

**LAND WEST OF SHERIFFHALES, SHROPSHIRE**  
**Archaeological Geophysical Survey**  
**2014**

**Report by:**

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# Land West of Sheriffhales, Shropshire

## Geophysical Survey 2014

### Abstract

*This geophysical survey was undertaken as part of an archaeological field evaluation of an area of land being considered for development as a solar farm near Sheriffhales, Shropshire.*

*The survey has detected various subsurface features and disturbances. Some appear to relate to former field boundaries and trackways, and there are also extensive systems of land drains. These findings do not provide evidence for the presence of any identifiable archaeological sites.*

### 1. Introduction

The survey was commissioned from Bartlett Clark Consultancy, Specialists in Archaeogeophysics of Oxford, by CgMs Consulting of Cheltenham on behalf of Lightsource Renewable Energy Ltd. Fieldwork for the survey was done between 22 September – 1 October 2014. Plans showing the survey findings have previously been supplied to CgMs, and are now included in this report.

### 2. Objectives of the Survey

The purpose of the survey was to test for evidence of archaeological sites or remains, and to provide information which may inform further stages of the archaeological field evaluation.

This was done by means of a magnetometer survey, which responds to cut features such as ditches and pits when they are silted with topsoil, which usually has a higher magnetic susceptibility than the underlying natural subsoil. The magnetometer also detects the thermoremanent magnetism of fired materials, notably baked clay structures such as kilns or hearths, and so responds preferentially to the presence of ancient settlement or industrial remains. It is also strongly affected by ferrous and other debris of recent origin.

### 3. The Site

Background information on the site and its archaeological potential is included in the Archaeological Desk Based Assessment for the project, as prepared by CgMs [1]. The following notes are summarised in part from this document.

The site includes three arable fields (which are labelled 1-3 for identification on the enclosed plans). It is centred approximately at NGR SJ748123 to the west of Sheriffhales village, and about 4km NE of Telford..

The total extent of the evaluation area is c. 48ha. It was surveyed substantially in full, with the exception of a small strip of woodland between fields 1 and 3, giving final survey coverage amounting to 46.1ha.

### *Topography and Geology*

The site occupies an area of undulating ground at elevations which increase overall from c. 117m AOD in the south to 140m AOD at the northern boundary.

The underlying geology of the site is noted in the DBA as (Carboniferous) Sandstone with subordinate Conglomerate, Siltstone and Mudstone. It is partly free of drift deposits, but superficial Diamicton, Sand and gravel are recorded for the south eastern part of the site. Soils on sandstone bedrock are sometimes not highly responsive to magnetometer surveying. In this case magnetic susceptibility readings taken during the survey were in a range 7-20 ( $\times 10^{-5}$  SI). These readings are relatively low, but not outside the range of values commonly encountered at sites where productive surveys have been undertaken. It will probably therefore be the case (as often) that ancient settlement or industrial remains (which are usually associated with localised soil magnetic enhancement) will respond more reliably than isolated ditches or enclosures with relatively non-magnetic fill.

### *Archaeological Background*

Previously recorded archaeological findings in the vicinity of the site which are mentioned in the DBA include rectilinear ditched enclosures of possible Iron Age date about 650m south of the present study site, but there are no other known prehistoric findings from within the site or nearby.

The County HER records a rotary quern (HER 00737) which was found on the north western boundary of the study site at the edge of field 1 in 1953. Fragments of Roman pottery (HER 00738) are recorded in Middle Wood about 300m west of the study site, and Watling Street (the present A5) is 1km to the south.

There are no recorded Saxon or Medieval findings, and later mapping suggests that much of the site could have been forested during these periods. The northern part of the site is shown as woodland ('Rough Park') on a map of 1844 (reproduced from the DBA, and inset in figure 10 of this report). The southern half of the site is shown as a number of small fields, several of which are also wooded. The greater part of the site, other than the SE corner, is shown as woodland on the OS map of 1885-9 (figure 4 in DBA).

The woodland had been cleared by the time of the 1967-8 OS map (figure 5 in DBA). This map shows a number of field boundaries, most of which had been removed by 1990.

A World War II bombing decoy (NMR 1414032) is recorded on the southern boundary of the study site, and might have extended into the SW part of the survey area. No visible remains survive.

The DBA concludes there could be a moderate potential for Roman activity in the northern part of the study site, but only low potential for findings of other periods.

#### **4. Survey Procedure**

The procedure used for the investigation was a fluxgate gradiometer survey across the evaluation area. Results are presented as described below.

A survey grid was set out at the required locations, and tied to the OS grid using a GPS system with VRS correction to provide 0.1m or greater accuracy. The plans are therefore geo-referenced, and OS co-ordinates of map locations can be read from the AutoCAD version of the plans.

The magnetometer readings were collected along transects 1m apart using Bartington 1m fluxgate gradiometers, and are plotted at 25cm intervals along each transect. The results of the survey are presented as grey a scale plot (at 1:2000 scale) in figures 2-4, and as a graphical (x-y trace) plot in figures 5-9 (at 1:1500 at A3). Inclusion of both types of presentation allows the detected magnetic anomalies to be examined in plan and profile respectively.

The graphical (x-y) plot represents minimally pre-processed magnetometer readings, as recommended for initial presentation of survey data in the 2008 English Heritage geophysical guidelines document [2]. Adjustments are made for irregularities in line spacing caused by variations in the instrument zero setting (as is required for legibility in gradiometer data), but no further filtering or other process which could affect the anomaly profiles or influence the interpretation of the data has been applied. A weak additional 2D low pass filter has been applied to the grey scale plot to adjust background noise levels.

An interpretation of the findings is shown in figures 5-9, and is reproduced separately to provide a summary of the findings in figures 10-12. Colour coding has been used in the interpretation to distinguish different effects. The interpretation is intended to categorize most of the identifiable magnetic anomalies, but cannot reproduce the detail of the grey scale plots.

Features as marked include magnetic anomalies which may show characteristics to be expected from features of potential archaeological significance (in red), and stronger (perhaps recent) disturbances in brown. Small (and mainly natural) background magnetic anomalies are outlined in light brown. Broad irregular magnetic anomalies of a kind commonly seen in wetland soils are indicated in a light green. Some of the more conspicuous ferrous objects (identifiable as narrow spikes in the graphical plots) are outlined in light blue, and probable land drains and pipes are also marked.

#### **5. Results**

The survey has detected magnetic disturbances from various sources, most of which are

clearly of recent or non-archaeological origin. A few findings are more difficult to categorise, but none suggest the presence of any unambiguous or substantial archaeological sites or features. We comment first on these findings in the notes below.

### *Potential archaeological findings*

Features visible in the survey which do not clearly relate to current land use or activities include a broad strip of disturbed readings in field 1 (labelled A in figure 10). This corresponds to a track through woodland on the 1885 map, and appears to have been a field boundary until recently. The strong magnetic anomalies at A could indicate either the former presence of a metalled track, or a ditch infilled with recently imported debris. A pipe (which could be laid in the infilled ditch) follows the same alignment in the western half of the field. This joins another pipe which runs alongside the north western field boundary. (This pipe continues to the south along the boundary of field 2, where a further large N-S pipe also crosses the field.)

There is an increase in the intensity of background magnetic activity to the north of the former boundary at A (as indicated by the density of small background magnetic anomalies outlined in light brown). This increase could relate to variations in previous land use, or could perhaps indicate that past forestry activities have caused more ground disturbance here than elsewhere.

Distinct linear markings in the grey scale plot (figure 2) suggest the presence of a trackway (or perhaps parallel furrows) in the north eastern corner of field 1 (B in figure 10). The features here do not appear to form part of any more extensive system of boundaries or enclosures.

Another distinct ditch-like feature, together with a weak linear marking, are visible at C and D in field 2. The response at C is of similar strength to some of the land drains (mentioned below), but the feature is marked in red (as potentially archaeologically relevant) because it curves slightly, and the drains are all straight. It also aligns with (but does not appear directly to correspond to) former field boundaries as shown on the 1844 map (inset in figure 10). The much weaker feature D also apparently aligns with an 1844 boundary. It continues the line of an existing trackway which extends between adjacent fields to the west. It could perhaps therefore represent a former continuation of this trackway across field 3.

