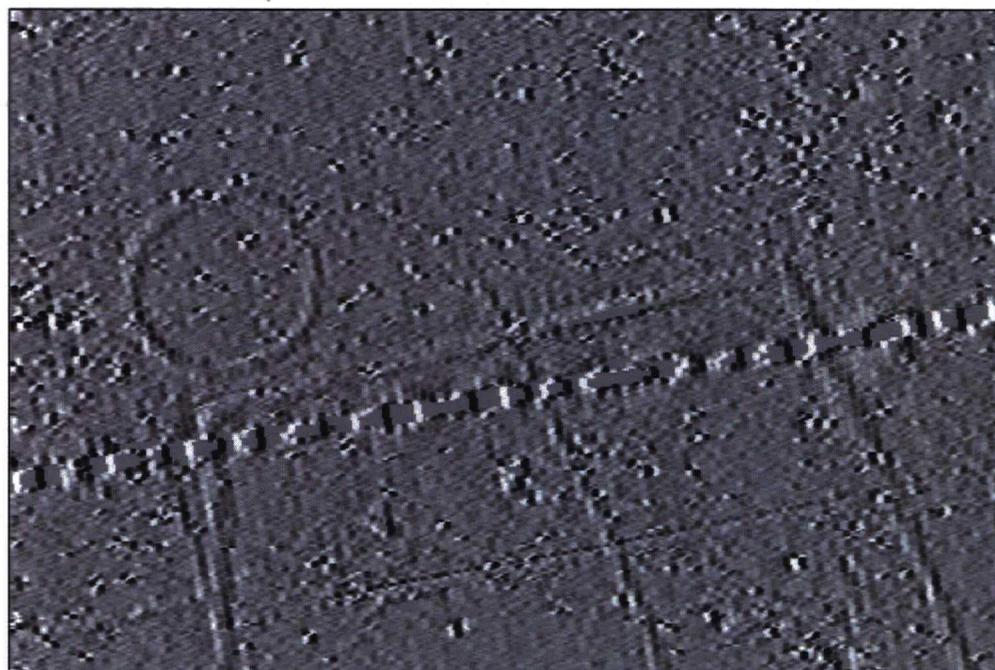


The Landscape Research Centre

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| NYCC MER | |
| SNY | 11366 |
| ENY | 3582 |
| CNY | 5643 |
| Parish | 3114 |
| Rec'd | 9/11/06 |

RYEDALE D.C.
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DEVELOPMENT CONTROL

Updated Report on two Fluxgate Gradiometer Surveys



carried out at
West Farm, West Knapton, North Yorkshire

Initial survey 24th-25th February 2003
Second survey 8th September 2006

Summary

This report supersedes all and any earlier reports. An initial fluxgate gradiometer survey was carried out on the 24th and 25th of February 2003 by the Landscape Research Centre (henceforth LRC) on behalf of the owner, D. Watson, in a field to the east of West Farm, North Yorkshire, centred on NGR SE 8981 7441. An adjoining survey to the south was conducted on the 8th of September, 2006. This report combines the returns from both surveys to deliver an enhanced interpretation of the archaeological anomalies detected. These include the ring ditches of two Bronze Age round barrows, a segment of Wold entrenchment and two further enclosures.



Figure 1 Showing the location of the gradiometer survey (marked by a red cross)

Methodology

The subject of this report is the interpretation and discussion of the results of two fluxgate gradiometer surveys carried out in a field to the east of West Farm, North Yorkshire. The initial survey was conducted using two *Geoscan Research* fluxgate gradiometers (model FM36) and the second survey using a Bartington Grad 601-2 fluxgate gradiometer. The zigzag traverse method of survey was used for both surveys. The surveys were conducted by taking readings every 25cm along the north/south axis and every metre along the east/west axis (thus 3600 readings for each 30m grid). The sensitivity of the machines was set to detect magnetic variation in the order of 0.1 nanoTesla. The data has been processed and presented

using the program G-Sys (an in-house developed Geographic Database Management program which can also display, process and present digitised plans and images). This report was produced using Microsoft Word 2000 and Adobe Photoshop 7 for further image manipulation.

The underlying geology is Wolds chalk, a magnetically neutral substrate against which any cut features filled with slightly enhanced magnetic material can be easily identified.

