

NYCC HER	
SNY	9554
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Rec'd	15/04/2005



ARCHAEOLOGICAL  
SERVICES  
WYAS

**Land adjacent to the Village Hall**

**Main Street**

**Foxholes**

**North Yorkshire**

*Geophysical Survey*

*April 2005*

*Report No. 1377*

CLIENT  
MAP Archaeological Consultancy Ltd

Rec 15/4/5

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#### Contents

1. Introduction and Archaeological Background
2. Methodology and Presentation
3. Magnetometer Survey Results
4. Earth Resistance Survey Results
5. Discussion and Conclusions

Bibliography

Acknowledgements

Figures

Appendices

#### Summary

*A geophysical evaluation comprising both magnetic and resistance surveys was carried out at a small site on Main Street, Foxholes. No anomalies indicative of archaeological activity have been identified by the magnetometer survey although the data from a significant part of the area was disturbed by an iron fence forming the eastern site boundary. Areas of high resistance could be caused by the remnants of medieval boundary divisions. However, parts of the site may have been subject to relatively recent landscaping making any archaeological interpretations extremely tentative.*

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Archaeological Services WYAS

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## **1. Introduction and Archaeological Background**

- 1.1 Archaeological Services WYAS was commissioned by Mr Mark Stephens of MAP Archaeological Consultancy Ltd on behalf of their clients Foxholes with Butterwick Parish Council to carry out a geophysical (magnetometer and earth resistance) survey adjacent to the village hall at Foxholes, North Yorkshire (see Fig. 1) where it is proposed to erect two dwellings and a new community centre following demolition of the existing village hall. The site is centred at TA 0122 7293 and covers approximately 0.12 hectares.
- 1.2 The survey area comprised a single field at approximately 65m Above Ordnance Datum. A Methodist Chapel to the north, the village hall to the south and a post and rail cast iron fence to the east demarcated the site (see Fig. 2). As the site was so small this fence had a disproportionately adverse effect on the magnetic data (see Section 3.1 below). The pavement forming the western edge of the site was approximately 2m below the level of the ground surface of the site with a similar rise up to the farmland east of the site. This suggests that the site has undergone previous ground disturbance to 'terrace' the site, a possibility that may also have impacted on the results of the survey (see Sections 5.1 and 5.2). No problems were encountered during the fieldwork that was carried out on April 4<sup>th</sup> 2005.
- 1.3 The solid geology comprises chalk overlain by soils of the Andover 1 soil association. These soils are described as being shallow, well drained, calcareous and silty.
- 1.4 Information contained on the North Yorkshire Sites and Monument Record suggests that there is the possibility that remains from the prehistoric, Romano-British, medieval and later periods may survive on the site. Evidence from air photographs indicates the presence of early field systems, trackways, enclosures and burials over extensive areas to the south and west of the village. The main elements of the landscape comprise a Bronze Age round barrow cemetery, Iron Age square barrow cemetery, rectilinear field system and other enclosures of a later prehistoric type.
- 1.5 The present settlement of Foxholes overlies the area of former medieval occupation and activity. A watching brief carried out by MAP Archaeological Consultancy Ltd during development of land south of the survey area, recorded evidence of ditches, pits and walls of a medieval date as well as Roman and prehistoric material. Consequently the North Yorkshire County Council Heritage Section advised that there is '*considerable potential ... for the development of the application site to disturb and destroy any surviving evidence of features and finds relating to former settlement and activity*'.

## **2. Methodology and Presentation**

- 2.1 The objective of the geophysical evaluation was to identify and determine the nature of any archaeological anomalies within the site boundaries. As there was the possibility of the presence of features and deposits from several periods including both infilled cut features and structural features it was determined that both magnetometer and resistance surveys be undertaken in order to best achieve the objectives.



- 2.2 The survey methodology, report and any recommendations comply with guidelines outlined by English Heritage (David 1995) and by the IFA (Gaffney, Gater and Ovenden 2002). All figures reproduced from Ordnance Survey mapping are done so with the permission of the controller of Her Majesty's Stationery Office. © Crown copyright.
- 2.3 A general site location plan, incorporating the 1:50000 Ordnance Survey mapping, is shown in Figure 1. The processed magnetometer and earth resistance data are displayed in greyscale format, at a scale of 1:500, in Figures 2 and 5 respectively, with an interpretation of the anomalies at the same scale in Figures 3 and 6. Figures 4 and 7 are XY trace plots of the raw magnetometer and earth resistance data.
- 2.4 Information on the technical background to the two survey techniques as well as data processing and display are given in Appendix 1 and Appendix 2. The survey location information is presented in Appendix 3 and the composition of the archive comprises Appendix 4.

