

**IWOOD LANE SOLAR PARK
CONGRESBURY, SOMERSET**

Report on Archaeological Geophysical Survey 2013

Survey commissioned by:

**CgMs Consulting
Burlington House,
Lypiatt Road,
Cheltenham,
Glos GL50 2SY**

Report by:

A.D.H. Bartlett

**Bartlett-Clark Consultancy
25 Estate Yard, Cuckoo Lane,
North Leigh,
Oxfordshire OX29 6PW
01865 200864**

6 November 2013

Iwood Lane Solar Park near Congresbury, Somerset Report on Archaeological Geophysical Survey, 2013

Introduction

This geophysical survey has been undertaken as part of an archaeological field evaluation of a proposed solar power site in Somerset. The survey was commissioned from Bartlett Clark Consultancy, Specialists in Archaeogeophysics of Oxford, by CgMs Consulting Ltd of Cheltenham on behalf of Wessex Solar Energy.

Fieldwork for the survey was completed on 9-12 September 2013. A data plot showing the survey findings has previously been submitted to CgMs, and is now included in this report.

The Site

Topography and geology

The site is an area of farmland extending across a number of fields as indicated by coloured shading in figure 1. It is centred approximately at NGR 345000, 162600 1-2km SW of Congresbury. The total area of the site is 18.5ha, but it is subdivided by a number of hedges and drains, as well as the line of an old railway. The total coverage achieved by the survey was therefore 15.9ha.

The underlying bedrock is Triassic Mercia Mudstone. Soils on this bedrock do not necessarily respond strongly to magnetometer surveys, although results are variable. Alluvial deposits are present in the Yeo valley immediately to the north of the site, and could perhaps extend into fields at the north of the survey area. Natural variations in the depth or composition of alluvial soils can often give rise to characteristic magnetic anomalies, as noted below.

Archaeological background

Previous investigations in the vicinity of the site have included a series of magnetometer surveys of fields mainly to the north of the present site which have been done by a local Community Archaeology Team (YCCCART). Immediately adjacent fields which have previously been surveyed are indicated (by blue cross hatching), and are numbered (in an arbitrary sequence) for reference in figure 1 (fields 1-6 and 9). The present survey overlaps with previous coverage in three of the fields (5, 6, 9). A further magnetometer survey (as indicated by green cross hatching in figure 1) was done in fields immediately to the SW of the present survey by GSB in 2012 [1]. Grey scale plots from the GSB and YCCCART reports are reproduced for comparison together with plots from the present survey in a plan inset in figure 7. [We do not have any plans of the earlier surveys showing OS grid lines, and so the plots have been located approximately by matching field boundaries.]

It is noted in the reports on the YCCART surveys that the work was undertaken in part to investigate the extent of a Roman kiln site at Congresbury, and an early settlement at Iwood. The survey plots reproduced in figure 7 show various linear markings, some of which could be ditches or enclosures of archaeological relevance (although drains and other disturbances are also present). These are most distinct in fields 3 and 4 to the north and west of the present survey area. Findings from the duplicated fields 5 and 6 (as described in reports [2] and [3]) are more problematic, as discussed below.

The GSB survey detected a number of pipes and drains, but did not produce any findings of clear archaeological significance.

Survey Procedure

The method used for the geophysical survey was a recorded magnetometer survey using Bartington 1m fluxgate magnetometers. Readings are plotted at 25cm intervals along transects 1m apart. The results of the survey are shown as a grey scale plot at 1:2000 scale in figures 2-3, and as a graphical (x-y trace) plot at 1:1250 scale in figures 4-6. Comparison of these alternative presentations allows the detected magnetic anomalies to be examined in plan and profile respectively.

The x-y plots represent the readings after minimal pre-processing operations. These include adjustment for irregularities in line spacing caused by heading errors (direction sensitivity in the instrument zero setting), and truncation of extreme values. The grey scale plots show a processed version after additional weak low pass filtering to adjust background noise levels.

The magnetometer 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. It 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. The readings are also strongly affected by ferrous and other debris of recent origin.

Presentation

An interpretation of the findings is shown superimposed (for comparison) on the graphical plots (figures 4-6), and is reproduced separately to provide a summary of the findings in figure 7. Magnetic anomalies which perhaps show some of the characteristics to be expected from potential archaeological features are outlined in red. Weak magnetic anomalies of probably natural or non-archaeological origin are outlined in a light green. Probable recent or non-archaeological disturbances are indicated in brown, and individual items of ferrous debris in blue. Pipes and probable land drains are also indicated.

Survey location

The survey grid was set out and tied to the OS grid using a differential GPS system (with VRS correction). The plans are therefore geo-referenced, and OS co-ordinates of map locations can be read from the AutoCAD version of the plans, which can be supplied with this report.

Results

Findings from the greater part of the survey (fields 8-16 as numbered on figure 7) consist mainly of drains and recent disturbances, and are comparable to those seen in the GSB survey immediately to the west. There are distinct parallel linear markings representing intact clay pipes in field 15, and more fragmented linear disturbances in fields 8, 10, 12. This could mean the drains here take the form of infilled trenches, or that ceramic pipes have been broken by past ploughing. Various strong disturbances of probably recent origin (as outlined in brown) are seen mainly near to boundaries and entrances, and also along the former railway (which runs between fields 11 and 12). Similar disturbances across field 14 suggest the area has been infilled with ballast or hardcore. A large north-south pipe (seen also in the earlier survey in field 4) intersects fields 11-12 (blue line).

