

**LAND AT MEDBURY FARM
ELSTOW, BEDFORD**

**Report on Archaeological Geophysical Survey
2013**

Surveyed by:

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Land at Medbury Farm, Elstow, Bedford

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Introduction

This report describes a geophysical survey which has been carried out as part of an archaeological evaluation of a proposed development site at Elstow near Bedford.

The survey was commissioned from Bartlett-Clark Consultancy, Specialists in Archaeogeophysics of Oxford, on behalf of clients by Archaeologica Ltd of Milton Keynes. Fieldwork for the survey was done between 10-17 December 2013.

The Site: location and topography

The evaluation area is located in arable fields at Pear Tree Farm and Medbury Farm to the east and south of Elstow village about 3km south of the centre of Bedford. The proposed evaluation area (as indicated by red cross hatching on the location plan; figure 1) covers approximately 46.6ha (excluding woodland). It is centred at NGR 505200, 246200, and extends to the south of the A421 bypass, and east of the A6. The fields were under young rape and winter wheat crops at the time of the survey.

The site was surveyed in full with the exception of an area planted for cover to the east of the wood at Medbury Farm, giving coverage (as shown by blue hatching on figure 1) of 43.7ha. [The survey area in places extends across the red site outline because of the need to fit a gridded survey around an irregular boundary.]

The site lies within an area of river terrace deposits likely to be composed mainly of sand and gravel, but perhaps also including silt and clay. These overlie a bedrock of Jurassic mudstone and clays (Oxford Clay and Kellaways formations). Previous magnetometer surveys at sites with comparable soil conditions (including surveys of gravel extraction and development sites to the south and east of Bedford) have responded well, and on a number of occasions have produced clear archaeological findings.

The suitability of the site for magnetic investigation was further confirmed by magnetic susceptibility readings taken during the survey (as indicated in the plot inset in figure 9). These gave readings (with a mean value of 21×10^{-5} SI) which are comparable with values commonly observed at sites where productive archaeological surveys have been undertaken.

Gravel soils can sometimes give rise to numerous small background magnetic anomalies (caused by naturally magnetic stones in glacial gravels). The level of such activity here (as indicated by light brown outlines in figures 9-10) is only moderate, and should not obscure any archaeological findings which are present.

Survey Procedure

The method used for this geophysical investigation was a recorded magnetometer survey, covering all surveyable ground within the evaluation area.

The magnetometer readings were collected along transects 1m apart using Bartington 1m fluxgate gradiometers, and are plotted at 25cm intervals along each transect. The results of the survey are presented as a grey scale plot at 1:2000 scale in three sections (figures 2-4), and as a graphical (x-y trace) plot at 1:1500 scale in figures 5-8. Comparison of these alternative presentations allows the detected magnetic anomalies to be examined in plan and profile respectively. An interpretation of the findings is shown superimposed on figures 5-8 (which permits the interpreted magnetic anomalies to be compared with the underlying data), and is reproduced separately to provide a summary of the findings (figures 9-10).

The graphical plot shows the magnetometer readings after minimal processing to adjust for irregularities in line spacing caused by variations in the instrument zero setting. Additional 2D low pass filtering has been applied to the grey scale plot to adjust background noise levels.

Colour coding has been used in the interpretation to distinguish different effects. Magnetic anomalies of possibly archaeological origin are outlined in red (or indicated more cautiously by broken red lines). Strong magnetic disturbances which are likely to be of recent origin are shown in dark brown. Individual strong magnetic anomalies which appear to represent iron objects are in blue, and potential cultivation effects in green. Small background magnetic anomalies which are likely to be of mainly geological origin are outlined in light brown, and possible land drains in blue/purple.

Survey location

The survey grid was set out and tied to the OS grid using a Trimble differential GPS system (with Omnistar correction to give c. 10cm accuracy). The plans are therefore geo-referenced, and OS co-ordinates of map locations can be read from the AutoCAD version of the plans which can be supplied with this report.

Results

The survey produced a clear plan of one well-defined archaeological site in the field (7) nearest to Medbury Farm, but findings otherwise were minimal.

The fields within the survey area have been numbered (1-9) from north to south for reference in this report. Results are described by fields in the order as numbered.

Fields 1-3

The main finding from the fields at Pear Tree Farm is a broad curving channel or ditch (as

labelled A on figure 9). The channel is about 2m wide, but it is difficult to determine whether it is a shallow silted hollow or a deeper ditch. The magnetic susceptibility readings were relatively high in this part of the site (c. 25-35 SI), and it is therefore possible that a shallow hollow could give rise to a distinct magnetic anomaly. A further short linear feature was detected nearby at B, but there is no detectable extended system of ditches or enclosures to suggest the features are of archaeological origin.

A parallel pattern of linear markings at the west of the field (C) could perhaps indicate traces of ridge and furrow, but cultivation effects elsewhere in the survey are weak and indistinct. A few additional weak linear features are visible in the grey scale plot, and are indicated schematically in green in fields 2-3 (and elsewhere), but they probably relate to modern ploughing rather than ridge and furrow.

Other findings include various linear sequences of small magnetic anomalies of a kind which commonly represent land drains. Some distinct examples (indicated by blue broken lines) are visible in fields 1 and 3. There is perhaps some increase in the density of small ferrous objects (blue outlines) near the farm in field 1.

Fields 4-6

These fields produced no convincing evidence for archaeological findings. There are well-defined land drains, particularly in field 4, and recent disturbances (probably indicating a spread of hardcore) are visible along the track in field 6.

The only features of potential archaeological relevance are a few pit-like features as outlined in red. These are indicated by magnetic anomalies with characteristic rounded profiles, as seen in the graphical plot (figure 6). The stronger examples include D in field 4 and E in field 6, but these are isolated and are not associated with any concentrations of findings which would suggest the presence of an archaeological site.

Field 7

The findings here contrast strongly with those from the remainder of the survey. The survey plots show a complex system of superimposed rectilinear enclosures, together with possible double-ditched trackways (F, G, H), and outlying field ditches (I, J). Numerous pit-like and other features (as at K, L, M) clearly indicate the presence of settlement remains within the enclosures.

There is strong localised magnetic enhancement of the topsoil in field 7, as is indicated by high magnetic susceptibility readings (to c. 60 SI). This is consistent with the presence here of an ancient settlement site.

Fields 8-9

The magnetic susceptibility values here are lower (c. 12 SI) than in other parts of the site, which suggests an increased proportion of clay rather than gravel in the soil. Numerous land drains were detected, but the only other findings are weak cultivation markings of uncertain significance (around N).

Conclusions

Soil conditions at the site appear to be favourable for the magnetic detection of archaeological features, which suggests that the absence of substantial findings from the greater part of the site other than fields 1 and 7 may be genuine. The curving ditch or channel in field 1 is not associated with other relevant findings, and so is not necessarily of archaeological origin. The sparse distribution of pit-like magnetic anomalies in fields 4, 6 and elsewhere also suggests these features could be of natural or recent origin.

Land drains and possible cultivation effects were detected at various locations throughout the survey. A group of distinct parallel markings could perhaps indicate traces of ridge and furrow in the north west corner of the survey in field 1.

The remaining and most conspicuous finding is a dense complex of enclosures and settlement features in the south eastern corner of the evaluation area in field 7. This could typically represent a settlement site of late prehistoric or Romano-British date.

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15 January 2014

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