



**LAND AT
LYVEDEN MANOR
NORTHAMPTONSHIRE**

GEOPHYSICAL SURVEY

**Work undertaken for
The National Trust**

January 2014

**Report produced by
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National Grid Reference: **SP 9813 8594**

APS Report No: **09/14**

**ARCHAEOLOGICAL
PROJECT
SERVICES**



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1. SUMMARY

Detailed magnetic gradiometer survey, was undertaken on behalf of The National Trust on land at Lyveden Manor, Aldwinckle, Northamptonshire. The survey comprised some 5ha of land around the Manor House.

The survey was unsuccessful in identifying features of possible archaeological origin. No remains associated with the village were identified. Wider areas of disturbance might possibly relate to landscaping for garden terraces but neither the form nor extent are clear enough for any certainty.

Constraints on area available for survey and widespread modern disturbance hinder interpretation. However, linear features would be expected to be identifiable if present. Discrete positive anomalies would be more difficult to pick out given the widespread disturbance and variability of the background. However, none are convincingly of archaeological origin.

2. INTRODUCTION

2.1 Definition of an Evaluation

Geophysical survey is a non-intrusive method of archaeological evaluation which is defined as ‘a limited programme of non-intrusive and/or intrusive fieldwork which determines the presence or absence of archaeological features, structures, deposits, artefacts or ecofacts within a specified area or site. If such archaeological remains are present Field Evaluation defines their character and extent, quality and preservation, and it enables an assessment of their worth in a local, regional, national or international context as appropriate’ (IFA 2008).

2.2 Background

Archaeological Project Services was commissioned by the National Trust to

undertake detailed magnetometer survey over some 5ha of land at Lyveden Manor, Aldwinckle, Northamptonshire. The survey comprised all of the available open areas to the rear of the manor and up to the road frontage (as far as possible amongst the trees).

2.3 Topography and Geology

Lyveden Manor is located 6km southwest of Oundle in East Northamptonshire. The Manor sits within Aldwinckle parish, but considerably removed from the village at the northwest extremity of the parish. Parts of the grounds to the north fall within Benefield parish. It lies at National Grid Reference SP 9813 8594 (Fig. 1). The Manor and New Bield lodge to the rear are owned and maintained by the National Trust.

The site lies on relatively level, but elevated, ground at c. 70m O.D. at the headwaters of two small eastward flowing tributaries of the River Nene. Local soils are calcareous clayey soils of the Hanslope Association (Hodge et al. 1984, 209) developed on chalky till.

2.4 Archaeological Setting

Immediately to the northeast (and probably extending into the manor grounds) is the deserted medieval village of Lyveden (SP 984860), in the bottom of the valley alongside the Lyveden Brook. The remains have been entirely destroyed by ploughing, but excavations were carried out in the 1960s and 70s. A major pottery industry, products of which were widely distributed in the East Midlands, is an important feature.

Lyveden Manor (the ‘old bield’) was held by the Treshams of Rushton. Towards the end of the 16th century, Sir Thomas Tresham devised a fine garden layout at the back of the Old Building, extending some way up the hill. Remains of it still exist, particularly a long raised terrace with a mount at each end. Adjoining this is a ‘canal’, part of a series which enclosed the

Moated Orchard. Beyond these again lies the curious, and unfinished, New Beild, one of three notable buildings erected by Sir Thomas, the others being the Triangular Lodge at Rushton and the Market House at Rothwell. The building was intended for a small house or 'lodge', and it contained the usual rooms of the period, hall, parlour, great chamber, bedrooms, kitchen, pantry, larder, staircase, etc. The arch that connects the parlour with its bay window bears the arms of Sir Thomas and his wife, Muriel Throckmorton. Just as with Tresham's smaller folly Rushton Triangular Lodge, the New Beild has a religious design full of symbolism. Construction began towards the close of the 16th century but was never completed, ceasing abruptly on the death of Thomas Tresham and his son in 1605 (Page 1930, 168-73).

