Land at Hampton Drive,
Kings Sutton, Northamptonshire

Report on Archaeological Geophysical Survey
2012

Surveyed by:

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

for:

The Environmental Dimension Partnership
14 Inner Courtyard,
Whiteway Farmhouse,
The Whiteway,
Cirencester,
Gloucestershire GL7 7BA
01285 640640

Land at Hampton Drive, Kings Sutton, Northamptonshire

Report on Archaeological Geophysical Survey 2012

Introduction

This report describes the findings from a geophysical survey which was carried out as part of an archaeological field assessment of a proposed development site at Kings Sutton, Northamptonshire.

The survey was commissioned from Bartlett-Clark Consultancy (BCC), Specialists in Archaeogeophysics of Oxford, by the Environmental Dimension Partnership (EDP) of Cirencester. Fieldwork for the survey was done on 14 May 2012.

The Site

The survey is required to test for evidence of archaeological features or remains within a site of about 3.7ha located to the north of Hampton Drive, Kings Sutton (as indicated by cross hatching on the map extract inset in figure 1). The site is an arable field located (at NGR 449700, 236700) to the north of the village, which is on the western boundary of Northamptonshire, and about 8km west of Brackley.

Geology and topography

The underlying geology is Jurassic Lias, and the site appears to be free of drift deposits. Sites on Jurassic bedrock usually respond well to magnetometer surveys, and previous surveys on Lias have often provided clear evidence for the presence of archaeological features.

Archaeology

We have been supplied by EDP with copies of relevant plans and records from the Northamptonshire County HER. These show a group of cropmarks, probably indicating an undated settlement site within the proposed survey, and there are also records of Iron Age activity in the immediate surroundings. The survey should therefore provide additional information concerning the plan and extent of archaeological features within the site.

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 (as submitted by BCC to EDP on 3 May 2012) .

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 1:1250 grey scale plot (figure 1), and as a graphical (x-y trace) plot at 1:1000 scale in figure 2. 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 2 (which permits the interpreted outlines to be compared with the underlying data), and is reproduced separately to provide a summary of the findings (figure 3).

The survey plots show the magnetometer readings after standard treatments which include adjustment for irregularities in line spacing caused by variations in the instrument zero setting, and slight linear smoothing. Additional 2D low pass filtering has been applied to the grey scale plot to reduce 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. Features of uncertain, but probably natural, origin are shown in a light brown. Strong magnetic anomalies which are likely to be of recent origin are shown in dark brown. Strong magnetic anomalies which appear to represent iron objects, and pipes, are in blue. Cropmarks (reproduced from HER data) are indicated (in green) on figure 3.

Magnetic susceptibility tests

The magnetometer survey was supplemented by a background magnetic susceptibility survey based on readings taken at 50m 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 3.

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

The survey plots (figures 1 and 2) indicate that the site, as expected, is strongly responsive to a magnetometer survey. A dense group of findings of clear archaeological significance has been detected in the southern part of the field, but there is only limited evidence for the possible presence of archaeological features elsewhere.

The group of strong magnetic anomalies (as outlined in red in figure 3) includes superimposed circular features, which will usually represent hut circles of late prehistoric or Romano-British date. Other strong individual magnetic anomalies within and between the circles (as seen particularly in the graphical plot, figure 2) may represent such features as pits containing magnetically enhanced occupation debris, or hearths. Magnetic susceptibility readings taken during the survey are sufficiently high (mean = 37 SI) to confirm that soil conditions at the site should be favourable for the survey, and are consistent with the presence of settlement remains towards the south of the site.

The main area of occupation activity may be bounded to the north by a weak linear feature as indicated by a broken red line (labelled A) on figure 3. This could be a minor ditch or earthwork.

Other individual pit-like magnetic anomalies (red outlines) are scattered across the field to the north of A, but they fail to form any further groups or concentrations, except perhaps around B, and their significance elsewhere is unclear.

One of the probable hut circles detected by the survey (to the west of the field at C) corresponds clearly with a cropmark, but other cropmarks do not appear to be visible in the survey. This discrepancy is unusual, given that cropmark features of the kind indicated here (ditches and enclosures) should be detectable in a magnetometer survey, and particularly so on a magnetically responsive soils as is present at this site.

