

GEOPHYSICAL SURVEY REPORT

sumo

Survey

**GEOPHYSICS FOR
ARCHAEOLOGY &
ENGINEERING**

Land at Walkern, Hertfordshire

Client
Orion Heritage

Survey Report
12334

Date
February 2018

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GEOPHYSICAL SURVEY REPORT

Project name:
Land at Walkern, Hertfordshire

SUMO Job reference:
12334

Client:
Orion Heritage

Survey date:
22-23 January 2018

Report date:
13 February 2018

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DIGITAL CONTENT (Archive Data CD/DVD)

- Minimally Processed Greyscale Images and XY Trace Plots in DWG format
- Digital Copies of Report Text and Figures (both PDF and native formats)

1 SUMMARY OF RESULTS

A detailed magnetometer survey was conducted over approximately 6.5 ha of arable land at Walkern, Hertfordshire. No archaeological responses have been detected. A single linear response of uncertain origin is visible in the west, though it is likely to be agricultural. The remaining responses are modern or natural, and include areas of natural magnetic variation, areas of made ground and evidence of modern ploughing.

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 **Orion Heritage**.

2.2 Site details

NGR / Postcode	TL 287 265 / SG2 7PF
Location	The site is located to the west of High Street, in Walkern, Hertfordshire. Dovehouse Lane forms the northern boundary of the site, agricultural land lies to the west and private gardens and pasture are present to the east and south.
HER/SMR	Hertfordshire
District	East Hertfordshire
Parish	Walkern CP
Topography	Mostly level
Current Land Use	Arable
Weather	Overcast, dry
Geology	Solid: Lewes Nodular Chalk Formation and Seaford Chalk Formation (undifferentiated) - chalk. Superficial: Lowestoft Formation - diamicton is recorded across the east of the site, with no drift geology in the west (BGS 2018).
Soils	Hornbeam 2 Association (582c) - deep fine loamy over clayey soils (SSEW 1983).
Archaeology	The site contains no designated or non-designated assets registered on the Hertfordshire Historic Environment Record. The study site forms part of the agricultural hinterland of medieval and post-medieval Walkern and the potential for well-preserved occupation evidence of medieval and post-medieval date in the main part of the site is considered low. Residual prehistoric and Roman artefacts and fragmentary sub-surface deposits of local significance cannot be ruled out entirely in this area, however well-preserved occupation evidence is not anticipated (OH 2017).
Survey Methods	Magnetometer survey (fluxgate gradiometer)
Study Area	6.5 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), the Chartered Institute for Archaeologists (CIfA 2014) and the European Archaeological Council (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 free viewer is available: <https://viewer.autodesk.com>

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 *Probable / Possible Archaeology*

- 4.1.1 No magnetic responses have been recorded that could be interpreted as being of archaeological interest.

4.2 *Uncertain*

- 4.2.1 A single, positive linear anomaly running parallel with the western boundary of the site is of uncertain origin. It is likely to be agricultural, possibly relating to a former field boundary, though there is no cartographic evidence to support this interpretation. The response may also be a result of ploughing.

4.3 *Agricultural – Ploughing*

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

4.4 *Natural / Geological / Pedological*

- 4.4.1 A number of discrete and amorphous areas of enhanced magnetic response are visible across the western part of the site, and are likely to be of natural origin, i.e. associated with the underlying chalk geology.

4.5 *Ferrous / Magnetic Disturbance*

- 4.5.1 Two large areas of strong magnetic disturbance have been detected in the north-east and south-east of the site. These are likely to be of modern origin, and are typical of responses detected over areas of made ground.
- 4.5.2 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