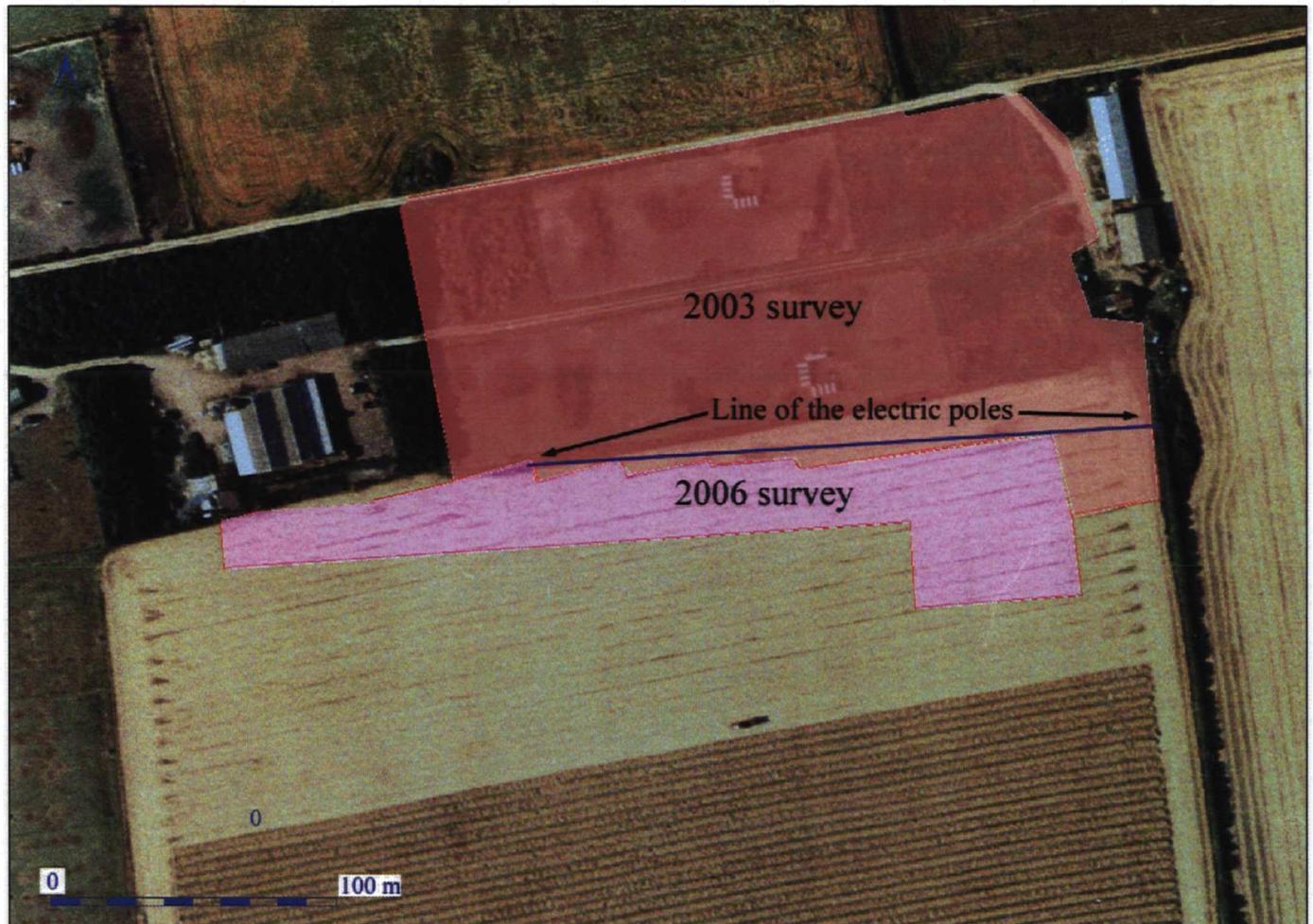


Figure 2 The location of both surveys on a Getmapping aerial photographic background (photo date 2000)

The first survey was conducted on the 24th and the morning of the 25th February, 2003 (see Figure 2 for location). The surveyors were James Lyall, Maria Beck and David Stott. Although the area to be surveyed (defined to the north, east and west by current field boundaries and to the south by a line of electric poles) was 2.54 hectares, the actual area surveyed was 2.76 hectares, slightly increased to the south in order to clarify the location of two linear cropmarks. The second survey (see Figure 2 for location) was conducted on the morning of the 8th of September, 2006. The surveyors were James Lyall and Chris Fern. The area to be surveyed was to run 25 metres to the south from the line of electric poles. Once again we took the opportunity to survey a slightly larger area (0.993 hectares), although 0.12 hectares were resurveyed to ensure that no gaps were left in the combined surveyed area.