A ditch-like feature is marked in red at A in field 12. This aligns with a pipe in the GSB survey, and is perhaps a relatively recent former boundary rather than an archaeological feature.

There are slightly more varied results from the northern part of the survey (fields 5-7). These include strong disturbances (at B, C in field 6) which are noted also in the YCCCART report. They correspond to a former boundary shown on an 1839 map reproduced in the report [2]. The disturbances are on the line of a hedge removed since 1971, and it probable therefore that B represents a spread of hardcore, as is often detected in former field entrances.

Other findings in these fields include relatively broad and weak magnetic anomalies as outlined in light green. Some of these form linear or ditch-like patterns, as indicated also by broken green lines. Our difficulty in interpreting these results is that features of this kind are widespread on wetland soils (as was seen at a number of locations in surveys recently done in lowland areas of Somerset in connection with the Hinkley Point C Connection Project [4]). The fields here (5-7) are at the lower lying northern end of the site, and near the River Yeo. It is not impossible that ditches of archaeological origin could give rise to weak and diffuse magnetic anomalies if detected through a shallow layer of alluvial cover, but the irregular and curving plan of the features (as seen for example at D in field 5) suggests they are likely to be natural. Further investigation would be needed fully to resolve this question. There is a possible narrower ditch-like feature (shown in red at E in field 6), but it is too weak to be interpreted with any confidence.

A few individual magnetic anomalies which could be characterised as silted pits of potential archaeological relevance (as represented by rounded profiles in the graphical plots 4-6) are outlined in red in the interpretation. There are no groups or clusters of such features to suggest the presence of any detectable concentrations of archaeological features or activity.

Conclusions

Findings in the southern part of the survey are limited to drains and recent disturbances (with the exception of a possible former boundary ditch at A in field 12). Features detected towards the north of the survey include disturbances on the line of a former field boundary in field 6, and various weak irregular linear features of uncertain significance, particularly in field 5. A slight possibility remains that these could be ditches or enclosures covered by superficial alluvium, but the widespread presence of similar features in wetland conditions as seen in other surveys suggests they are likely to be natural. A possible further ditch-like feature at E in field 6 is also very weak and not necessarily of any significance.

Report by:

