THE CLWYD-POWYS ARCHAEOLOGICAL TRUST

Talgarth By-pass:
STAGE III ARCHAEOLOGICAL ASSESSMENT

CPAT Report No 204

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STAGE III ARCHAEOLOGICAL ASSESSMENT

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Report for Howard Humphreys & Partners Ltd.

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1 INTRODUCTION

1.1 The Contracts Section of the Clwyd Powys Archaeological Trust (hereafter (CPAT) was commissioned by Howard Humphreys and Partners in October 1996 to undertake an archaeological field evaluation of Briery Common Field, along with a geophysical survey of three areas which lie along the route corridor of the proposed A479(T) Talgarth Bypass (Fig. 1). The field evaluation was completed on the 24th of October 1996, while the geophysical survey was undertaken during November and December 1996.

1.2 Stage 3 of the Archaeological Assessment follows recommendations made in the Stage 1 Archaeological Assessment of the route corridor (Hankinson 1995), which consisted of a desk-based assessment and archaeological field survey of the route corridor.

1.3 Following the above recommendations, a Brief for an archaeological field evaluation and geophysical survey was prepared by Cadw: Welsh Historic Monuments (ref C015F737 HG, undated) on behalf of Howard Humphreys and Partners and the Welsh Office Highways Directorate, giving details of the archaeological work required.

2 FIELD SURVEY (figs 2 and 4)

2.1 The Stage 1 Assessment identified a series of earthworks within Briery Common Field (centred on OS 1510 3320 - fig. 1), consisting of a minimum of seven concentrically curved banks. The partially circular appearance of the banks, unusual in the context of open field systems, led Hankinson to suggest that these banks could be indicative of an earlier field system or a local variation in cultivation practice (Hankinson 1995, 17).

2.2 A detailed measured survey of the above features was completed on the 24th of October 1996, using an EDM with Penmap. The survey data was augmented using AutoCAD and was related to Ordnance Datum, the resulting archive plan was drawn at a scale of 1:500, as detailed in the Brief, and then reduced to 1:1,000 for inclusion in this report (figs 2 and 3). All levels were reduced to Ordnance Datum and contours are included at 2m intervals.

2.3 In OS Field 1220 the survey revealed ephemeral traces of former ridge and furrow cultivation. Three furrows were discernible, spaced at between 7.2m and 8.1m, aligned approximately north-west to south-east. The orientation of a slight bank, maximum height 0.35m, in the north-west corner of this field may suggest that this represents the remains of a headland. These are typical features of ridge and furrow cultivation and were formed at the point at which the plough team turned at the end of a furrow, which gradually led to a build-up of soil at the end of the field.

2.4 In OS Field 0409 and an unnumbered field to the north, a series of eight banks were surveyed. These were best preserved in the southern field where the banks survive to a maximum of 0.85m high and 9.7m wide.

2.5 The nature of the earthworks suggests that they form part of a fossilised field system which may date to the original enclosure of an area of common land for cultivation. The series of banks may have served as boundaries between cultivation strips within a larger field, the extent of which may be indicated by the surviving field boundaries.

2.6 The construction of a gas pipeline running through OS Fields 0409 and 1220 from north-east to south-west, had caused ground disturbance within a corridor up to 12m wide, although this appears to have caused minimal damage to the earthworks.

3 GEOPHYSICAL SURVEY

3.1 A magnetometer survey was undertaken by Stratascan of the four areas agreed in the Brief (fig. 1), the full results of which are listed in Appendix 1. The survey was conducted over several days between 4th November 1996 and 6th December 1996.

3.2 The magnetic survey was conducted using an FM36 Fluxgate Gradiometer, which typically has a depth of penetration of between 0.5m and 1.0m. Readings were taken at 0.5m centres along traverses 1m apart, equating to 800 sampling points in a 20 x 20m grid.

3.3 The raw data from the survey was processed using *Geoplot 2* to emphasise various aspects contained within the data which were otherwise not clearly evident.

Area 1 (figs 4 and 5)

3.4 The area between the castle and church at Bronllys was thought likely to contain subsurface evidence for structures, indicated by the former existence of a building in this vicinity (Hankinson 1995, 5.7d and Site 6). While the geophysical survey revealed no clear evidence for structures, two curvilinear features were identified (fig. 5). One feature (1M/14) lies to the north of the present A479 running roughly north-south for at least 150m. The second feature (1M/4) is less distinct and lies at the southern end of the survey area, running roughly north-west to south-east for *c.* 90m. Both are possibly former field boundaries. Two pipelines were also noted crossing the area.

Area 2 (figs 6 and 7)

3.5 The area close to Far Barn, lying between the Afon Llynfi and Afon Dulas was thought to be a favourable location for settlement (Hankinson 1995, 5.9). The geophysical survey has revealed a complex of linear features at the southern end of the area which may be of archaeological significance, possibly forming part of an enclosure (fig. 7). However, the precise significance of these features can only be revealed by trial excavation. A weak negative anomaly to the north may be a ploughed out field boundary.

Area 3 (figs 8 and 9)

3.6 This was identified in the Phase 1 assessment (Hankinson 1995, Site 11) as an area of potential flint scatter. The geophysical survey revealed several ferrous objects causing magnetic spikes in the data, but found no evidence for subsurface remains likely to be of archaeological significance.

Area 4 (figs 10 and 11)

3.7 The proximity of Pendre enclosure (PRN 556) and the Neolithic chambered tomb at Pen y Wyrlod, suggested the possibility of prehistoric occupation in this area (Hankinson 1995, 5.9). However, the geophysical survey revealed no evidence for subsurface remains likely to be of archaeological significance, with the only anomalies being a scatter of ferrous spikes.

3.8 The results from the survey have indicated that for the majority of the areas investigated there appears to be little of archaeological significance with the following exceptions: a complex of linear features at the southern end of Area 2, possibly part of an enclosure; two curvilinear features in Area 1 which are likely to be former field boundaries.

4 CONCLUSIONS

4.1 The name Briery Common Field indicates its former use as common land, later taken into cultivation. The earthworks recorded during the survey may represent early enclosure of this common, or a strip field system, the banks forming boundaries between strips. The form of this field system, and the surviving field pattern suggests that the area was enclosed prior to the general Parliamentary Enclosures of the late 18th- and early 19th-centuries. The Ashburnham Estate Atlas of *c.*1770 indicates that the area had been enclosed by this date, and depicts cultivation strips within the three fields.

