

**GEOPHYSICAL SURVEY OF
A ROMANO-BRITISH SITE AT
GAYTON, NORTHAMPTONSHIRE**

Grid reference removed to protect site

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ABSTRACT

A gradiometer survey was carried out on a Romano-British site at Gayton, Northamptonshire in August 2007.

The results have produced a series of significant archaeological anomalies denoting enclosure ditches, pits and possible roundhouses.

Other anomalies indicate striations created by the plough and iron spikes.

1.0 INTRODUCTION

Stephen Young acting on behalf of the Community Landscape and Archaeology Survey Project (CLASP), commissioned Centre for Archaeological and Forensic Analysis, Cranfield University to undertake a fluxgate gradiometer survey on land at Gayton, Northants.

The purpose of the survey was to determine the nature and extent of archaeological remains. The work was carried out on 29th August 2007.

The survey methodology described in this report was based upon guidelines set out in the English Heritage document ‘*Geophysical Survey in Archaeological Field Evaluation*’ (David, 1995).

2.0 LOCATION AND DESCRIPTION

The site is situated on west side of Gayton village off the Tiffield Road, Northamptonshire. It is in close proximity to the Roman Town of Towcester (Lactodurum) (grid reference removed to protect site).

The field is gently sloping from west to east and is currently under arable cultivation. The site is underlain by Blisworth Limestone formation (British Geological Survey sheet 185 published 1980). The magnetic susceptibility of these types of geologies is generally average to poor depending on depth and target being detected (Gaffney & Gater 2003, 78; David 1995, 10; Clark 1990, 92).

3.0 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

Recent fieldwalking by CLASP recovered a total of 955 sherds for which the majority span the late 1st to mid 3rd centuries AD. In addition, a further 7 sherds of Late Iron Age date have been identified. The collection of pottery recovered also contains samian sherds and fragments of Spanish amphora suggesting extensive trading and consumption of goods such as olive oil.

Seven Roman coins have been found dating from Vespasian to Constantine II, which includes a denarius. A complete brooch and fragments of two others have also been recorded from this site.

An initial assessment of all these finds suggest a 'long lived' settlement occupied throughout the Roman-British period which possibly enjoyed its most productive era of prosperity from the end of the 1st Century AD through until the early 3rd.

Subsequent to the geophysical survey a number of test-pits were dug in which the top half of a flagon was retrieved dating to the 2nd/3rd centuries AD and the fill of the ditches identified during the geophysical survey may well indicate a similar late 2nd to early 3rd century AD date.

4.0 METHODOLOGY

Gradiometry

Gradiometry is a non-intrusive scientific prospecting technique 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 (Clark 1990).

The use of gradiometry is used to establish the presence/absence of buried magnetic anomalies, which may reflect sub-surface archaeological features.

The area survey was conducted using a Bartington Grad 601 dual fluxgate gradiometer with DL601 data logger set to take 4 readings per metre (a sample interval of 0.25m). The zigzag traverse method of survey was used, with 1m wide traverses across 30m x 30m grids. The sensitivity of the machine was set to detect magnetic variation in the order of 0.1 nanoTesla.

The data was processed using *Archeosurveyor v.1.3.2.8*. The results are plotted as greyscale and trace plot images (Figs. 3-4).

5.0 INTERPRETATION AND ANALYSIS OF RESULTS (Figs. 3-4)

A fluxgate gradiometer survey covering a total area of 1ha revealed some significant archaeological anomalies, which appear to reflect Romano-British remains such as enclosure ditches.

Two separate fields were surveyed adjacent to each other but will be interpreted as one site.

Generally, a series of isolated individual anomalies were detected (Fig. 4, circled pink) reflect areas of modern ferrous remains such as brick and tile as well as horseshoes, which lie just below or on the surface of the plough soil.

A series of linear striations (Fig.4, green lines) can be seen in the resultant plot and these represent the traces of modern plough lines.

A large curvilinear anomaly (Fig.4, **1**) was recorded in the resultant plot indicating the remains of an enclosure ditch. The ditch appears to dissolve at its western end suggesting that it has either been ploughed out or it contains extremely weakly magnetic material, therefore making it undetectable. A similar result was recorded at Glapthorn Road, Oundle where a large rectangular shaped enclosure showed part of its circuit not visible where upon excavation the ditch was found containing little anthropogenic material (Masters 1998).

