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SITE SUMMARY SHEET

94 / 104 Torksey, Lincolnshire

NGR: SK 843 792

Location, topography and geology

The site lies to the east of the village of Torksey, Lincolnshire occupying a former caravan site. The site was level and under pasture at the time of survey. The soils consist primarily of compacted glacio-fluvial sands of the Blackwood Association.

Archaeology

No archaeological remains are known to exist within the application area although it does lie within a general area of known archaeological activity.

Aims of Survey

Gradiometry was undertaken over 30% of the site with the aim of establishing the location and extent of any archaeological remains.

Summary of Results *

The gradiometer data have been severely distorted by modern disturbance. This disturbance will have masked any weaker responses from archaeological remains, if present.

*** It is essential that this summary is read in conjunction with the detailed results of the survey.**

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REPORT ON GEOPHYSICAL SURVEY

TORKSEY
Lincolnshire

Report number 94/104

Work commissioned by :

LINDSEY ARCHAEOLOGICAL SERVICES

SURVEY RESULTS

94 / 104 Torksey, Lincolnshire

1. Survey Area (Figure 1)

1.1 The survey covers an area of 100m by 80m in the north east of the application area.

1.2 The survey areas were established and tied in by **Geophysical Surveys of Bradford.** Detailed tie-in information has been lodged with the client.

2. Display

2.1 The results from the gradiometry survey are displayed as X-Y traces and dot density plots at a scale of 1:500.

2.2 Display formats are discussed in the *Technical Information* section, at the end of the text.

3. General Considerations - Complicating factors

3.1 At the time of survey conditions were suitable for gradiometry, the site being level and under pasture.

4. Results

4.1 The gradiometer data are dominated by large areas of magnetic disturbance along the western edge and towards the centre of the survey. These appear to be due to buried pipes and/or other ferrous debris or landfill material. This disturbance is probably associated with the former use of the site as a caravan park.

4.2 In addition to the large areas of disturbance there are numerous isolated ferrous responses which are likely to be due to modern ferrous debris in the topsoil.

4.3 No anomalies of archaeological interest have been detected by the gradiometer. It is likely that the modern disturbance across the site will have masked any weaker responses from archaeological features, if present.

6. Conclusions

6.1 The data are dominated by magnetic disturbance. No anomalies of archaeological interest have been detected. It is possible that the disturbance may have masked any archaeological responses, if present.

Project Co-ordinator: Dr S M Ovenden
Project Assistants: N Nemcek, A Shields and D Weston

TECHNICAL INFORMATION

The following is a description of the equipment and display formats used in **GEOPHYSICAL SURVEYS OF BRADFORD** reports. It should be emphasised that whilst all of the display options are regularly used, the diagrams produced in the final reports are the most suitable to illustrate the data from each site. The choice of diagrams results from the experience and knowledge of the staff of **GEOPHYSICAL SURVEYS OF BRADFORD**.

All survey reports are prepared and submitted on the basis that whilst they are based on a thorough survey of the site, no responsibility is accepted for any errors or omissions.

Magnetic readings are logged at 0.5m intervals along one axis in 1m traverses giving 800 readings per 20m x 20m grid, unless otherwise stated. Resistance readings are logged at 1m intervals giving 400 readings per 20m x 20m grid. The data are then transferred to portable computers and stored on 3.5" floppy discs. Field plots are produced on a portable Hewlett Packard Thinkjet. Further processing is carried out back at base on computers linked to appropriate printers and plotters.

Instrumentation

(a) Fluxgate Gradiometer - Geoscan FM36

This instrument comprises of two fluxgates mounted vertically apart, at a distance of 500mm. The gradiometer is carried by hand, with the bottom sensor approximately 100-300mm from the ground surface. At each survey station, the difference in the magnetic field between the two fluxgates is conventionally measured in nanoTesla (nT) or gamma. The fluxgate gradiometer suppresses any diurnal or regional effects. Generally features up to one metre deep may be detected by this method.