A. Bartlett BSc MPhil

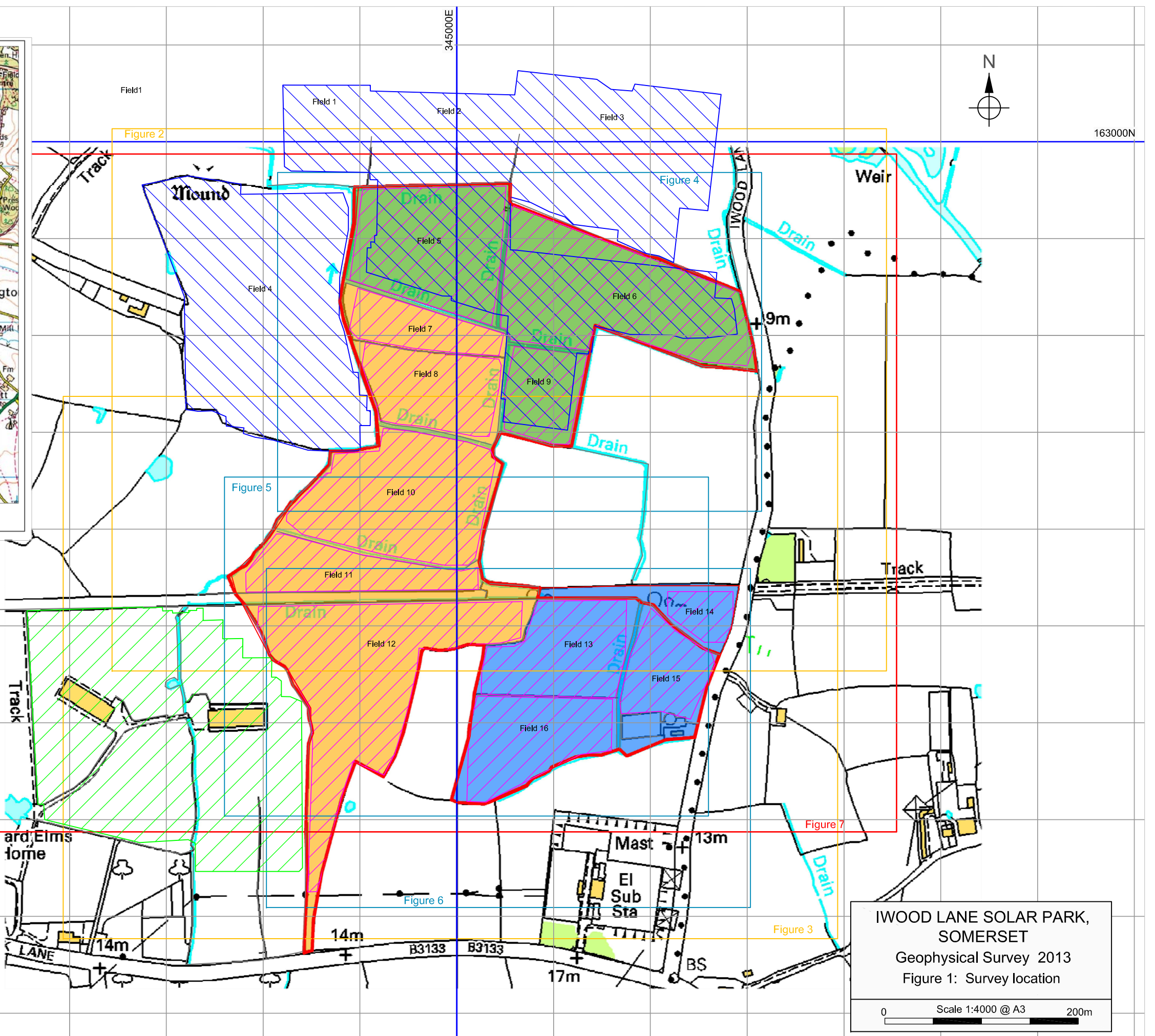
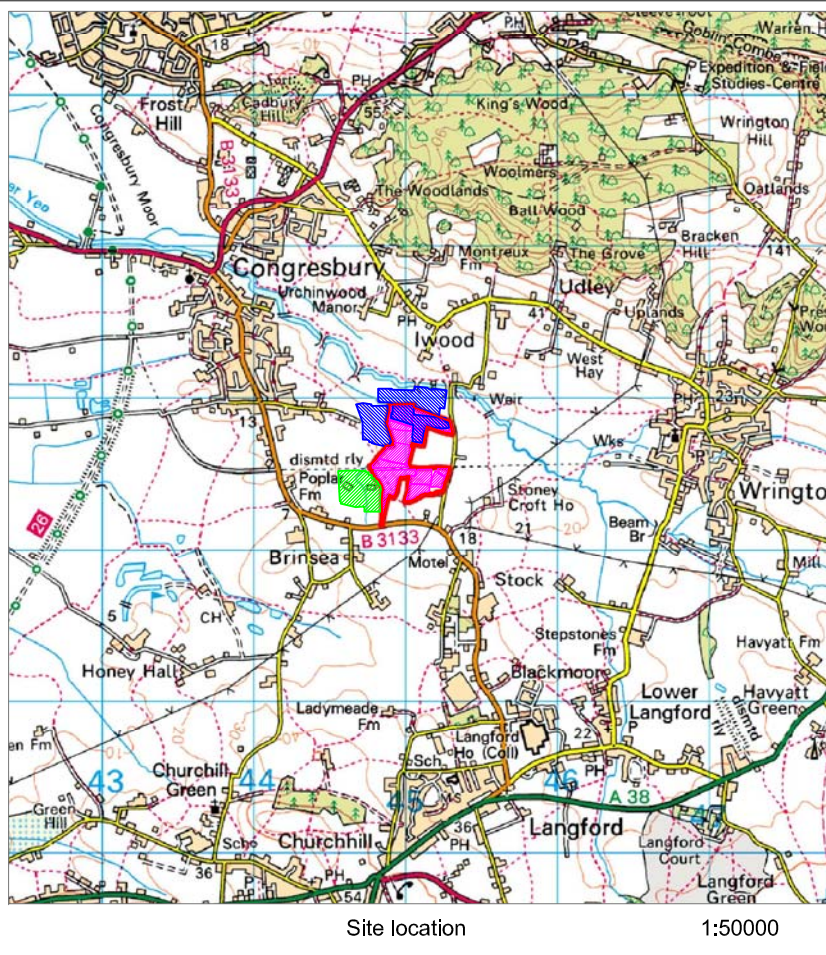
Bartlett-Clark Consultancy
Specialists in Archaeogeophysics
25 Estate Yard
Cuckoo Lane
North Leigh
Oxfordshire OX29 6PW
01865 200864
email: bcc123@ntlworld.com








6 November 2013

The fieldwork for the survey was done by C. Oatley and N. Paveley.

References

- [1] *Yeowood Farm (Twin Elm Farm)*. Report on geophysical survey by GSB Prospection Ltd. Project 2102/32.
- [2] *YCCCART 2013/Y2*; Gradiometry Survey at Iwood (Mr Collins Field 8). Report by Yatton, Congresbury, Claverham and Cleeve Archaeological Research Team. Ed. V. Russett, 2013.
- [3] *YCCCART 2013/Y4*; Gradiometry Survey at Iwood (Mr Collins Field 10). Report by Yatton, Congresbury, Claverham and Cleeve Archaeological Research Team. Ed. V. Russett, 2013.
- [4] *Hinkley Point C Connection Project*. Report on Archaeological Geophysical Surveys. Report by A. Bartlett, Bartlett Clark Consultancy, for National Grid and Oxford Archaeology; October 2013.



