Land at Springhill, Southmoor, Oxfordshire

Archaeological Geophysical Survey

Bartlett-Clark Consultancy

February 2017

Client:
West Waddy ADP on behalf of MBC Estates
NGR: SU 3897 9795

oxfordarchaeology
southsouthsouth

LAND AT SPRINGHILL, SOUTHMOOR, OXFORDSHIRE

Archaeological Geophysical Survey 2017

Report by:

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1. Introduction

A geophysical survey has been undertaken as part of an archaeological field evaluation of a proposed development site at Southmoor, Oxfordshire. The purpose of the survey was to test for evidence of archaeological features or remains which may be present at the site.

The survey was commissioned from Bartlett Clark Consultancy, Specialists in Archaeogeophysics of Oxford by Oxford Archaeology (OA). Fieldwork for the project was done on 18-19 January 2017.

2. The Site

Notes on the location and condition of the site, and on the archaeological background to the project, were included in the Written Scheme of Investigation which was submitted to OA in advance of the survey [1]. The following notes are reproduced in part from this document.

Topography and geology

The site extends across two arable fields, and is located between Springhill Road and the A420 bypass immediately to the east of the village of Southmoor. The evaluation area amounts in total to c. 11.4ha (as indicated in red on location plan inset in figure 1), and is centred at NGR SU 389979. Southmoor village forms part of the civil parish of Kingston Bagpuize with Southmoor, and lies within the administrative area of Vale of White Horse District Council about 9km west of Abingdon, Oxfordshire.

The site lies (according to the BGS on-line geology viewer) on a bedrock of Limestone, Siltstone and Mudstone of the Corallian Group, and is free of drift deposits. The topsoil at the site appeared in the event to be mainly sandy in character, with areas of gravel. Soils on a Jurassic bedrock should usually provide favourable conditions for a magnetometer survey, as is also the case on gravel, but sandy soils may be less responsive.

Archaeological background

We have not been told of any previously identified or recorded archaeological sites or features within the site itself. The survey therefore represents a prospecting exercise to test for evidence of previously unknown archaeological findings.

3. Objectives of the Survey

The usual objective of a geophysical survey is to test for evidence of detectable archaeological remains, and to provide information which may inform further stages of the archaeological evaluation.

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. The survey is also strongly affected by ferrous and other debris of recent origin.

4. Survey Procedure

The method used for the investigation was a fluxgate gradiometer survey across the evaluation area. This followed procedures consistent with the 2008 English Heritage geophysical guidelines document [2].

A survey grid was set out at the required locations, and tied to the OS grid using a GPS system with VRS correction to provide 0.1m or greater accuracy. The plans are therefore geo-referenced, and OS co-ordinates of map locations can be read from the AutoCAD version of the plans.

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 grey a scale plot (at 1:2000 scale) in figure 1, and as a graphical (x-y trace) plot in figures 2-3 (at 1:1250 at A3). Inclusion of both types of presentation allows the detected magnetic anomalies to be examined in plan and profile respectively.

The graphical (x-y) plot represents minimally pre-processed magnetometer readings, in which adjustments are made for irregularities in line spacing caused by variations in the instrument zero setting (as is required for legibility in gradiometer data), but no further filtering or other process which could affect the anomaly profiles or influence the interpretation of the data has been applied. A weak additional 2D low pass filter has been applied to the grey scale plot to adjust background noise levels.

An interpretation of the findings is shown in figures 2-3, and is reproduced separately to provide a summary of the findings in figure 4. 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.

Findings are indicated either by outlines or broken lines. [Broken lines are used to indicate potential links between anomalies, or to indicate features which are visible in the grey scale plot, but too weak to be outlined precisely.]

Features as marked include magnetic anomalies which may show characteristics to be

expected from features of potential archaeological significance (in red). Some weaker or more doubtful examples are shown in a lighter pink colour. Possible former field boundaries and cultivation effects are shown, and recent disturbances are outlined in grey. Possible land drains are indicated, and some of the more conspicuous ferrous objects (identifiable as narrow spikes in the graphical plots) are outlined in light blue.

5. Results

The survey has detected a number of subsurface features and disturbances, most of which appear to relate to past cultivation or drainage. One possible exception is a group of findings at the western end of the evaluation area (as outlined in red, and labelled A in figure 4).

The magnetic anomalies at A (as seen particularly in the grey scale plot) appear to represent a small square ditched enclosure (c. 14m in width). This may contain an incompletely detected circular feature of a kind which might suggest a hut circle within the square enclosure. This is 8-9 m in diameter. There is perhaps a further weak linear feature (B) extending to the north, which may be a trace of a larger enclosure, and a group of magnetic anomalies which could include pit-like features (red) immediately to the south.

The features around A cannot be fully confirmed on this evidence to be of archaeological relevance, but a possibility remains that the findings could represent a small settlement site, potentially of Iron Age date, within a field system. (No obvious surface findings of pottery, etc., were seen during the survey, in spite of good ground visibility.)

The findings from the remainder of the survey include a number of linear features of varying character. The weak linear magnetic anomalies (indicated in brown, as at C, D) in the eastern field are rather weaker than would be expected for infilled ditches, but could perhaps indicate slight traces of earthworks or a field system. They do not align with current field boundaries, but could perhaps indicate headlands or boundaries from an earlier period of cultivation. These features are intersected by a further sequence of narrower linear markings (aligned as indicated in green), which could relate to more recent ploughing.

Other linear disturbances are defined by sequences of small magnetic anomalies of a kind which may indicate sections of clay land drains. These appear to form a parallel pattern around E in the western field, but it is likely that others (in addition to those marked in figure 4) are present.