One of the linear cropmarks corresponds to a sequence of strong magnetic anomalies (at D), but there is no clear evidence in the survey for the remainder. The magnetic anomalies at D could represent a length of iron pipe, or they could indicate debris or disturbances along the line of a former boundary. There are other strong and probably recent magnetic disturbances (as outlined in brown) nearby. It may therefore be the case that the main north-south linear cropmark represents at former field boundary, most of which is too insubstantial to be detected by the survey. Other cropmark features could be too heavily eroded by cultivation to be detected by the survey.

The site is intersected by two further pipes (as indicated towards the north and east of the survey in blue).

Conclusions

The survey has detected clear evidence for an ancient settlement site towards the south east of the filed, together with a few individual features of possible archaeological origin elsewhere. It has failed to confirm the cropmark features which have previously been recorded in the western part of the site.

Report by:

A. Bartlett BSc MPhil

Bartlett - Clark Consultancy
Specialists in Archaeogeophysics
25 Estate Yard
Cuckoo Lane
North Leigh
Oxfordshire
OX29 6PW

01865 200864

28 May 2012

The fieldwork for this project was done by P. Cottrell and F. Prince.

Background mapping based on topographic survey by Global Surveys, Northampton

449600E

449700E

449800E

449900E

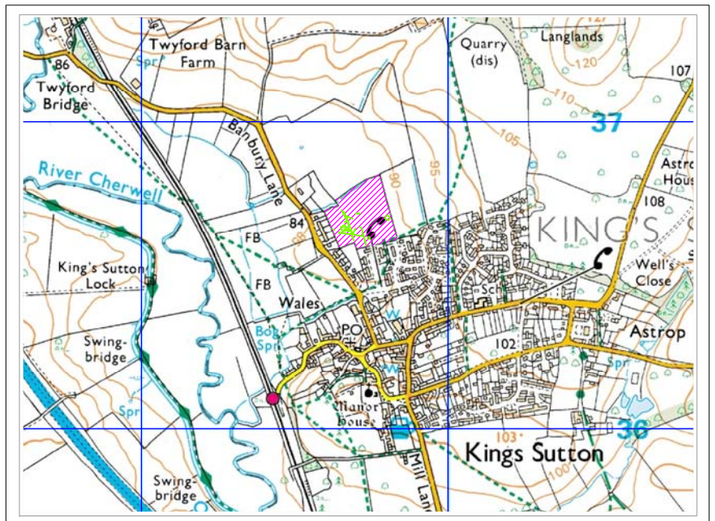
236800N

236700N

3.0 nT

-2.8

N



Survey location (hatched) and HER cropmarks (green) 1:20000

Surveyed by Bartlett - Clark Consultancy (01865 200864)
for The Environmental Dimension Partnership (EDP)

Hampton Drive, Kings Sutton
Northamptonshire
Geophysical Survey 2012
Figure 1: Magnetometer survey
(grey scale plot)

0 1:1250 50m

Background mapping based on topographic survey by Global Surveys, Northampton

magnetic anomalies (archaeological ?)

magnetic disturbances (recent / non-archaeological)

background magnetic activity (natural / non-archaeological ?)

pipes

strong (ferrous) magnetic anomalies

N

80nT

Hampton Drive, Kings Sutton Northamptonshire Geophysical Survey 2012

Figure 2: Magnetometer survey (with interpretation)

0 1:1000 50m

Surveyed by Bartlett - Clark Consultancy (01865 200864) for The Environmental Dimension Partnership (EDP)

Background mapping based on topographic survey by Global Surveys, Northampton

N

magnetic anomalies (archaeological ?)

magnetic disturbances (recent / non-archaeological)

background magnetic activity (natural / non-archaeological ?)

pipes

strong (ferrous) magnetic anomalies

cropmarks (HER site ENN3236)

ENN3236

A

B

C

D

50 x 10⁻⁵ SI (volume susceptibility readings)

0

Magnetic susceptibility survey 1:4000

Surveyed by Bartlett - Clark Consultancy (01865 200864) for The Environmental Dimension Partnership (EDP)

Hampton Drive, Kings Sutton Northamptonshire Geophysical Survey 2012

Figure 3: Summary of findings

0 1:1000 50m