

**LAND EAST OF HOUGHTON REGIS,
BEDFORDSHIRE**

**Report on Archaeological Geophysical Survey
2012**

Surveyed by:

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for:

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Land East of Houghton Regis

Report on Archaeological Geophysical Survey 2012

Introduction

A geophysical survey has been undertaken as part of an archaeological field evaluation of a proposed development site to the east of Houghton Regis, Bedfordshire. This was done in response to, and to meet the requirements of, a brief for the evaluation issued by Central Bedfordshire Council.

The survey was commissioned from Bartlett-Clark Consultancy, Specialists in Archaeogeophysics of Oxford, by Archaeologica Ltd. Fieldwork for the survey was done in the week of 26 March 2012.

The Site

Location and topography

The site is an area of open rough grassland located between Houghton Park Road and arable land to the east. It is centred approximately at NGR TL 035247, and is divided into three main fields separated by substantial hedges (F1 – F3 on the location map inset in figure 1). Survey coverage was achieved across the greater part of the specified area (as indicated by the red outline on the location plan), with exceptions including a confined and obstructed strip between the hedge and road in the NW corner, and areas obstructed by recent dumping along the western boundary. The survey covered a total area of 13.9ha. The site was until recently overgrown by thorn scrub and similar vegetation, but most of this has been cleared and piled into heaps. The larger heaps are indicated by cross hatching on the survey plans. Parts of the ground surface, particularly towards the west of the site, are rutted and uneven. This, together with scattered modern debris, causes an increase in the background noise level in parts of the survey.

The site is generally level, but slopes down slightly towards the south. The bedrock is Cretaceous Grey Chalk, and the area appears to be free of drift deposits. Soil properties on chalk are usually favourable for the magnetic detection of archaeological features, and should not present any difficulties for the survey.

Archaeological background

We were notified by Archaeologica Ltd of two archaeological sites which are listed in the county HER, and which are adjacent to the evaluation area. Fieldwalking finds from HER 15501 immediately to the NE of the present site include Roman tile and pottery. Similar findings including roof tile suggest the presence of buildings at HER 15812 to the SE of the survey. Slag from both locations suggests there could have been industrial activity at these sites.

There was additionally an archaeological field evaluation in 2010 of a proposed road corridor through fields to the east and south of the present site [1]. The geophysical survey which formed part of this evaluation (done by Stratascan) detected clearly defined ditched enclosures and other findings suggesting the presence of field systems and probable settlement sites at two locations corresponding approximately to the HER sites. These findings confirm that conditions on the chalk soil should be favourable for the magnetic detection of archaeological features.

Survey Procedure

The methods used for this geophysical investigation were recorded magnetometer surveying, supplemented by background magnetic susceptibility testing.

Magnetometer survey

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 a grey scale plot at 1:2000 scale (figure 1), and as a graphical (x-y trace) plot at 1:1250 in two sections in figures 2-3. Comparison of these alternative presentations allows the detected magnetic anomalies to be examined in plan and profile respectively. An interpretation of the findings is shown superimposed on figures 2-3 (which permits the interpreted magnetic anomalies to be compared with the underlying data), and is reproduced separately to provide a summary of the findings (figure 4).

The graphical plot shows the magnetometer readings after minimal processing to adjust for irregularities in line spacing caused by variations in the instrument zero setting. Additional 2D low pass filtering has been applied to the grey scale plot to adjust background noise levels.

Colour coding has been used in the interpretation to distinguish different effects. Magnetic anomalies of possibly archaeological origin are outlined in red. Strong magnetic anomalies which are likely to be of recent origin are shown in dark brown, and minor background variations in a light brown. Strong magnetic anomalies which appear to represent iron objects are in blue, and potential cultivation effects in green. A number of weak linear markings of uncertain significance are indicated by broken lines in a light red.

Magnetic susceptibility tests

The magnetometer survey was supplemented by a background magnetic susceptibility survey based on readings taken at 30m intervals with a Bartington MS2 meter. Susceptibility readings can (sometimes) be used to provide a broad indication of previously occupied or disturbed areas in which burning associated with past human occupation has enhanced the magnetic susceptibility of the topsoil, although the readings are usually affected also by non-archaeological factors, including geology and land use. This information provides an indication of the strength of magnetic response to be expected from the site, and can be of help when interpreting the magnetometer survey. Susceptibility readings are shown on a plot inset in figure 4.