### *Other findings*

Magnetic disturbances visible in the survey which are unlikely to be of archaeological origin include amorphous weak magnetic anomalies as outlined in light green around E at the west of field 2. These are typically seen on wetland or clay soils, and appear to relate to natural variations in the depth or composition of near-surface silt deposits. There are no extensive disturbances which could relate to the presence of the WWII decoy in this part of the field, although a few strong and possibly recent disturbances are indicated nearby.

Other strong magnetic anomalies (as outlined in brown) are visible at various locations around the field boundaries, and are probably of recent origin. The line of disturbances which terminates at F in field 3 corresponds to field boundaries visible on the 1885 and other maps. Two former boundaries intersect at F, which probably represents a spread of rubble or hardcore at a former field entrance. Other isolated clusters of similar magnetic

activity (as seen to the west of E in field 2, and in field 1) could also represent former field entrances, even if the adjacent boundaries have not been detected.

The final category of findings is an extensive system of land drains. Some of these are indicated by sequences of small magnetic anomalies which are caused by sections of clay pipe, as seen in field 3. Others (as at G, H in field1, and extensively in field 2) are continuous ditch-like features, suggesting the drains are laid in trenches containing a magnetically differentiated fill. These form a complex intersecting pattern around G in field 1, but the nearby parallel linear pattern converging on the former boundary at A suggests these features must represent drains. The short individual lengths of similar drain-like disturbances, as at H in field 1, are unusual, but their similarity to the anomalies at G again suggests they could only be drains. An extensive and typically drain-like branching system of such features is seen in field 2.

## 6. Conclusions

The survey has detected various sub-surface features and disturbances, some of which appear to relate to variations in past land use, and to former trackways or field boundaries. The presence of such findings suggests that a magnetic response should be obtained at least from groups or concentrations of archaeological features, if any were present. Isolated ditches or enclosures might not respond reliably on the clay soil or sandstone bedrock, but disturbances associated with former settlement sites would usually be expected to produce some response. The absence of any such findings suggests that any Roman settlement site which might be associated with the quern stone found on the northern site boundary is unlikely to be located within the survey area.

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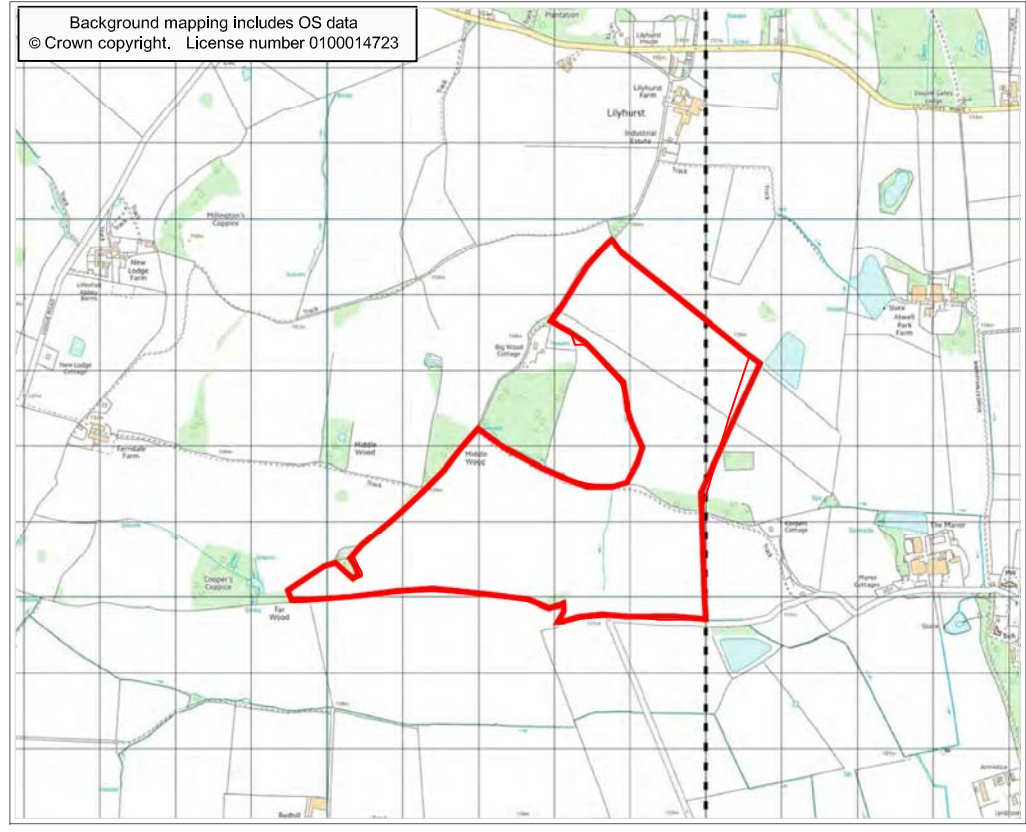
31 October 2014

The fieldwork for this project was done by P. Heykoop, R. Organ and C. Matthews.

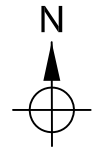
## References

- [1] *Archaeological Desk Based Assessment. Land West of Sheriffhales, Shropshire.* Report by R. Smalley, CgMs; July 2014 (CgMs Reference: WB/RAJS/17516).
- [2] English Heritage 2008 *Geophysical Survey in Archaeological Field Evaluation* [online facsimile] (English Heritage: Swindon, 2008), English Heritage Research.

Background mapping includes OS data  
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Location of geophysical survey (from DBA figure 1) 1:20000