The survey (as is usually the case) has detected various strong magnetic anomalies representing recent disturbances in field corners and near boundaries (as marked in grey in figure 4). A dense cluster of such disturbances at F could perhaps indicate an infilled pit or pond. There is a slightly raised level of background magnetic activity in this part of the site (as represented by small magnetic anomalies outlined in light brown). This could perhaps denote a scatter of recent debris, or alternatively a localised increase in the proportion of gravel in the topsoil. Items of ferrous debris (as indicted by narrow spikes in the graphical plot, and outlined in blue) are relatively numerous, but appear to be uniformly spread across the site, with no potentially significant variations in their distribution.

It is usually possible in a magnetometer survey to identify individual magnetic anomalies of a kind which could indicate silted pits. (These are represented by anomalies of moderate

strength and with rounded profiles as seen in the graphical plot.) A group of such features (outlined in red) was noted near A, but other examples (as at G, H) are widely dispersed, and are therefore less likely to be of archaeological relevance.

6. Conclusions

The survey has detected linear features which may represent insubstantial traces of former boundaries, or an earlier field system (as at C, D in the eastern field), and a probable infilled pit or pond (F).

One group of features which may be of particular archaeological relevance is the cluster of magnetic anomalies at the west of the site (around A). It is possible that the findings here could represent a small late prehistoric settlement site, with features including a hut circle within a square enclosure, and perhaps traces of a surrounding field system. The plan of the features appears to support this possibility, although the interpretation cannot be confirmed from the survey evidence alone.

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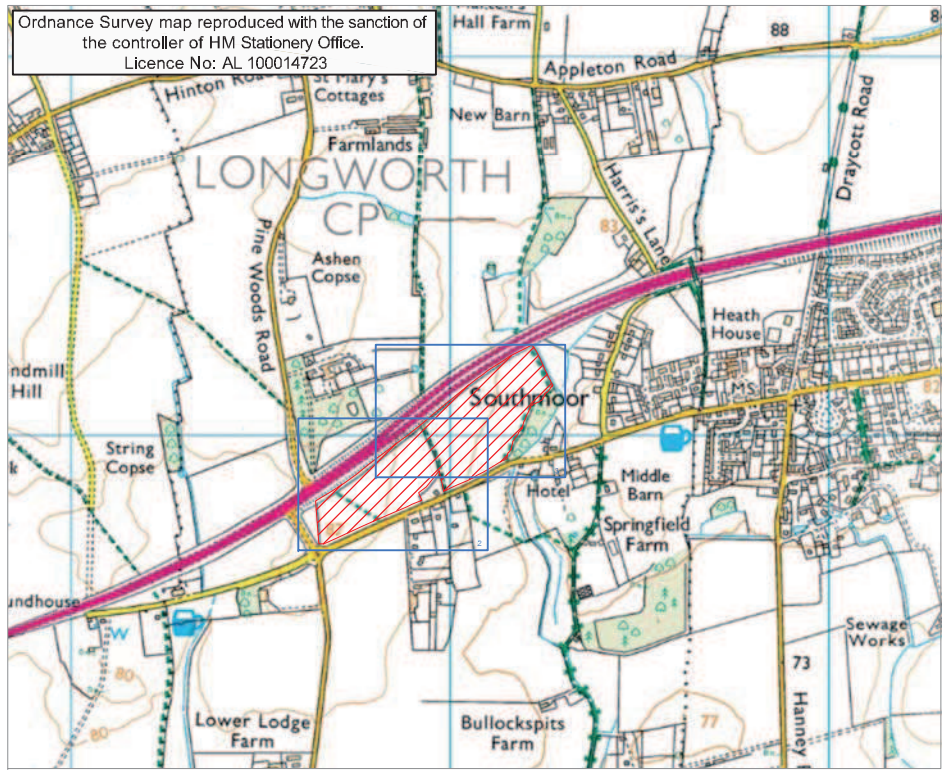
8 February 2017

The fieldwork for this survey was done by M. Berry and P. Heykoop.

References

[1] *Land at Springhill, Southmoor, Oxfordshire. Written Scheme of Investigation for Archaeological Geophysical Survey.* Document submitted to Oxford Archaeology by Bartlett Clark Consultancy. 18 January 2017.

[2] English Heritage 2008 *Geophysical Survey in Archaeological Field Evaluation* (English Heritage: Swindon, 2008), English Heritage Research.



Site location 1:12500

439000E

198000N

Evaluation area

Location of 1:1250 figures (2-3)

N

1.6nT

-1.4

2

3

Surveyed by Bartlett - Clark Consultancy (01865 200864) for Oxford Archaeology

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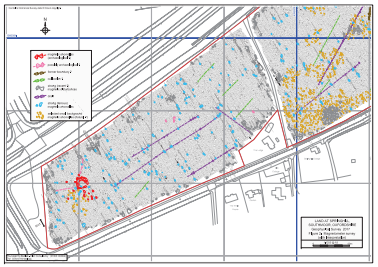
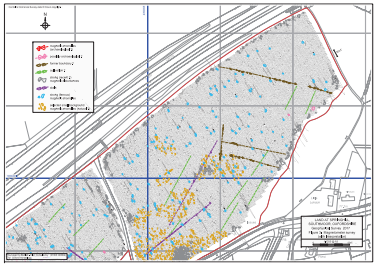
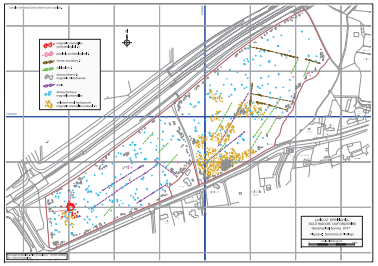
Figure 1: Magnetometer survey (grey scale plot)

Scale 1:2000 @ A3
0 100m







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