4.2 The impact of the road scheme on the archaeology will be greatest at the south-east corner of OS Field 0409, where the corridor extends for up to 37m into the field, the affected area decreasing to the north, but still affecting the field system earthworks in the adjacent unnumbered field. This would result in significant damage to the best preserved sections of the field system. The impact is regarded as minimal within OS Field 1220 where the earthwork remains are very poorly preserved. The preservation of the remaining earthworks will depend on groundworks being limited to the defined corridor.

4.3 The preferred option regarding the field system would be for preservation *in situ*, afforded by a realignment of the road corridor to avoid OS field 0409. However, if this should not prove to be

possible then the earthwork banks should be preserved by record following the excavation of a representative sample of each bank in order to determine the fabric, form and dating of the features.

4.4 The geophysical survey revealed only one area of archaeological potential, at the southern end of Area 2. The complex of linear features may well form part of an enclosure, reinforcing the suggestion that the area between the Afon Llynfi and Afon Dulas is one of potential for earlier settlement. The geophysical evidence is, however, not sufficient to determine the nature of these features with any certainty. It is therefore considered necessary to test these features by trial excavation prior to any groundworks commencing in order to properly assess their date, function and form, and provide sufficient information to determine a suitable mitigation strategy. The two probable field boundaries identified in Area 1 are not thought to be of particular archaeological significance and no mitigation measures are recommended.

4.5 Although the survey revealed no clear evidence for any features of archaeological significance within the remainder of the areas investigated, this does not necessarily preclude their existence and it is considered likely that further features and artefacts may be revealed during topsoil stripping. It may therefore be considered appropriate to allow for the monitoring of groundworks with sufficient provision to excavate any record any significant features revealed.

5 ACKNOWLEDGEMENTS

5.1 The writers wish to thank the various landowners for their assistance and co-operation.

6 BIBLIOGRAPHY

Hankinson, R., 1995. *Talgarth Bypass, Powys: Archaeological Assessment*. CPAT Report No 122

Ashburnham Estate Atlas *c.* 1770, National Library of Wales, Aberystwyth.

APPENDIX 1

A Report for

CLWYD-POWYS ARCHAEOLOGICAL TRUST

on a

Geophysical Survey

carried out at

TALGARTH BYPASS

December 1996

Author P P Barker C.Eng MICE MIWEM AIFA

1 SUMMARY OF RESULTS

The survey has found few features with archaeological potential apart from the southern end of Area 2. Here a small complex of linear features have been revealed which are considered worthy of further investigation.

2 INTRODUCTION

2.1 Background synopsis

The survey was commissioned as part of the archaeological evaluation of the route corridor of the proposed Talgarth Bypass.

2.2 Site location

The general location of the sites is on the immediate western side of Talgarth. The survey was split into four areas as shown on Figures 1 and 2. The OS References for the centres of each site are:

Area 1	SO 146 347
Area 2	SO 145 341
Area 3	SO 150 333
Area 4	SO 154 326

2.2 Description of the sites and their archaeological potential

Area 1
This site slopes gently towards the River Dulas to the south. The land use was pasture at the time of the survey. Bronllys Castle lies some 100m to the east of the survey area.

Area 2
This is mainly level ground and was pasture at the time of the survey.

Area 3
This site gently slopes to the north west and was used as arable land at the time of the survey.

Area 4
The field slopes to the north and lies adjacent to the Pendre settlement and fort. The land was under crop at the time of the survey.

The soils on all four areas are well drained fine loamy reddish soils over Devonian sandstone, siltstone, mudstones and slate.

2.4 Survey objectives

The purpose of the survey was to investigate each area for archaeological remains, particularly with regard to the two nearby monuments.

2.5 Survey methods

The method selected for the survey was magnetometry. This technique is explained in some detail in section 3.3 below.

3 METHODOLOGY

3.1 Dates of fieldwork

The survey was carried out between 4 November 1996 and Friday 6 December 1996.

3.2 Grid locations

The location of the survey grid and the referencing for each area is shown on Figures 3, 9, 15 and 21.

3.3 Description of technique and equipment configuration

Although the changes in the magnetic field resulting from differing features in the soil are usually weak, changes as small as 0.2 nanoTesla (nT) in an overall field strength of 48,000nT, can be accurately detected using an appropriate instrument.

The mapping of the anomaly in a systematic manner will allow an estimate of the type of material present beneath the surface. Strong magnetic anomalies will be generated by buried iron-based objects or by kilns or hearths. More subtle anomalies such as pits and ditches can be seen if they contain more humic material which is normally rich in magnetic iron oxides when compared with the subsoil.

To illustrate this point, the cutting and subsequent silting or backfilling of a ditch may result in a larger volume of weakly magnetic material being accumulated in the trench compared to the undisturbed subsoil. A weak magnetic anomaly should therefore appear in plan along the line of the ditch.

The magnetic survey was carried out using an FM36 Fluxgate Gradiometer, manufactured by Geoscan Research. The instrument consists of two fluxgates mounted 0.5m vertically apart, and very accurately aligned to nullify the effects of the earth's magnetic field. Readings relate to the difference in localised magnetic anomalies compared with the general magnetic background.

3.4 Sampling interval, depth of scan, resolution and data capture

3.4.1 *Sampling interval*

Readings were taken at 0.5m centres along traverses 1m apart. This equates to 800 sampling points in a full 20m x 20m grid. All traverses are surveyed in a "parallel" rather than "zigzag" mode.

3.4.2 *Depth of scan and resolution*

The FM36 has a typical depth of penetration of 0.5m to 1.0m. This would be increased if strongly magnetic objects have been buried in the site. The collection of data at 0.5m centres provides an optimum resolution for the technique.

3.4.3 *Data capture*

The readings are logged consecutively into the data logger which in turn is daily down-loaded into a portable computer whilst on site. At the end of each job, data is then transferred to the office for processing and presentation.

3.5 Processing, presentation of results and interpretation

3.5.1 *Processing*

Processing is performed using specialist software known as *Geoplot 2.* This can emphasise various aspects contained within the data but which are often not easily seen in the raw data. Basic processing of the magnetic data involves 'flattening' the background levels with respect to adjacent traverses and adjacent grids. 'Despiking' is also performed to remove the anomalies resulting from small iron objects often found on agricultural land. Once the basic processing has flattened the background it is then possible to carry out further processing which may include low pass filtering to reduce 'noise' in the data and hence emphasise the archaeological or man-made anomalies..