375000E

312000N

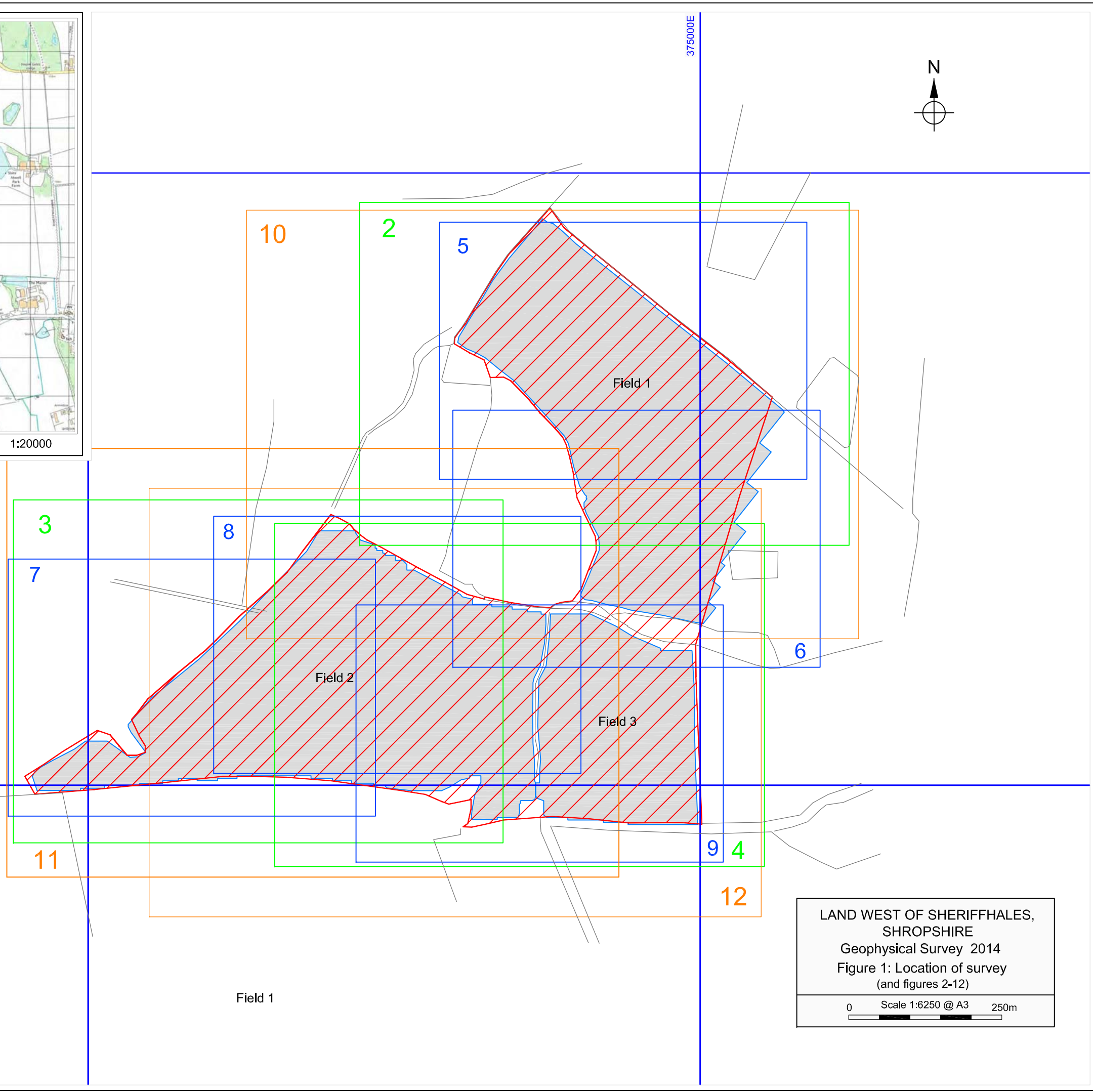
Proposed survey area

Survey coverage

Location of 1:2000 figures (2-4)

Location of 1:1500 figures (5-9)

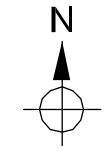
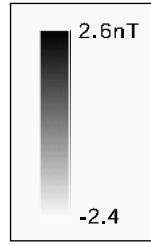
Location of 1:2500 summary plans (10-12)



LAND WEST OF SHERIFFHALES,  
SHROPSHIRE  
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Figure 1: Location of survey  
(and figures 2-12)

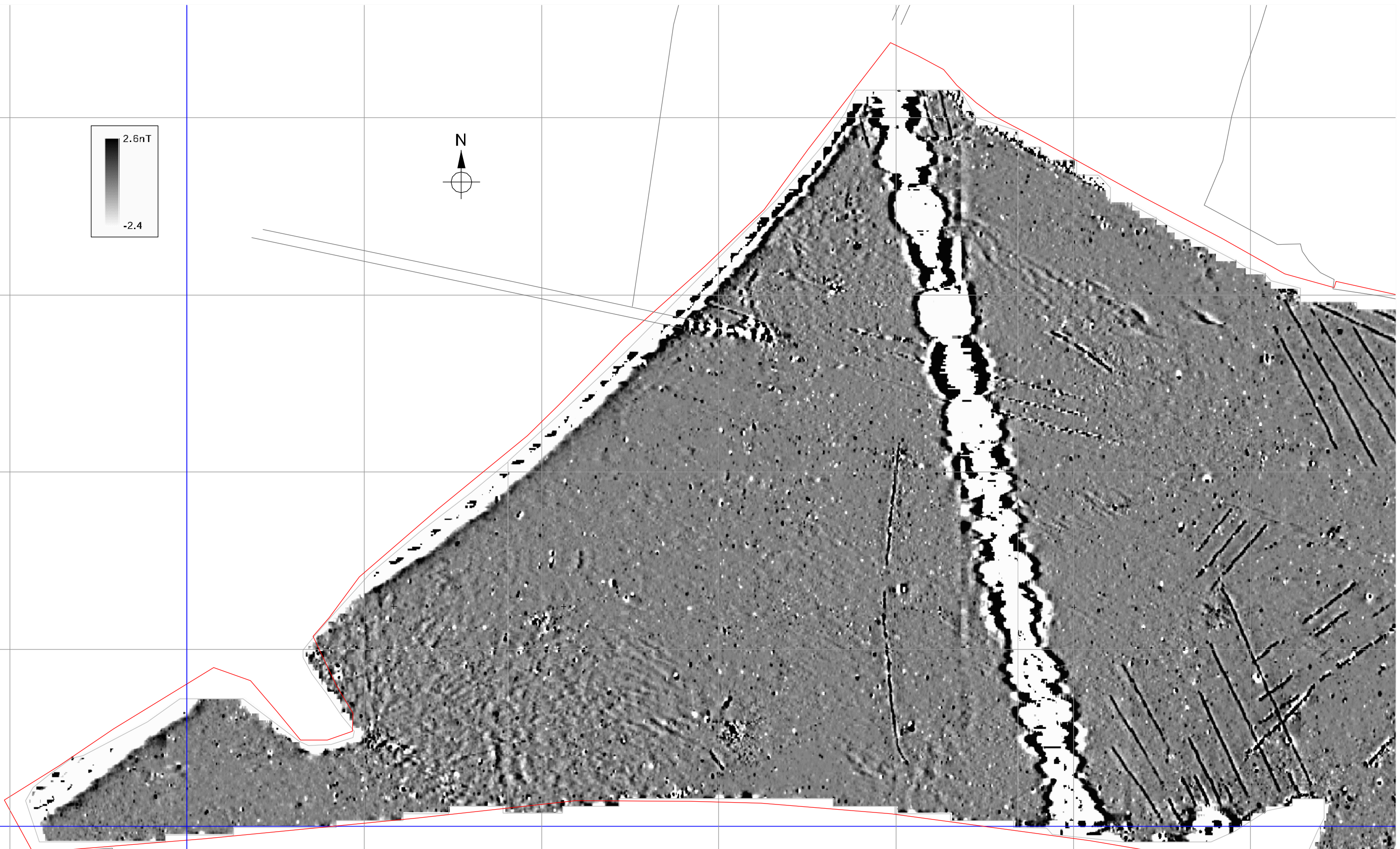
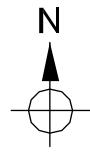
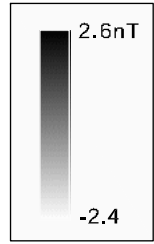
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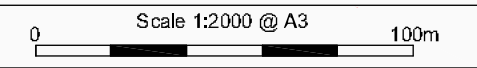


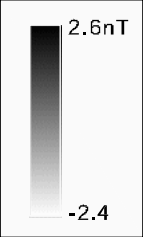
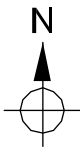
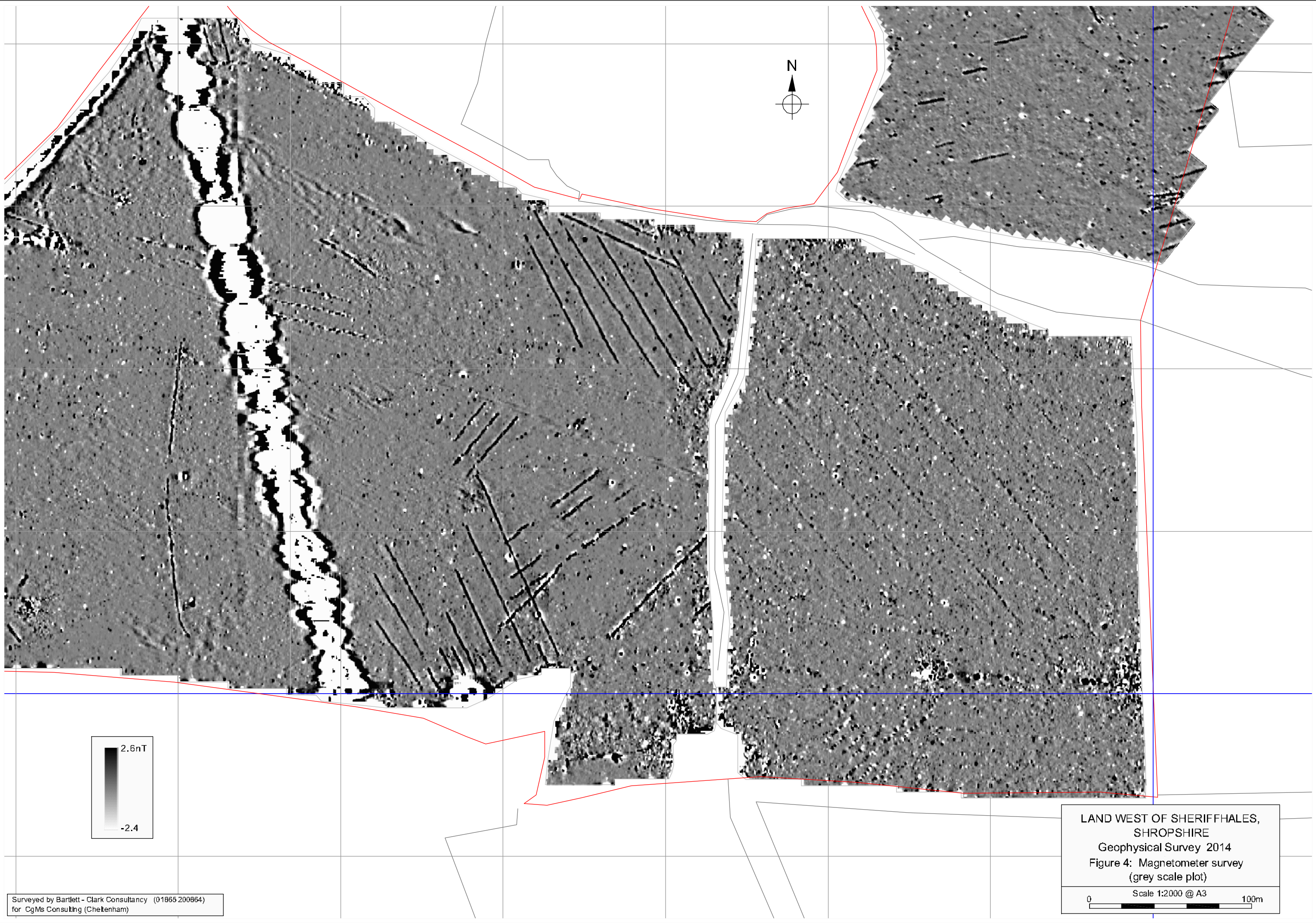
LAND WEST OF SHERIFFHALES,  
SHROPSHIRE  
Geophysical Survey 2014  
Figure 2: Magnetometer survey  
(grey scale plot)