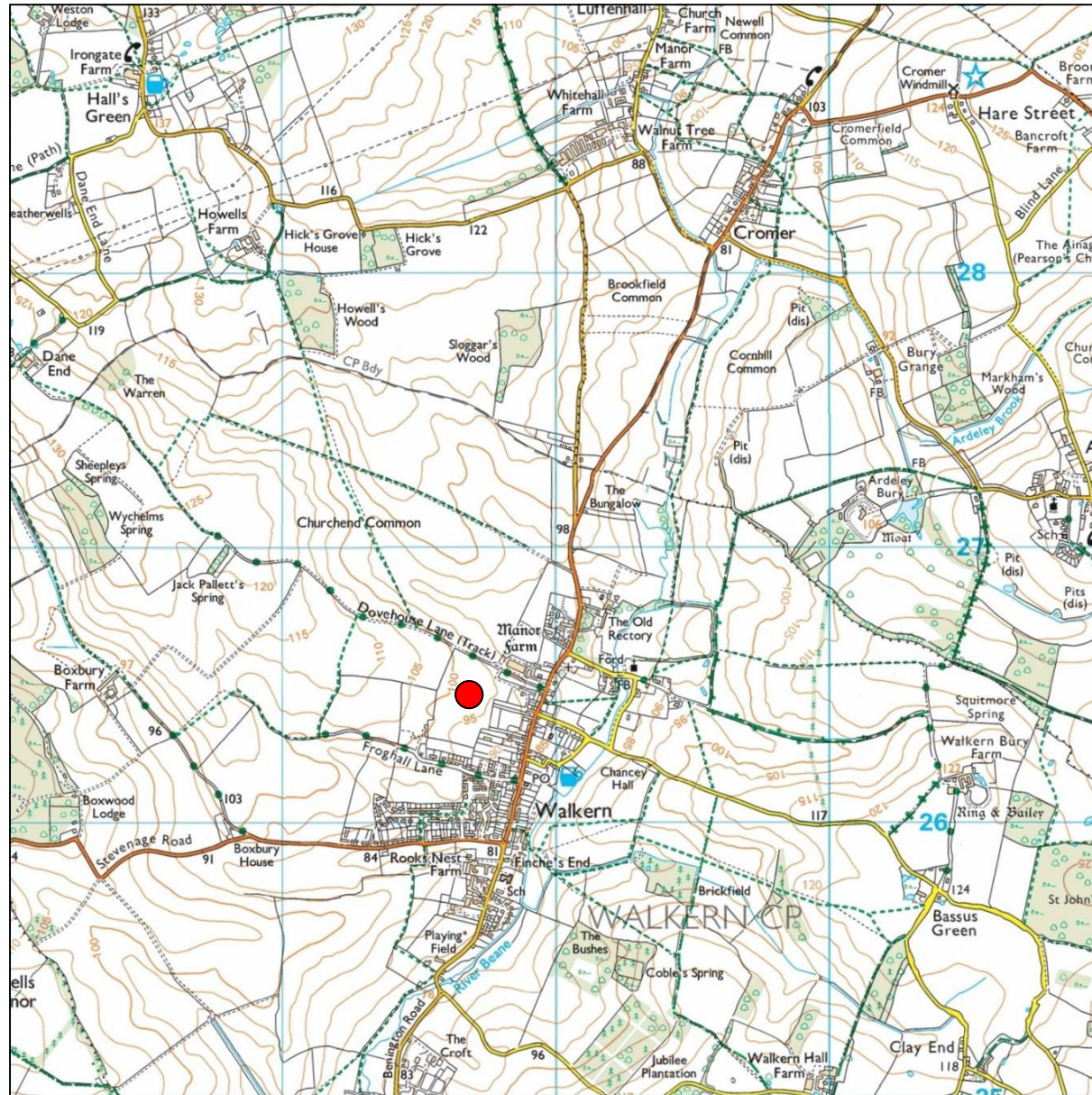
- 5.1 Historic England guidelines (EH 2008) Table 4 states that the average magnetic response on chalk is good, while responses over diamicton can be variable. Given that a linear response of uncertain origin has been detected, along with evidence of agricultural activity, it can be determined that the data provide a good indication of buried features, and that there is no reason as to why any archaeological features, if present, would not have been detected.

6 CONCLUSION

- 6.1 The survey at Walkern has not identified any responses of definite archaeological origin. A linear anomaly of uncertain origin has been detected, though it is likely to be agricultural. Evidence of modern ploughing has also been identified, along with natural magnetic responses and areas of modern made ground.