-  Proposed survey area
-  Survey coverage
-  Approximate location of YCCART surveys
-  Approximate location of GSB survey
-  Location of 1:2000 figures (2-3)
-  Location of 1:1250 figures (4-6)
-  Location of 1:2500 summary plan (7)

**IWOOD LANE SOLAR PARK,
SOMERSET**
Geophysical Survey 2013
Figure 1: Survey location

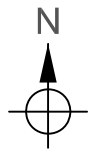
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Field1

Field 1

Field 2

Field 3



Field 4

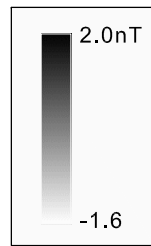
Field 5

Field 6

Field 7

Field 8

Field 9



Field 10

Field 11

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Figure 2: Magnetometer survey
(grey scale plot)

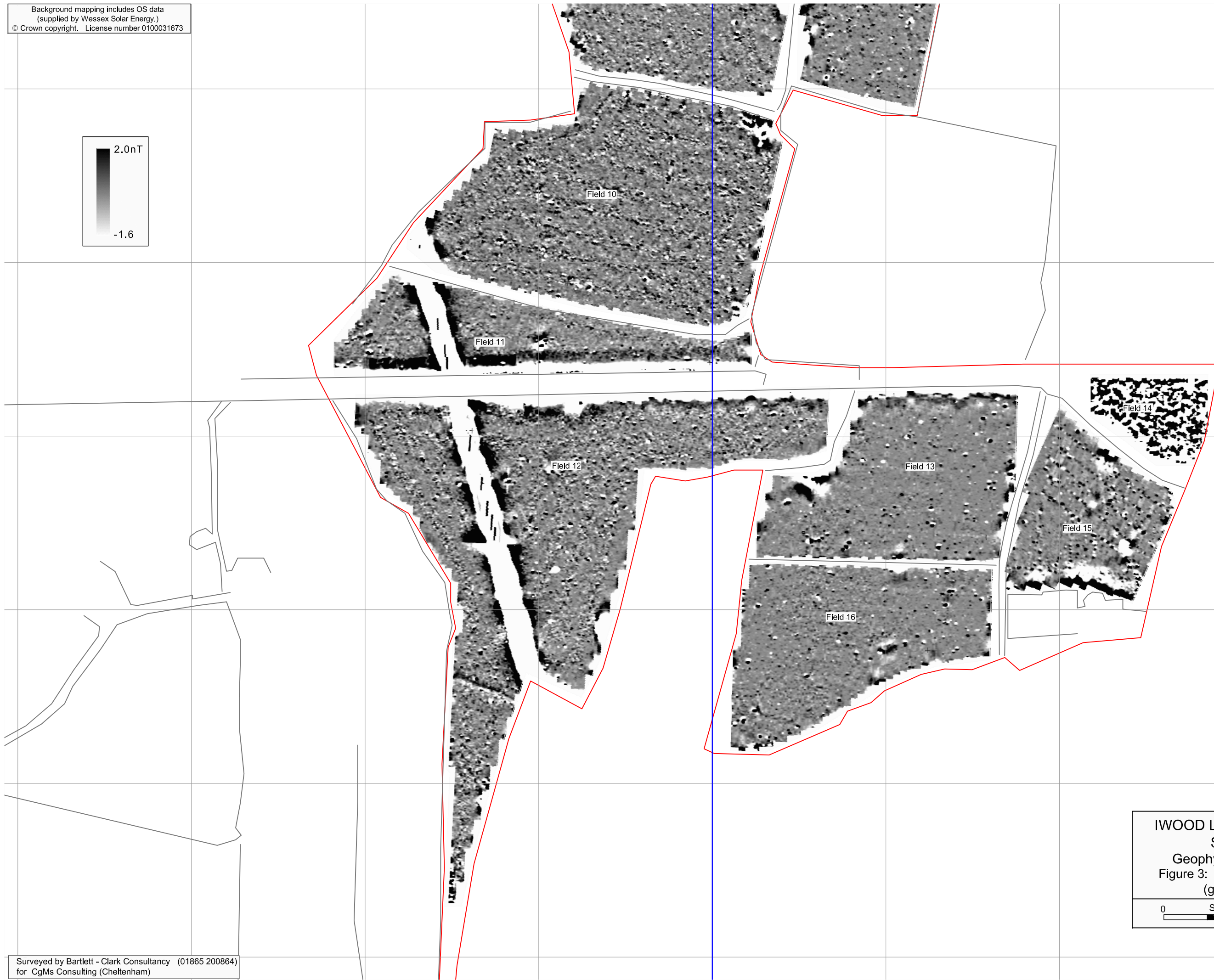
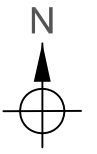
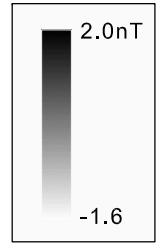
0 Scale 1:2000 @ A3 100m