0 Scale 1:2000 @ A3 100m



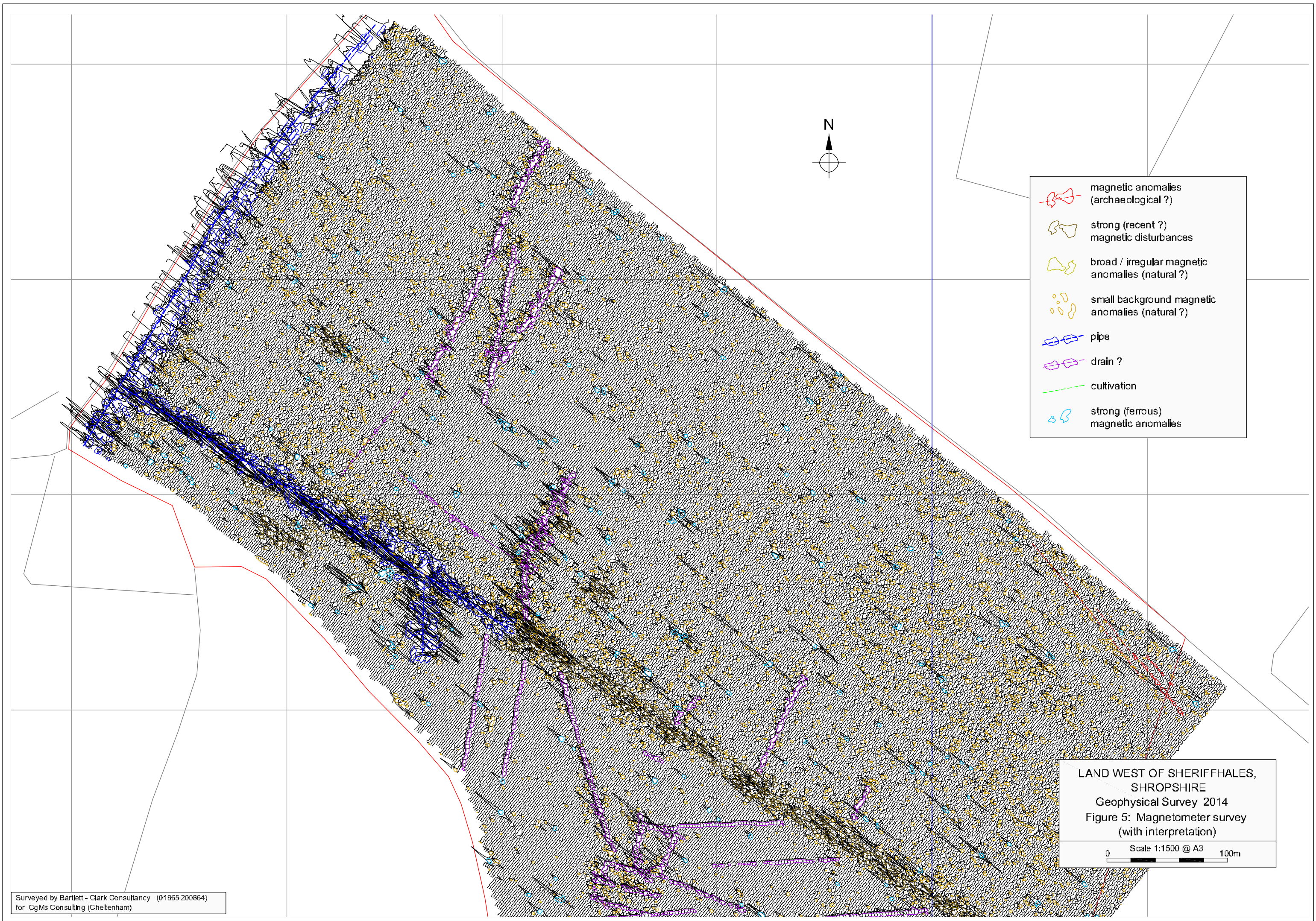
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Geophysical Survey 2014  
Figure 3: Magnetometer survey  
(grey scale plot)













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SHROPSHIRE  
Geophysical Survey 2014  
Figure 4: Magnetometer survey  
(grey scale plot)  
Scale 1:2000 @ A3  
0 100m

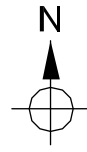
Surveyed by Bartlett - Clark Consultancy (01865 200864)  
for CgMs Consulting (Cheltenham)