Figure 3 Plan showing a cropmark plot, superimposed onto the Getmapping aerial photograph

The cropmarks (see Figure 3 and Figure 4) indicated that three ring ditches could be present, (with the western ring ditch outside of the proposed survey area), as well as a number of linear features.



Figure 4 Enhanced colour vertical photograph taken on 27/06/1992, showing the entrenchment and three barrows.

The geophysical data confirmed the presence of all three ring ditches. In addition, the survey confirmed the location of most of the linear cropmarks, although demonstrating that the cropmarks give only a partial picture, as well as conflating genuine archaeological features with features of a probable geological origin.

Walking conditions for the first survey were generally good, a short stubble in the north and a low crop in the south-east, and the owner kindly moved the only two obstructions in the field prior to the start of the survey. The second survey was carried out over a short stubble, again providing good walking conditions.

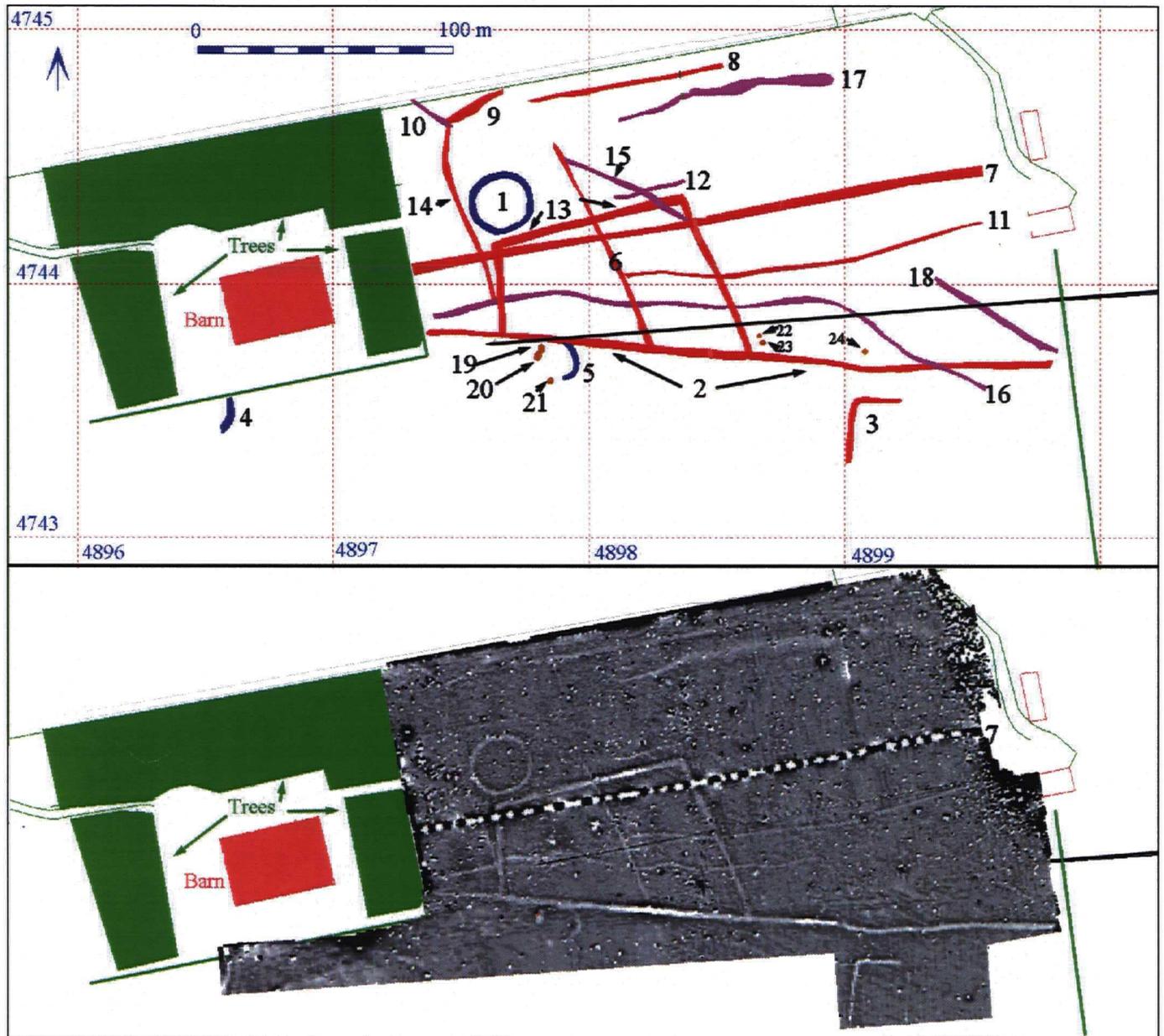


Figure 5 Digitised interpretation of the survey data above and displayed as a greyscale image below

Gradiometer Results and Interpretation

In all 24 clear anomalies were detected and digitised (see Figure 5). There were a small number of more ephemeral anomalies present, but these could not be digitised with any great degree of confidence. As usual, a number of dipoles (the small black and white dots in the greyscale image) were also found. These indicate the presence of iron and steel, and can usually be attributed to the normal detritus found in any field, such as broken ploughshares, old horse shoes and the like.

The most obvious anomaly is the strong east-west aligned black and white signal (digitised in purple, anomaly 7) which can be attributed to the presence of an iron water pipe. Anomalies 16 and 17, (digitised

in blue), roughly east-west aligned, are characteristic of the fissures common in the Wolds chalk, which were subsequently filled with a magnetically susceptible material. The same could apply to east-west aligned anomalies 8, 12 and 11, although anomaly 11 has a more coherent linear shape, and appears to butt onto the north-south aligned anomaly 13.

Anomalies 10 and 15 may be part of the same NW-SE aligned anomaly, perhaps a partner to anomaly 18, although these are only faintly positive anomalies, difficult to detect for any length. These could be also be natural in origin.

Anomalies 9, 13 and 14 are NNW-SSE aligned, and may form part of an earlier enclosure, although both appear to fade out towards the north.