Field 12

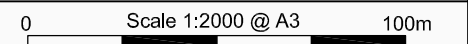
Field 13

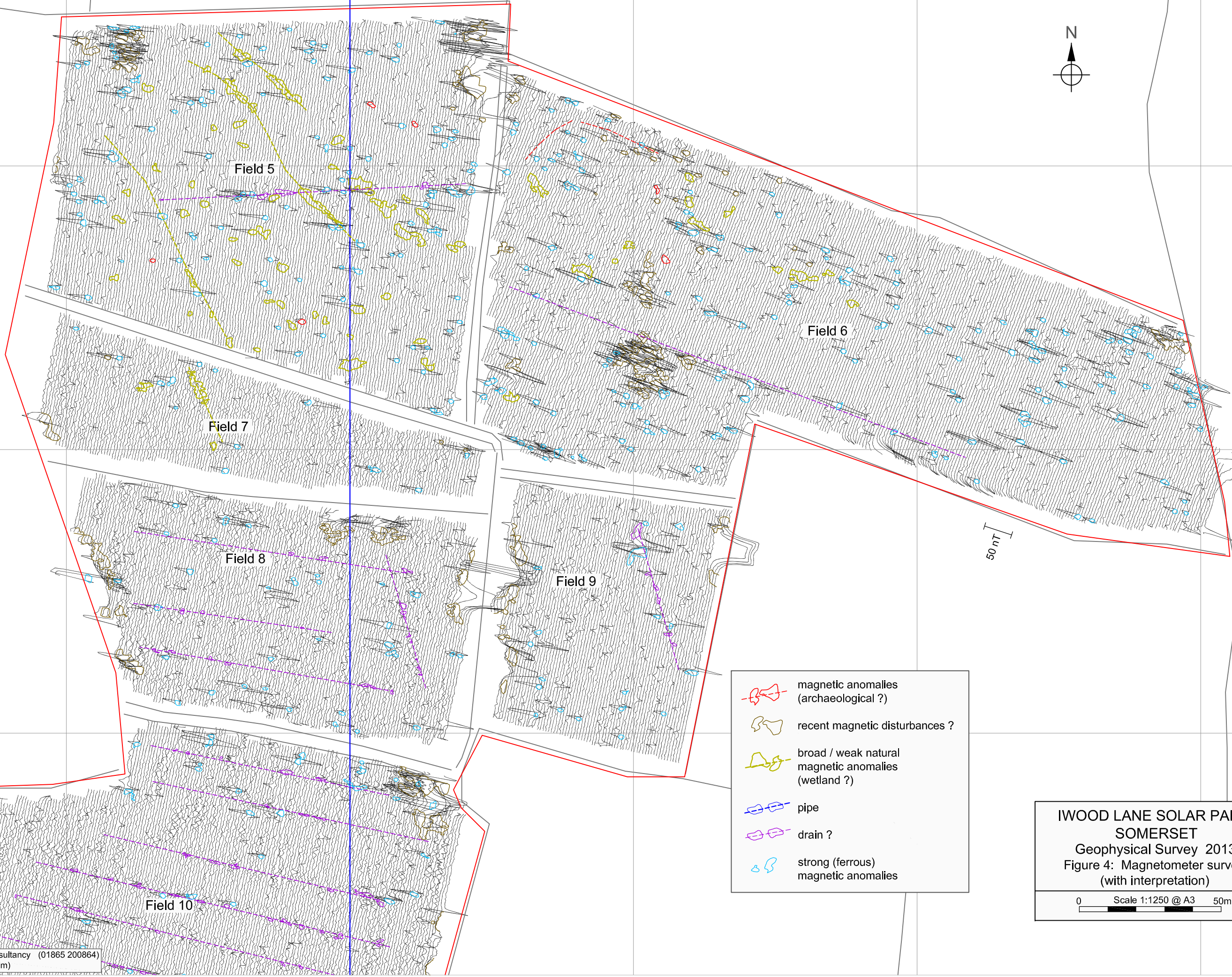
Field 14







Background mapping includes OS data
(supplied by Wessex Solar Energy.)
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Figure 3: Magnetometer survey
(grey scale plot)