*The figures in this report have been produced following analysis of the data in 'raw' and processed formats and over a range of different display levels. All figures are presented to most suitably display and interpret the data from this site based on the experience and knowledge of Archaeological Services staff.*

### **3. Magnetometer Survey Results**

- 3.1 No magnetic anomalies have been identified in the magnetic data, other than a few isolated dipolar anomalies ('iron spikes' - see Appendix 1) caused by ferrous objects or other magnetic material on the ground surface or contained within the upper soil horizons and a linear band of magnetic disturbance along the eastern boundary caused by the strong magnetic field generated by the post and rail fence. Figure 2 shows how much of the survey area has been affected by the strong readings caused by the fence.
- 3.2 In general the magnetic background across the site was very flat, albeit at an elevated level, relative to the level at the location where the instrument was calibrated outside the immediate survey area to the east (see below).

### **4. Earth Resistance Survey Results**

- 4.1 Along the northern edge of the survey area a broadly linear band of high resistance situated immediately adjacent to and parallel with the southern wall of the 19<sup>th</sup> chapel is probably caused by foundation material associated with the current or previous chapels; solid material could be felt through the instrument probes during the survey.
- 4.2 Linear areas of low resistance along the eastern boundary (predominantly in a 5m wide strip - part of an adjacent field) are probably a reflection of the increased soil water content in the slight depression formed by the land sloping upwards into the adjoining field. A sub-circular area of low resistance may also reflect subtle changes in the soil water content caused by slight changes in the level of the ground surface.



- 4.3 Several large areas of high resistance, generally on the west side of the site, have been noted. A degree of linearity, particularly in the areas of high resistance at the southern end of the site could be indicative of an anthropogenic origin.

## **5. Discussion and Conclusions**

- 5.1 Confident interpretation of the observed anomalies has been difficult not least due to the very small size of this site. This problem has also been exacerbated by the fact that at least part of the site has probably undergone a degree of 'terracing' as evidenced by the variation in levels between the High Street, the site itself and the field immediately to the east, in effect creating a terrace with a 'step down' to the road and a 'step up' into the field to the east.
- 5.2 The grading of the surface, thereby potentially reducing the depth of the topsoil, may account for the fact that the magnetic readings recorded during the survey are considerably higher than the readings in the field to the east of the site where the magnetometer was calibrated ('zeroed'). No anomalies indicative of archaeological activity have been identified by the magnetometer survey although the strong magnetic effect of the iron fence could potentially be masking any weaker responses from infilled archaeological features.
- 5.3 Earth resistance is particularly affected by the amount of moisture retained within the upper soil horizons that in turn may reflect variations in compaction of the soil and/or changes in slope. Again the degree of ground disturbance will have a profound impact on the results of the resistance survey. The low resistance anomalies are probably adequately explained by the observed slight changes in topography causing more moisture retentive areas where there is relatively little resistance to the passage of the electrical current and which therefore manifest as low resistance anomalies.
- 5.4 The high resistance anomalies are more difficult to explain. If there has been little ground disturbance the degree of linearity exhibited by the anomalies particularly at the southern end of the site may be due to the compaction of material (soil and/or stones) incorporated into low banks demarcating medieval plot boundaries. The less coherent area of high resistance further to the north may reflect the spreading of this material following ground disturbance. However, it should be noted that this interpretation is extremely tentative and natural changes in geology/soils/land surface could equally lead to the observed variations in resistance.

*The results and subsequent interpretation of data from geophysical surveys should not be treated as an absolute representation of the underlying archaeological and non-archaeological remains. Confirmation of the presence or absence of archaeological remains can only be achieved by direct investigation of sub-surface deposits.*

## **Bibliography**

- David, A., 1995. *Geophysical Survey in Archaeological Field Evaluation: Research and Professional Services Guidelines* No. 1. English Heritage
- Gaffney, Gater and Ovenden 2002. *The Use of Geophysical Techniques in Archaeological Evaluations*. IFA Technical Paper No. 6

## **Acknowledgements**

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### **Fieldwork**

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### **Graphics**

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## **Figures**

- Figure 1 Site location (1:50000)
- Figure 2 Plot showing greyscale magnetometer data (1:500)
- Figure 3 Interpretation of magnetometer data (1:500)
- Figure 4 XY trace plot of magnetometer data (1:500)
- Figure 5 Plot showing greyscale earth resistance data (1:500)
- Figure 6 Interpretation of earth resistance data (1:500)
- Figure 7 XY trace plot of earth resistance data (1:500)

## **Appendices**

- Appendix 1** Magnetic Survey: Technical Information
- Appendix 2** Resistance Survey: Technical Information
- Appendix 3** Survey Location Information
- Appendix 4** Geophysical Archive