

**LAND NORTH OF HOBBYHORSE LANE
SUTTON COURTENAY, OXFORDSHIRE**

**Archaeological Geophysical Survey
2015**

Report by:

A.D.H. Bartlett

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on behalf of:

**Bidwells
899 Silbury Boulevard
Milton Keynes**

24 February 2014

LAND NORTH OF HOBBYHORSE LANE SUTTON COURTENAY, OXFORDSHIRE

Geophysical Survey 2015

Abstract

A magnetometer survey has been undertaken as part of an archaeological evaluation of a proposed development site at Sutton Courtenay, Oxfordshire. No previously identified archaeological findings have been recorded from the site, but there are cropmarks in adjacent fields.

The survey has detected probable traces of ridge and furrow cultivation in parts of the site, together with disturbances which could indicate former field boundaries. There is no evidence for the presence of any other clearly identifiable archaeological findings.

1. Introduction

The survey was commissioned from Bartlett Clark Consultancy, Specialists in Archaeogeophysics of Oxford, by Phoenix Consulting Archaeology Ltd on behalf of Bidwells. Fieldwork for the survey was done on 9-10 February 2015.

The proposed development area covers the greater part of a single field centred at NGR SU 503932, and located to the east of Sutton Courtenay High Street and north of Hobbyhorse Lane. The total site area (as indicated by a red outline in figures 1 and 4) amounts to 7.3ha.

2. Objectives of the Survey

The aim of the geophysical survey was to test for evidence of archaeological sites or features, and so inform assessment of the effects of the proposed development.

A geophysical survey is usually able to identify the extent and character of any archaeological remains capable of producing a magnetic response. The magnetometer will detect cut features such as ditches and pits when they are silted with an increased depth of topsoil, which usually responds more strongly than the underlying natural subsoil. Fired materials, including baked clay structures such as kilns or hearths are also likely to produce a localised enhancement of the magnetic field strength, and the survey therefore 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. Topography and Geology

The site occupies a single arable field, and is at a uniform elevation of c. 55m OD. The site is intersected by an unfenced east-west footpath, but the field is currently cultivated and the path is not visible on the ground.

The site is on an underlying bedrock of Gault Formation and Upper Greensand, but is located c. 1km south of the River Thames, and is also covered by River Terrace sand and gravel. A number of previous magnetometer surveys on similar gravel deposits in this part of the Thames valley have produced a generally strong magnetic response, and have provided clear evidence for the presence of archaeological sites and features.

It is sometimes the case in surveys on glacial gravel soils that background magnetic activity caused by naturally magnetic stones (of igneous origin) in the gravel may be detected. There appears to be a relatively high level of such activity in the present survey (as is indicated by density of small magnetic anomalies visible as small peaks in the graphical plots 2-3, and outlined in light brown in the interpretation). It is usually possible to identify archaeological sites (defined by ditches or enclosures, or larger magnetic anomalies) in the presence of this background activity, but a possibility remains that such features as small or isolated silted pits may be difficult to distinguish from the natural disturbances.

4. Archaeological Background

We have been told (by Phoenix Consulting Archaeology) that there are no known archaeological sites within the proposed development area, but that cropmarks have been recorded in adjacent fields. An aerial photograph supplied to us (from Google Earth) shows possible weak linear markings in the southern part of the survey area, but it is unclear whether or not these could be of archaeological relevance.

5. Survey Procedure

The site was investigated by means of a recorded magnetometer survey. Readings were collected along transects 1m apart using Bartington 1m fluxgate gradiometers, and are plotted at 25cm intervals along each transect. The survey data is shown at 1:2000 scale as a grey scale plot (figure 1), and as a graphical (x-y trace) plot at 1:1250 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 also shown superimposed on figures 2-3 (which permits the interpreted outlines to be compared with the underlying data). A further interpreted summary of findings is presented in figure 4.

The graphical plot in figures 2-3 shows the magnetometer readings after minimal pre-processing [of the kind permitted by English Heritage (2008) *Geophysical Survey in Archaeological Field Evaluation* Section 4.8]. This includes adjustment for irregularities in line spacing caused by variations in the instrument zero setting, and truncation of extreme values. Additional weak 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. The interpretation is intended to categorize most of the identifiable magnetic anomalies, but cannot reproduce the detail of the grey scale plots.