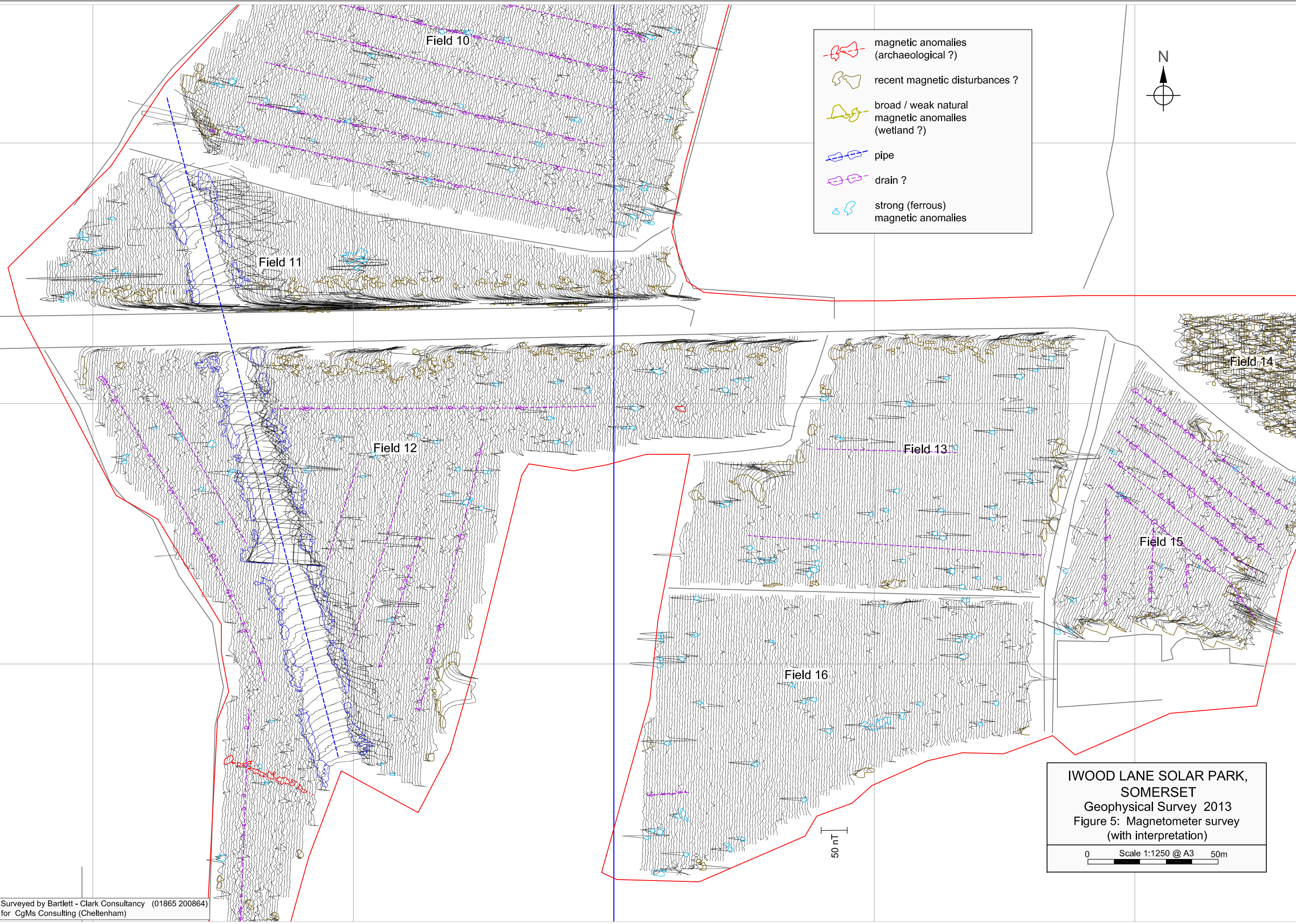










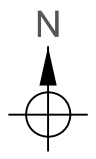
-  magnetic anomalies (archaeological ?)
-  recent magnetic disturbances ?
-  broad / weak natural magnetic anomalies (wetland ?)
-  pipe
-  drain ?
-  strong (ferrous) magnetic anomalies

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Geophysical Survey 2013
Figure 4: Magnetometer survey
(with interpretation)