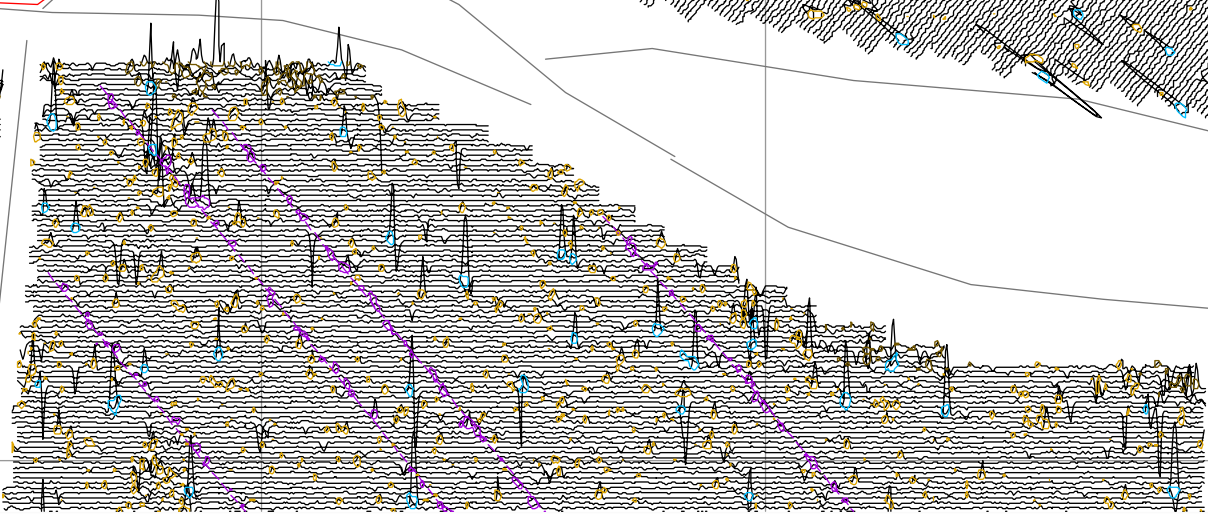
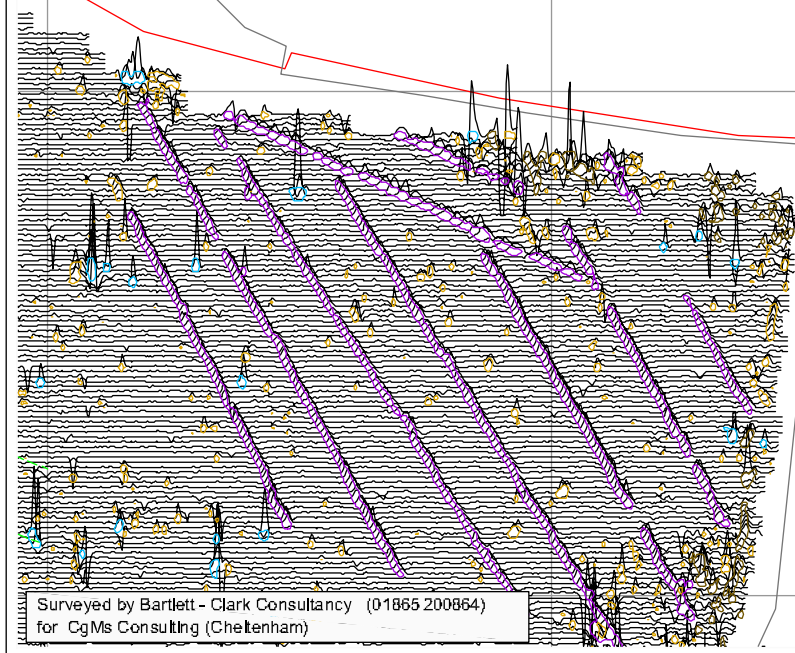
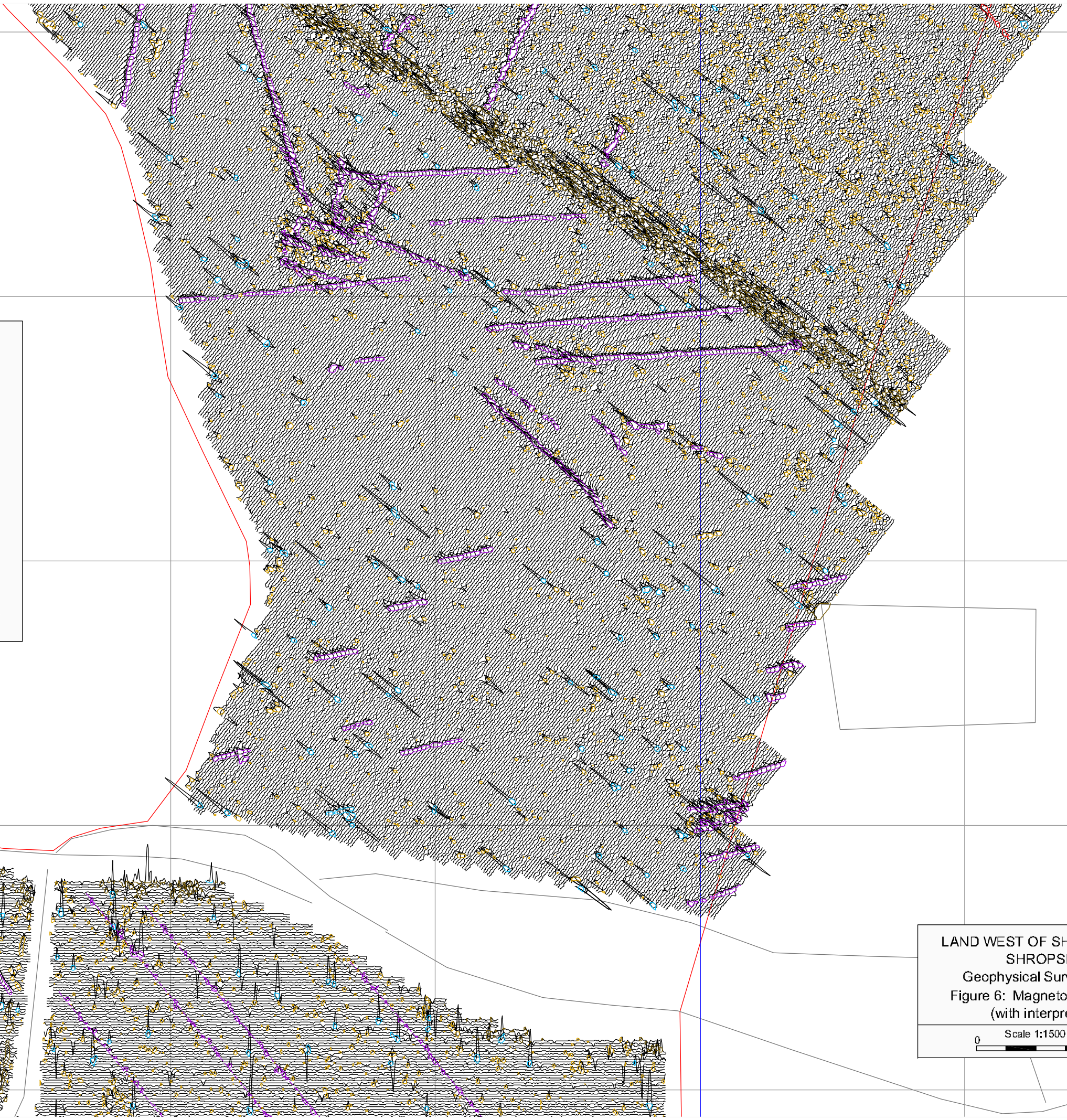
-  magnetic anomalies (archaeological ?)
-  strong (recent ?) magnetic disturbances
-  broad / irregular magnetic anomalies (natural ?)
-  small background magnetic anomalies (natural ?)
-  pipe
-  drain ?
-  cultivation
-  strong (ferrous) magnetic anomalies

LAND WEST OF SHERIFFHALES,  
 SHROPSHIRE  
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 Figure 5: Magnetometer survey  
 (with interpretation)

0 Scale 1:1500 @ A3 100m

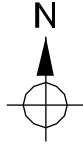










-  magnetic anomalies (archaeological ?)
-  strong (recent ?) magnetic disturbances
-  broad / irregular magnetic anomalies (natural ?)
-  small background magnetic anomalies (natural ?)
-  pipe
-  drain ?
-  cultivation
-  strong (ferrous) magnetic anomalies