Survey location

The survey grid was set out and tied to the OS grid using a Trimble differential GPS system. 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

The survey has detected one clearly defined archaeological site, together with various other magnetic disturbances of uncertain, or clearly non-archaeological, origin. Modern debris dumped along the western side of fields 1 and 3 has in part been levelled and spread across the site, which gives rise to strong magnetic disturbances as outlined in dark brown on figure 4. The more enclosed northern field (field 2) is less affected by dumping, but is particularly obstructed towards the west by heaps of cut branches (as indicated approximately by cross hatching). The level of natural and other background magnetic activity across the remainder of the site (as indicated by small magnetic anomalies outlined in light brown) is relatively low, and should not obscure any archaeological findings which are present.

The main finding of archaeological interest is a rectilinear ditched enclosure in field 2 (A as labelled on figure 4). This feature may represent a continuation of the archaeological activity associated with site HER 15501, although it appears in itself to be an individual and self-contained enclosure. A curving sub-enclosure at A suggests the presence of internal features within the main enclosure, but only a few small and uncertain pit like features (as outlined in red) were detected to suggest the presence of occupation remains within or near to the enclosure. Magnetic susceptibility values here are lower than in field 1, which further suggests these findings are unlikely to indicate a particularly dense or extensive settlement or industrial site. There may be a linear feature extending to the west from the enclosure (as indicated by the anomalies at B), but the evidence is fragmentary and uncertain.

Findings elsewhere in the survey are limited mainly to linear markings of variable quality in field 1. Distinct linear features caused by the headland at the edge of the cultivated ground to the east are indicated by green broken lines (B) along the edge of the survey. Other linear markings which are visible in the grey scale plot are indicated by broken red lines, but these are weak, and in some cases may represent only minor or superficial disturbances. Various extant tracks and furrows are visible on the ground surface, and may be represented by linear features such as those labelled C and D. Other furrows, paths and tracks towards the north of field 1 may also be visible as weak or irregular magnetic anomalies, as at E. It is difficult to determine whether any of these features, and particularly those which do not align with modern boundaries (as at F) could represent traces of earlier field systems. Any surviving traces of earlier enclosures in field 1 must be less substantial or more eroded than at A in field 2.

Findings in field 3 are also very limited. A few possible small pit-like features are indicated (as at G), but they are small and dispersed, and not clearly distinguishable from background magnetic activity. The anomaly at G is about 100m north of findings seen in the 2010 survey, and close to HER 15812, but the evidence does not really suggest the presence here of any concentration of archaeological features. A pipe (identifiable also by metal drain covers

in the field) was detected at H.

Conclusions

Ground conditions are highly disturbed across limited areas towards the west of the site, but the survey elsewhere produced interpretable data. The main finding is a well-defined ditched enclosure with at least some internal features (A) in field 1. This is likely to be associated with, or represent a continuation of site HER 15501. There are no similar findings near to HER 15812 in field 3. Findings otherwise are limited to weak linear markings in field 1. Most of these are likely to represent minor or superficial ground disturbances, although the possibility that traces of earlier enclosures, boundaries or field systems could also be present cannot be entirely excluded.