This large enclosure ditch appears to truncate the underlying linear anomalies indicating that this may represent a later phase of activity on this site.

Two linear/rectilinear anomalies (Fig.4, **2**) appear to be truncated by the larger enclosure ditch (**1**) indicating of an earlier phase of activity. However, they appear to resemble the ploughed out remains of ridge and furrow but the distance between them is too wide to indicate the presence such features.

A smaller diffuse curvilinear anomaly (Fig. 4, **3**) located to the south of anomaly (**1**) possibly denotes the ditched outline of a smaller enclosure of an earlier phase.

A number of discrete anomalies (Fig.4, circled red) were detected across both areas surveyed, indicating the presence of pit-type features. Some of these appear to be quite substantial suggesting large rubbish/storage pits or denote more than one pit present possibly indicating inter-cutting pits.

Short linear and rectilinear ditch type anomalies (Fig.4, **4**) were detected in Field 2 denoting the presence of remnant ditches of possible enclosures.

6.0 CONCLUSIONS

The survey has identified an arrangement of linear, curvilinear and rectilinear anomalies, which possibly represent two separate phases of Romano-British activity. The larger of the enclosure ditches is likely to represent the latest phase of activity as it appears to truncate the underlying ditches.

However, it has not been possible to detect any traces of extensive structural remains. Therefore, it is possible that buried stone features, if present, remain undetected by the survey technique used.

A number of discrete anomalies for the most part resolve as possible ditches rather than areas of burning or domestic/industrial activity.

Based on the survey results, it is concluded that the site may extend further to the south covering a larger area than was surveyed.

7.0 ACKNOWLEDGEMENTS

Cranfield University, Centre for Archaeological and Forensic Analysis would like to thank Stephen Young and CLASP for this commission.