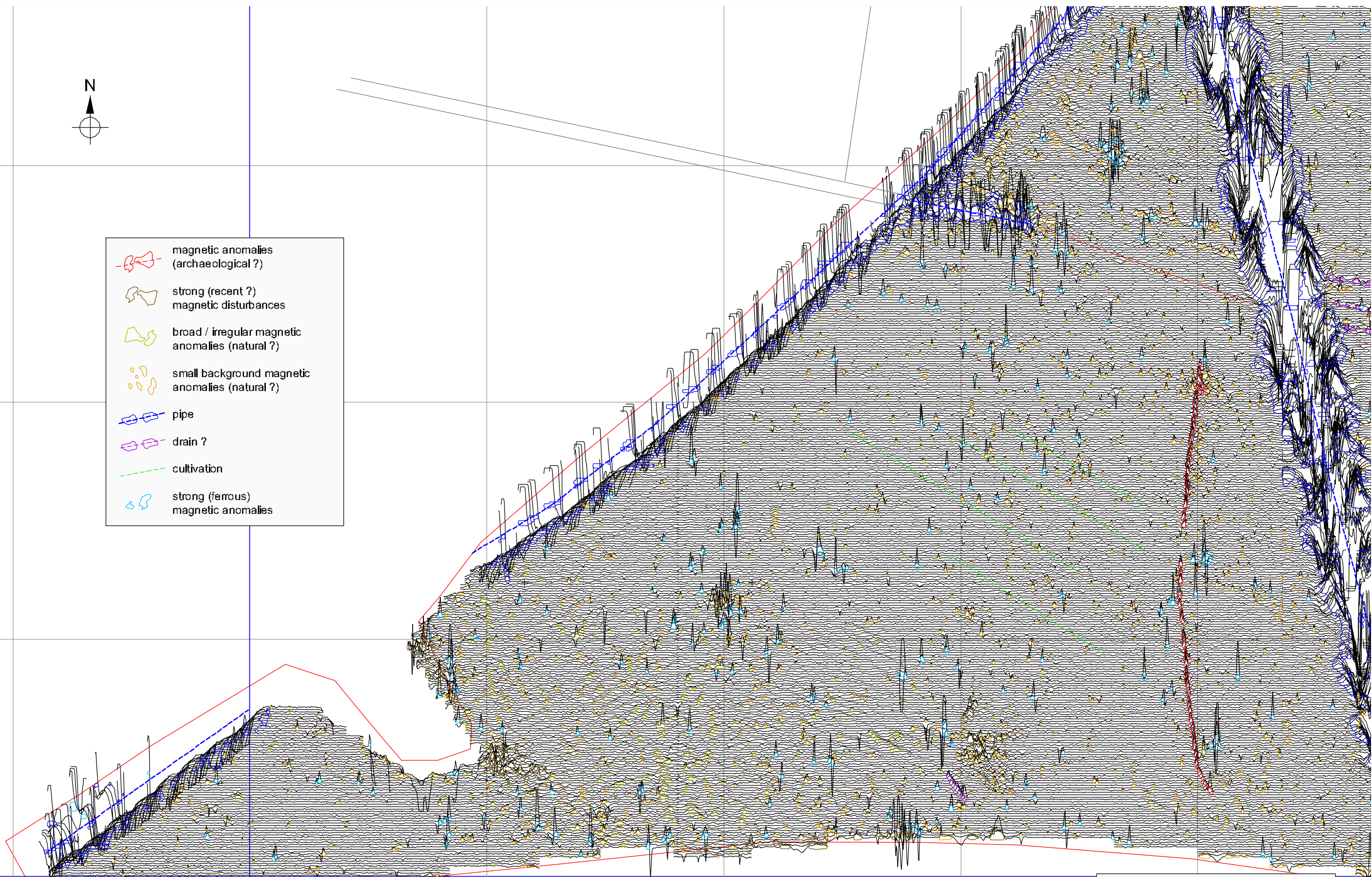


LAND WEST OF SHERIFFHALES,  
SHROPSHIRE  
Geophysical Survey 2014  
Figure 6: Magnetometer survey  
(with interpretation)

0 Scale 1:1500 @ A3 100m

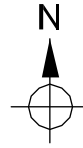










-  magnetic anomalies (archaeological ?)
-  strong (recent ?) magnetic disturbances
-  broad / irregular magnetic anomalies (natural ?)
-  small background magnetic anomalies (natural ?)
-  pipe
-  drain ?
-  cultivation
-  strong (ferrous) magnetic anomalies

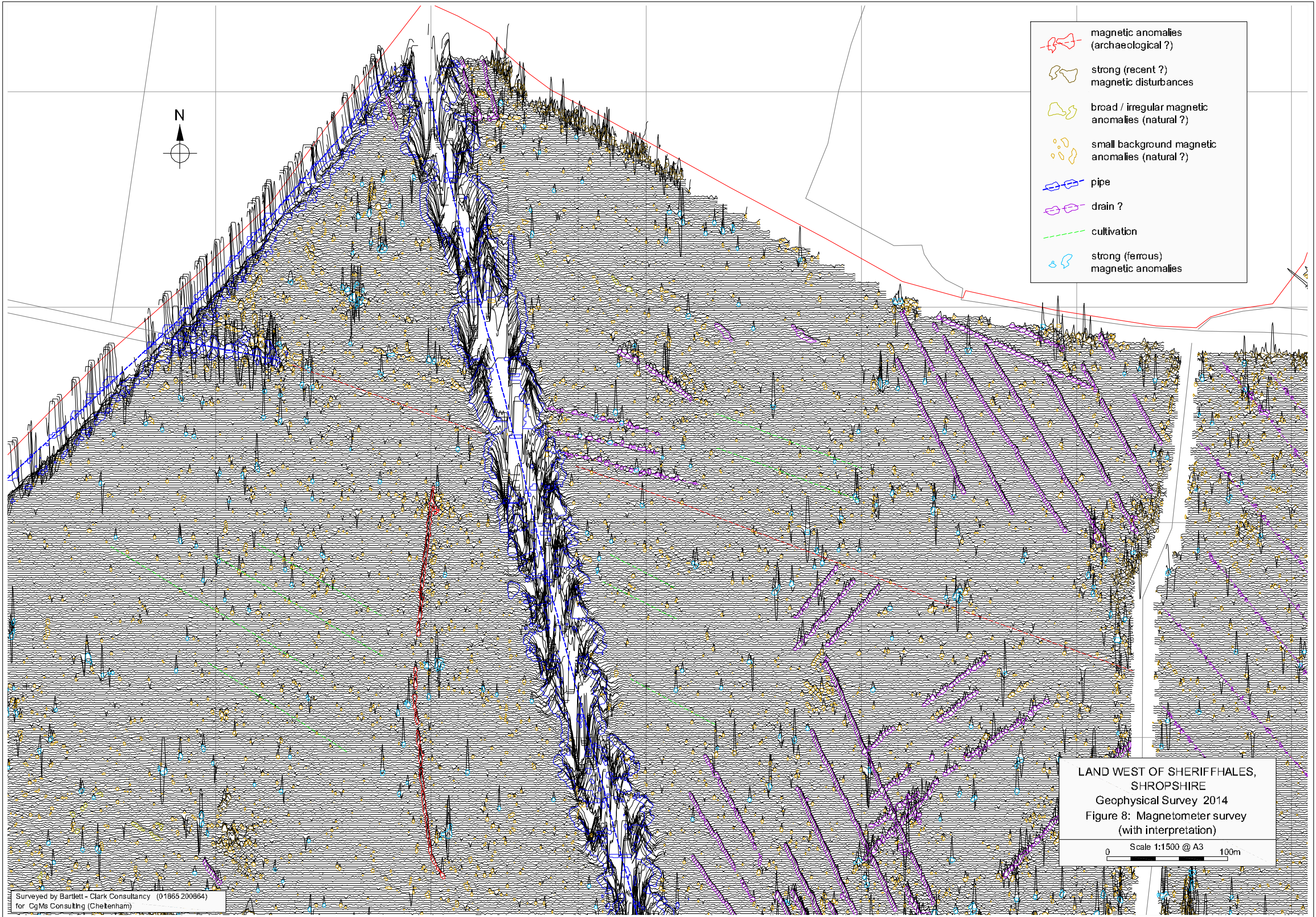


LAND WEST OF SHERIFFHALES,  
SHROPSHIRE  
Geophysical Survey 2014  
Figure 7: Magnetometer survey  
(with interpretation)