The following schedule shows the basic processing carried out on all processed magnetometer data used in this report:

Zero mean grid	*Threshold = 0.25 std. dev.*
Zero mean traverse	*Last mean square fit = off*
Despike	*X radius = 1 Y radius = 1*
	Threshold = 3 std. dev.
	Spike replacement = mean

3.5.2 *Presentation of results and interpretation*

The presentation of the data for each site involves a print-out of the raw data both as grey scale and trace plots, together with grey scale plots of the processed data, and, if appropriate, after further processing to emphasise various aspects within the data. Magnetic anomalies have been identified and plotted onto the 'Abstraction of Anomalies' drawing for the site, numbered for ease of reference and prefixed with the area number and the letter 'M'.

4 RESULTS

Area 1 (Figure 5)

Very little of archaeological interest was found in this area. Several pipelines cross the site causing massive magnetic disturbances. In addition there are more discrete areas

and scatters of magnetic disturbance (e.g. 1M6, 7, 8, 9, 12 and 15) but all these are likely to be caused by modern rubbish and hardcore.

The long curvilinear negative feature 1M/14 in the northern part of the site may be a ploughed out embankment and may therefore be of interest. The very weak positive rectilinear anomalies collectively labelled 1M/4 are the only other features which may be of interest.

Area 2 (Figure 7)

The southern section of this site has revealed a number of short (10-15m) linear positive anomalies which form no particular pattern. However, it is felt that they are probably ditches associated with enclosures. They may be of more than one period which would help to explain their complexity. A weak negative anomaly to the north (2M/2) may be another ploughed out embankment.

Of the four areas surveyed this shows the most archaeological potential.

Area 3 (Figure 9)

Several ferrous objects causing magnetic spikes were found in this area together with a small area of magnetic disturbance in the southern corner. None of these are considered of archaeological significance.

Area 4 (Figure 11)

A scatter of ferrous spikes found in the northern part of the survey area were found but nothing considered to be of archaeological interest.

APPENDIX 2

TALGARTH BYPASS A479T
SPECIFICATION FOR AN ARCHAEOLOGICAL FIELD EVALUATION
BY CLWYD-POWYS ARCHAEOLOGICAL TRUST

1 Introduction

1.1 The proposed development of a block of land near Talgarth, Powys involves the diversion of the present A479 Trunk road and construction of a new road by-passing the present village

1.2 This area lies adjacent to the historic town of Talgarth and has already been subject to an initial archaeological assessment (Hankinson 1995) in which further recommendations were made.

1.3 The Inspectorate of Ancient Monuments of Cadw: Welsh Historic Monuments in their capacity as archaeological advisers to Welsh Office Highways have determined that a field evaluation is necessary to assess the implications of the proposed development on the archaeological resource. Accordingly a brief (ref C015F737 HG undated) has been prepared by Cadw and which describes the scheme of archaeological works required.

2 Objectives

2.1 The objectives of the evaluation are:

2.1.1 to survey the earthworks in Briery Common Field using EDM to depict the surviving archaeology.

2.1.2 to undertake a geophysical survey by magnetometer of four areas deemed to be of potential archaeological significance as described in the Assessment report (Hankinson 1995).

2.1.3 to prepare a report outlining the results of the field evaluation and incorporating sufficient information on the archaeological resource to assess the impact of the proposed development on the archaeology;

2.1.4 to identify and recommend options for the management of the archaeological resource, including any further provision for that resource where it is considered necessary.

3 Methods

3.1 Stage one of the evaluation will involve the survey of Briery Common Field using an EDM with *Penmap*. The results of the survey will be drawn according to para 2.1 of the curatorial brief.

3.2 Stage two will take the form of a magnetometer survey over the four areas specified.

3.3 Following the on-site work an illustrated and bound report will be prepared according to the principles laid out in the Curatorial Brief (section 4). This will be in A4 format and contain the results of the survey, conclusions, recommendations and references, together with appropriate appendices on archives and finds.

3.5 The site archive will be prepared to specifications laid out in Appendix 3 in the Management of Archaeological Projects (English Heritage, 1991).

4 Resources and Programming

4.1 The survey will be undertaken by a small team of 2 skilled archaeologists under the direct supervision of an experienced field archaeologist. Overall supervision will be by Dr A Gibson, a senior member of CPAT's staff who is also a member of the Institute of Field Archaeologists.

4.2 The magnetometer survey will be sub-contracted to *Stratascan* of Upton-on-Severn who have extensive experience of archaeological prospection.

4.3 All report preparation will be completed by the same field archaeologist who conducted the evaluation.

4.4 It is anticipated that the EDM survey and geophysical survey will take no more than 5 days in all and that the subsequent report would be prepared immediately thereafter, dependent on the client's instructions and the arrangement of a suitable timetable. The date of commencement, at the time of writing, has yet to be agreed with the client, and will be dependent on the state of the site and access negotiated by Howard Humphreys and Partners. The archaeological curator will be informed of the detailed timetable and staffing levels when agreement has been reached with the client.