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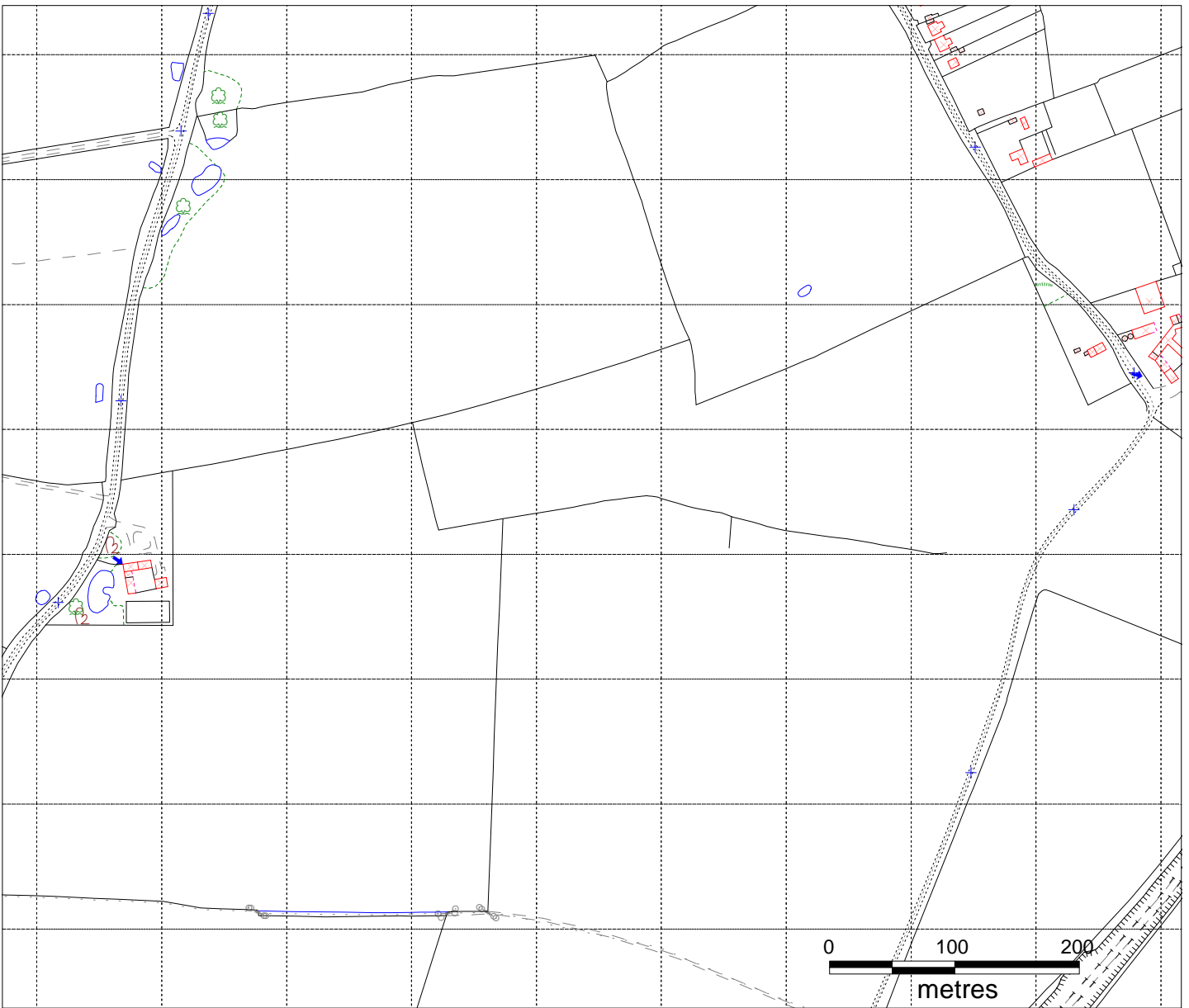