0 Scale 1:1500 @ A3 100m

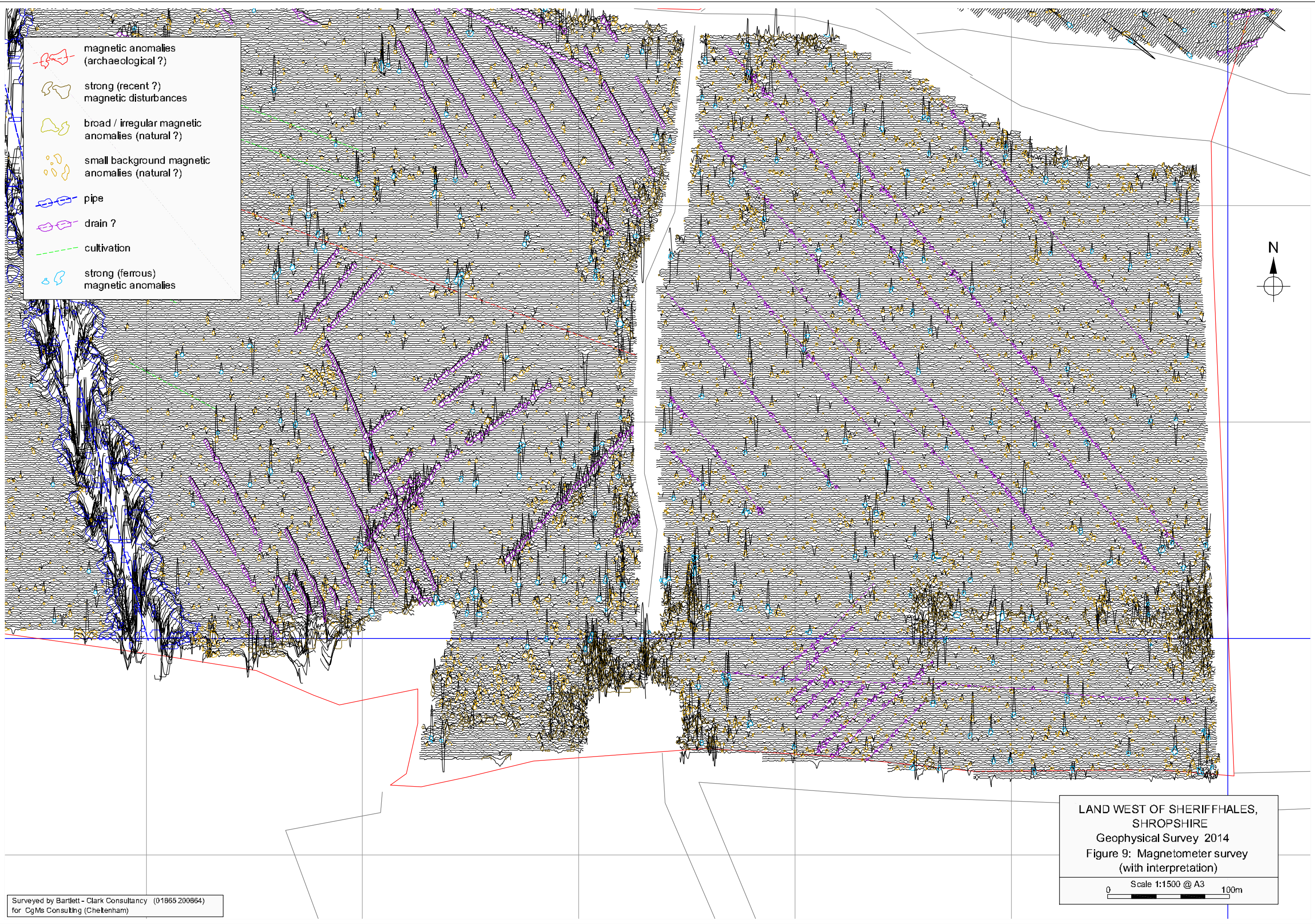


-  magnetic anomalies (archaeological ?)
-  strong (recent ?) magnetic disturbances
-  broad / irregular magnetic anomalies (natural ?)
-  small background magnetic anomalies (natural ?)
-  pipe
-  drain ?
-  cultivation
-  strong (ferrous) magnetic anomalies



LAND WEST OF SHERIFFHALES,  
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Figure 8: Magnetometer survey  
(with interpretation)

0 Scale 1:1500 @ A3 100m

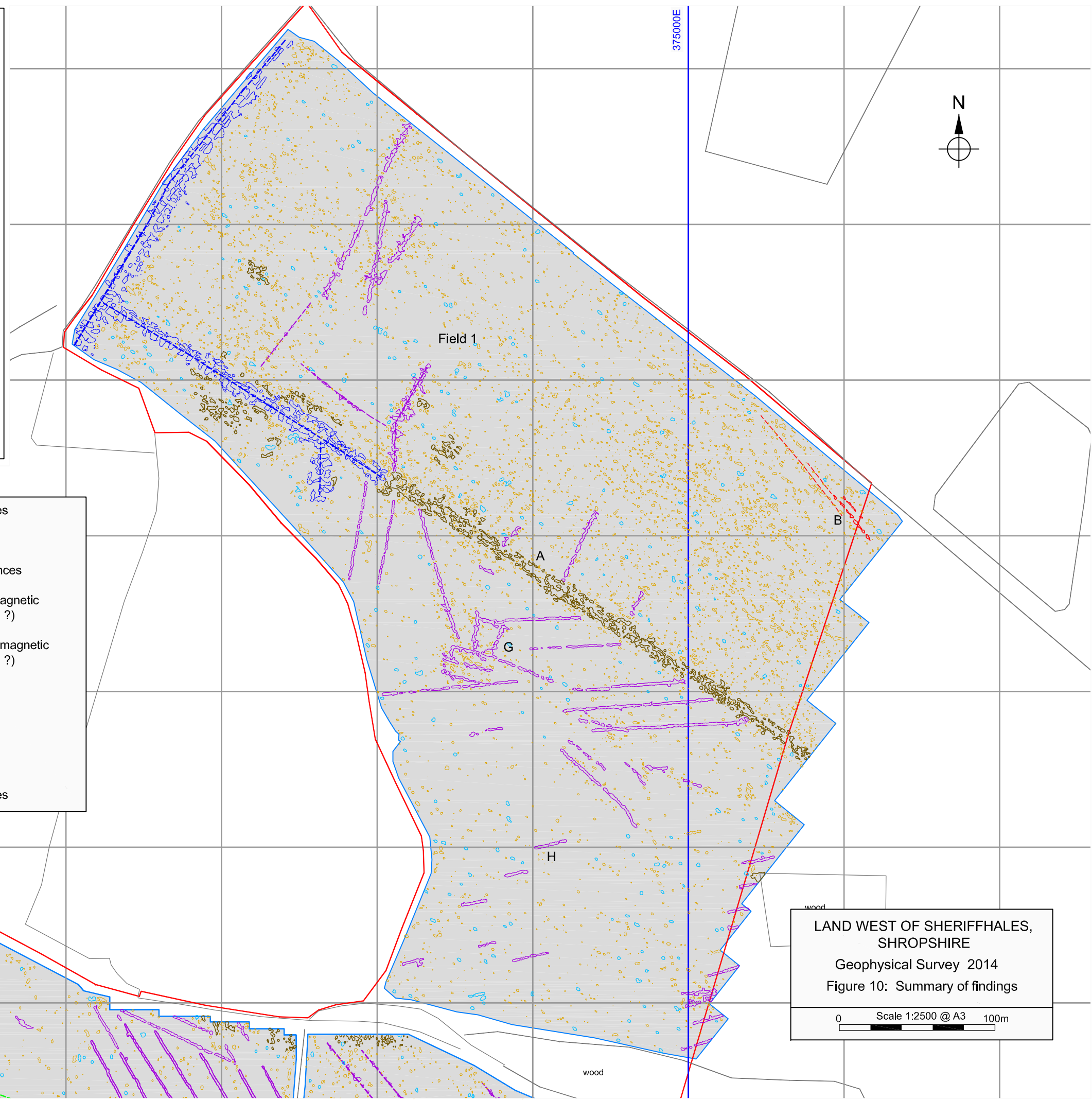










LAND WEST OF SHERIFFHALES,  
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Geophysical Survey 2014  
Figure 9: Magnetometer survey  
(with interpretation)  
Scale 1:1500 @ A3  
0 100m