4.5 Requirements relating to Health and Safety regulations will be adhered to by CPAT and its staff.

4.6 CPAT is covered by appropriate Public and Employer's Liability insurance.

A.M. Gibson
11th September 1996

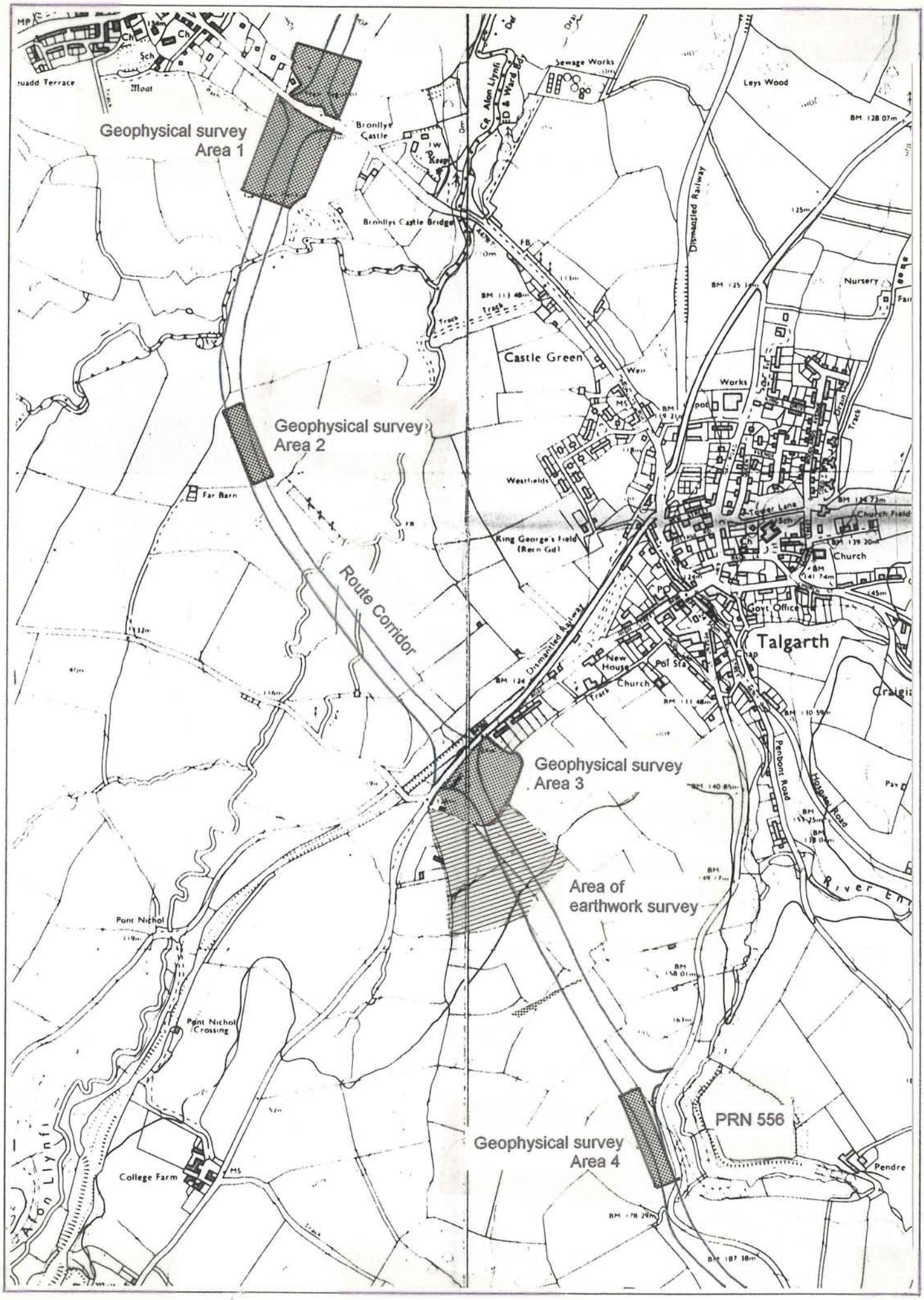

Fig. 1: Location 1:10,000

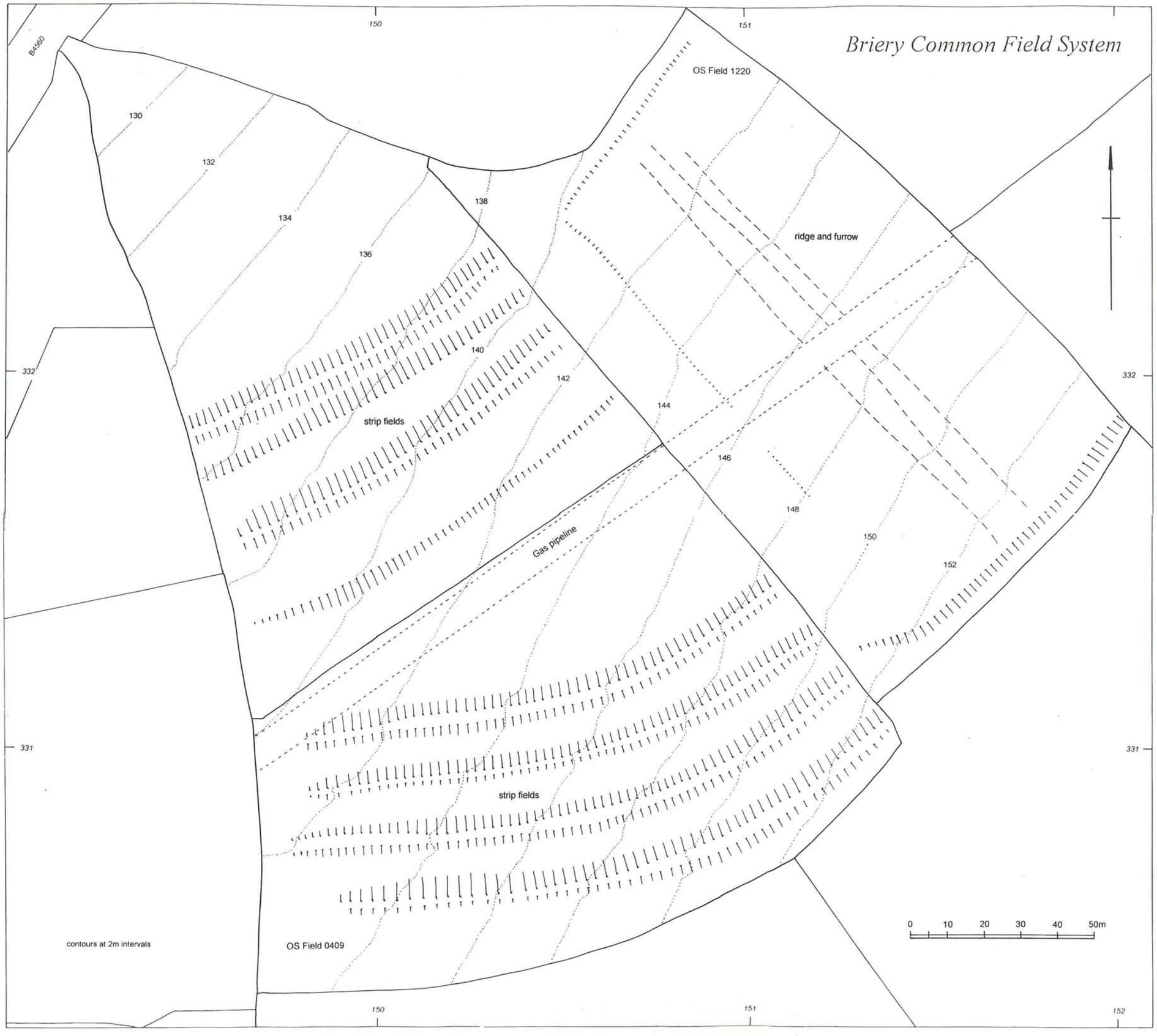

Fig. 2: Briery Common Field System Earthworks, 1:1000

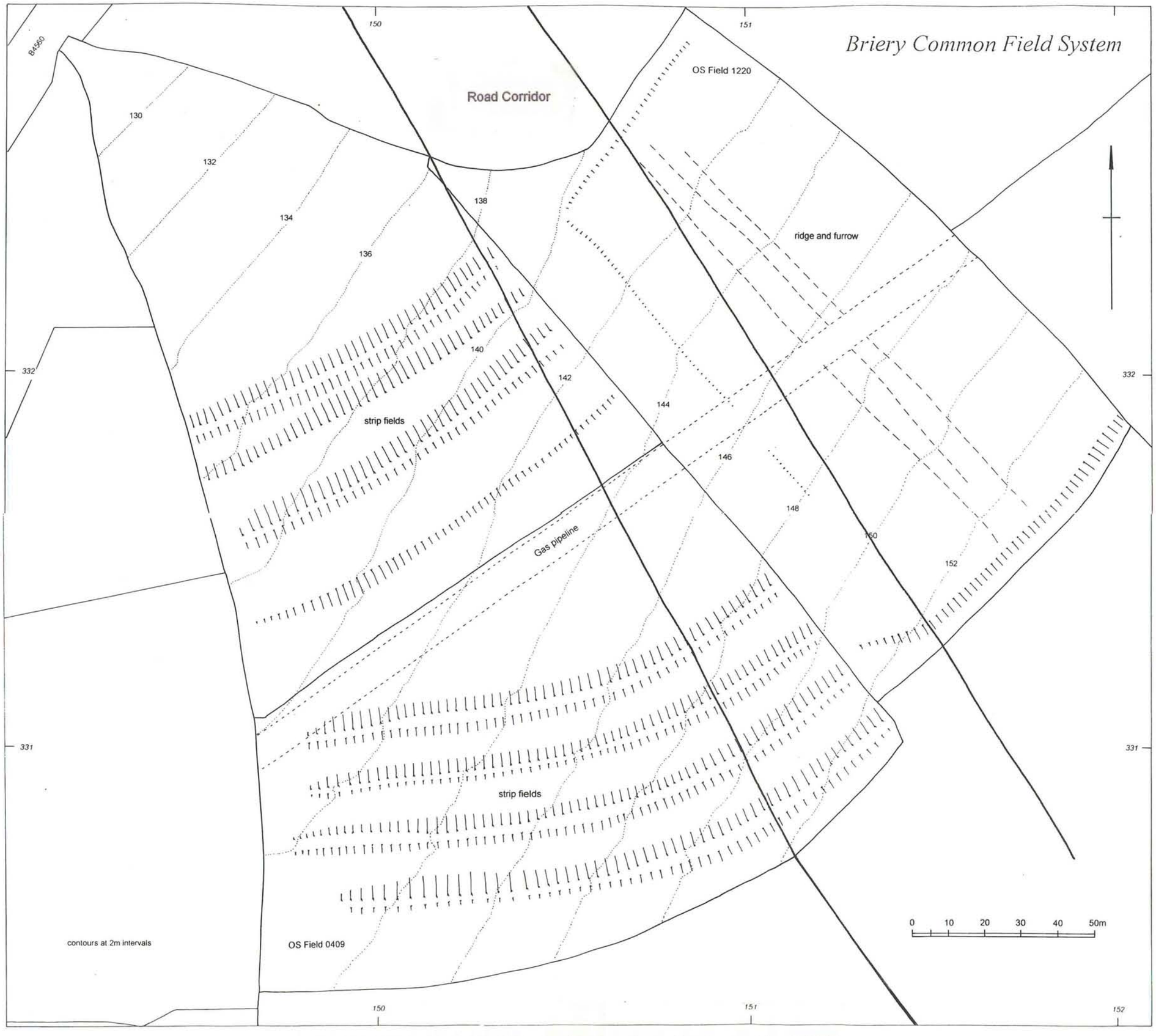

Fig. 3: Briery Common Field System Earthworks and route corridor, 1:1000

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Scale 1:1000	Subject Geophysical Survey - Talgarth Bypass Plot of magnetometer data after further processing to emphasise weaker anomalies Areas 1A, 1B and 1C	TILTRIDGE FARM UPPER HOOK ROAD UPTON UPON SEVERN WORCESTERSHIRE WR8 0SA UK TELEPHONE (01684) 592266 FAX (01684) 594142
Figure 4		