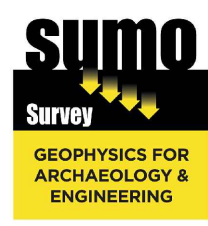
7 REFERENCES

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- ClfA 2014 *Standard and Guidance for Archaeological Geophysical Survey*. Amended 2016. ClfA Guidance note. Chartered Institute for Archaeologists, Reading
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 Site Location

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Title:
Site Location Diagram

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Project:
12334 - Land at Walkern, Hertfordshire

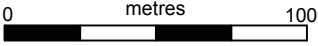
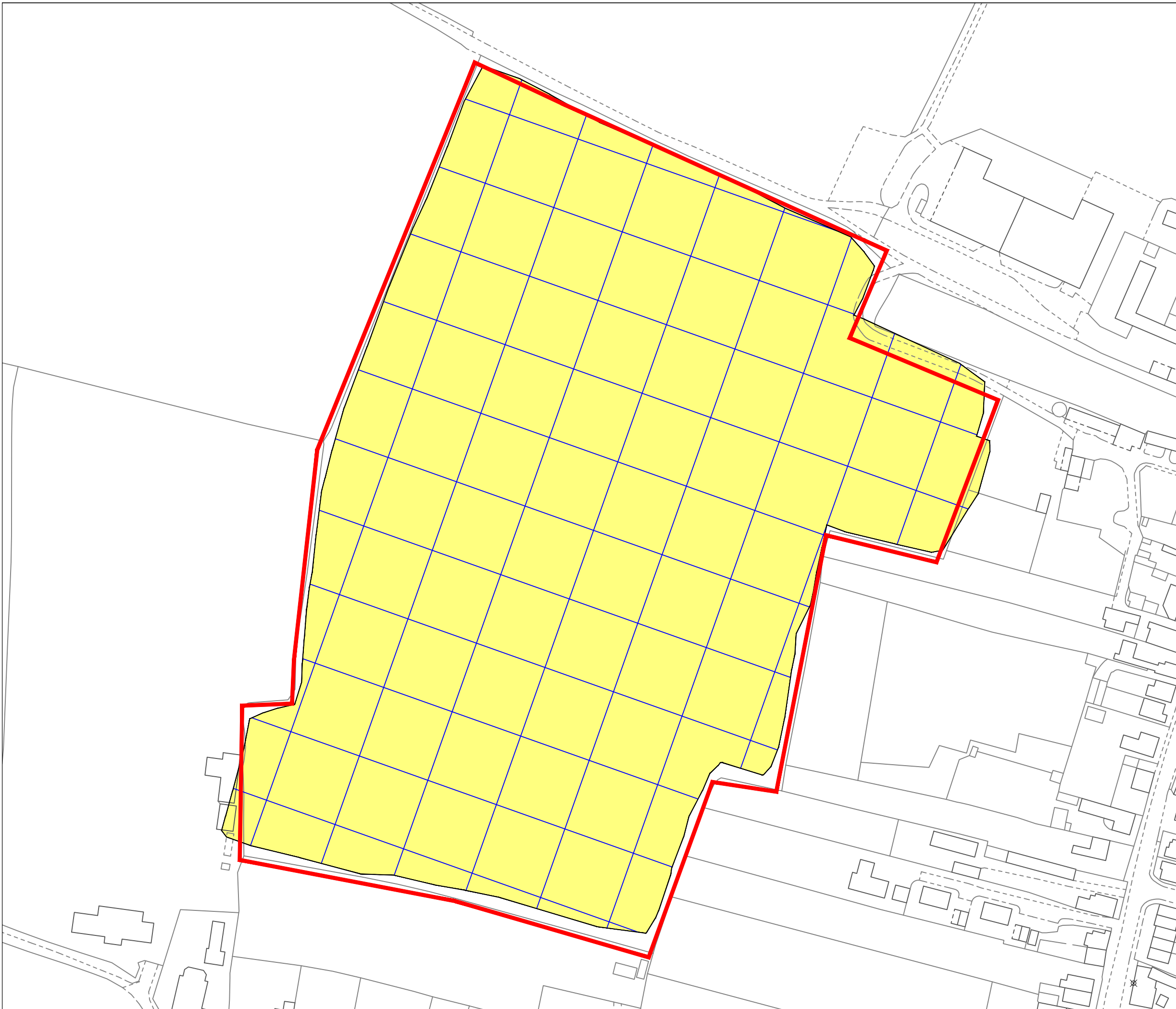

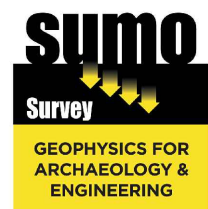
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1:25000 @ A3