Map 1844 with selected magnetic anomalies (from DBA figure 3) 1:12500

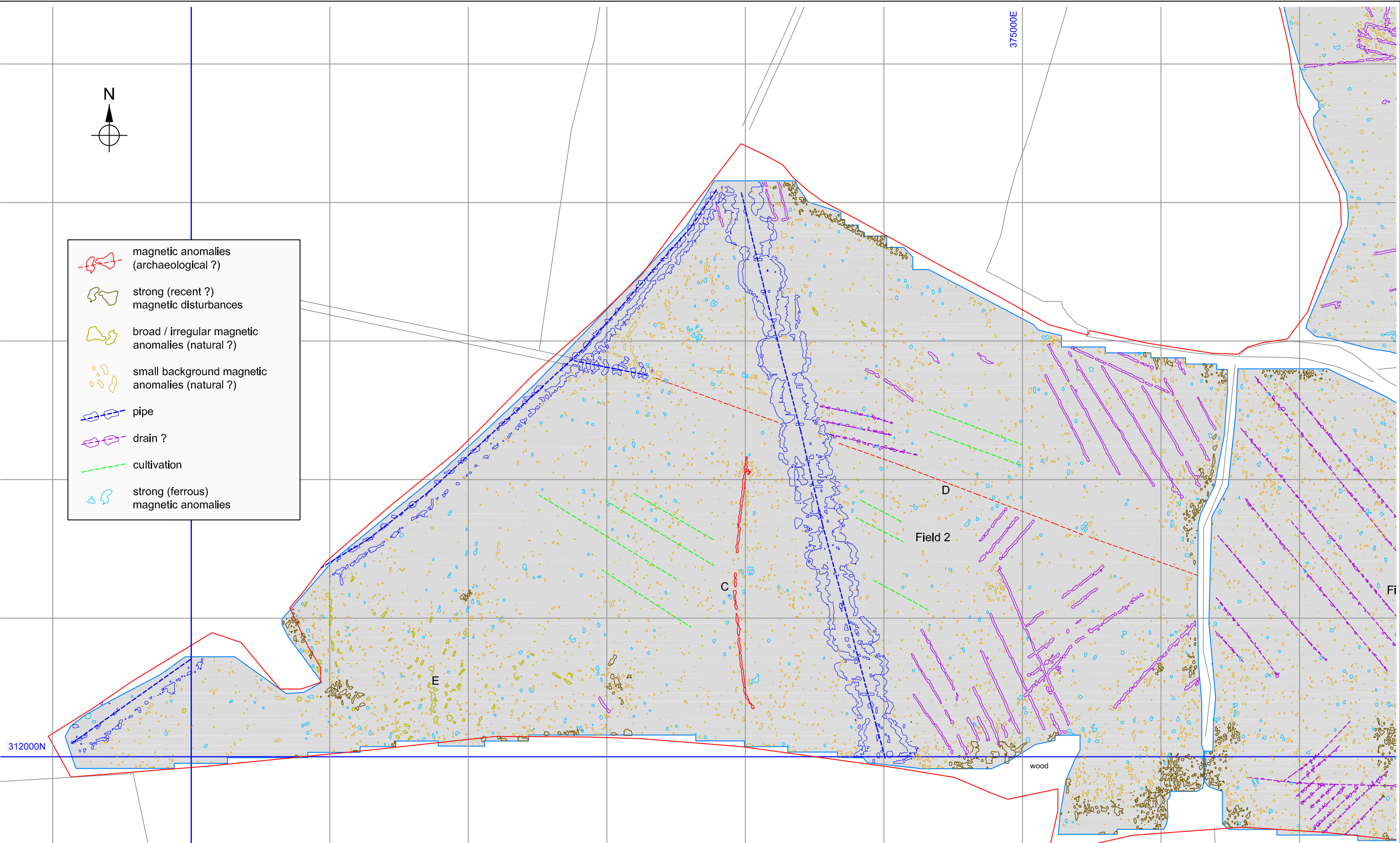


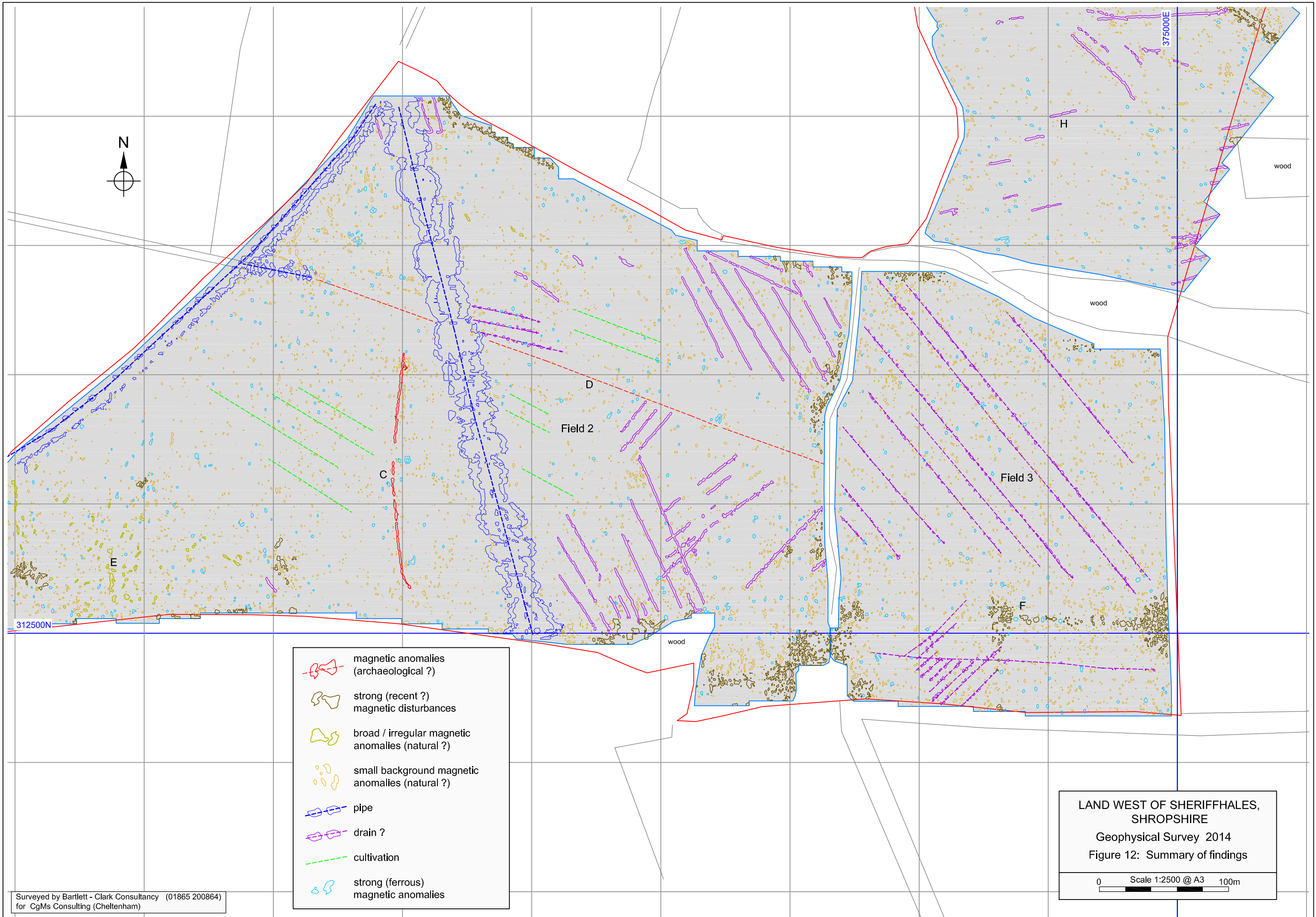
-  magnetic anomalies (archaeological ?)
-  strong (recent ?) magnetic disturbances
-  broad / irregular magnetic anomalies (natural ?)
-  small background magnetic anomalies (natural ?)
-  pipe
-  drain ?
-  cultivation
-  strong (ferrous) magnetic anomalies









LAND WEST OF SHERIFFHALES,  
SHROPSHIRE  
Geophysical Survey 2014  
Figure 10: Summary of findings  
0 Scale 1:2500 @ A3 100m



-  magnetic anomalies (archaeological ?)
-  strong (recent ?) magnetic disturbances
-  broad / irregular magnetic anomalies (natural ?)
-  small background magnetic anomalies (natural ?)
-  pipe
-  drain ?
-  cultivation
-  strong (ferrous) magnetic anomalies

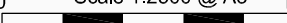




-  magnetic anomalies (archaeological ?)
-  strong (recent ?) magnetic disturbances
-  broad / irregular magnetic anomalies (natural ?)
-  small background magnetic anomalies (natural ?)
-  pipe
-  drain ?
-  cultivation
-  strong (ferrous) magnetic anomalies

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LAND WEST OF SHERIFFHALES,  
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Figure 12: Summary of findings

0  100m  
Scale 1:2500 @ A3