

Ancient Monuments Laboratory
Report 14/97

THE DESERTED MEDIEVAL VILLAGE
AT THOMLEY, OXFORDSHIRE.
REPORT ON GEOPHYSICAL SURVEY,
FEBRUARY 1997

M A Cole

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THE DESERTED MEDIEVAL VILLAGE AT
THOMLEY, OXFORDSHIRE. REPORT ON
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Summary

Magnetometer and resistance surveys were carried out at the site of the deserted medieval village of Thomley, Oxon (SAM Oxon 237) in February 1997. They were conducted as a pilot investigation to assess the efficacy of these techniques in detecting any surviving buried remains at the site. In general, the site conditions did not prove well suited to geophysical survey, although some useful evidence of buried archaeological features was recorded.

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THE DESERTED MEDIEVAL VILLAGE OF THOMLEY, OXFORDSHIRE.

Report on the geophysical survey, February 1997.

INTRODUCTION

Thomley DMV (Scheduled Ancient Monument Oxon 237) was a hamlet located on the Oxfordshire-Buckinghamshire border to the north-east of Oxford. The scheduled area extends over more than 7ha and is divided into two unequal parts by a modern field boundary (see Fig 1). Numerous earthworks related to the former settlement survive, the most pronounced of which are located within the northernmost part of the scheduled area, including what appears to be a ditched enclosure. This area is currently maintained under permanent pasture. By contrast the south-eastern section has been under long-term arable cultivation and here the earthworks are less well defined as a result.

Prodigious amounts of pottery have been brought to the surface of the arable field where discrete scatters of cob and oolitic limestone have also been observed. The latter is foreign to this area and may therefore be interpreted as representing the remnants of buildings. Extensive ridge and furrow is evident in the surrounding fields although this has also been greatly subdued by modern cultivation. In addition to the medieval remains, Roman pottery has also been collected in the corner of the arable field immediately to the north and west of Thomley Hall Farm (P Rowsell *pers comm*).

Bronac Holden (1985) sought to explain the eventual decline of the site based on the available documentary evidence. The latter publication includes a plot of a basic earthwork survey carried out by J. Moore, H. Bird and R. Chambers in 1979, part of the which has been included in this report for comparison with the geophysical data (see Fig 4). Despite these efforts (and some minor and unpublished excavations in the late 1960s), little has been elucidated as to the precise layout of the site nor as to what features have survived beneath the modern landscape. To this end a geophysical investigation was recommended in the hope of broadening the understanding of the site and it is the results of a pilot survey that are reported upon here.

The area surveyed (centred on SP 629 092) is located over a complex sequence of Jurassic rocks including mudstone, limestone and sandstone (BGS 1994).

METHOD

Given the extent of the scheduled area and the limited amount of time available, a pilot geophysical survey was undertaken in an attempt to assess the efficacy of both magnetometry and resistivity survey at the site.

Magnetometer survey is a well established archaeological prospecting method and provides a rapid, non-invasive means of investigating many types of rural occupation sites (Clark 1990). The magnetometer is capable of detecting a wide range of archaeological features such as buried pits, ditches, gullies, kilns, ovens and hearths.

Resistivity survey is a similarly well established technique also capable of identifying pits and ditches but is particularly well suited to the detection of sub-surface building foundations and other masonry features¹.

Three separate grids of 30m squares were laid out, each aligned to best fit the area to be surveyed (see Fig 1). Within the scheduled area, one grid was laid out within the pasture field immediately to the south of the farmhouse (Area 1), whilst another was located within the larger arable field further to the south (Area 2). Area 3 was targeted over the scatter of Roman pottery identified in the arable field just to the north of Thomley Hall Farm.

Geoscan FM36 fluxgate gradiometers were then employed within these grids to record measurements of the local gradient of the Earth's magnetic field at 0.25m intervals along traverses spaced 1.0m apart. Greyscale and graphical trace plots of this data are presented in this report (see Figs 2 and 4).

A number of the grid squares were subsequently surveyed using a Geoscan RM15 resistance meter. The Twin Electrode configuration was employed with a mobile electrode spacing of 0.5m to collect measurements of apparent resistivity at 1.0m intervals along traverses spaced 1.0m apart. To compensate for the broad changes in background resistance encountered across the site the data has been statistically treated using both a high-pass Gaussian filter and an edge detection filter (see Fig 5; Scollar et al 1990).

On a prior reconnaissance visit to the site samples of topsoil were retrieved from various parts of the site in order to measure their magnetic susceptibility (MS). MS is a natural attribute of the soil which becomes artificially enhanced by the conversion of iron oxides in the soil to a more strongly magnetic form. Mechanisms for this enhancement are provided by the activities of man, most notably the use of fire (see for example Tite 1972). In fact it is the enhanced MS of soils infilling archaeological features such as pits and ditches, that allows them to be detectable with a magnetometer. Relatively high MS values can thus, in their own right, sometimes be an indicator of former occupation (and ancient industrial activity) and MS is also a valuable aid to the interpretation of detailed magnetometer survey.