Fig No:
01



 Survey Area - showing 30m grid



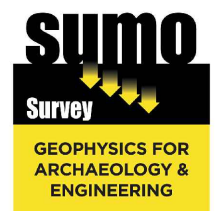
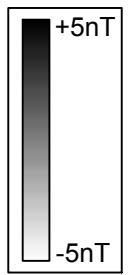
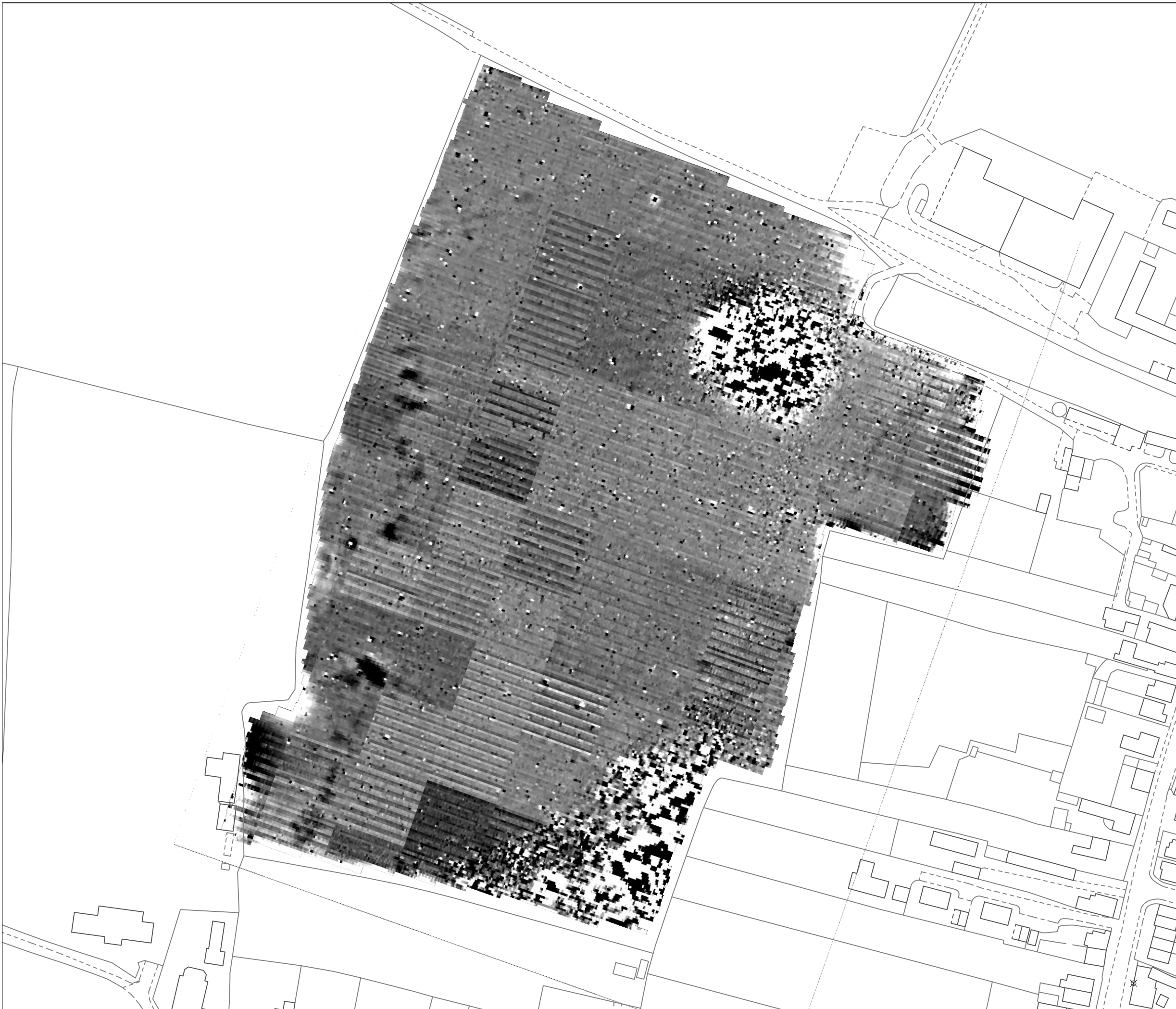
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Fig No: 02