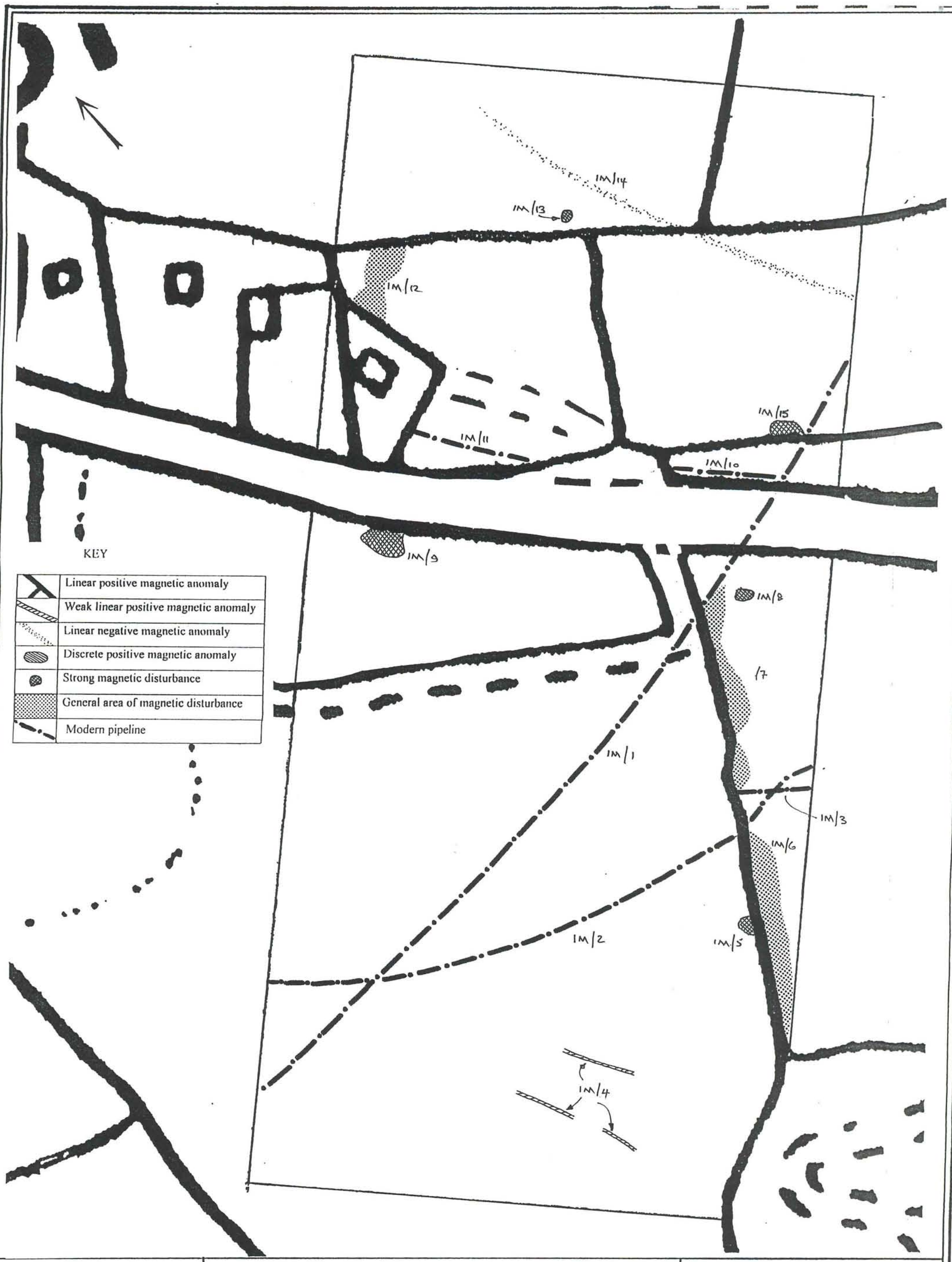

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Figure 5		

Plotting parameters
Minimum -1nT (white)
Maximum +1nT (black)

Plotting parameters
Minimum -1nT (white)
Maximum +1nT (black)

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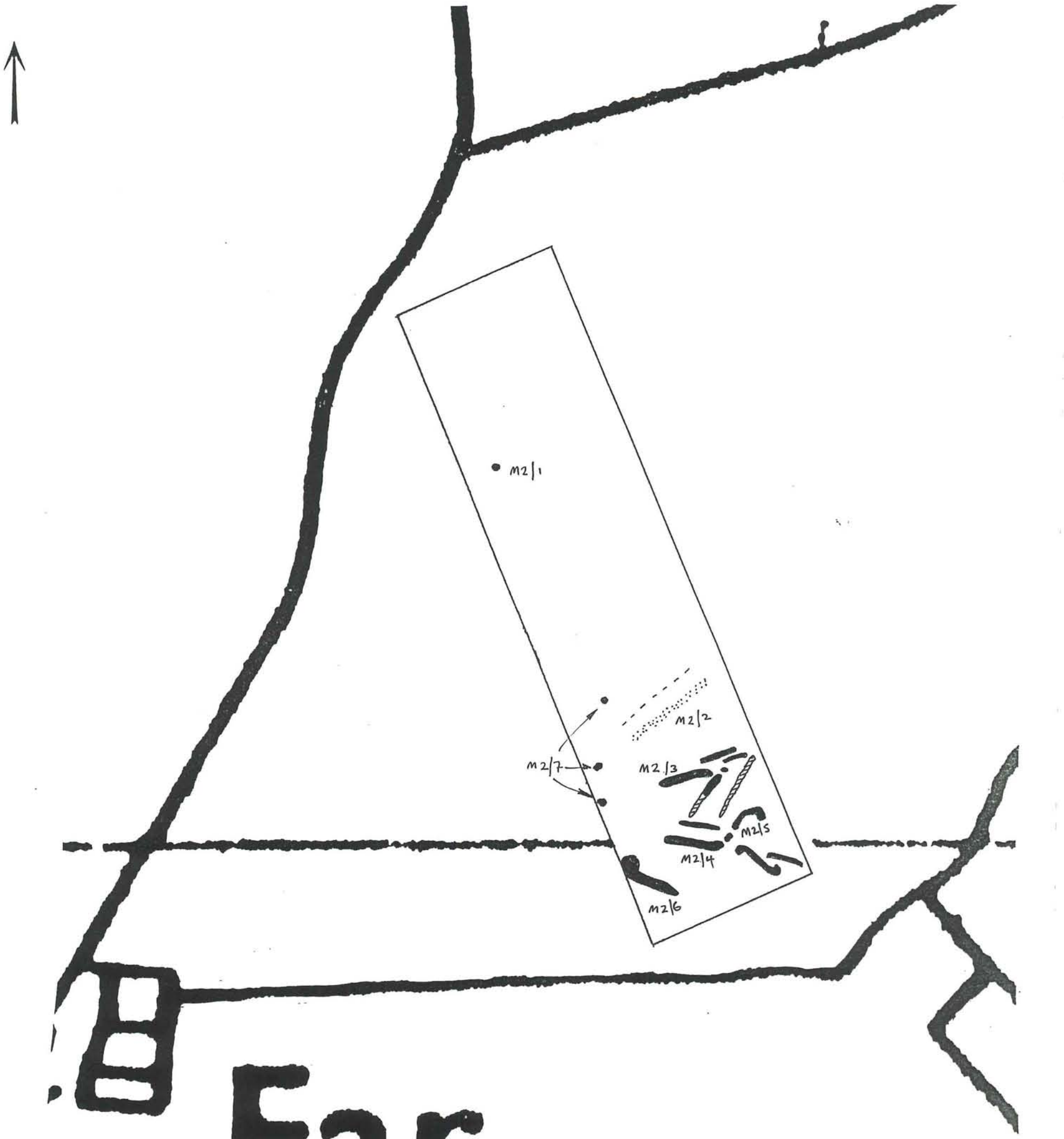
Figure 6		



KEY

	Linear positive magnetic anomaly
	Weak linear positive magnetic anomaly
	Linear negative magnetic anomaly
	Discrete positive magnetic anomaly
	Strong magnetic disturbance
	General area of magnetic disturbance

Date December 1996	Client CLWYD-POWYS ARCHAEOLOGICAL TRUST	STRATASCAN™
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Figure 7.		