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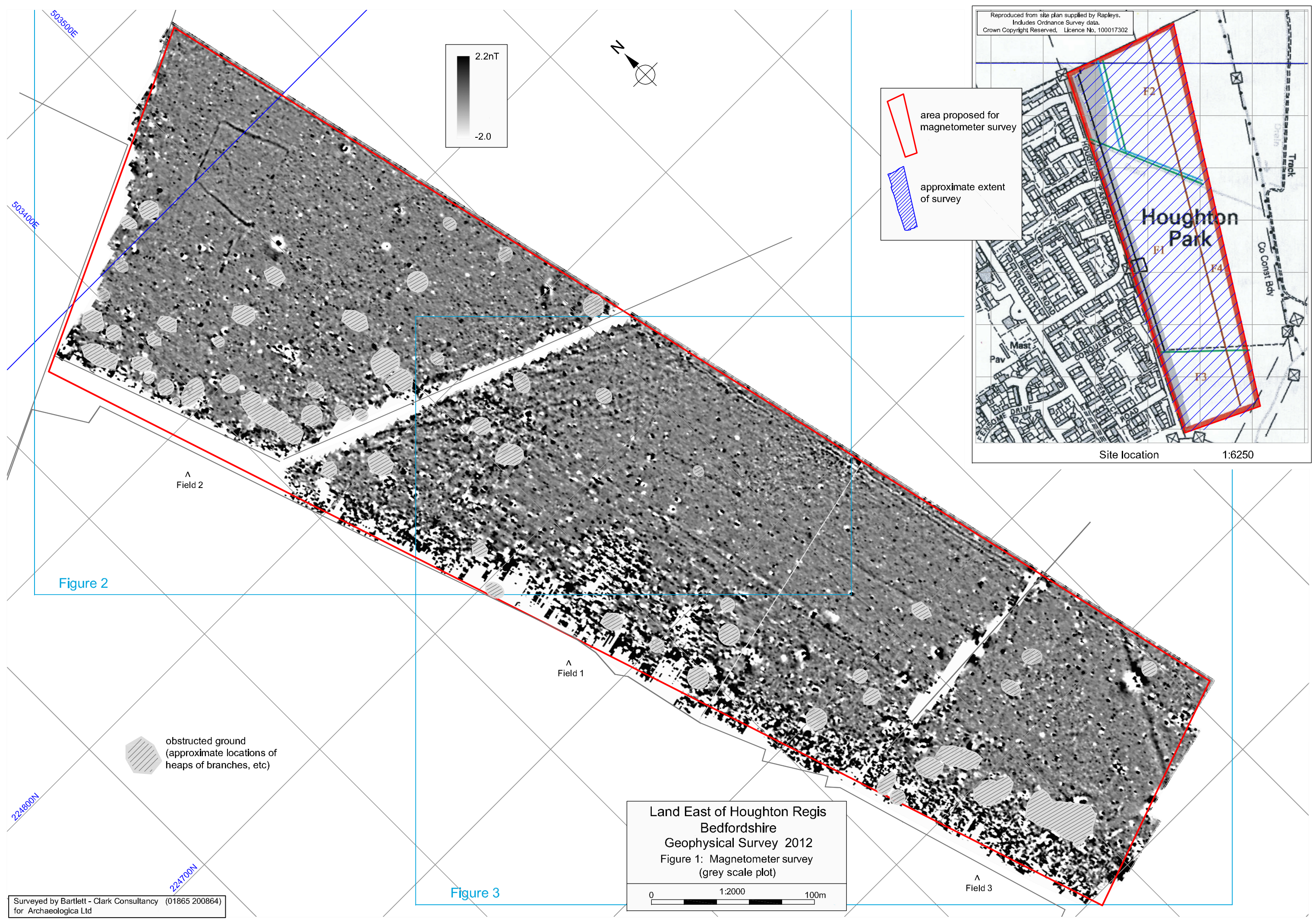
01865 200864

20 April 2012

The fieldwork for this project was done by P. Cottrell, N. Paveley, R. Ainslie and A. Bartlett.

Reference

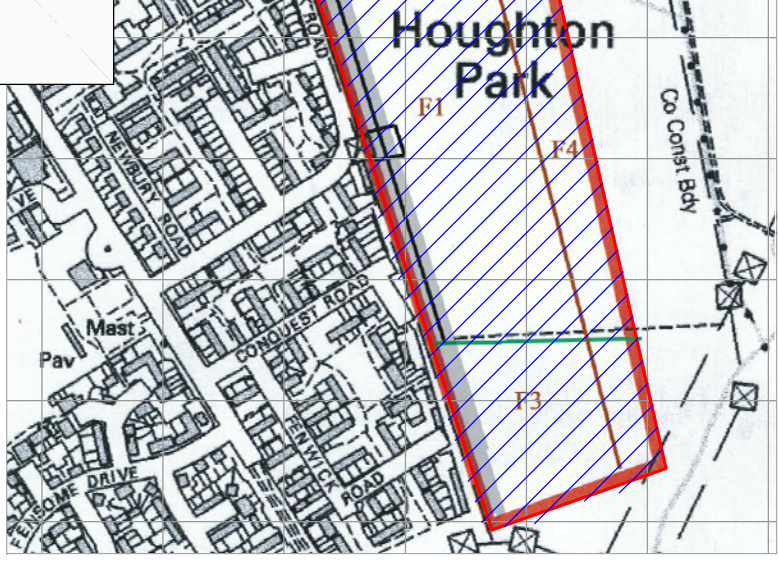
- [1] Woodside Connection, Houghton Regis, Bedfordshire. Archaeological Field Evaluation. Project WC1583; report by Albion Archaeology, 8 September 2010.