(b) Resistance Meter - Geoscan RM4 or RM15

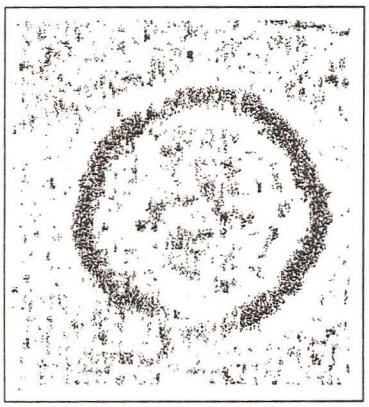
This measures the electrical resistance of the earth, using a system of four electrodes (two current and two potential.) Depending on the arrangement of these electrodes an exact measurement of a specific volume of earth may be acquired. This resistance value may then be used to calculate the earth resistivity. The "Twin Probe" arrangement involves the paring of electrodes (one current and one potential) with one pair remaining in a fixed position, whilst the other measures the resistance variations across a fixed grid. The resistance is measured in Ohms and the calculated resistivity is in Ohm-metres. The resistance method as used for area survey has a depth resolution of approximately 0.75m, although the nature of the overburden and underlying geology will cause variations in this generality. The technique can be adapted to sample greater depths of earth and can therefore be used to produce vertical "pseudo sections".

(c) Magnetic Susceptibility

Variations in the magnetic susceptibility of subsoils and topsoils occur naturally, but greater enhanced susceptibility can also be a product of increased human/anthropogenic activity. This phenomenon of susceptibility enhancement can therefore be used to provide information about the "level of archaeological activity" associated with a site. It can also be used in a predictive manner to ascertain the suitability of a site for a magnetic survey. The instrument employed for measuring this phenomenon is either a field coil or a laboratory based susceptibility bridge. For the latter 50g soil samples are collected in the field.

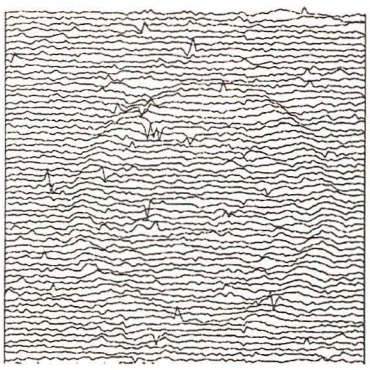
Display Options

The following is a description of the display options used. Unless specifically mentioned in the text, it may be assumed that no filtering or smoothing has been used to enhance the data. For any particular report a limited number of display modes may be used.



(a) Dot-Density

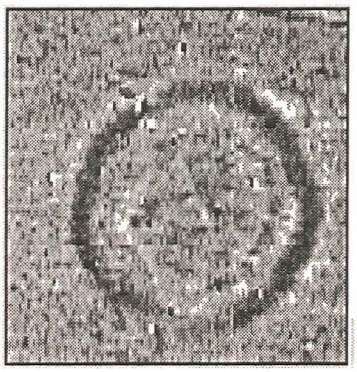
In this display, minimum and maximum cut-off levels are chosen. Any value that is below the minimum cut-off value will appear white, whilst any value above the maximum cut-off value will appear black. Any value that lies between these two cut-off levels will have a specified number of dots depending on the relative position between the two levels. The focus of the display may be changed using different levels and a contrast factor (C.F.). Usually the C.F. = 1, producing a linear scale between the cut-off levels. Assessing a lower than normal reading involves the use of an inverse plot, This plot simply reverses the minimum and maximum values, resulting in the lower values being presented by more dots. In either representation, each reading is allocated a unique area dependent on its position on the survey grid, within which numbers of dots are randomly placed. The main limitation of this display method is that multiple plots have to be produced in order to view the whole range of the data. It is also difficult to gauge the true strength of any anomaly without looking at the raw data values. This display is much favoured for producing plans of sites, where positioning of the anomalies and features is important.



(b) X-Y Plot

This involves a line representation of the data. Each successive row of data is equally incremented in the Y axis, to produce a stacked profile effect. This display may incorporate a hidden-line removal algorithm, which blocks out lines behind the major peaks and can aid interpretation. Advantages of this type of display are that it allows the full range of the data to be viewed and shows the shape of the indiviual anomalies. Results are produced on a flatbed plotter.

