GEOPHYSICAL SURVEY REPORT

SUMO
Survey

GEOPHYSICS FOR ARCHAEOLOGY & ENGINEERING

Papplewick Lane, Hucknall, Nottinghamshire

Client
University of Leicester Archaeological Services

For
Bellaway Homes East Midlands

Survey Report
11229

Date
May 2017

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Project name:
Papplewick Lane, Hucknall, Nottinghamshire

SUMO Job reference:
11229

Client:
University of Leicester Archaeological Services

For:
Bellaway Homes East Midlands

Survey date:
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Report date:
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Field co-ordinator:
Tom Cockcroft MSc
Olivier Vansassenbrouck MSc

Field Team:
Andrew Edwards BSc MSc
Rebecca Vickers BSc
Jonathan Hunter

Report written by:
Rebecca Davies BSc
Dr John Gater BSc DSc(Hon) MCIfA FSA

CAD illustrations by:
Rebecca Davies BSc

Project Manager:
Simon Haddrell BEng AMBCS PCIfA

Report approved by:
Dr John Gater BSc DSc(Hon) MCIfA FSA

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DIGITAL CONTENT (Archive Data)

- Minimally Processed Greyscale Images and XY Trace Plots in DWG format

- DWG Viewer

- Digital Copies of Report Text and Figures (both PDF and native formats)

1   SUMMARY OF RESULTS

A detailed magnetometer survey was conducted over approximately 13ha of arable farmland. Several linear anomalies of uncertain origin have been detected and, although some may appear to form an enclosure this seems unlikely. The remaining features include a former field boundary, evidence of ploughing and disturbance from modern ferrous objects, such as services and nearby fences.

2   INTRODUCTION

2.1   Background synopsis

SUMO Services Ltd were commissioned to undertake a geophysical survey of an area outlined for residential development. This survey forms part of an archaeological investigation being undertaken by **University of Leicester Archaeological Services (ULAS)** on behalf of **Bellaway Homes East Midlands.**

2.2   Site details

NGR / Postcode	SK 545 505 / NG15 8EL
Location	The site is located to the north-east of Hucknall, to the south-east of Linby and to the south of Papplewick, Nottinghamshire.
HER/SMR	Nottinghamshire
District	Gedling
Parish	Linby CP
Topography	The site is predominantly at c.75m AOD, with a general fall from west to east.
Current Land Use	Arable
Weather	Sunny, some clouds
Geology	Solid: Cadeby Formation – Dolostone (magnesian limestone). Superficial: None recorded (BGS 2017).
Soils	Aberford Association (511a), shallow, locally brashy, well drained calcareous fine loamy soils over limestone (SSEW 1983).
Archaeology	There is an absence of evidence for prehistoric or Roman activity within the area surrounding the site, and as such it is considered that the site has a low potential for remains of these periods. The site is likely to have been marginal land on the perhiphery of the settlements of Linby and Papplewick during the medieval period (CgMs 2009).
Survey Methods	Magnetometer survey (fluxgate gradiometer)
Study Area	13ha

2.3   Aims and Objectives

To locate and characterise any anomalies of possible archaeological interest within the study area.

3   METHODS, PROCESSING & PRESENTATION

3.1   Standards & Guidance

This report and all fieldwork have been conducted in accordance with the latest guidance documents issued by Historic England (EH 2008) (then English Heritage), the Chartered Institute for Archaeologists (CIfA 2014) and the European Archaeological Counccil (EAC 2016).

3.2   Survey methods

Detailed magnetic survey was chosen as an efficient and effective method of locating archaeological anomalies.

Technique	Instrument	Traverse Interval	Sample Interval
Magnetometer	Bartington Grad 601-2	1.0m	0.25m

More information regarding this technique is included in Appendix A.

3.3   Data Processing

The following basic processing steps have been carried out on the data used in this report:

De-stripe; de-stagger; interpolate

3.4   Presentation of results and interpretation

The presentation of the results for each site involves a grey-scale plot of processed data. Magnetic anomalies are identified, interpreted and plotted onto the 'Interpretation' drawings. The minimally processed data are provided as a greyscale image in the Archive Data Folder with an XY trace plot in CAD format. A CAD viewer is also provided.

When interpreting the results, several factors are taken into consideration, including the nature of archaeological features being investigated and the local conditions at the site (geology, pedology, topography etc.). Anomalies are categorised by their potential origin. Where responses can be related to other existing evidence, the anomalies will be given specific categories, such as: *Abbey Wall* or *Roman Road*. Where the interpretation is based largely on the geophysical data, levels of confidence are implied, for example: *Probable*, or *Possible Archaeology*. The former is used for a confident interpretation, based on anomaly definition and/or other corroborative data such as cropmarks. Poor anomaly definition, a lack of clear patterns to the responses and an absence of other supporting data reduces confidence, hence the classification *Possible*.

4   RESULTS

The survey has been divided into three survey areas (Areas 1-3).

4.1   *Uncertain*

4.1.1   While positive linear anomalies in the north of Area 3 might appear to form part of an incomplete sub-rectangular or trapezoidal enclosure, an archaeological explanation seems unlikely due to the lack of known archaeological remains within close proximity of the site.

4.1.2   Sinuous bands of enhanced magnetic response are visible in Areas 1 and 2. It is possible that the responses are of natural origin, possibly related to palaeo-channels or former watercourses, however their exact origin cannot be determined with confidence,

4.1.3   Several linear anomalies scattered across Areas 1 and 2 are also of uncertain origin. It is possible that they relate to small ditches or gullies, though this interpretation is tentative at best. It is more likely that they are agricultural (i.e. boundaries or drains) or natural in origin.

4.2   *Former Field Boundary*

4.2.1   A positive linear anomaly runs approximately northeast-southwest in Area. This corresponds with a former field boundary, visible on historic OS mapping from 1880 to 1886.

4.3   *Agricultural – Ploughing, Land drains*

4.3.1   Evidence of ploughing is visible across the site, in the form of closely spaced, magnetically weak, parallel linear anomalies.

4.4   *Ferrous / Magnetic Disturbance*

4.4.1   High amplitude linear responses running across Areas 1 and 2 are related to underground services, with the majority corresponding with sewer routes marked on the topographic base mapping.

4.4.2   Areas of magnetic disturbance in the south of Area 2 and centre of Area 1 are likely to be a result of modern ferrous rubbish within the topsoil.

4.4.3   Ferrous responses close to boundaries are due to adjacent fences and gates. Smaller scale ferrous anomalies ("iron spikes") are present throughout the data and their form is best illustrated in the XY trace plots. These responses are characteristic of small pieces of ferrous debris (or brick / tile) in the topsoil and are commonly assigned a modern origin. Only the most prominent of these are highlighted on the interpretation diagram.

5 DATA APPRAISAL & CONFIDENCE ASSESSMENT

5.1 Historic England guidelines (EH 2008) Table 4 states that the average magnetic response on magnesian limestone is good . The presence of several linear anomalies of uncertain origin in the data suggests it is likely that the technique has detected any archaeological features, if present.

6 CONCLUSION

6.1 The survey at Papplewick Lane has identified no definite archaeological features. Linear anomalies have been detected, which may be of interest, though these are more likely to be agricultural or natural. Evidence of ploughing has been detected across the site, along with a former field boundary, underground services and disturbance from nearby ferrous objects.

7 REFERENCES

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CIfA 2014   *Standard and Guidance for Archaeological Geophysical Survey.* Amended 2016. CIfA Guidance note. Chartered Institute for Archaeologists, Reading http://www.archaeologists.net/sites/default/files/CIfAS%26GGeophysics_2.pdf

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