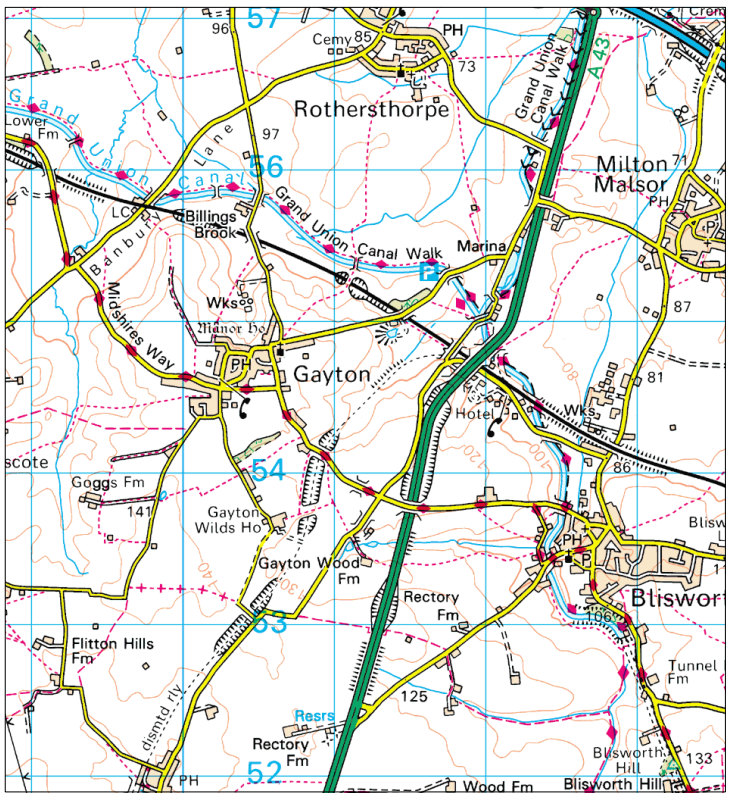
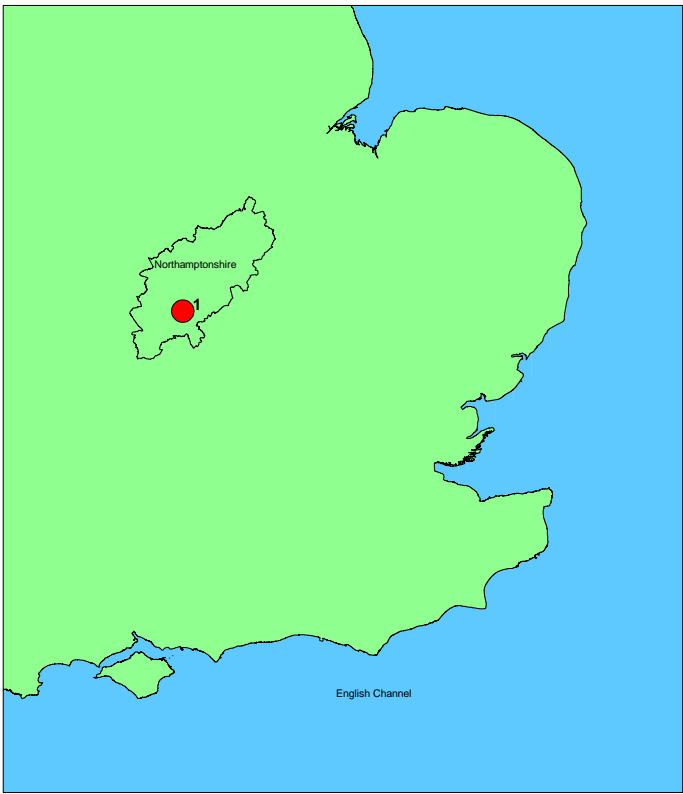
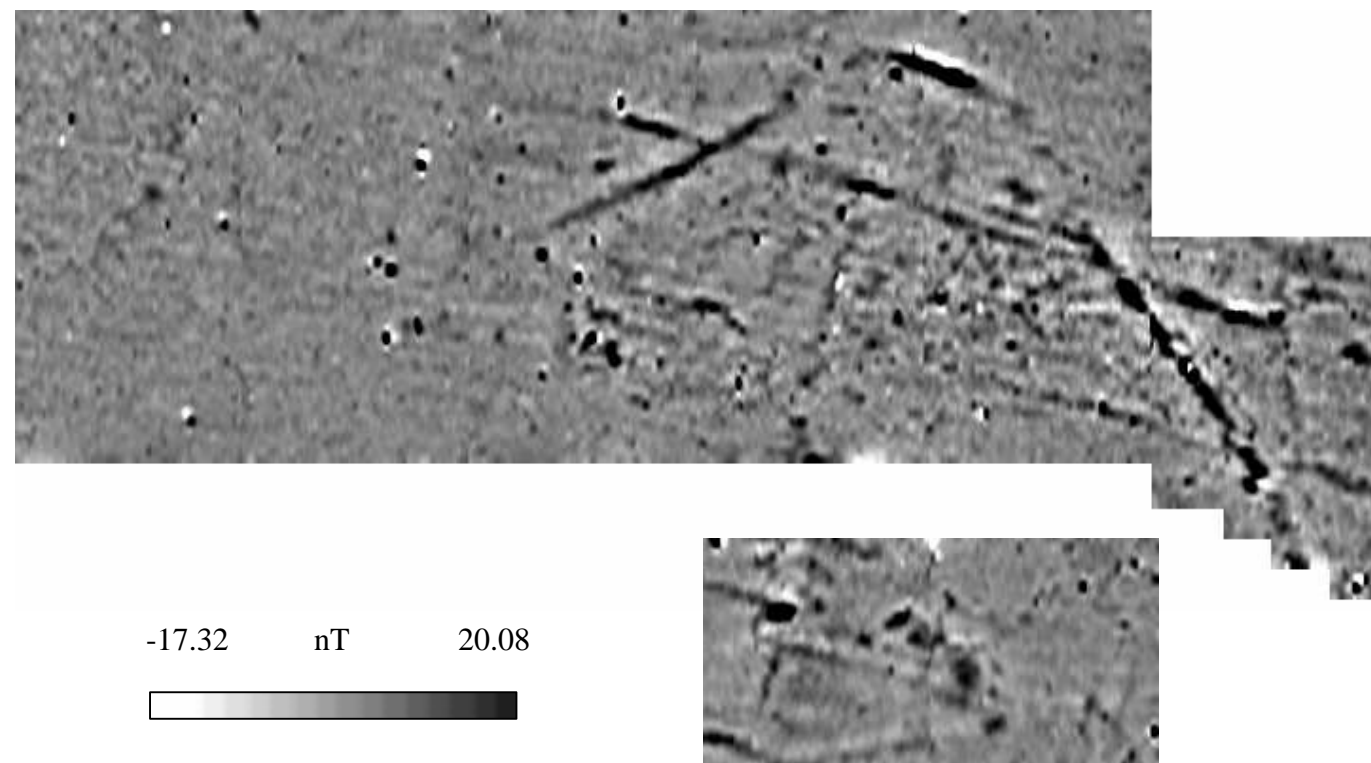