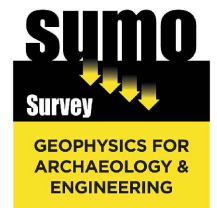
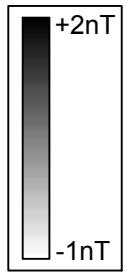
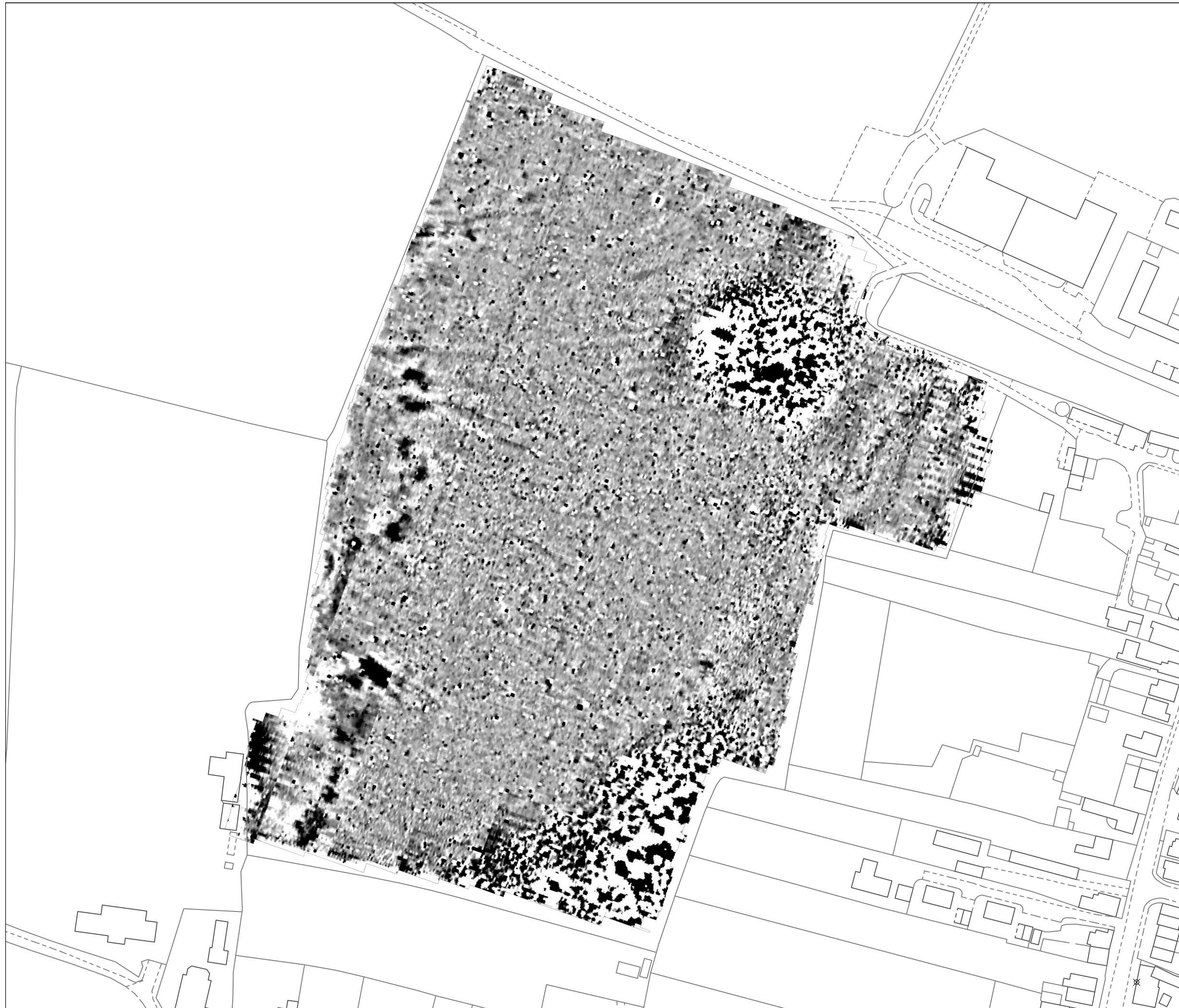
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Magnetometer Survey - Raw Greyscale Plot