3. AIMS

The aim of the surveys was to locate any features of possible archaeological significance in the vicinity of the extant Manor buildings in order to inform management of the archaeological resource at the site. Specific aims included looking for the lower terraces of Tresham's garden and any potential remains associated with the deserted medieval settlement of Lyveden.

4. GEOPHYSICAL SURVEY

4.1 Methods

Location and layout of survey areas are shown in Figure 2. Areas 1 and 2 lay to the sides and rear of the Manor. These largely comprised grassed areas with occasional groups or large plantings of trees/shrubs. Areas 3 and 4 lay to the north of the Manor either side of the drive. This area was planted with trees. These were widely spaced and the areas between relatively open. However, undergrowth did hinder survey coverage in some places.

Survey was undertaken in accordance with English Heritage (2008) and IfA (2010) guidelines and codes of conduct.

The magnetic survey was carried out using a dual sensor Grad601-2 Magnetic Gradiometer manufactured by Bartington Instruments Ltd. 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 c. 49,000nT can be accurately detected using this instrumentation, although in practice instrument interference and soil noise can limit sensitivity.

Magnetometers measure changes in the Earth's magnetic field. With two sensors configured as a gradiometer the recorded values indicate the difference between two magnetic measurements separated by a fixed distance. The Grad601-2 consists of two high stability fluxgate gradiometers suspended on a single frame with a 1m separation between the sensing elements giving a strong response to deep anomalies.

The mapping of anomalies in a systematic manner allows 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 representing pits and ditches can be seen where they contain an input of topsoil which is normally richer in magnetic iron oxides and provides a contrast with the natural subsoil (but this can vary depending on the nature of the underlying deposits). Wall foundations can show as negative anomalies where the stone is less magnetic than the surrounding soil, or as stronger positive and negative anomalies if of brick, but are not always responsive to the technique.

It should be noted that not all features will be responsive and absence of anomalies does not necessarily indicate absence of archaeological features.

Sampling interval and data capture

Readings were taken at 0.25m centres along traverses 1m apart. This equates to 3600 sampling points in a full 30m x 30m grid. The Grad 601 has a typical depth of penetration of 0.5m to 1.0m although a greater range is possible where strongly magnetic objects have been buried in the site.

Readings are logged consecutively into the data logger which is downloaded daily either into a portable computer whilst on site or directly to the office computer. At the end of each job, data is transferred to the office for processing and presentation.

Processing and presentation of results

Processing is performed using specialist ArchaeoSurveyor software. 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 shows the processing techniques carried out on the processed gradiometer data used in this report:

1. DeStripe (sets the background mean of each traverse within a grid to zero and is useful for removing striping effects)

2. Despike (useful for display and allows further processing functions to be carried out more effectively by removing extreme data values)

Parameters: X radius = 1; Y radius = 1; Threshold = 3SD; Spike replacement = mean

3. Clip (excludes extreme values allowing better representation of detail in the mid range): -3 to 3nT or -5 to 5nT.

The minimally processed greyscale plots are clipped for display, but otherwise unprocessed. Trace plots are destriped before clipping as the effects of heading errors can produce noticeable offsets in this method of display.

4.2 Results

The presentation of the data for the site involves a print-out of the raw or minimally processed data as greyscale and trace plots (Figs 3, 4, 6, 7, 9, 10, 12, 13), together with greyscale plots of the processed data (Figs 5, 8, 11, 14, 15). Magnetic anomalies have been identified and plotted onto an interpretative drawing (Fig. 16) and are described below.

No linear or discrete anomalies of probable archaeological origin are noted.

Modern disturbance

Elevated positive and negative readings are evident around the south and east sides of the Manor buildings and extending north and east towards the adjacent lane. This may represent the route of service connections (not evident elsewhere), but not enough is seen to establish a linear nature. Much in the vicinity of the buildings may be due to disturbance during construction or alteration, or landscaping, at various dates. It is possible that some of these areas might relate to the creation of garden terraces, but the form and extent are not clear enough for any certainty.