0 Scale 1:1250 @ A3 50m

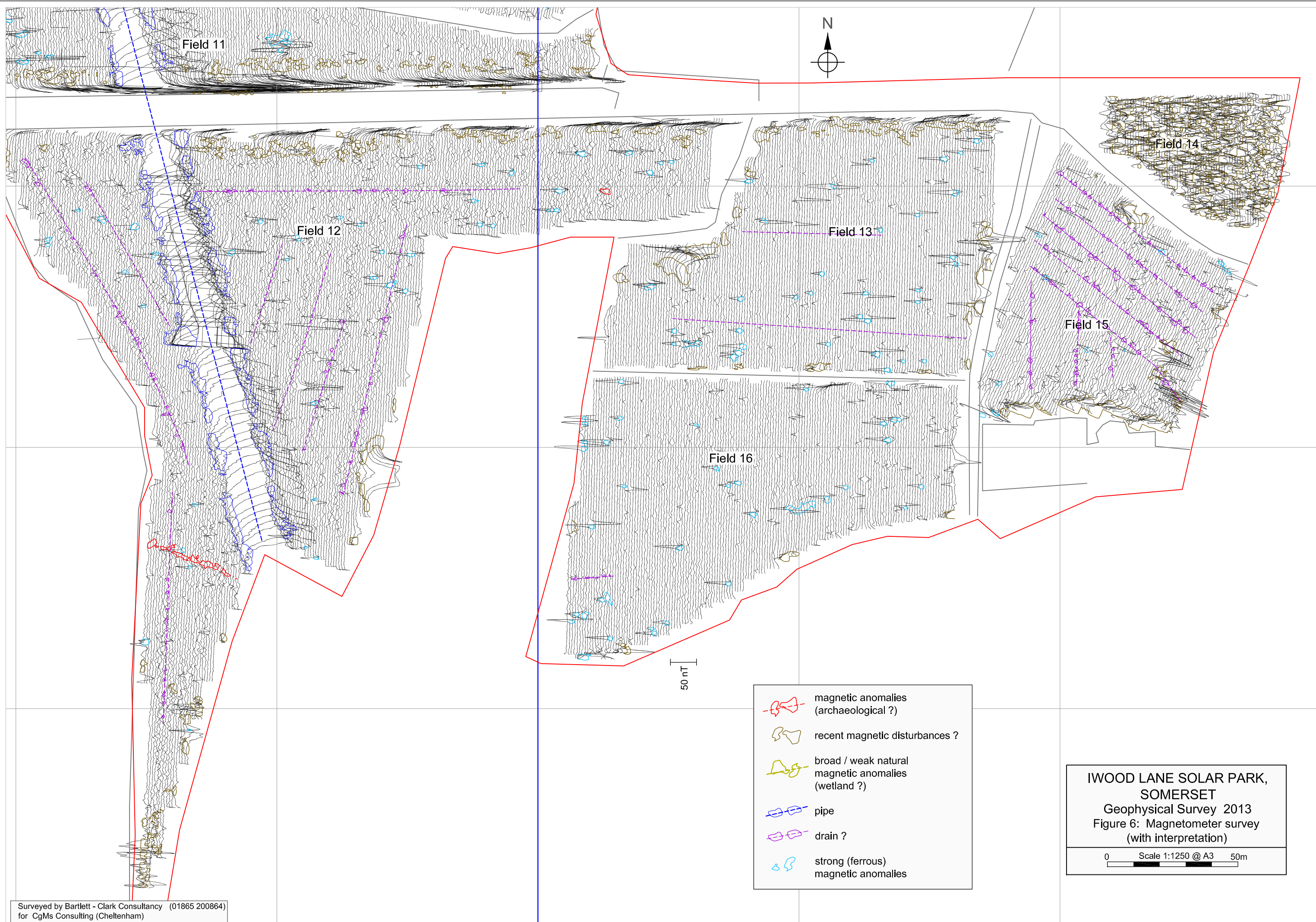


-  magnetic anomalies (archaeological ?)
-  recent magnetic disturbances ?
-  broad / weak natural magnetic anomalies (wetland ?)
-  pipe
-  drain ?
-  strong (ferrous) magnetic anomalies









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Figure 5: Magnetometer survey
(with interpretation)

0 Scale 1:1250 @ A3 50m



50 nT

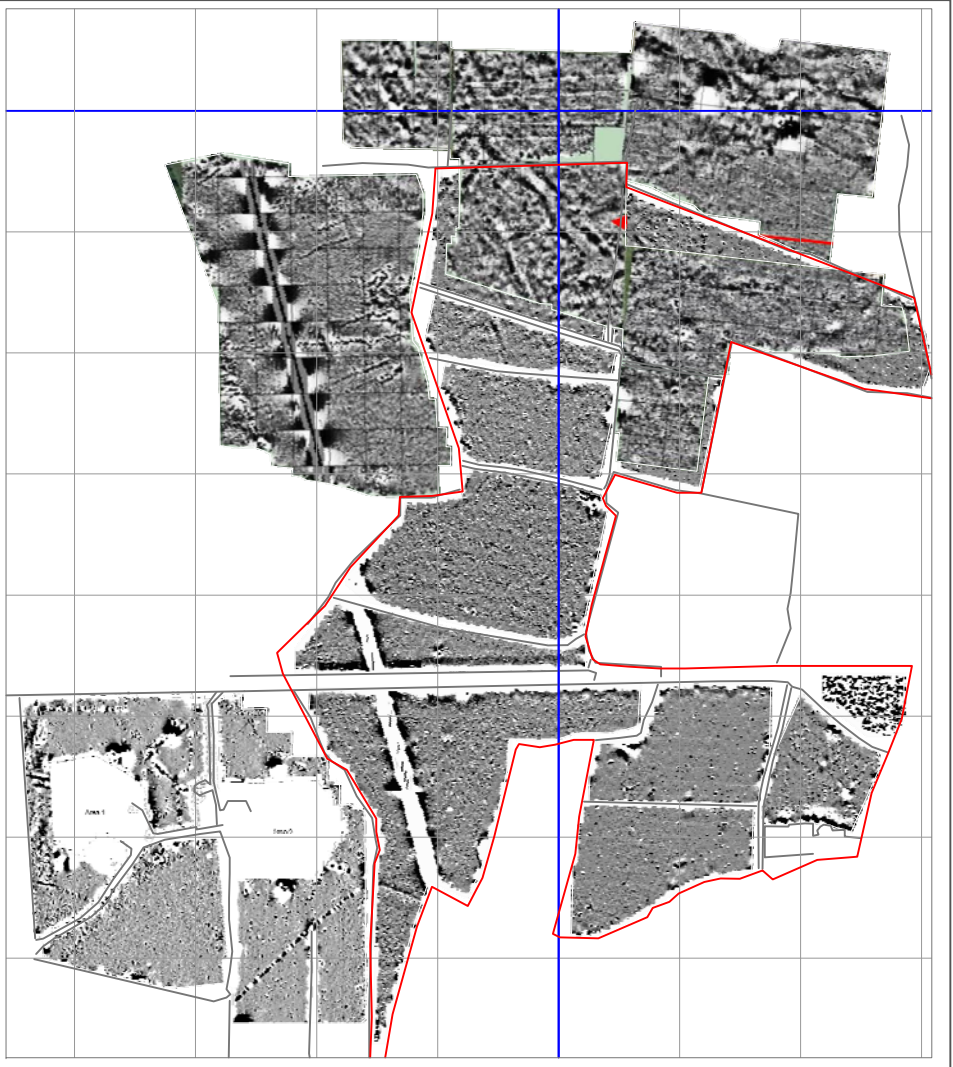
-  magnetic anomalies (archaeological ?)
-  recent magnetic disturbances ?
-  broad / weak natural magnetic anomalies (wetland ?)
-  pipe
-  drain ?
-  strong (ferrous) magnetic anomalies