Linear anomaly 2 (SMR number 0349504000) appears as a cropmark on aerial photographs, and is interpreted as part of the Wold Entrenchments, which are a series of ditches and banks dividing the Wolds up into large land blocks. In this case, the survey has detected the infilled ditch of the entrenchments, which is heading west towards an extant north-south aligned triple ditch and bank, located some 643 metres from the western edge of the surveyed area.

Anomaly 6 (SMR number 0349504100) is particularly interesting, as it appears to be three sides of an unusually shaped (trapezoidal?) enclosure, abutting onto anomaly 2, the Wold entrenchment ditch. The implication is that the enclosure was either created at the same time, or was added when the ditch and bank of the entrenchment were still standing. Aerial photographic plots only tended to detect the western and northern ditches of this enclosure, as the eastern ditch was at that time in another field, presumably under a different agricultural regime.

The round barrow (Anomaly 1, SMR number 0349502300), has been noted in a number of aerial photographs of the area. The feature is 22.5 to 23 metres in diameter. There were no obvious grave pits within the circle, but this is not surprising given that grave cuts are generally almost always immediately infilled with material which came out of them, and are thus magnetically similar to the parent material around them.

Anomaly 4 (SMR number 0349502200) is the eastern side of a further round barrow, possibly double ditched, known from cropmarks (see Figure 4). Unfortunately, we were unable to survey the remainder of the barrow at this time, but the survey demonstrated that this monument responds well to magnetic techniques.

Anomaly 5 is another potential round barrow (SMR number 0349502400), although only the eastern half of the infilled ditch was detected. Anomalies 19, 20 and 21 appear as discrete entities, and while it is possible that they could be part of the circular structure forming the barrow, they could also be either graves associated with the barrow or unrelated pits.

Anomalies 22, 23 and 24 were small localised anomalies indicating the location of three pits just to the north of the entrenchment.

Conclusions

In conclusion, the magnetic response of the surveyed area was good, with the chalk substrate providing a neutral magnetic background which allowed the magnetically enhanced fills of the cut features to be clearly defined. A number of features of archaeological origin were detected, as well as both modern and geological features.