Display Options cont'd



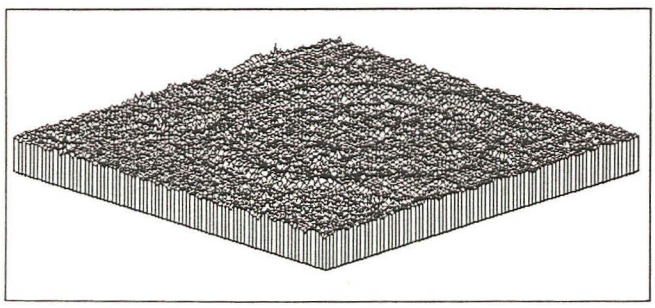
(c) Grey-Scale

This format divides a given range of readings into a set number of classes. These classes have a predefined arrangement of dots or shade of grey, the intensity increasing with value. This gives an appearance of a toned or grey scale.

Similar plots can be produced in colour, either using a wide range of colours or by selecting two or three colours to represent positive and negative values. While colour plots can look impressive and can be used to highlight certain anomalies, grey-scales tend to be more informative.

(d) Contour

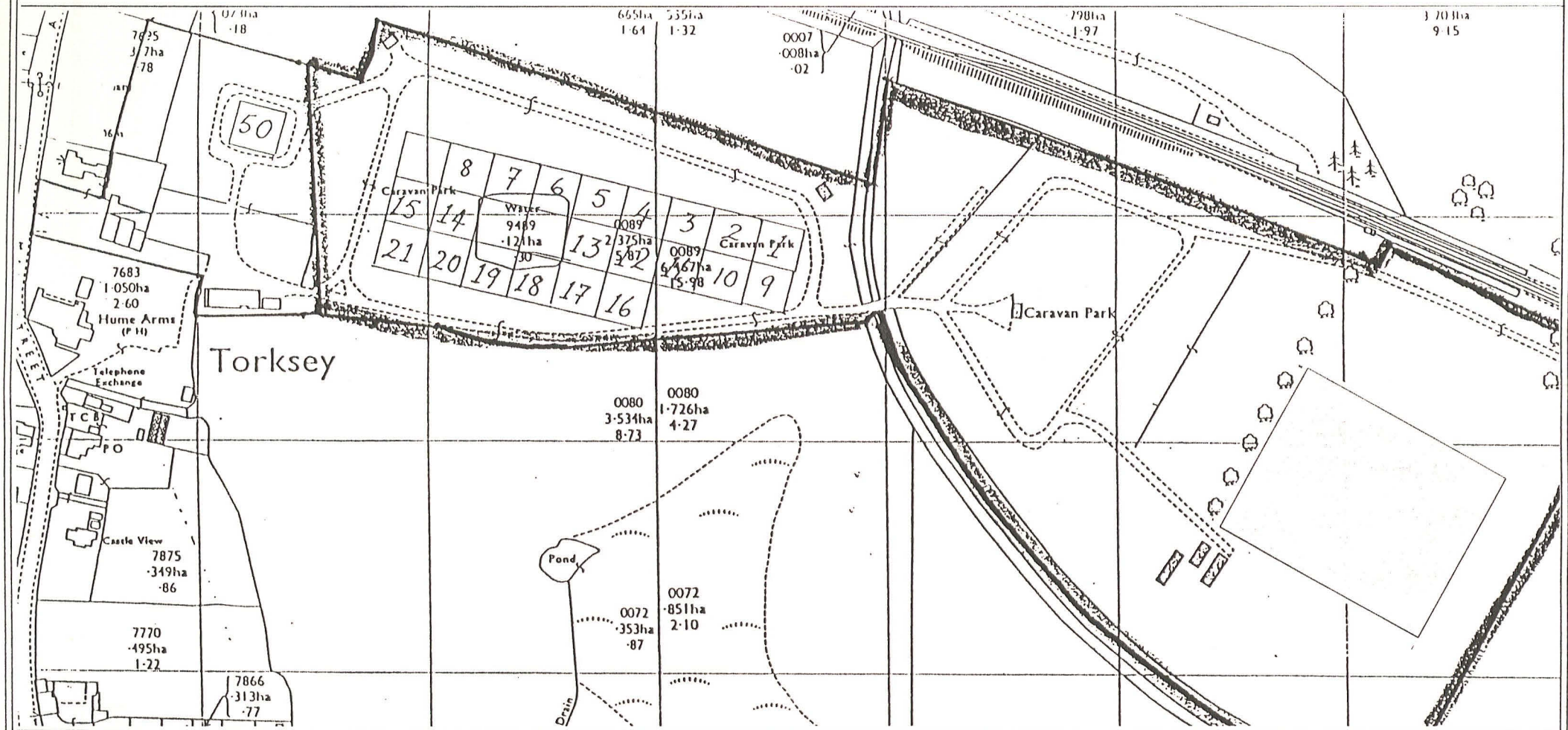
This display format is commonly used in cartographic displays. Data points of equal value are joined by a contour line. Closely packed contours indicate a sharp gradient. The contours therefore highlight an anomalous region. The range of contours and contour interval are selected manually and the display is then generated on the computer screen or plotted directly on a flat bed plotter / inkjet printer.