Magnetic anomalies which may show characteristics to be expected from features of potential archaeological relevance are indicated in red. (In this case only some possible former field boundaries fall into this category.) Background magnetic anomalies which may be of natural or non-archaeological origin are indicated in light brown. Probable

recent disturbances are in grey. Possible cultivation effects are indicated by green lines, and some of the more conspicuous ferrous objects (identifiable as narrow spikes in the graphical plots) are marked in light blue.

Survey location

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

6. Results

The survey plots show extensive magnetic activity, much of which is likely to be caused by naturally magnetic stones in the gravel soil (as noted above), but various other findings are also visible.

The most conspicuous detected features are parallel north-south linear markings which are most clearly defined in the southern part of the site, but appear to be present also in the NE corner (as indicated by green lines in figure 4). The size and separation of these features suggests they represent traces of ridge and furrow cultivation contained within former field boundaries or enclosures. The cultivation pattern in the southern part of the site terminates at an east-west band of slightly increased magnetic activity. These magnetic anomalies (outlined in brown) are not individually of any clear significance, but could in total represent disturbances on the line of a former boundary located approximately as indicated by the broken red line (labelled A in figure 4). This aligns with the existing northern boundary of the allotments to the west of the site.

There may similar but less clearly defined disturbances associated with the northern area of ridge and furrow at B. A further weak linear marking is visible in the grey scale plot and could perhaps indicate traces of a former north-south boundary towards the west of the site at C.

There is no very clear evidence for ridge and furrow from the remainder of the site, but a narrower weak north-south linear pattern is visible in much of the grey scale plot. The alignment of these markings, which probably represent recent or current cultivation, is indicated schematically by light green lines in the interpretation.

Other findings include various strong disturbances of probably recent origin near to field boundaries, and a strong individual magnetic anomaly (outlined in blue) at D. This probably relates to an electricity pole. There is a pipe at the western field boundary.

There are no clearly identifiable ditch-like features which could relate to the possible AP markings (as mentioned previously) in the southern part of the site. The footpath (as indicated by a broken grey line in figure 4) was not detected, and must therefore be an unenclosed and unsurfaced earth track.

7. Conclusions

The survey has detected traces of former ridge and furrow cultivation, together with weak linear markings relating to recent ploughing. The detection of minor disturbances

confirms that conditions at the site should be favourable for the identification of archaeological features, but few other findings are visible. There are alignments of magnetic anomalies which may relate to former field boundaries (at A, B, C), but there are no clearly identifiable ditch-like features of a kind which could be expected if any substantial or intact remains of ancient field systems or enclosures were present.

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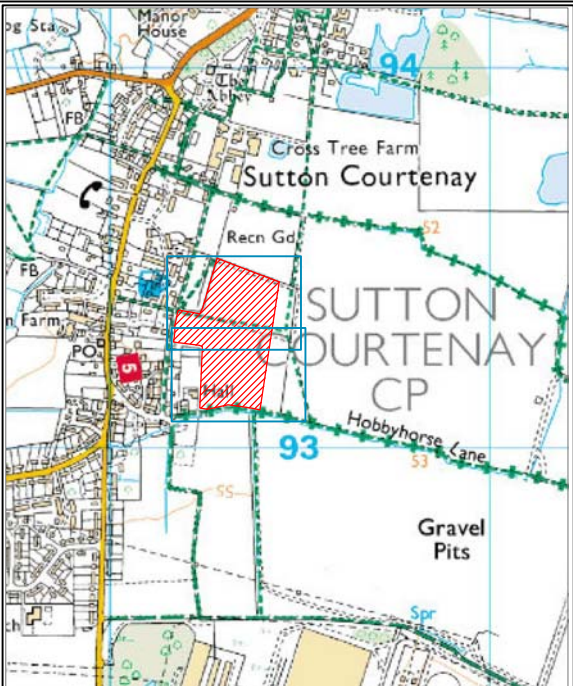
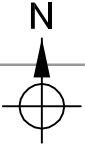
24 February 2015

The fieldwork for this project was done by P. Heykoop, P. Cottrell and M. Berry.

