

**LAND NORTH OF LEIGHTON ROAD,
WINGRAVE, BUCKINGHAMSHIRE**

**Archaeological Geophysical Survey
2015**

Report by:

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Land North of Leighton Road, Wingrave, Buckinghamshire

Geophysical Survey 2015

Abstract

This report describes a geophysical survey which has been undertaken as part of an archaeological evaluation of a proposed development site at Wingrave, Buckinghamshire.

The survey detected a moderate amount of magnetic activity, but identifiable findings appear to be limited to natural and recent disturbances. A survey of this kind cannot entirely exclude the possibility that minor or unresponsive archaeological features may be present, but the survey has not produced any findings which can plausibly be interpreted as of archaeological relevance.

1. Introduction

The survey was commissioned from Bartlett Clark Consultancy, Specialists in Archaeogeophysics of Oxford, by Oxford Archaeology. Fieldwork for the survey was done on 1 June 2015.

2. Objectives of the Survey

The purpose of the survey was to test for evidence of archaeological sites or 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.

3. The Site

Notes on the location and condition of the site and the archaeological background to the project were included the Method Statement submitted to Oxford Archaeology in advance of the survey [1]. The following comments are reproduced in part from this document.

Topography and geology

The site is located to the north of Baldways Close off Leighton Road, Wingrave, which is about 5km north-east of Aylesbury. The survey area is centred approximately at NGR SP 8701923. It amounts in total to c. 1.76ha.

The evaluation area is an area of rough pasture subdivided into five small paddocks separated by fences (not all of which are shown on the background mapping). The site was surveyed in full with the exception of strips adjacent to the outer boundaries, where the ground was more densely overgrown than elsewhere.

The site is on an underlying bedrock of Cretaceous Gault and Upper Greensand Formations (as indicated on the BGS website). It appears to be free of drift deposits. Soils on Greensand are not necessarily highly responsive to magnetic investigation, but should provide a relatively quiet background against which minor magnetic disturbances can be identified. Conditions at the site should not therefore present any unusual difficulties for a magnetometer survey.

Archaeological background

We have not been told of any previously identified archaeological findings which have been recorded from within the proposed survey area or nearby, although the location of the site in the centre of a village could mean there is a possibility of settlement activity of various periods. The survey should therefore serve as a prospecting exercise to test for evidence of any previously unrecorded archaeological sites or features.

4. Survey Procedure

The procedure used for the investigation was a fluxgate gradiometer survey across the evaluation area. Results are presented as described below.

A survey grid was set out at the required locations, and tied to the OS grid using a GPS system with differential correction to provide increased 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 a grey scale plot (at 1:1250 scale) in figure 1, and as a graphical (x-y trace) plot in figure 2 (at 1:1000 at A4). 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, as recommended for initial presentation of survey data in the 2008 English Heritage geophysical guidelines document [2]. 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 figure 2, and is reproduced separately to provide a summary of the findings in figure 3. 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.

Features as marked include strong (and perhaps recent) disturbances in grey. Small (and mainly natural) background magnetic anomalies are outlined in light brown. Some of the more conspicuous ferrous objects (identifiable as narrow spikes in the graphical plots) are outlined in light blue.

5. Results

The survey detected various subsurface features and disturbances, although most appear to be of clearly recent or non-archaeological origin. There is a moderate level of background magnetic activity, as indicated by small magnetic anomalies outlined in light brown in figures 2 and 3. These may in part be natural (particularly if there is a gravel component in the topsoil), but they may also include small ferrous objects or scattered fragments of brick or tile. The activity is uniformly distributed across the site, and is no more concentrated than would usually be expected at a location close to a present-day settlement.

A number of more conspicuous magnetic anomalies caused by larger near-surface ferrous objects (and represented by narrow spikes in the graphical plot, figure 2) are outlined in blue. These again are randomly distributed, and typical of a site in this location.

The remaining findings are larger or more conspicuous magnetic anomalies representing recent or current disturbances, and outlined in grey. These are caused in part by interference from adjacent fences (as at A, B as labelled in figure 3), but could also include scatters of rubble or hard core. This may be the case in the south-west corner where the small paddock (C) is surfaced with rubber granules.

A ridge and furrow cultivation pattern is visible on the ground surface, but was not detected in the survey because it aligns with the magnetometer transects. It is necessary to apply a (zero mean) background correction to each transect in a magnetometer survey to produce an interpretable plot, and this weakens the response to features parallel to the transects. The survey was aligned in this direction to limit the possibility that a magnetic response from the ridge and furrow could obscure underlying archaeological features.

6. Conclusions

A possibility may remain on a weakly responsive Greensand-based soil that former ditches or enclosures which lack any magnetically enhanced debris in their fill might not be clearly detectable by the survey. It would usually, however, be expected that there will be some degree of localised magnetic enhancement in the vicinity of ancient settlement or industrial

remains, but no such findings are identifiable in the survey plots. The survey has not therefore provided any evidence for the presence of substantial or readily identifiable archaeological features.

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23 June 2015

The fieldwork for this project was done by R. Ainslie and S. Ainslie.

References

- [1] *Land at Wingrave, Buckinghamshire: Method Statement for Archaeological Geophysical Survey 2015*. Document submitted to Oxford Archaeology by Bartlett Clark Consultancy; 26 May 2015.
- [2] English Heritage 2008 *Geophysical Survey in Archaeological Field Evaluation* (English Heritage: Swindon, 2008), English Heritage Research.

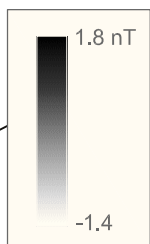
Background mapping includes Ordnance Survey Data.
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130m

131m



219300N

LEIGHTON ROAD

BALDWAYS CL

proposed evaluation
area

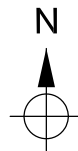
LAND AT WINGRAVE
BUCKINGHAMSHIRE
Geophysical Survey 2015
Figure 1: Magnetometer survey
(grey scale plot)

0 1:1250 @ A3 50m

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487000E



131m

40mT

-  magnetic anomalies:
archaeological ? (none
identified in present survey)
-  strong (recent ?) magnetic
disturbances
-  magnetic anomalies
(ferrous ?)
-  background magnetic
anomalies (mainly natural ?)

219300N

BALDWAYS C

LEIGHTON RO

LAND AT WINGRAVE
BUCKINGHAMSHIRE
Geophysical Survey 2015

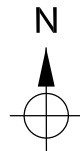
Figure 2: Magnetometer survey
(with interpretation)

1:1000 @ A4

0 50m

Background mapping includes Ordnance Survey Data.
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487000E



131m

- magnetic anomalies:
archaeological ? (none
identified in present survey)
- strong (recent ?) magnetic
disturbances
- magnetic anomalies
(ferrous ?)
- background magnetic
anomalies (mainly natural ?)

219300N

A

B

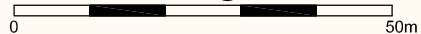
C

BALDWAYS CH

LEIGHTON RO

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Figure 3: Summary of findings

1:1000 @ A4



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