(e) 3-D Mesh

This display joins the data values in both the X and Y axis. The display may be changed by altering the horizontal viewing angle and the angle above the plane. The output may be either colour or black and white. A hidden line option is occasionally used (see (b) above).

TORKSEY
Location of Survey



Gradiometer Survey

1:2500

Figure 1

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Site 1
Magnetic Data

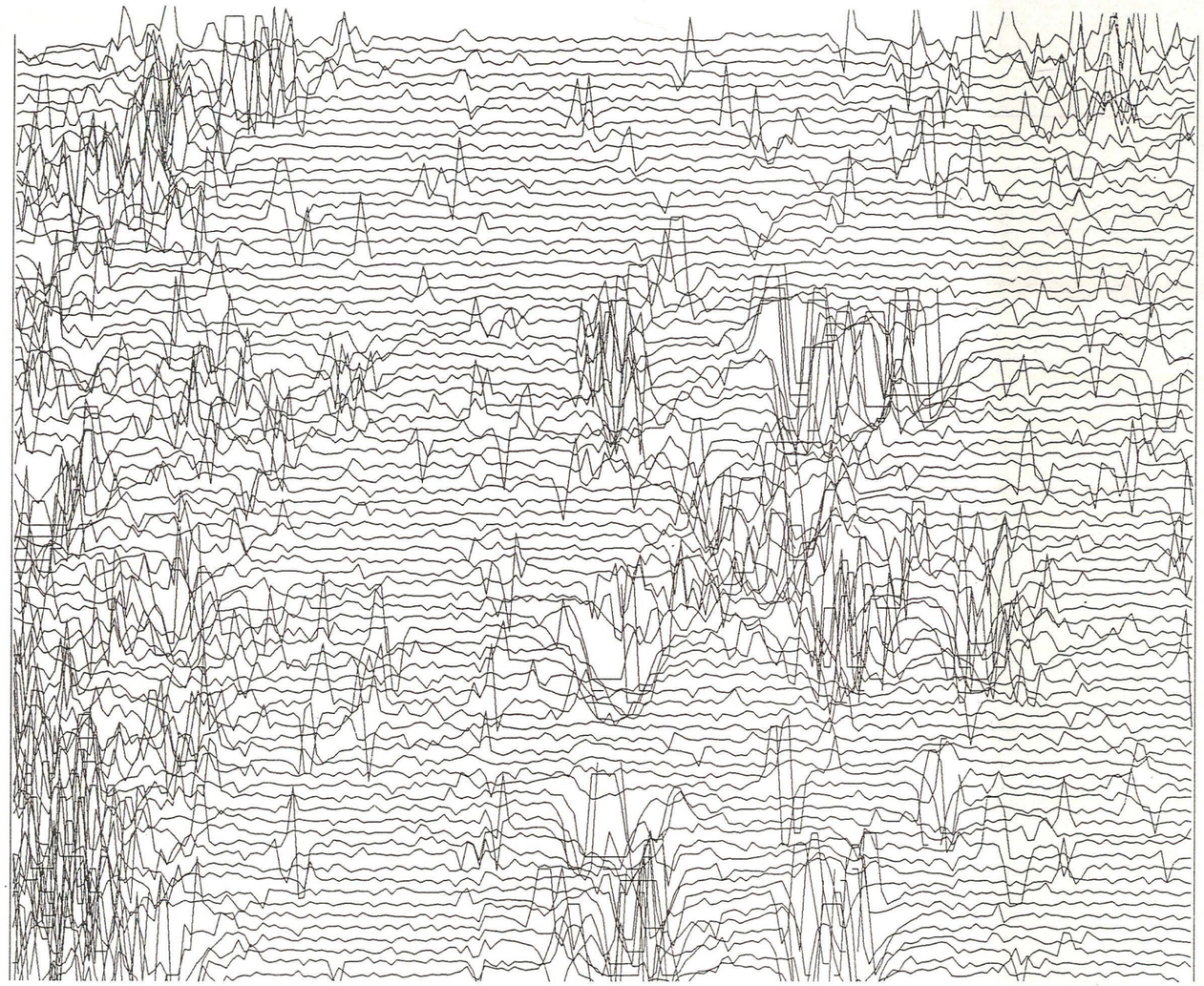

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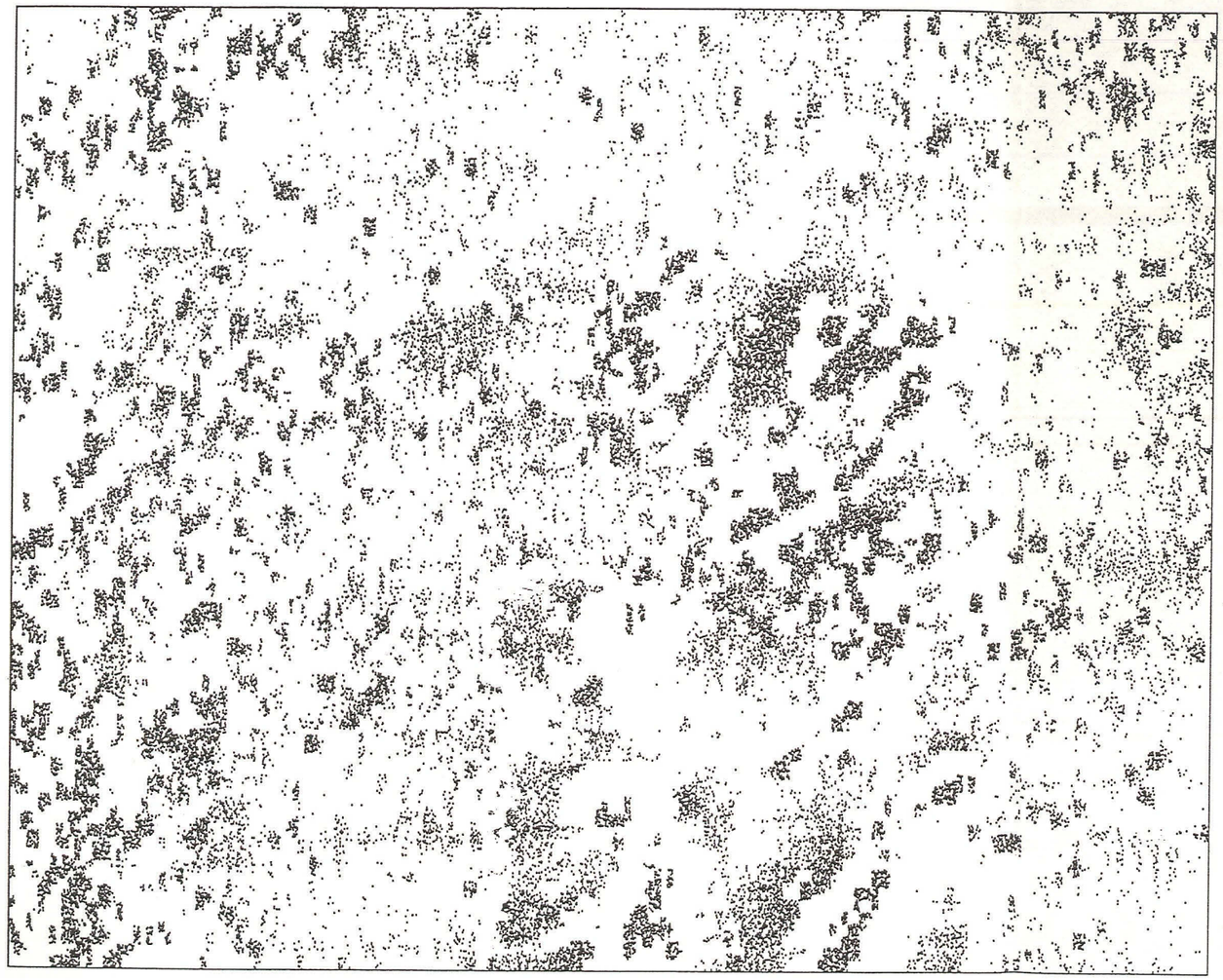
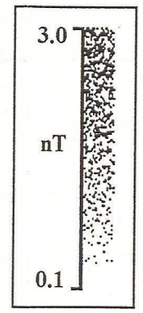
Figure M1