RESULTS

Magnetometer Survey

Disappointingly, the results of the magnetometer survey reveal the magnetic variation over the site to be very subdued. The frequency distribution of the data on Figure 2 shows that the majority of the readings lie well within $\pm 1\text{nT}$ and are therefore close to maximum

¹For a more detailed description of these techniques and their capabilities refer to Clark (1990) or Scollar (1990).

precision of the instrument. Whilst the sharp vertical deflections in the traces of the data in Figure 4 represent modern ferrous material, some broader and therefore more archaeologically significant magnetic variations have nevertheless been recorded.

In the western corner of Area 1 (grid squares 10 and 11) an earthwork ditch has been detected as a positive anomaly which correlates well with a low resistance anomaly mapped by the resistivity survey (see below and Fig 5). Confined to the west of this ditch, an area of magnetic disturbance of unknown origin has been detected. Further to the east, over the larger part of the Area 1, a number of subtle positive anomalies have been detected but these, unfortunately, do not appear to be part of any easily recognizable pattern. Once again good correlation is evident between these and anomalies detected by the resistivity survey (see below and Fig 5).

The magnetometer results from Area 2 are particularly disappointing given the amount of material evident on the surface from this part of the site. Apart from a couple of discrete positive anomalies, which may be responses to buried pits, no features of certain archaeological relevance appear to have been detected.

A rectilinear enclosure has been detected within Area 3 defined by subtle positive linear anomalies. Continuations of these anomalies to the west and east suggest that this enclosure may well be part of a larger system of such enclosures. Despite the presence of Roman artefacts, it may be significant that the enclosure appears to share the same alignment as the earthwork enclosure to the south-east (see Fig 5). Along the eastern edge of Area 3 a ferrous pipe has been detected as a very intense response with a characteristic fluctuating negative and positive signal.

Magnetic Susceptibility

The magnetic susceptibility of four samples of topsoil from across the site was measured using a Bartington MS1 susceptibility meter. All of the resulting values were below $20 \times 10^{-8} \text{ m}^3\text{Kg}^{-1}$, indeed three of the samples had a MS of less than $10 \times 10^{-8} \text{ m}^3\text{Kg}^{-1}$. These values are very low and helps account for the subdued character of the magnetometer responses.

Resistivity Survey

The site conditions proved slightly more suited to resistivity survey and some informative results have been obtained, particularly from Area 1. Both the western and eastern earthworks of the former enclosure have been detected as linear low resistance anomalies. To the west, the anomaly has a constriction along its course (in grid square 11) which might tentatively be associated with the location of a former crossing point over the ditch of the enclosure. To the east of Area 1, the corner-shaped ditch evident as an earthwork has been replicated as a low resistance anomaly. Interestingly, the southward continuation of this feature has been detected as a distinct high resistance anomaly. This may either be a response to the infilling of the ditch with rubble or, possibly, the presence of a solid wall foundation. In addition, there is some suggestion of a extension of this anomaly to the west, at right angles to the ditch.

Within the enclosure, an assortment of discontinuous high resistance anomalies have been

mapped many of which share the same alignment as the enclosure itself. Whilst there is clear correlation with the magnetometer survey, once again there does not appear to be any obvious patterning to these anomalies. They are, however, clearly indicative of the remains of buried walls or foundations. It may be significant that all of the most well defined of these anomalies are located within a discrete zone of lower background resistance towards the centre of the enclosure.

The survey appears to have detected elements of a ridge and furrow system in the west of Area 1 and within the earthwork enclosure, as parallel low resistance anomalies running roughly north-south. Again this response correlates well with the earthwork survey (see Fig 5).

The results of the resistivity survey of Area 3 are, like those of the magnetometer survey from this area, disappointing. Whilst there are clear contrasts in resistivity across the survey area, there is no obvious pattern although one or two distinct linear high resistance anomalies are evident in places. The effect of modern ploughing is evident throughout as parallel lineations in the data and this has marred its overall appearance. This exaggerated response to a surface effect was presumably brought about because this area was surveyed during a prolonged period of heavy rain.

CONCLUSION

In general, the results of this pilot survey confirm earlier impressions that the site conditions at Thomley are not well suited to geophysical survey. Nevertheless, some noteworthy evidence of buried archaeological remains has been detected by both techniques, with the resistivity survey perhaps proving the more successful. This is particularly evident in the area of permanent pasture to the south of Thomley Hall Farm which appears to have suffered the least as a result of modern cultivation. Here convincing evidence of buried structural remains was detected (focused in grid squares 13-21) although not with sufficient clarity for the precise layout of any former buildings to be elucidated.