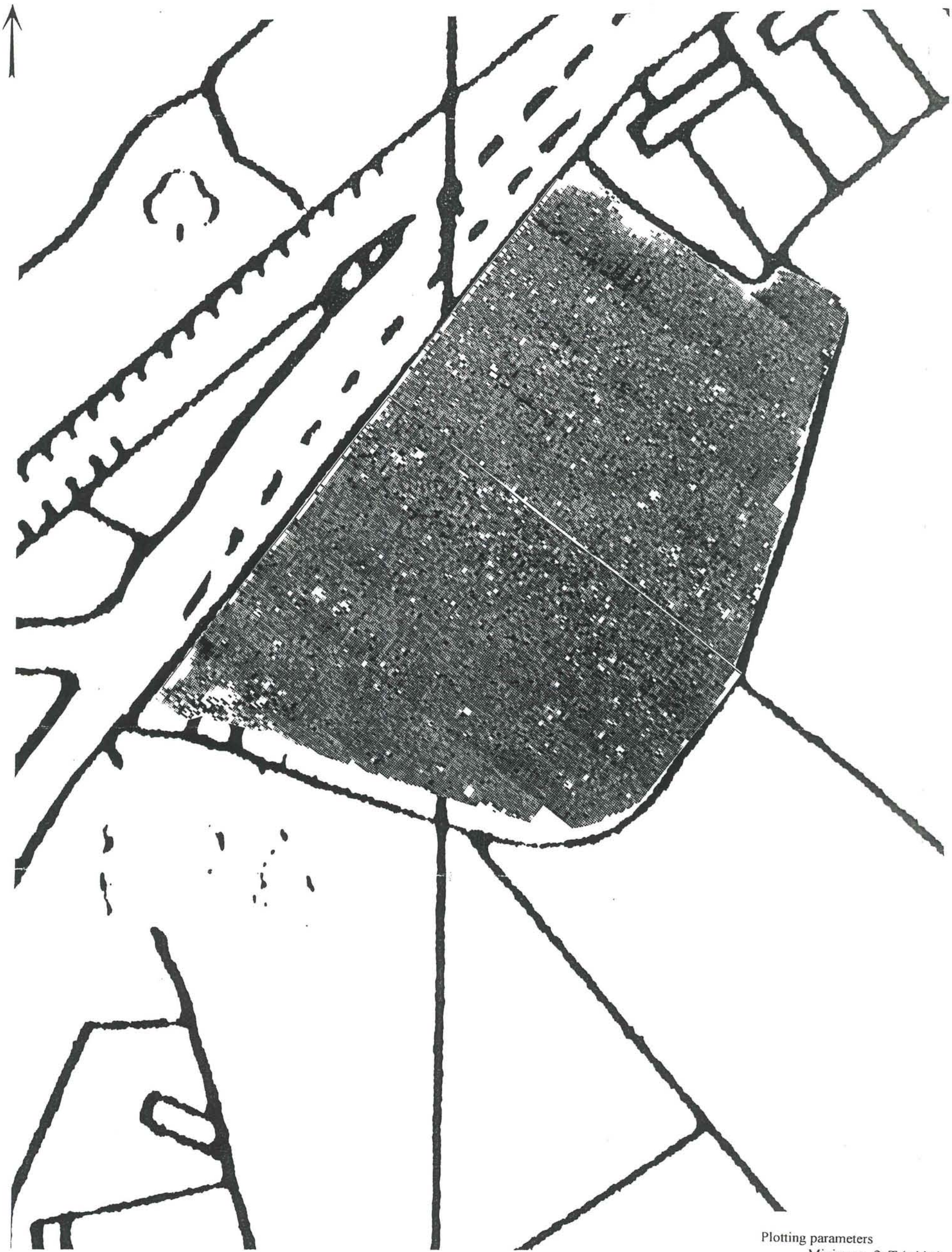

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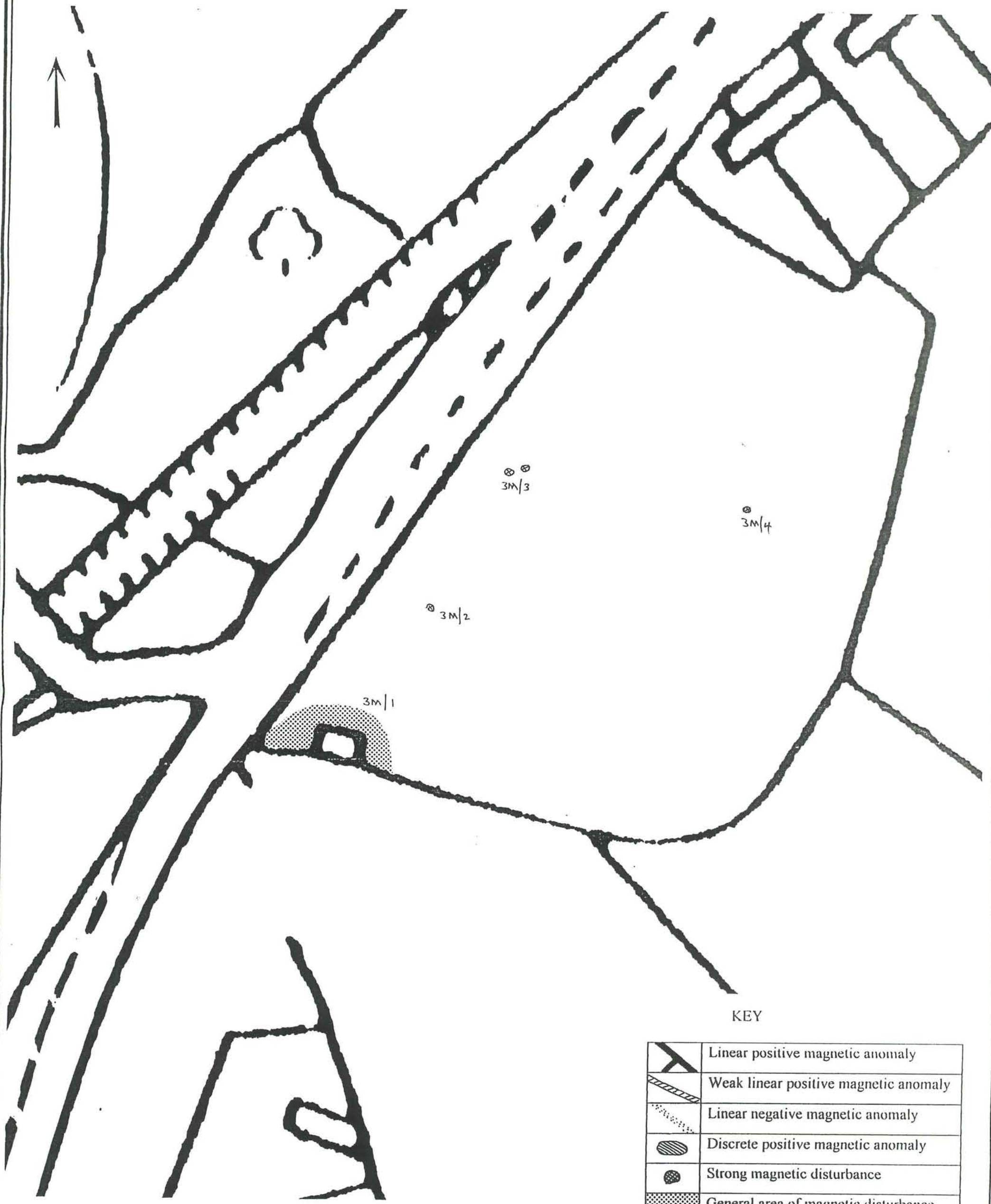
Figure 8		