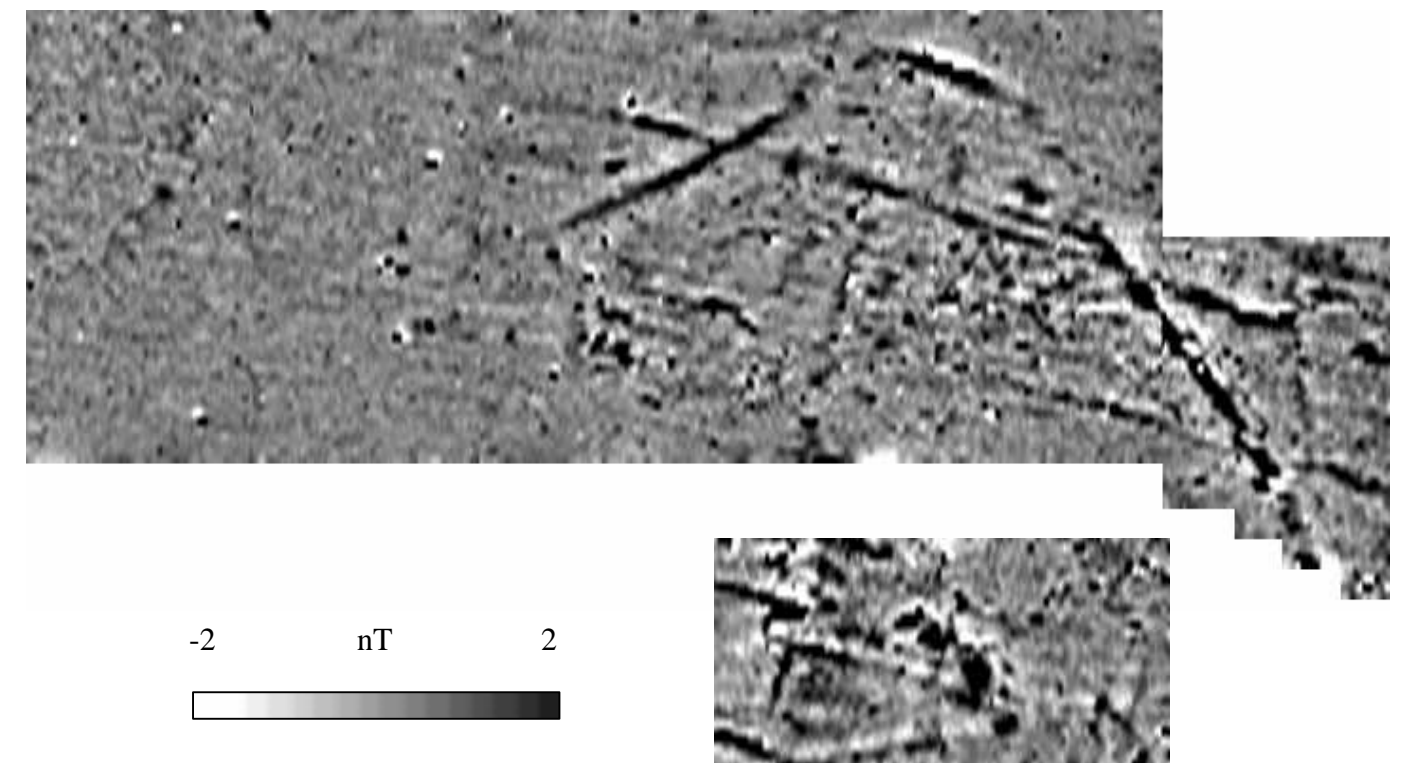


Fig.2 - Location plan showing geophysical survey areas, scale - 1:2500

RAW DATA



ENHANCED DATA



TRACE IMAGE OF RAW DATA