The low level of magnetic susceptibility encountered at the site explains the very subdued responses recorded by the magnetometer. Despite this, some significant features were detected, most notably an enclosure beyond the scheduled area to the north of Thomley Hall Farm. In addition, good correlation is evident between both the geophysical data-sets and between these and the topographic survey.

Surveyed by: P Cottrell
M Cole

Dates: 17-21 February 1997

Reported by: M Cole

11th June 1997

Archaeometry Branch
Ancient Monuments Laboratory

References

- British Geological Survey, 1994 Thame, England and Wales Sheet 237, Solid and Drift Geology 1:50 000, Keyworth, Nottingham: British Geological Survey.
- Clark, A J 1990 *Seeing Beneath the Soil: Prospecting Methods in Archaeology*, Batsford, London.
- Holden, B 1985 The Deserted Medieval Village at Thomley, Oxfordshire, *Oxoniensia* 50, 215- 237.
- Scollar, I et al 1990 *Topics in Remote Sensing 2: Archaeological Prospecting and Remote Sensing*, Cambridge.
- Tite, M S 1972 The influence of geology on the magnetic susceptibility of soils on archaeological sites, *Archaeometry* 14, 229-236.

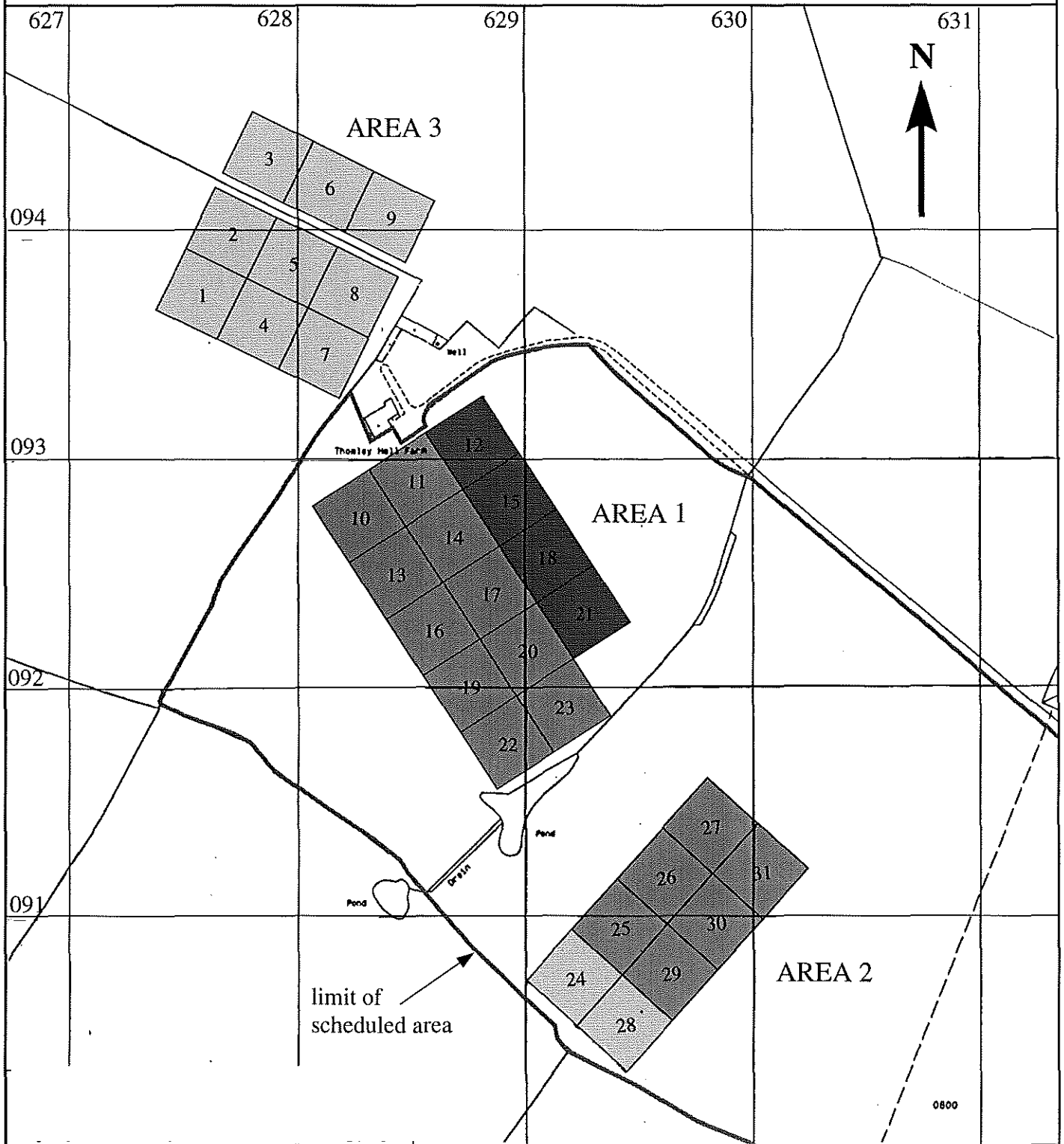
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Location plan of survey.