KEY

	Linear positive magnetic anomaly
	Weak linear positive magnetic anomaly
	Linear negative magnetic anomaly
	Discrete positive magnetic anomaly
	Strong magnetic disturbance
	General area of magnetic disturbance

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Figure 9		

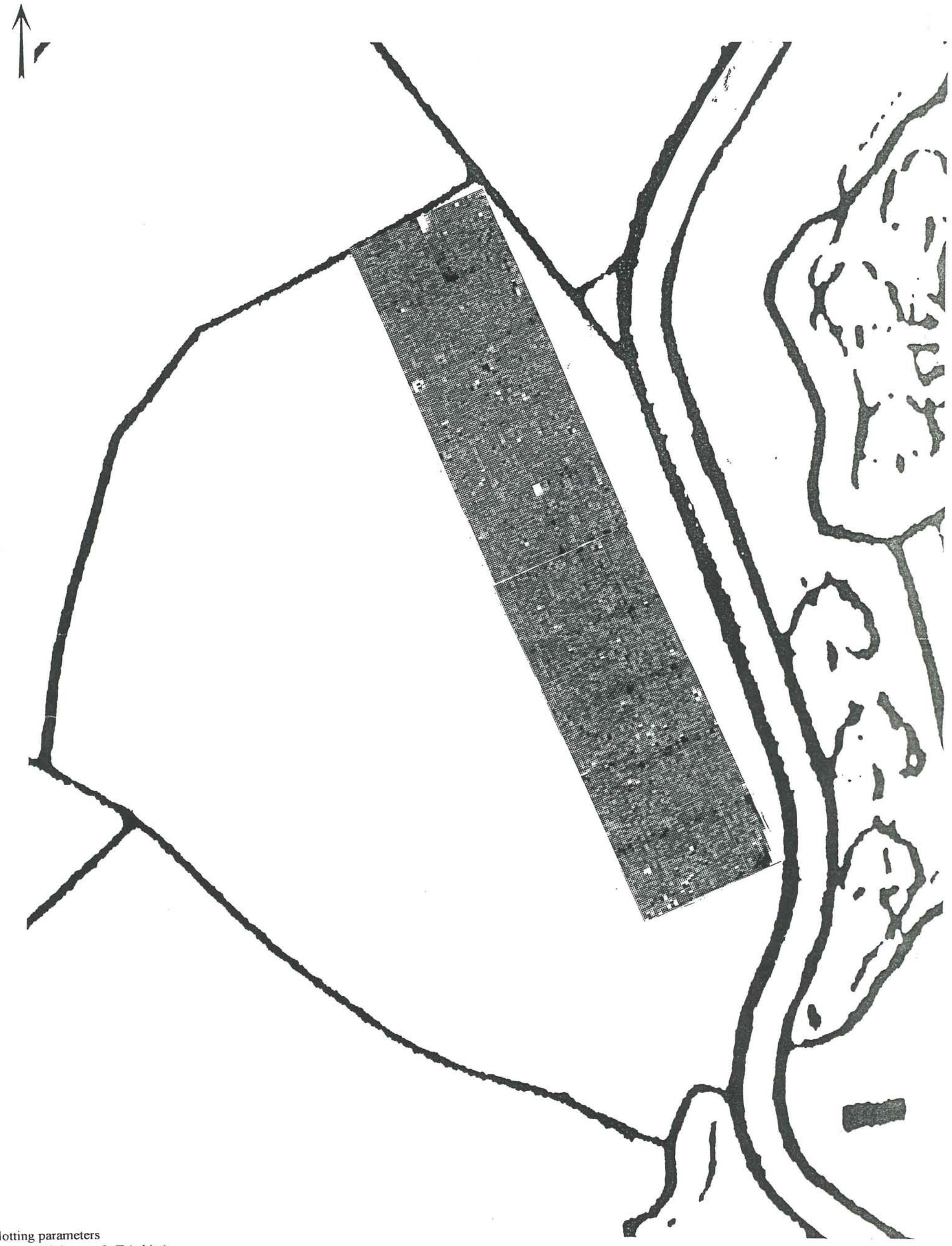

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Figure 10		

KEY

	Linear positive magnetic anomaly
	Weak linear positive magnetic anomaly
	Linear negative magnetic anomaly
	Discrete positive magnetic anomaly
	Strong magnetic disturbance
	General area of magnetic disturbance

Date December 1996	Client CLWYD-POWYS ARCHAEOLOGICAL TRUST	STRATASCAN™
Scale 1:1000	Subject Geophysical Survey - Talgarth Bypass Abstraction of anomalies Area 4	TILTRIDGE FARM UPPER HOOK ROAD UPTON UPON SEVERN WORCESTERSHIRE WR8 0SA UK TELEPHONE (01684) 592266 FAX (01684) 594142
Figure 11		