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Figure 6: Magnetometer survey
(with interpretation)

0 Scale 1:1250 @ A3 50m

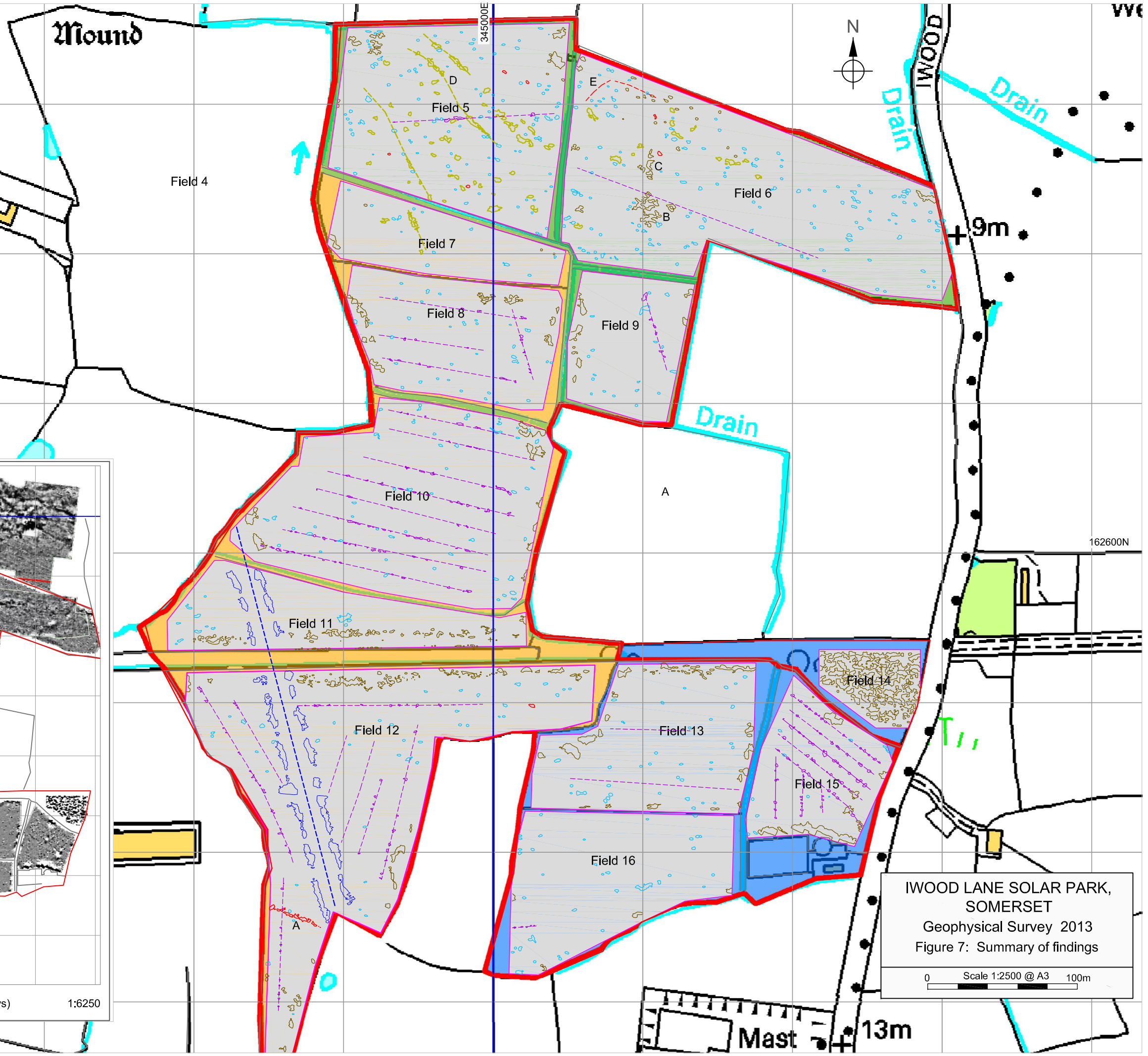
Background mapping includes OS data (supplied by Wessex Solar Energy.)
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- magnetic anomalies (archaeological ?)
- recent magnetic disturbances ?
- broad / weak natural magnetic anomalies (wetland ?)
- pipe
- drain ?
- strong (ferrous) magnetic anomalies



Combined data plots (with GSB and YCCART surveys) 1:6250

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for CgMs Consulting (Cheltenham)



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Figure 7: Summary of findings
0 Scale 1:2500 @ A3 100m