SP 6209 & 6309



Magnetometry only
 Resistivity and magnetometry
 Resistivity only

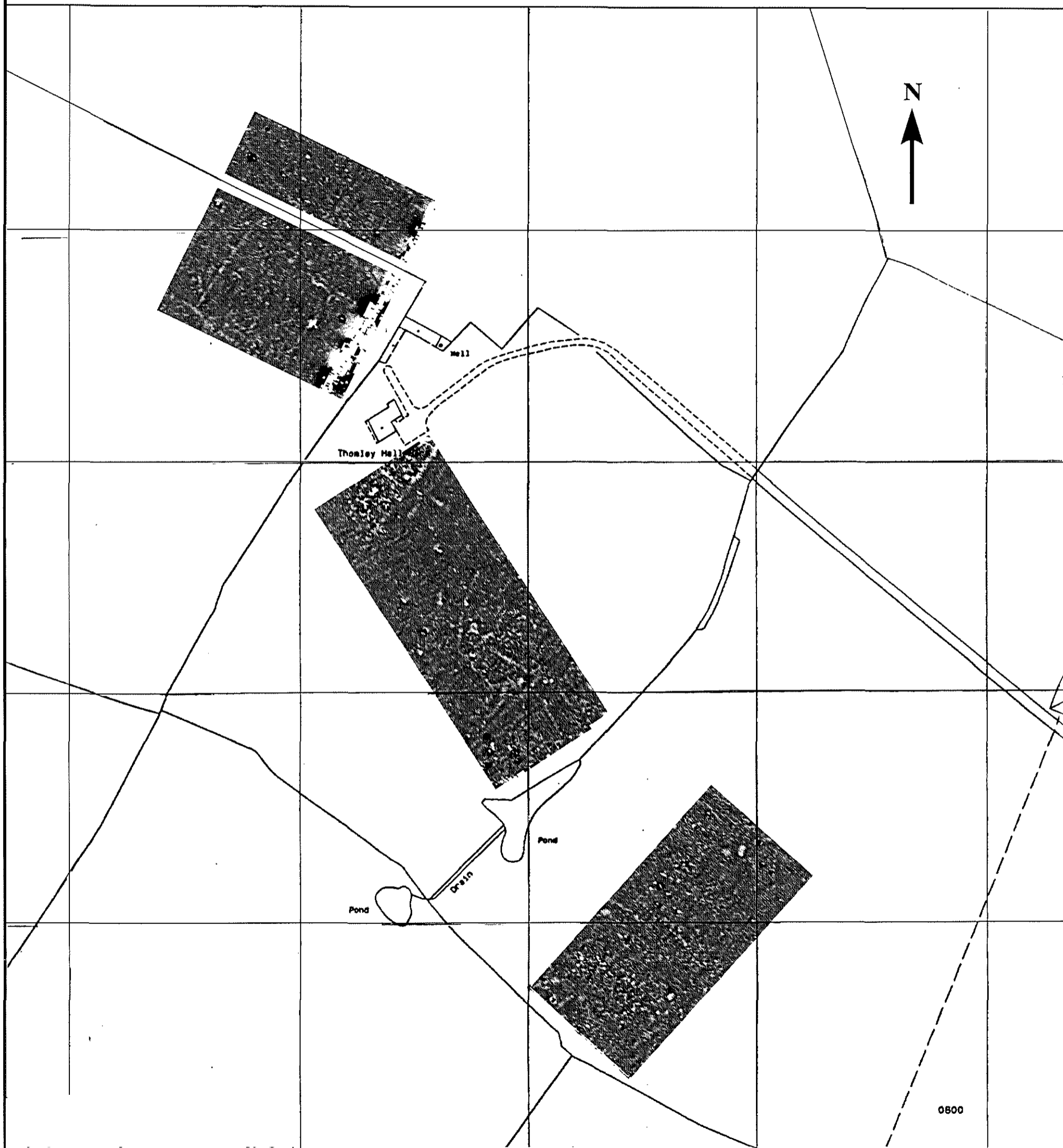
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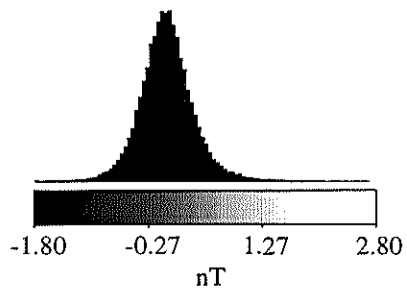
THOMLEY DMV, WORMINGHALL, OXON.
GEOPHYSICAL SURVEY, FEBRUARY 1997.

Location plan of magnetometer survey.

