

# GEOPHYSICAL SURVEY REPORT

# sumo

Survey

GEOPHYSICS FOR  
ARCHAEOLOGY &  
ENGINEERING

## Land at Maldon Road, Burnham-on-Crouch, Essex

Client  
**Albion Archaeology**

Survey Report  
**10859**

Date  
**February 2017**

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## GEOPHYSICAL SURVEY REPORT

Project name:  
**Land at Maldon Road,  
Burnham-on-Crouch**

SUMO Job reference:  
**10859**

Client:  
**Albion Archaeology**

Project Number:  
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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

Magnetically weak anomalies detected in the south of the survey area have been classified as being of possible archaeological interest, based largely on the knowledge that a Romano-British farmstead is thought to extend into this area (ARM 2015). Several former field boundaries have been recorded across the site, as well as a system of field drains or former drainage ditches. Several uncertain trends were noted and are likely these are likely to be of agricultural or natural origin. Finally, a band of magnetic responses in Area 3 are probably the result of underlying natural features.

## 2 INTRODUCTION

### 2.1 Background synopsis

**SUMO Services Ltd** were commissioned to undertake a geophysical survey of an area outlined for residential development.

Albion Archaeology have been commissioned by Pigeon Land Ltd on behalf of S.R. Burrows & K.L. Beverton, S.G. Bush and S. Pollard & E. Pollard ("The Landowners"), to prepare a geophysical Survey report for 'Land at Maldon Road, Burnham-on-Crouch, Essex', to be referred to hereafter as 'the Site'.

This report has been prepared for the joint benefit of Pigeon Land Ltd and The Landowners and the contents should not be relied upon by others without the express written authority of Albion Archaeology. If any unauthorised third party makes use of this report, they do so at their own risk and Albion Archaeology owe them no duty of care or skill.

### 2.2 Site details

<b>NGR / Postcode</b>	TQ 938 967/ CM0 8NY
<b>Location</b>	The site lies on the western fringes of the town Burnham-on-Crouch, Essex. It is bounded to the north by Maldon Road and to the south by a railway.
<b>HER/SMR</b>	Essex
<b>District</b>	Maldon
<b>Parish</b>	Burnham-on-Crouch
<b>Topography</b>	The site is flat
<b>Current Land Use</b>	Agriculture
<b>Weather</b>	Fair
<b>Geology</b>	Solid: Thames Group- clay, silt, sand and gravel. Superficial: River Terrace Deposits (undifferentiated) sand and gravel. (BGS 2917).
<b>Soils</b>	Hamble 2 Association (571z). Deep stoneless well drained silty soils and similar soils affected by groundwater, over gravel locally (SSEW 1983).
<b>Archaeology</b>	Evidence of occupation from early prehistory to the Anglo-Saxon has been identified in the application area. A Romano-British farmstead immediately to the south-east of the site is likely to extend into the application area (ARM 2015).
<b>Survey Methods</b>	Magnetometer survey (fluxgate gradiometer)
<b>Study Area</b>	20.9 ha

### 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) and the Chartered Institute for Archaeologists (IfA 2002 & ClfA 2014).

### 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 and colour-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

- 4.1 Several responses of possible archaeological interest were detected (see 4.2 below).
- 4.2 A number of magnetically weak trends were detected in the south of Area 3; they appear to form rectilinear and circular patterns. It is possible that they are simply the result of chance alignments due to ploughing or alluvial deposits. Without *a priori* knowledge of the Romano-British farmstead to the south-east, they are likely to have been classified as *Uncertain Origin*. However, given the known context, the anomalies have been classified as *Possible Archaeology*. The weakness of the magnetic responses could be a result of overlying alluvial deposits.
- 4.3 Several linear responses in all areas have been correlated with former field boundaries shown on historic OS mapping from 1873.
- 4.4 Magetically strong linear anomalies were identified in Area 1. The pattern suggests that they may represent field drains or possibly former drainage ditches, rather than field boundaries. However, as this cannot be determined with confidence, the trends have been classified as being of *Uncertain Origin*.
- 4.5 Weak trends identified across the survey areas are likely to be due to agricultural or natural causes and have been classified as being of *Uncertain Origin*.
- 4.6 A pipe has been detected traversing the northernmost edge of the survey area, orientated approximately north-west to south-east.
- 4.7 A band of magnetic responses bisects Area 3, orientated approximately south-west to north-east. The amorphous and sinuous form of the anomaly is typical of responses caused by natural variations in the underlying pedology or geology. Given the close proximity of the site to the River Crouch the responses almost certainly represent a palaeochannel or alluvial deposits. A smaller area of natural responses lies in the north of Area 3.
- 4.8 Several areas of magnetic disturbance in Area 1 are typical of responses associated with relatively modern remains such as dumped material.
- 4.9 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 or the colour-scale plots. These responses are characteristic of small pieces of ferrous debris (or brick / tile / igneous rocks) 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 English Heritage Guidelines (EH 2008) Table 4 states that the average magnetic response on sedimentary bedrock can be good but results may vary. The identification of former field boundaries and potential drains, together with the anomalies of possible archaeological origin suggests that the technique has been successful.

## 6 CONCLUSION

- 6.1 Magnetically weak linear anomalies in Area 3 are of possible archaeological origin, perhaps a continuation of the Romano-British farmstead to the south-east.
- 6.2 Several former field boundaries were detected and a number of linear anomalies are likely to reflect a system of drains or drainage ditches.
- 6.3 Trends are probably due to natural variations in the underlying pedology and/or geology, but their origin is uncertain.
- 6.4 Several areas of amorphous magnetic responses were identified in Area 3. These are the result of alluvial deposits or palaeochannels.
- 6.5 A pipe was detected in the north of Area 1.

## 7 REFERENCES

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