

WRITTEN SCHEME OF INVESTIGATION FOR GEOPHYSICAL SURVEY

A14 ELLINGTON TO FEN DITTON IMPROVEMENT SCHEME

1.0 Introduction

This document is the written scheme of investigation (WSI) for a geophysical survey along a proposed road scheme between Ellington and Fen Ditton, Cambridgeshire.

The survey methodology (including report) is based on guidelines set out in the English Heritage document '*Geophysical Survey in Archaeological Field Evaluation*' (David, 1995).

2.0 Location

The route extends c. 43km from the A14 at Ellington southwards to the immediate west of the A1 before turning eastwards from the junction of the A1 and Buckton/Brampton Roads) towards and beyond the A1198 at Godmanchester. From this point the route continues southeastwards and to the south of the current A14 until it converges with the latter to the East of Fenstanton. It continues eastwards along or to the immediate north/ of the current A14 to terminate at Fen Ditton. That part of the route to be surveyed runs from Ellington to just north of the A14-M11 interchange as marked on the attached plans (sheets 1-8). The remainder of the route eastwards to Fen Ditton lies within the highway boundary and is considered unsuitable for geophysical survey.

3.0 Aims and objectives

The purpose of the non-intrusive survey will be to identify areas of potential buried archaeological features along the proposed route (where applicable). The width of the survey area will generally be 30m although this has been widened to include embankments and slip roads where desk-based assessment has identified fields of high archaeological potential. One area (sheets 7-8; fields 0074 & 0017) is excluded from the survey as it has already been subjected to archaeological trial trenching by the Cambridge Archaeological Unit.

3.0 Fluxgate gradiometer survey

Gradiometry is a non-intrusive scientific prospecting tool that is used to determine the presence/absence of some classes of sub-surface archaeological features (eg pits, ditches, kilns, and occasionally stone walls). By scanning the soil surface, geophysicists identify areas of varying magnetic susceptibility and can interpret such variation by presenting data in various graphical formats and identifying images that share morphological affinities with diagnostic archaeological remains.

The use of gradiometry should help to establish the presence/absence of buried magnetic anomalies, which may reflect sub-surface archaeological features, and therefore form a basis for a subsequent scheme of archaeological trenching,

The use of magnetic surveys to locate sub-surface ceramic materials and areas of burning, as well as magnetically weaker features, is well established, particularly on large green field sites. The detection of magnetic anomalies requires the use of highly sensitive instruments, in this instance the Bartington 601 Dual Fluxgate Gradiometer. This must be accurately calibrated to the mean magnetic value of each survey area. Two sensors, mounted vertically and separated by 1m, measure slight, localised distortions of the earth's magnetic field.

The survey will be undertaken at 4 readings per metre (a sample interval of 0.25m). The zigzag traverse method of survey will be used along 1m wide traverses. The sensitivity of the instrument(s) is set to

record magnetic variation in the order of 0.1 nanoTesla. Data will be downloaded onto a laptop computer, analysed and processed using ArcheoSurveyor V. 13.1.0.

The survey grid will be located to an accuracy of less than 0.50m by GPS (Lieca GS 50).

Work will not commence until this brief has been agreed with the Highways Agency, and presented to Cambridgeshire Archaeology (Cambridgeshire County Council) for their comment. This organisation will be kept fully informed of the timing of the survey.

A written report will include:

- A summary of the survey results
- An introduction
- Description of site and geology
- Archaeological context
- Methodology
- Results
- Conclusions
- Acknowledgements
- References
- Figures showing general location of survey (1:250000 or less)
- Figures showing location of survey (1:5000)
- Trace plot of data, superimposed with graphical interpretation of magnetic anomalies images (1:1250)
- Greyscale image of processed data (1:1000/1:1250)

A digital copy of the results will be produced including a DWX/DFX drawing with greyscale images superimposed over and referenced to an OS base map.

Report copies will be supplied in both hard and digital format to Victoria Allen at WSP Civils, Building E4, Green Lane Business Park, Tewkesbury GL20 8SJ in sufficient numbers to provide additional copies for forwarding to:

Highways Agency

Cambridgeshire County Council Historic Environment Record

English Heritage

Alan Thomas at Archaeology & Planning Solutions

An additional copy for the successful Contractor's archaeologist..

4.0 Health and Safety

All work would be carried out in a way that complies with the Health and Safety at Work Act 1974 and its related regulations and codes of practice. Pre-Construct Geophysics staff would perform their duties in accordance with company safety policy, with senior staff responsible for monitoring compliance with health and safety requirements and legislation.

A risk assessment will be prepared in advance of any field work.

PCG will produce before and after photos of all areas as a record in case of landowner claims.