SP 6209 & 6309



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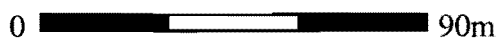
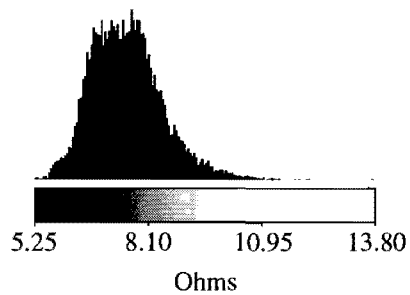
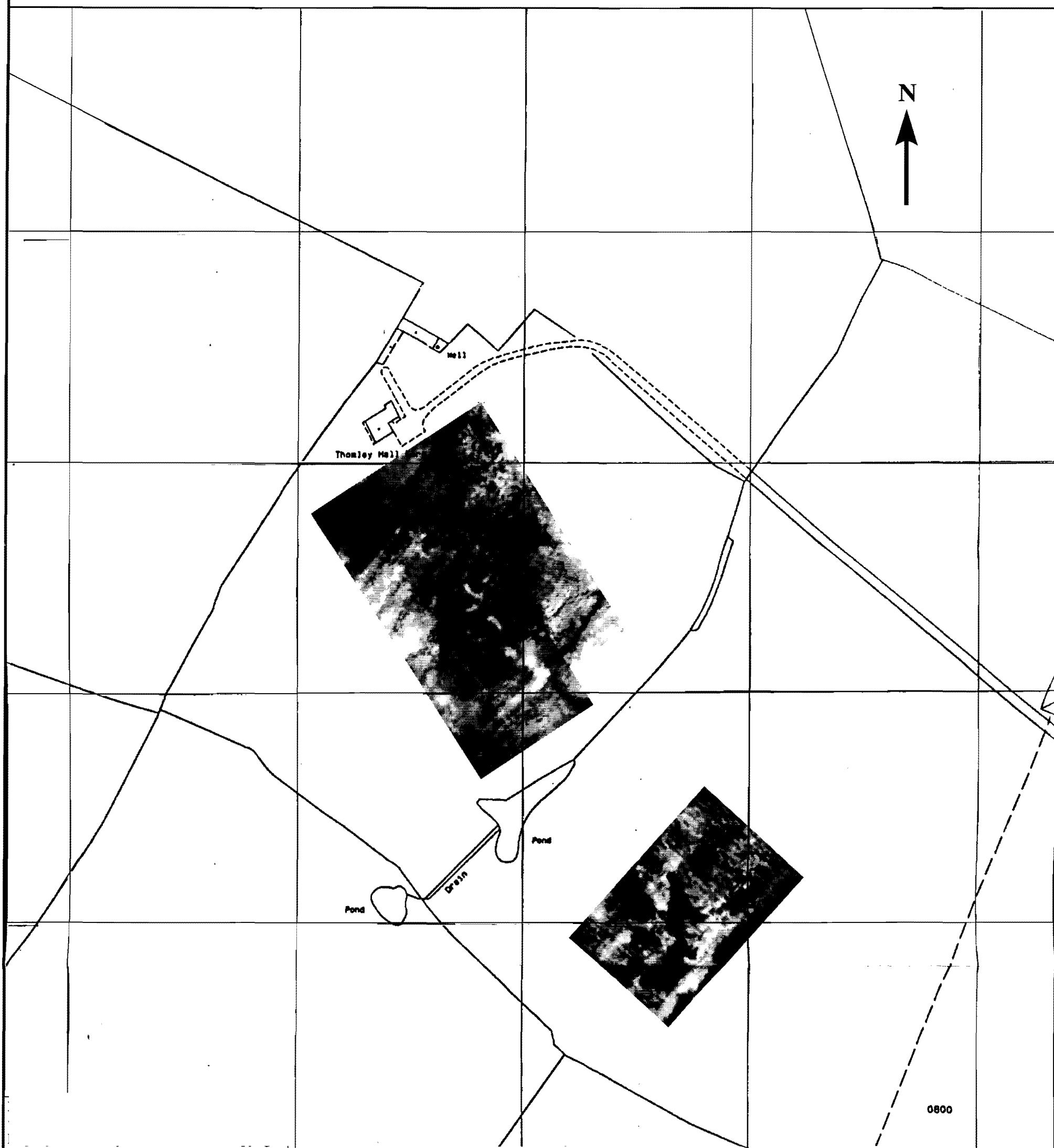
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Location plan of resistivity survey.