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area proposed for magnetometer survey

approximate extent of survey



Site location 1:6250

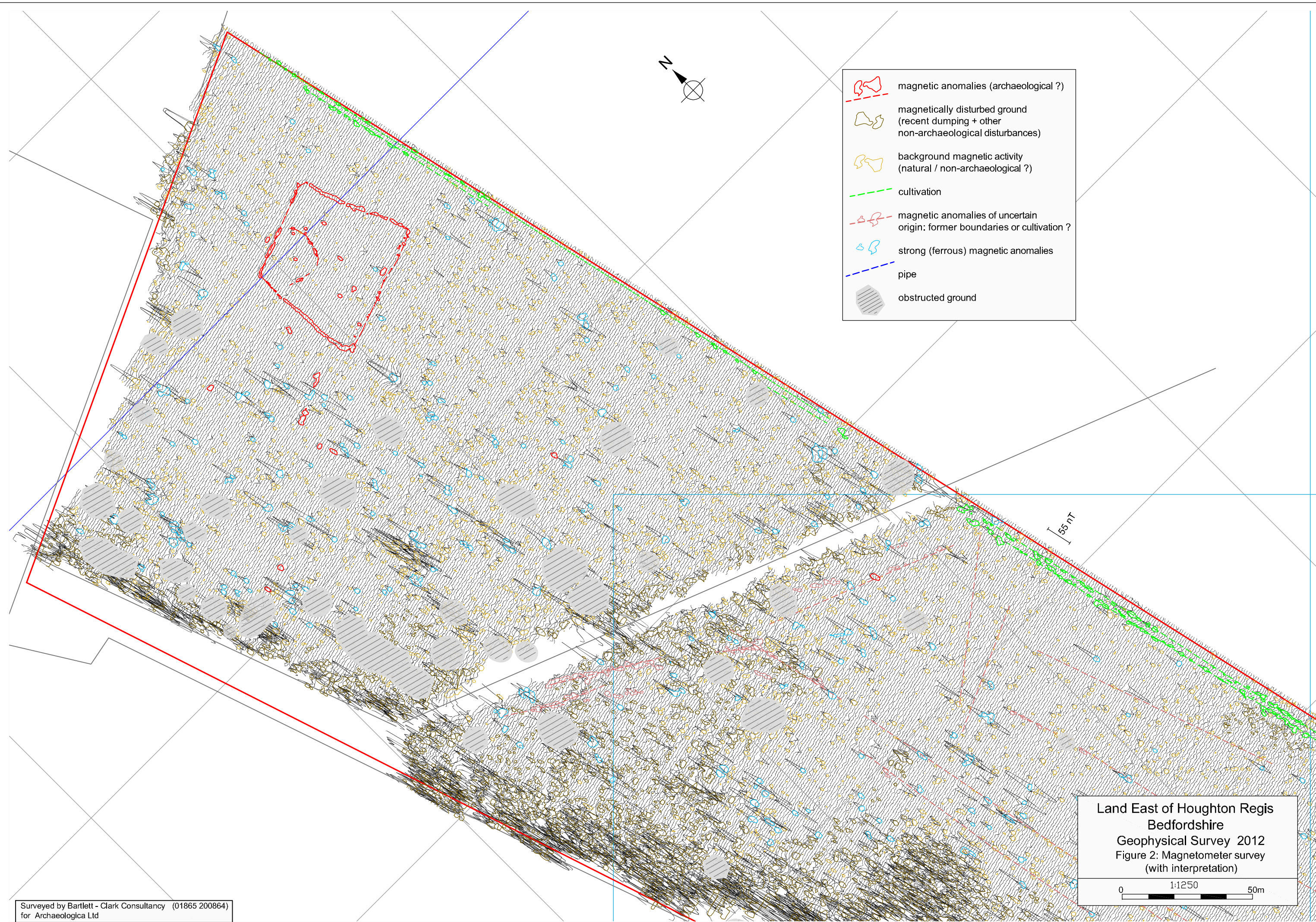
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Bedfordshire
Geophysical Survey 2012
Figure 1: Magnetometer survey
(grey scale plot)