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Orion Heritage

Project:
12334 - Land at Walkern, Hertfordshire

Scale:
0 metres 75
1:1500 @ A3

Fig No:
03



Title: Magnetometer Survey - Greyscale Plot

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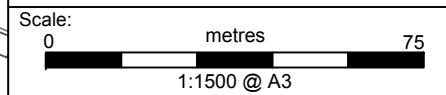
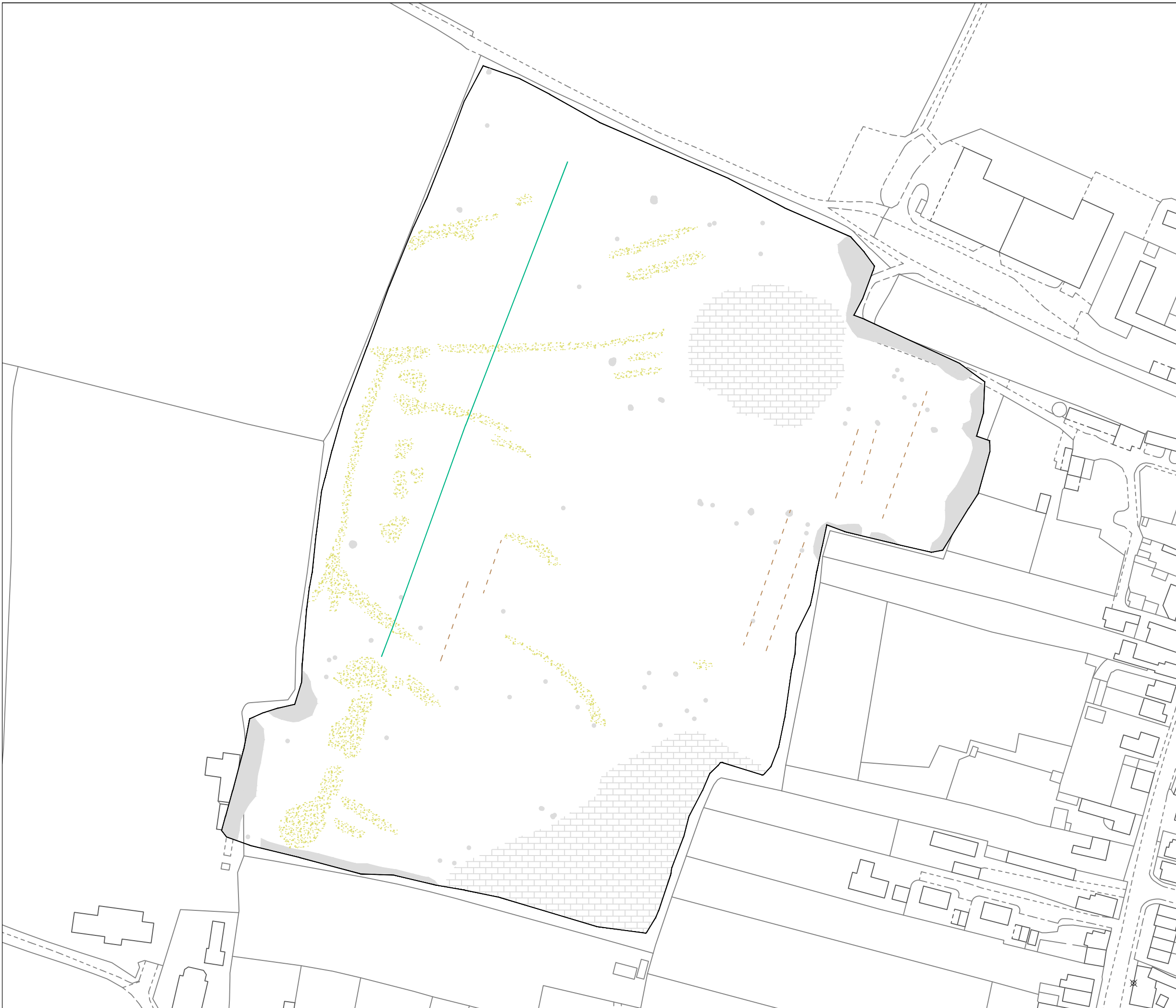





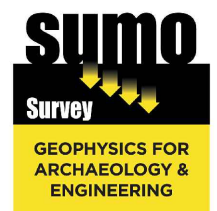


Fig No: 04



KEY

	Uncertain Origin (discrete anomaly / trend)
	Agriculture (plough)
	Natural (e.g. geological / pedological)
	Magnetic disturbance - made ground
	Ferrous



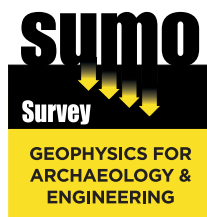
Title: Magnetometer Survey - Interpretation

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Scale: 0 metres 75
1:1500 @ A3

Fig No: 05



- Archaeological
- Geophysical
- Laser Scanning
- Measured Building
- Topographic
- Utility Mapping

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