

GEOPHYSICAL SURVEY REPORT

sumo

Survey

**GEOPHYSICS FOR
ARCHAEOLOGY &
ENGINEERING**

**Roedean School, Roedean Way,
Brighton**

Client
Roedean School

Survey Report
10872

Date
February 2017

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**Roedean School, Roedean Way,
Brighton**

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Client:
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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

The survey has produced a noisy dataset with a series of parallel anomalies aligned north-south dominating the results. These could indicate strip fields with medieval ridge and furrow cultivation. There are no other responses indicative of archaeological features, however, there are many modern disturbances on site which could be masking more ephemeral features.

2 INTRODUCTION

2.1 Background synopsis

SUMO Services Ltd were commissioned to undertake a geophysical survey of an area outlined for new sports pitches. This survey forms part of an archaeological investigation being undertaken for **Roedean School**.

2.2 Site details

NGR / Postcode	TQ 349 031 / BN2 5RQ
Location	Roedean School lies to the east of Brighton, northeast of Brighton Marina and southwest of Ovingdean. The area under investigation lies southeast of the school, north and west of the existing tennis courts.
HER/SMR	East Sussex
Unitary Authority	Brighton and Hove
Unitary Authority Ward	Rottingdean Coastal
Topography	Gently sloping downwards to the south.
Current Land Use	Grassed areas
Weather	Cloudy, rainy
Geology	Solid: Newham chalk. Superficial: none recorded (BGS 2017).
Soils	Andover 1 Association (343h) shallow well drained calcareous silty soils (SSEW 1983).
Archaeology	There are no designated or undesignated archaeological or historic sites within the survey area. However, the site is deemed to have high potential for prehistoric and Romano British activity (HBA&C 2016).
Survey Methods	Magnetometer survey (fluxgate gradiometer)
Study Area	2.6 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 *Probable / Possible Archaeology*

- 4.1.1 No magnetic responses have been recorded that could be interpreted as being of archaeological interest. However, the dataset is magnetically 'noisy' due to a variety of factors discussed below; as such it is possible that weakly magnetised features may have been 'missed'.

4.2 *Former Field Boundary*

- 4.2.1 No former boundaries have been identified but see 4.3 (below). An old track, visible as a strong magnetic linear response, runs along the western edge of the tennis court and continues north.

4.3 *Agricultural – Ploughing*

- 4.3.1 The results indicate a series of parallel linear anomalies aligned north-south, following the gentle slope downhill towards the sea. At 25 to 30m intervals the linears are more strongly enhanced; this could indicate a series of strip fields, with ridge and furrow cultivation between the land divisions. The 18th century map by Yeakell and Garland, dated 1778-83 (HBA&C 2016), depicts strip cultivation, even though it is not accurate enough to directly relate the detail recorded by the geophysics.

4.4 *Natural / Geological / Pedological / Topographic*

- 4.4.1 Although not depicted as a separate interpretation category, the chalk geology tends to result in striations within the data and these are likely to be adding to the 'noisy' data referred to above in 4.1.1.

4.5 *Uncertain*

- 4.5.1 There is a small area of increased magnetic response [1] which has a ferrous component and nearby linear trends. These are unlikely to be of archaeological interest but more probably a result of modern activity on the site. Former bonfires can result in such anomalies but in the absence of any supporting evidence the responses have been classified as being of uncertain origin.

4.6 *Ferrous / Magnetic Disturbance / Pipes*

- 4.6.1 Several modern service pipes have been identified. Ferrous responses close to boundaries are due to adjacent buildings and the fences around the tennis courts.
- 4.6.2 Smaller scale ferrous anomalies ("iron spikes") are present throughout the data and their form is best illustrated in the archive 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 chalk is good. The fact that plough lines have been recorded suggests that this survey is likely to have detected any archaeological features, if present. It should be noted that the modern responses may have masked weaker anomalies.

6 CONCLUSION

- 6.1 The results have identified a number of parallel linear anomalies which are interpreted as indicating former ridge and furrow ploughing within strip fields. No anomalies have been identified as being of archaeological interest, though the results are generally 'noisy' and weaker responses may not have been identified.

7 REFERENCES

- BGS 2017 British Geological Survey *website*:
(<http://www.bgs.ac.uk/opengeoscience/home.html?Accordion1=1#maps>)
Geology of Britain viewer [Accessed 21/02/2017].
- ClfA 2014 *Standard and Guidance for Archaeological Geophysical Survey*. Amended 2016.
ClfA Guidance note. Chartered Institute for Archaeologists, Reading
http://www.archaeologists.net/sites/default/files/ClfAS%26GGeophysics_2.pdf
- EH 2008 *Geophysical Survey in Archaeological Field Evaluation*. English Heritage, Swindon
<https://content.historicengland.org.uk/images-books/publications/geophysical-survey-in-archaeological-field-evaluation/geophysics-guidelines.pdf/>
- HBA&C 2016 *Roedean School, Roedean Way, Brighton, East Sussex, BN2 5RQ, Archaeological Desk-Based Assessment & Setting Impact Assessment*, HB Archaeology & Conservation, Report 2015218, Revised October 2016, unpublished.
- IfA 2002 *The Use of Geophysical Techniques in Archaeological Evaluations*, IFA Paper No 6, C. Gaffney, J. Gater and S. Ovenden. Institute for Archaeology, Reading
- SSEW 1983 *Soils of England and Wales. Sheet 6, South East England*. Soil Survey of England and Wales, Harpenden.