0 1:2000 100m

Figure 2

Figure 3

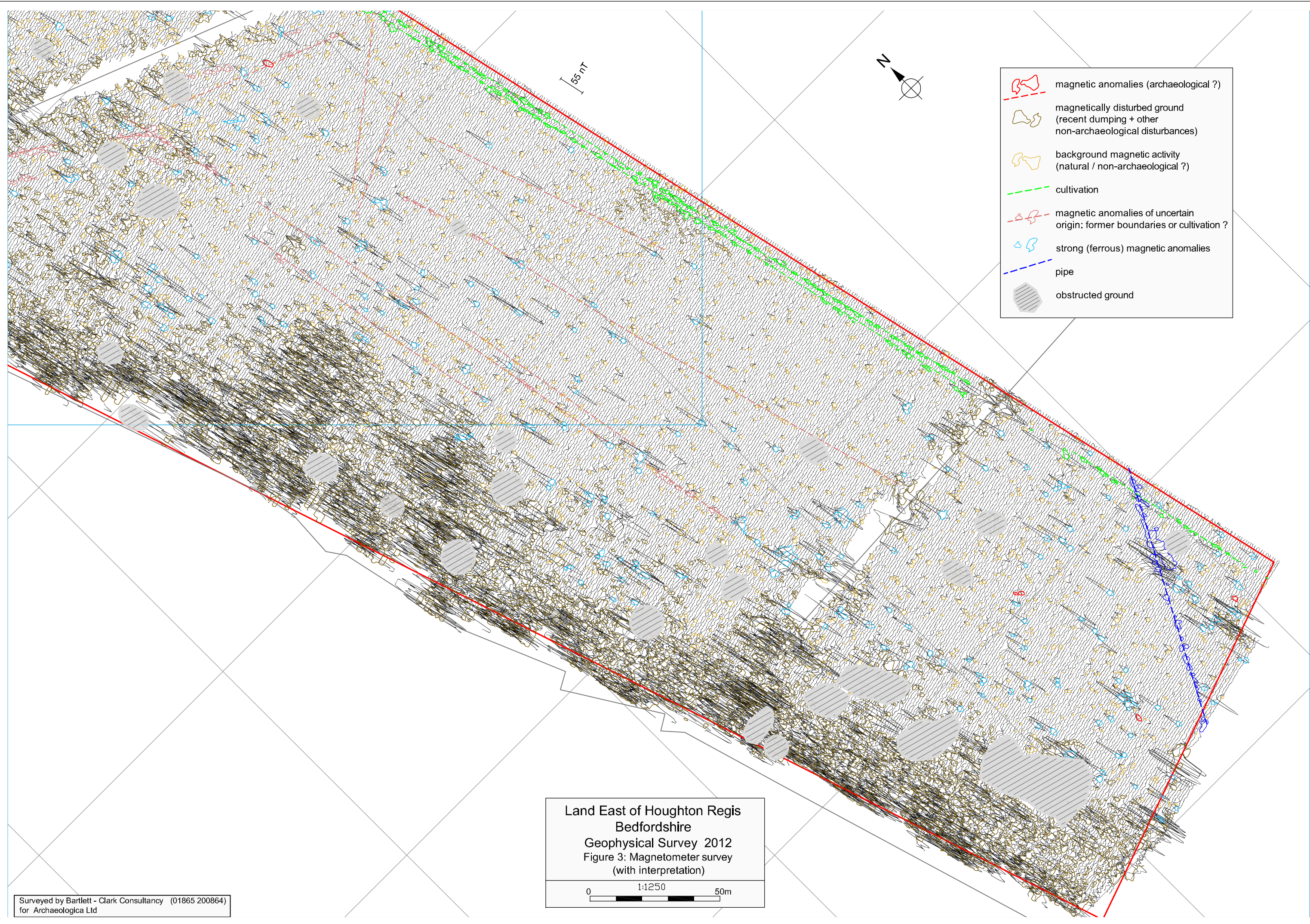
obstructed ground
(approximate locations of
heaps of branches, etc)



-  magnetic anomalies (archaeological ?)
-  magnetically disturbed ground
(recent dumping + other non-archaeological disturbances)
-  background magnetic activity
(natural / non-archaeological ?)
-  cultivation
-  magnetic anomalies of uncertain origin: former boundaries or cultivation ?
-  strong (ferrous) magnetic anomalies
-  pipe
-  obstructed ground