Background mapping based on site plan supplied by Bidwells.
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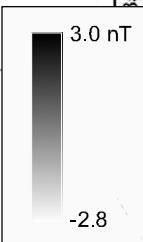
450300E

Recreation Ground



Site location 1:20000

193300N



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Figure 1: Magnetometer survey
(grey scale plot)

Surveyed by: Bartlett-Clark Consultancy 01865 200864
for: Phoenix Consulting Archaeology Ltd

Scale 1:2000 @ A4
0 100m

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- magnetic anomalies (archaeological ?)
- cultivation (ridge and furrow ?)
- disturbances near former boundary ?
- cultivation (recent ?)
- footpath
- small background magnetic anomalies (mainly natural ?)
- recent magnetic disturbances ?
- pipe
- strong (ferrous) magnetic anomalies



100nT

Path (um)

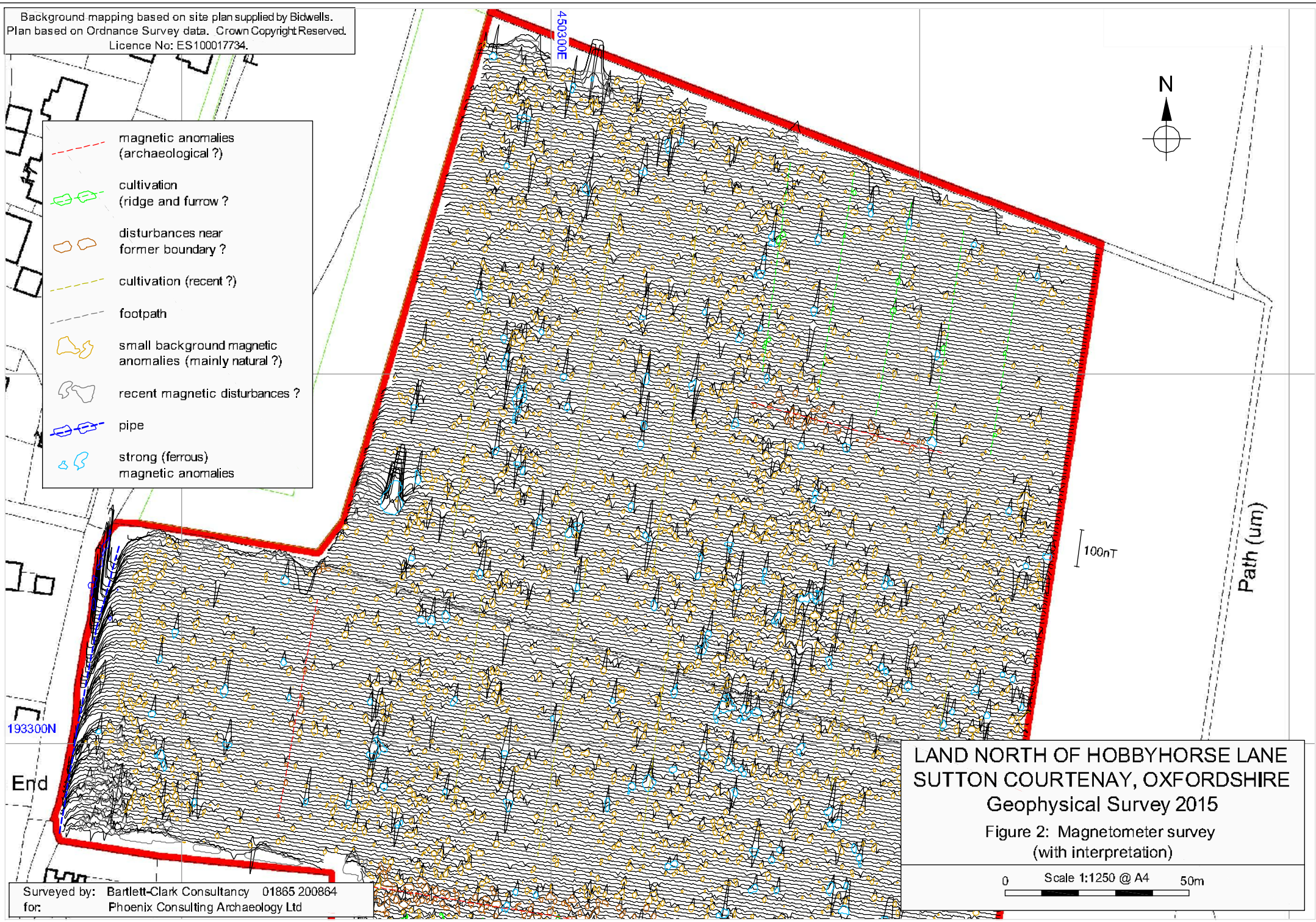
193300N

End

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Figure 2: Magnetometer survey
(with interpretation)