TORKSEY
Site 1
Magnetic Data





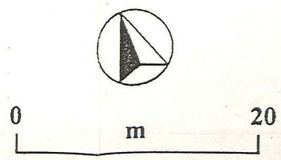
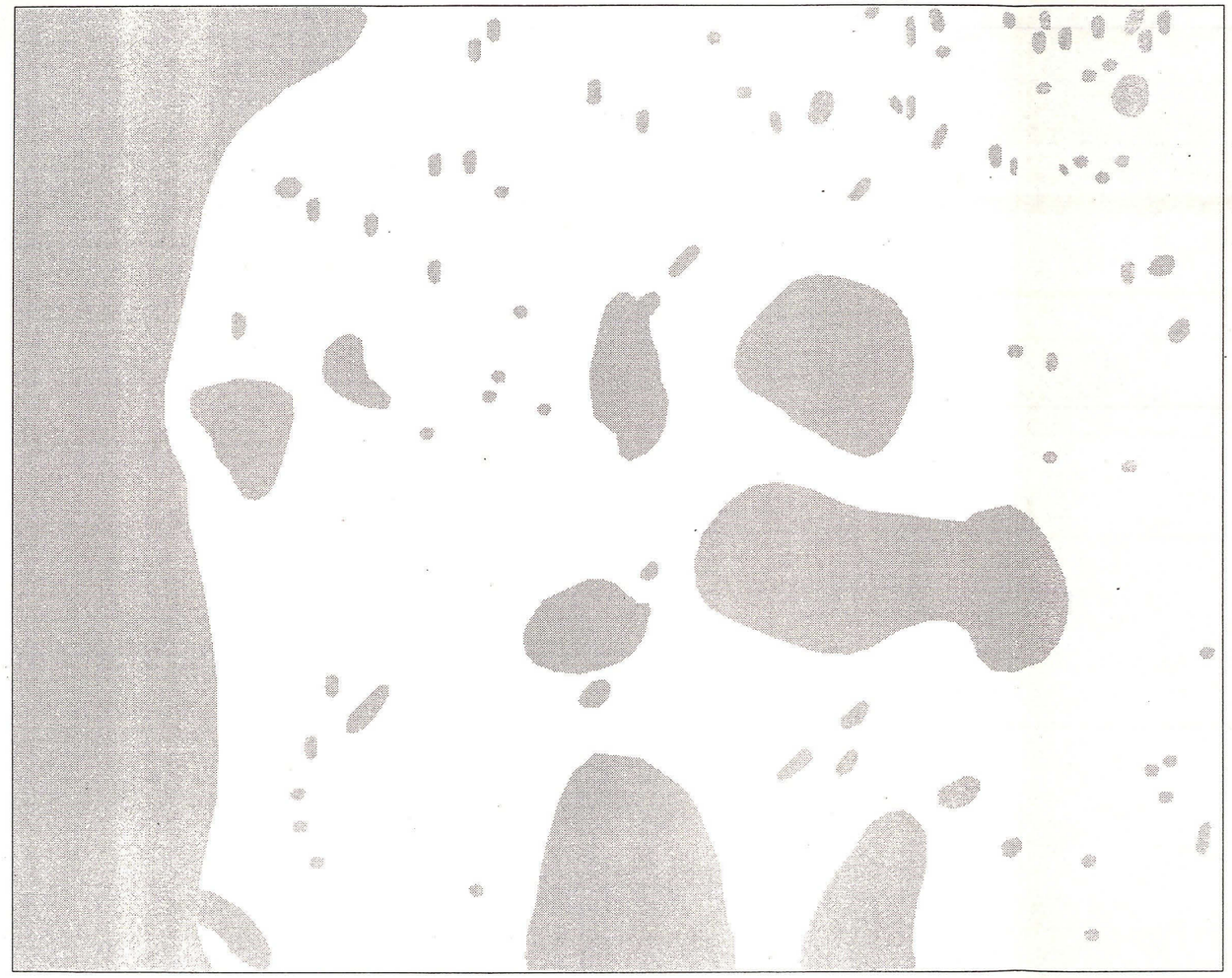


Figure M2

TORKSEY
Site 1
Magnetic Data



Ferrous Disturbance

0 m 20

Figure M3