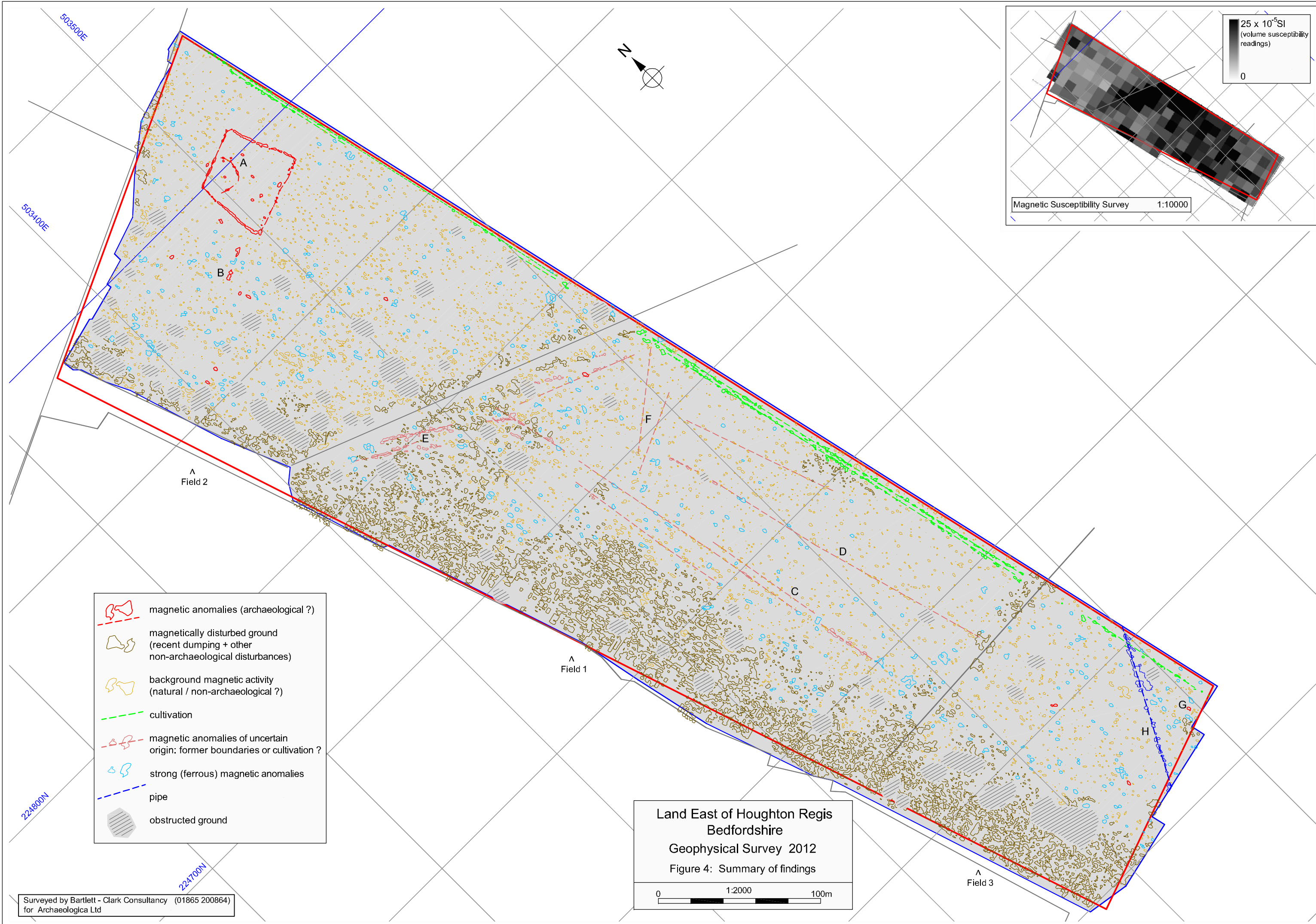
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Figure 2: Magnetometer survey
(with interpretation)

0 1:1250 50m











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 Figure 3: Magnetometer survey
 (with interpretation)

0 1:1250 50m



25 x 10⁻⁵SI
(volume susceptibility readings)
0

Magnetic Susceptibility Survey 1:10000

-  magnetic anomalies (archaeological ?)
-  magnetically disturbed ground (recent dumping + other non-archaeological disturbances)
-  background magnetic activity (natural / non-archaeological ?)
-  cultivation
-  magnetic anomalies of uncertain origin: former boundaries or cultivation ?
-  strong (ferrous) magnetic anomalies
-  pipe
-  obstructed ground

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Figure 4: Summary of findings

0 1:2000 100m