Wavendon Park, Woburn Sands
Milton Keynes

Report on Archaeological Geophysical Survey
2012

Surveyed by:

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Wavendon Park, Woburn Sands

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Introduction

This geophysical survey was carried out as part of an archaeological field evaluation of a proposed development site at Wavendon Park, to the north of Woburn Sands.

The survey was commissioned from Bartlett-Clark Consultancy, Specialists in Archaeogeophysics of Oxford, by Oxford Archaeology. Fieldwork for the survey was done on 4-5 January 2012.

The Site

The purpose of the evaluation is to test for evidence of archaeological features or remains within a site of about 6.4 ha. The site extends across four small fields around Deethe Farm (at NGR SP 925368) and to the east and west of Cranfield Road (as shown on the attached location plan; figure 1). The fields are currently farmland.

The site is on a bedrock of Lower Greensand and Woburn Sand sandstone. Boulder clay drift deposits are present immediately to the east, but not necessarily at the site itself. These conditions should not present any particular difficulties for a magnetometer survey, although the strength of magnetic response on sandy soils can vary widely. Surveys on Greensand elsewhere have on occasions produced positive archaeological findings.

We have not been told of any previously identified or recorded archaeological findings from the site, and the purpose of the survey was therefore to test for evidence of any unknown or unexpected archaeological sites or remains.

Survey Procedure

The methods used for this geophysical investigation were recorded magnetometer surveying, supplemented by background magnetic susceptibility testing. Procedures for both techniques were as described in the Written Scheme of Investigation for the project [1].

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 1:1250 scale (figure 2), and as a graphical (x-y trace) plot in figure 3. Inclusion 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 figure 3 (which permits the interpreted outlines 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. Features are indicated by coloured outlines, or broken lines.

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. Linear markings representing cultivation effects are indicated by green outlines or broken green lines. Strong magnetic anomalies which appear to represent iron objects, and pipes, are in blue. A probable drain is indicated in a light green.

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. A background survey of the kind done here is unlikely to provide any direct evidence for the presence or otherwise of archaeological features, but is undertaken to test the (largely) geologically determined magnetic properties of the soil. 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 differential GPS system (with Omnistar correction to give accuracy of c. 10cm). 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

Fields within the evaluation area have been numbered for reference in an arbitrary sequence (1-5, as indicated on figs 1 and 4), and are commented on in turn below. Conditions at the site seem to be favourable for the survey, given that the susceptibility readings (mean = 14 x 10^{-5} SI) are comparable with those seen at many sites where productive magnetometer surveys have been undertaken. [Areas of high readings within the susceptibility survey clearly relate mainly to the presence of recent debris.] The suitability of the site for an investigation of this kind is also indicated by the clear cultivation markings which are visible

in fields 4 and 5, but the survey has produced few other relevant findings.

Field 1

This field is relatively undisturbed, and contains fewer strong recent magnetic anomalies than other parts of the site. A few small magnetic anomalies which could be interpreted as silted pits (as are often seen at archaeological sites) are outlined in red, but they are weak and dispersed. There is a slightly extended linear feature at A (as labelled on figure 4), but others are not clearly distinguishable from background magnetic activity. A possible sparse scatter of recent debris is indicated by nearby magnetic anomalies outlined in brown.

Fields 2-3

Findings again include some possible minor pit-like features (shown in red), particularly in field 3, but again they do not form any group or pattern which could be interpreted as of archaeological interest.

The survey covers part of a paved storage area at the east side of field 2 (as indicated by strong magnetic anomalies outlined in brown). There are other strong recent disturbances around the boundary between fields 2 and 3. These include metal troughs and drain covers to the north of field 3. Other findings include a pipe (which aligns with the northern boundary of field 1) across field 2, and a curving linear feature (B) which probably represents a drain in field 3. The erratic magnetic response at B is typical of a ceramic pipe, but strong disturbances in the western part of the field suggest part of it could be in a trench backfilled with other debris. (A metal drain cover is also visible here in the field.)

Fields 4-5

A distinct linear cultivation pattern is visible in the grey scale plot, and suggests traces of ridge and furrow could be present in these fields. The pattern in field 5 may be terminated to the NW by an irregular linear feature suggesting a former headland.

One other clearly defined finding in these fields is a large pit-like feature at C in field 5, but it is not in a context which suggests it is archaeologically interesting. The strong magnetic activity along the eastern boundary of field 5 corresponds to a visible rubble spread containing bricks and other debris.

Conclusions

Most of the magnetic features and disturbances seen in the survey are of clearly recent or non-archaeological origin. One substantial but isolated pit-like feature was seen (at C in field 5), but other such magnetic anomalies (as outlined in red) are weak and scattered. There are no groups or concentrations of such findings which would suggest the presence of an archaeological site.

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01865 200864 13 January 2012

The fieldwork and data processing for this project were done by P. Cottrell and F. Prince.

Reference

[1] Wavendon Park, Woburn Sands: Written Scheme of Investigation for Archaeological Geophysical Survey. Document submitted to Oxford Archaeology by Bartlett Clark Consultancy; 21 December 2011.

Background mapping based on plans by
Halcrow Group Ltd. & Hinton Cook Architects
(Contains OS data: Crown Copyright Reserved)

492000E 492100E 492200E 492300E 492400E 492500E 492600E 492700E 492800E 492900E

237000N 236900N 236800N 236700N 236600N 236500N 236400N

approximate area covered by magnetometer survey

location of 1:1250 figures (2-4)

1 field numbers (as used in report)

N

1 2 3 4 5

Spinney Lodge

Deethe Farm

PARKWAY BELLWAY NEWPORT ROAD RILEY WAY CRANFIELD ROAD RIDGWAY TAVISTOCK CLOSE VANDYKE CLOSE CHANTRY CLOSE DEETHE CLOSE CRANFIELD CLOSE

Wavendon Park, Woburn Sands, Buckinghamshire

Geophysical Survey 2012

Figure 1: Survey location

0 1:2500 100m

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for Oxford Archaeology

Background mapping based on plans by
Halcrow Group Ltd. & Hinton Cook Architects

492400E
492500E
492600E
492700E

236900N
236800N
236700N
236600N

2.6nT
-2.4

N

Spinney Lodge

Deethe Farm

HILLWAY

RIDGWAY

CRANFIELD ROAD

Wavendon Park, Woburn Sands
Buckinghamshire
Geophysical Survey 2012
Figure 2: Magnetometer Survey
(greyscale plot)

0 1:1250 50m

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492400E
492500E
492600E
492700E

236900N
236800N

60 nT
60 nT

N

Spinney Lodge

Deethe Farm

HILLWAY

CRANFIELD ROAD

magnetic anomalies (archaeological ?)

strong magnetic disturbances (recent ?)

strong (ferrous) individual magnetic anomalies

land drain

pipe & associated magnetic disturbance

ridge & furrow cultivation

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Figure 3: Magnetometer survey with interpretation

1:1250
0 50m

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492400E
492500E
492600E
492700E
236900N
236800N
N

Spinney Lodge
Deethe Farm
CRANFIELD ROAD

1
2
3
4
5
A
B
C

magnetic anomalies (archaeological ?)
strong magnetic disturbances (recent ?)
strong (ferrous) individual magnetic anomalies
land drain
pipe & associated magnetic disturbance
ridge & furrow cultivation

Magnetic Susceptibility Survey
1:5000
30 x 10^{-5}SI
(volume susceptibility readings)
0

Wavendon Park, Woburn Sands
Buckinghamshire
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Figure 4: Summary of findings

0 1:1250 50m