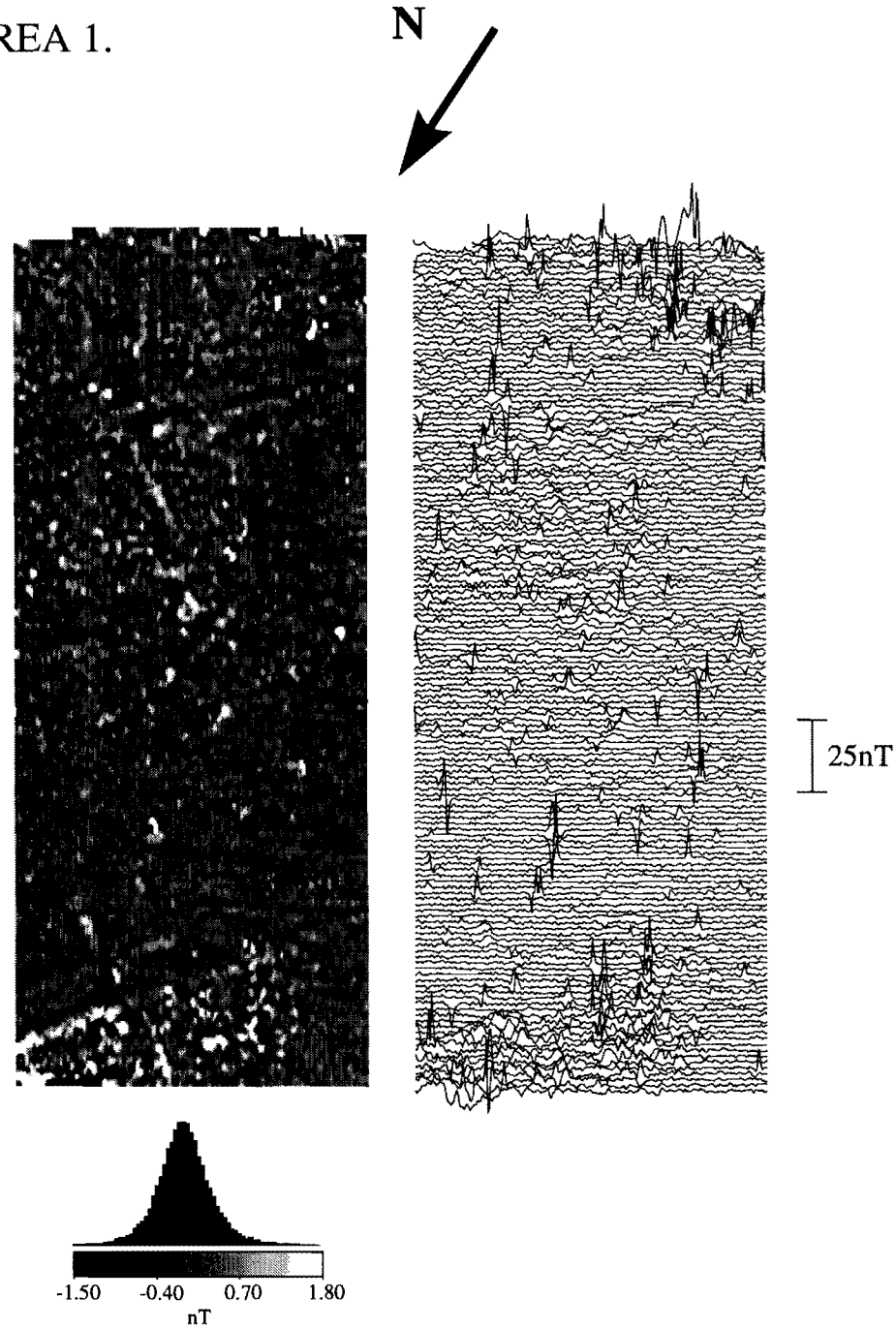
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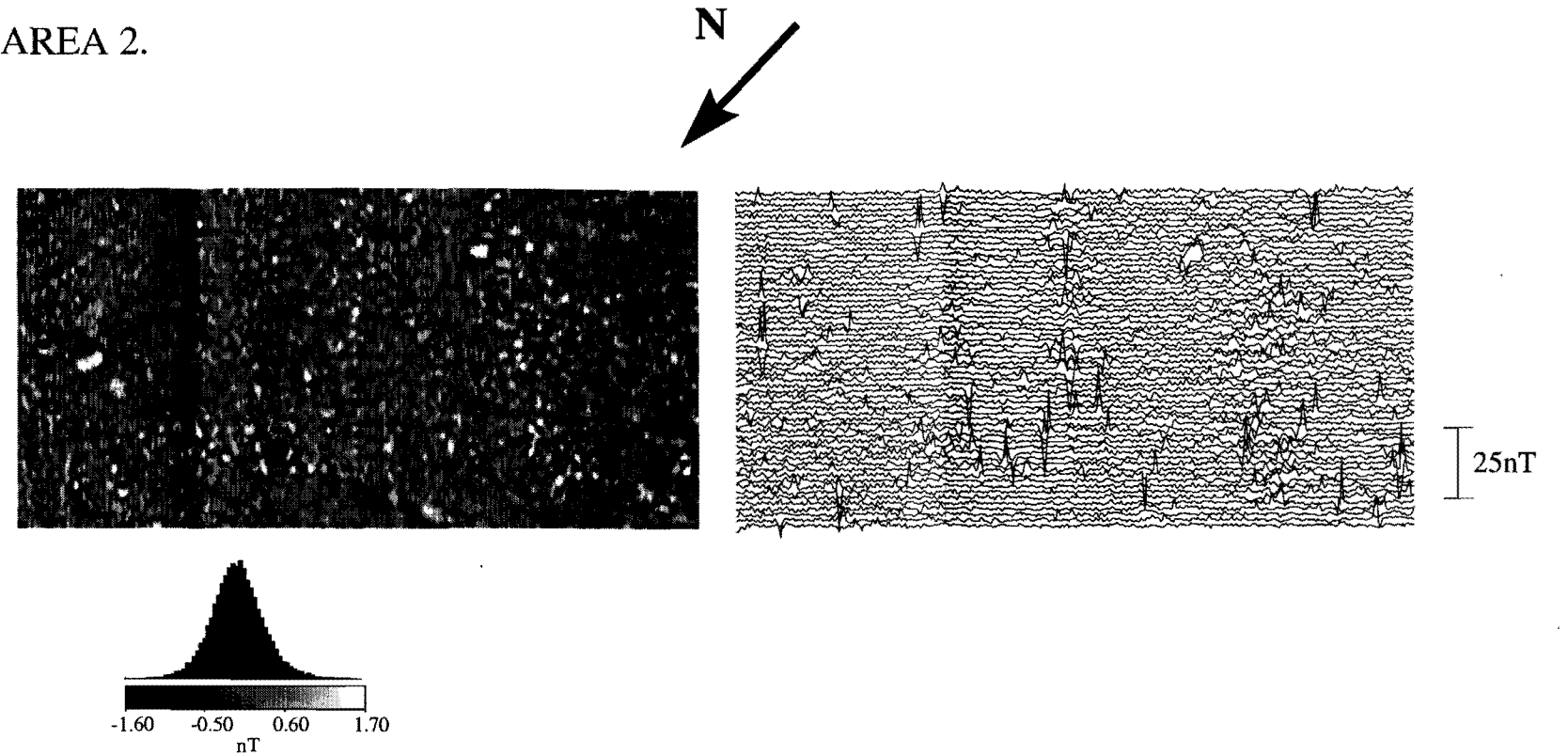
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Greyscales and traceplots of magnetometer survey.