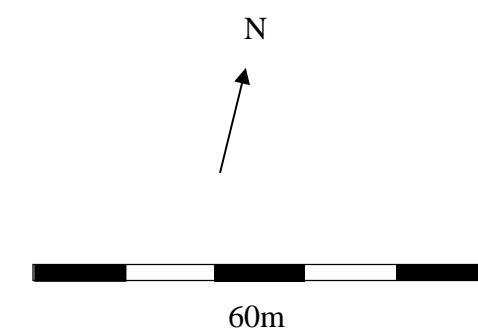
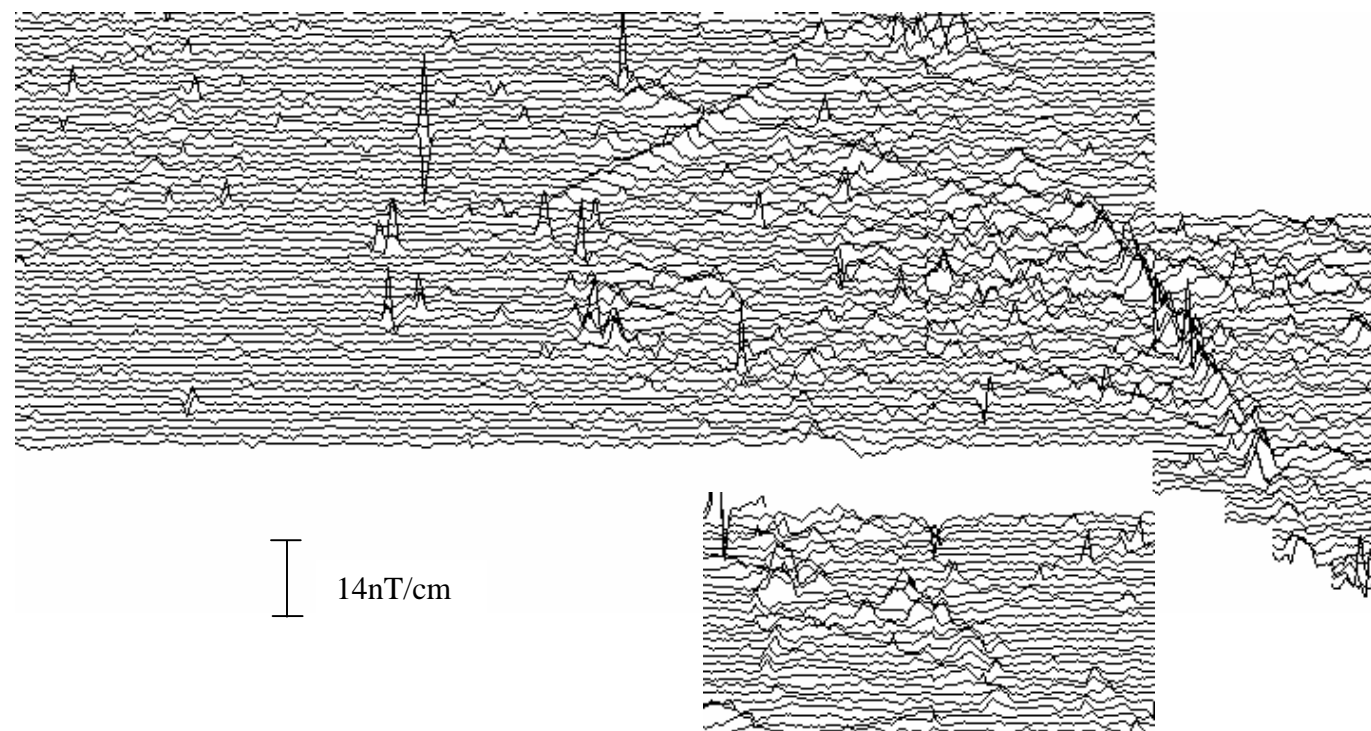


Fig. 3 – Greyscale and trace plots of raw and enhanced data, scale – 1:1000



Fig.4 - Interpretation, scale - 1:1000