysical Interpretation' section in the main text, red highlights the main positive magnetic anomalies, blue highlights the main negative magnetic anomalies and green the main bipolar anomalies.

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RHIF YR ADRODDIAD / REPORT NUMBER 2010/10

Chwefror 2010
February 2010

Paratowyd yr adroddiad hwn gan / This report has been prepared by

Philip Poucher

Swydd / Position: Archaeologist

Llofnod / Signature  Dyddiad / Date 4/2/2010

Mae'r adroddiad hwn wedi ei gael yn gywir a derbyn sêl bendith
This report has been checked and approved by

James Meek

ar ran Ymddiriedolaeth Archaeolegol Dyfed Cyf.
on behalf of Dyfed Archaeological Trust Ltd.

Swydd / Position: Head of Field Services

Llofnod / Signature ..... Dyddiad / Date

Yn unol â'n nôd i roddi gwasanaeth o ansawdd uchel, croesawn unrhyw sylwadau sydd gennych ar gynnwys neu strwythur yr adroddiad hwn

As part of our desire to provide a quality service we would welcome any comments you may have on the content or presentation of this report