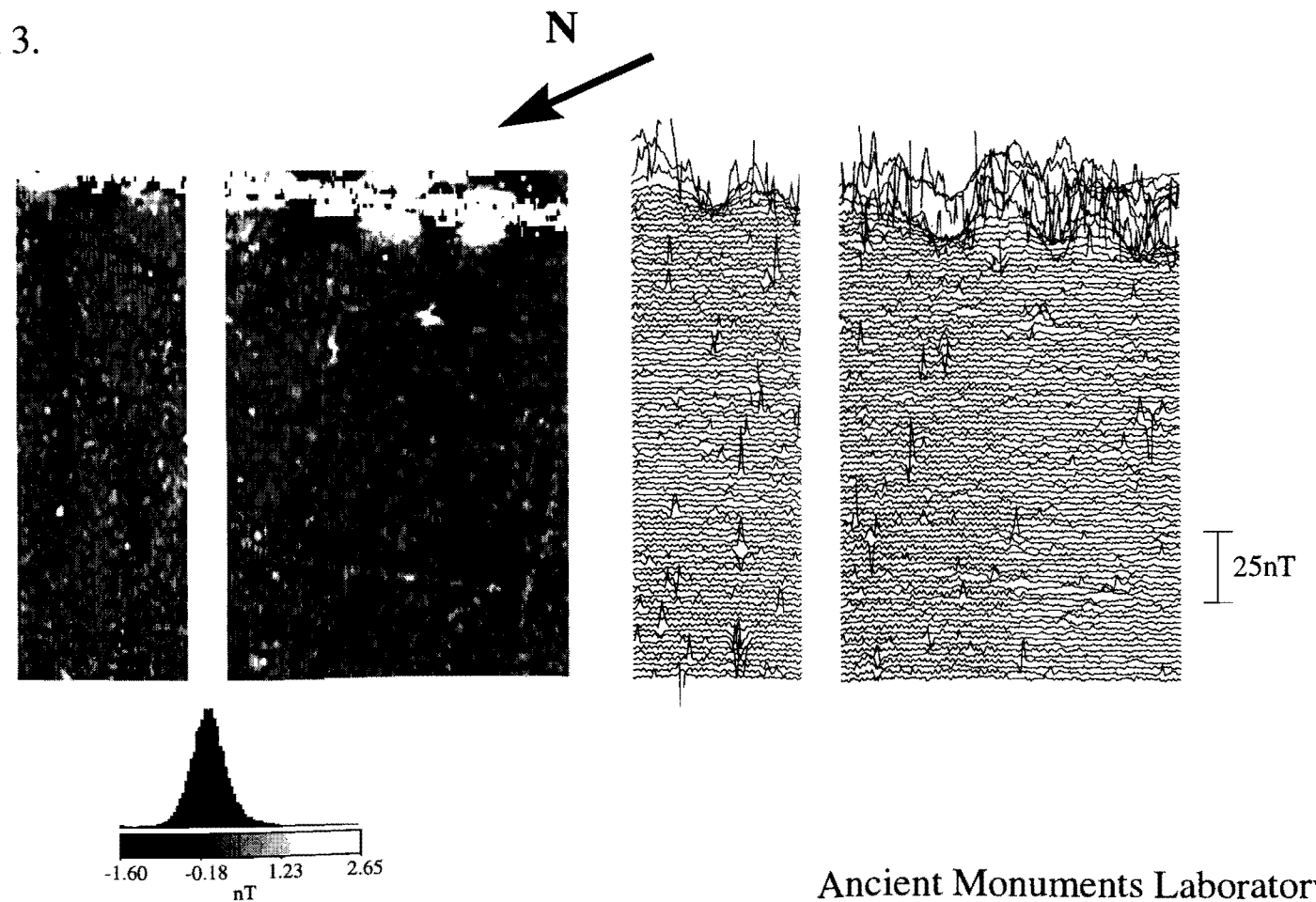
AREA 1.