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0 Scale 1:1250 @ A4 50m



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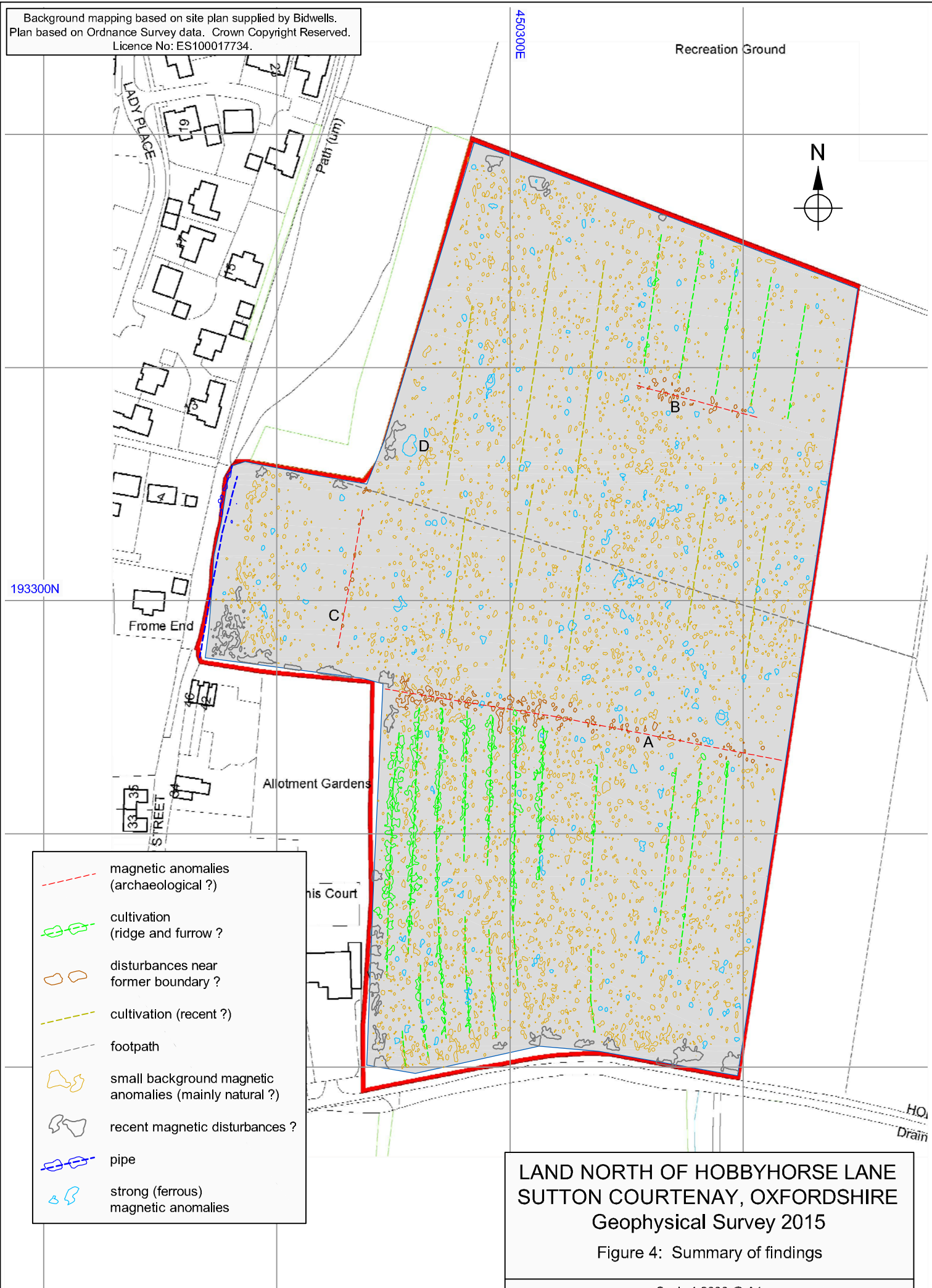
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Figure 3: Magnetometer survey
(with interpretation)

0 Scale 1:1250 @ A4 50m

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- - - cultivation (recent ?)
- - - footpath
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- - - pipe
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 Figure 4: Summary of findings

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Scale 1:2000 @ A4
 0 100m