AREA 2.



AREA 3.

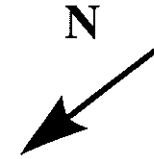


Scale of plots
0 90m

FIGURE 5.

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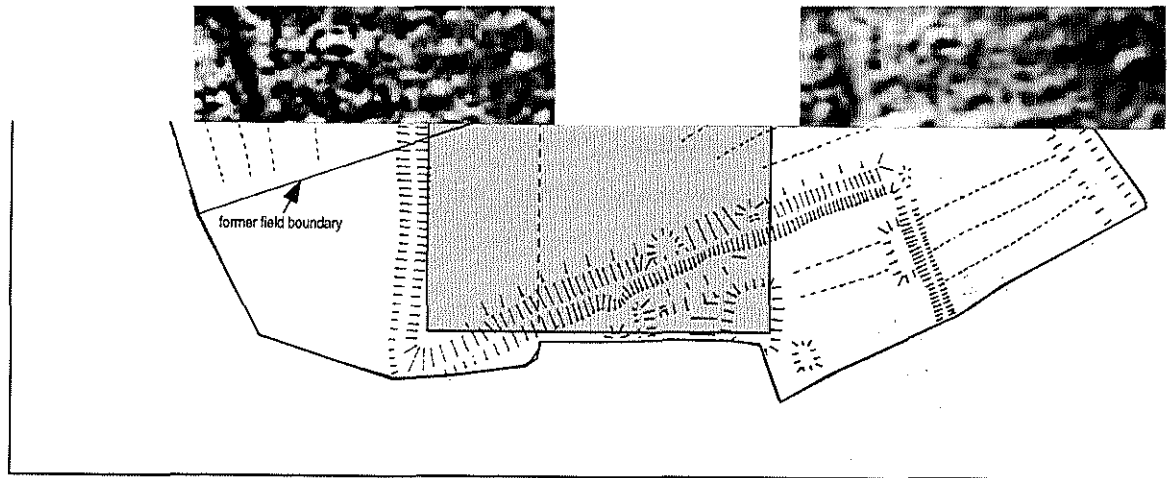
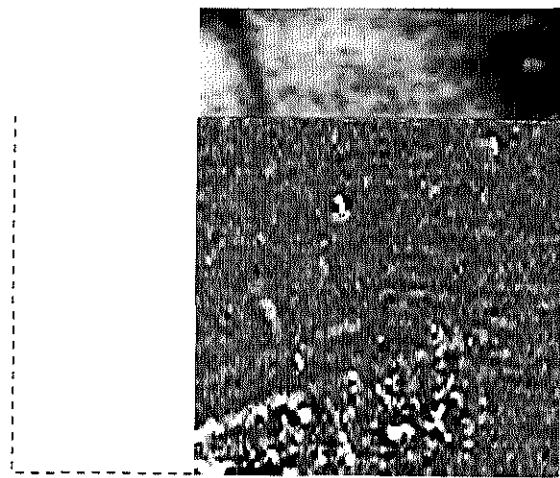
Greyscales of resistivity data, magnetometer data alongside the earthwork survey..



1. Raw resistivity data.

2. Contrast enhanced resistivity data.

3. Directionally filtered resistivity data.



limit of resistivity survey

Scale of plots



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