Iron spikes (discrete bipolar anomalies)

Iron items within the topsoil give a distinctive localised bipolar (strong negative and positive) response. Such items usually derive from relatively recent management or agricultural use of the land – broken or discarded pieces of agricultural machinery or other modern debris. A small number have been highlighted but individual responses are

probably lost in the general background noise.

5. DISCUSSION

Magnetic survey around the site of Lyveden Manor was unsuccessful in identifying features of possible archaeological origin. No remains associated with the village were identified. Wider areas of disturbance might possibly relate to landscaping for garden terraces but the form and extent are not clear enough for any certainty.

Constraints on area available for survey and widespread modern disturbance hinder interpretation. However, linear features would be expected to be identifiable if present. Discrete positive anomalies would be more difficult to pick out given the widespread disturbance and variability of the background. However, None are convincingly of archaeological origin.

7. ACKNOWLEDGEMENTS

Archaeological Project Services wishes to acknowledge the assistance of Rachael Hall at National Trust who commissioned the project and Claire Barrett, National Trust, for enabling access to the site. Tom Lane edited the report.

8. PERSONNEL

Project coordinator: Steve Malone
Geophysical Survey: Neil Jefferson,
Jonathon Smith
Survey processing and reporting: Steve
Malone

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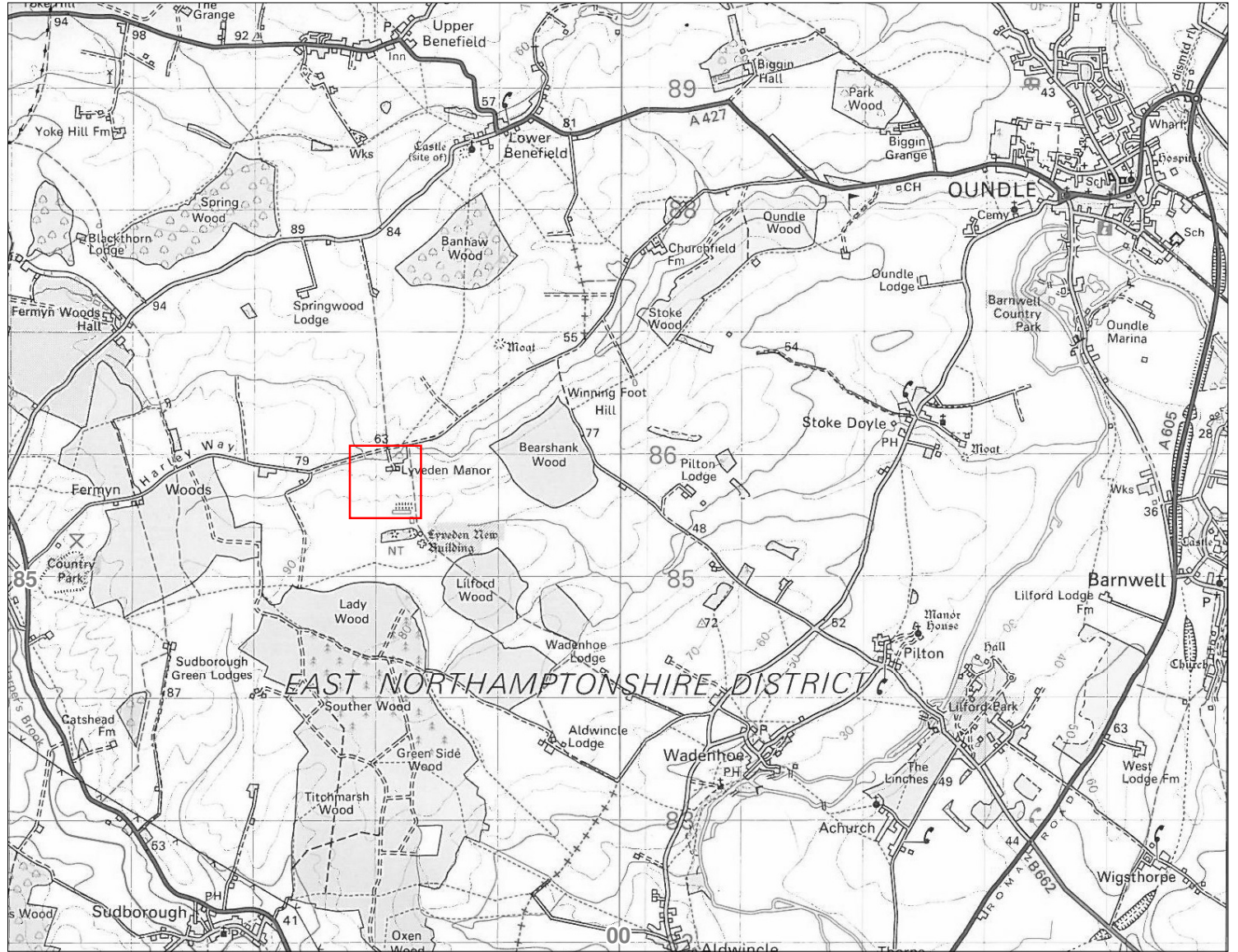
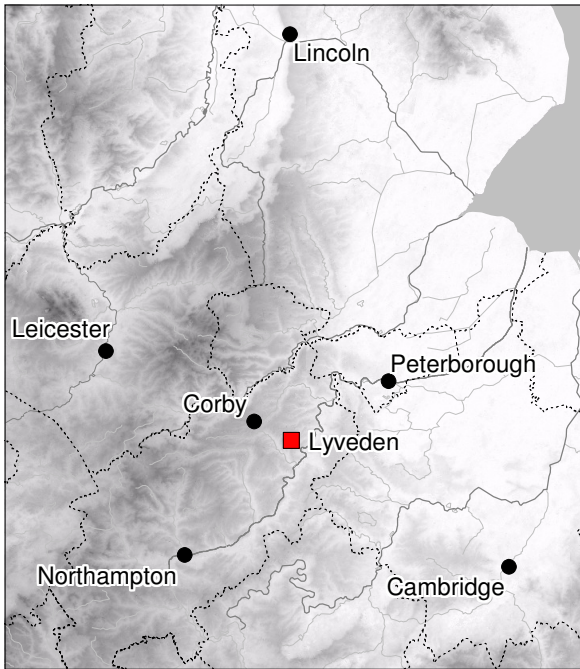
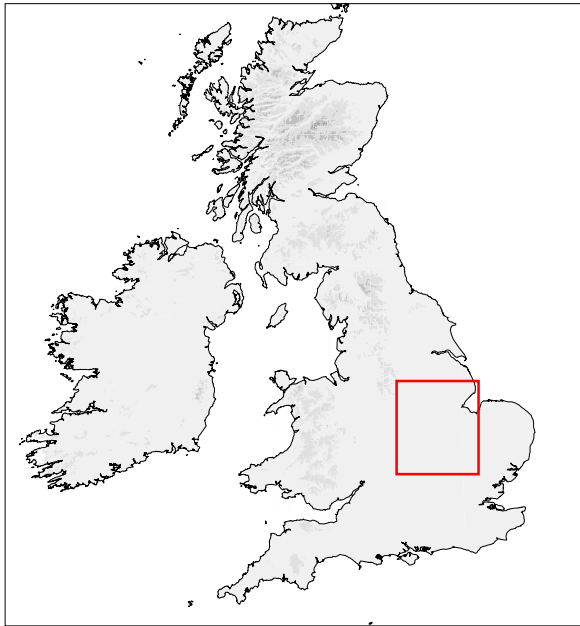
10. ABBREVIATIONS

APS Archaeological Project Services

BGS British Geological Survey

EH English Heritage

IfA Institute for Archaeologists



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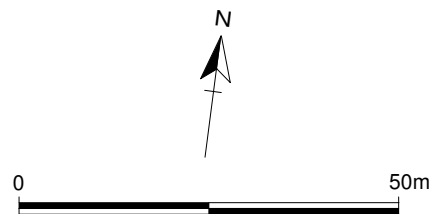
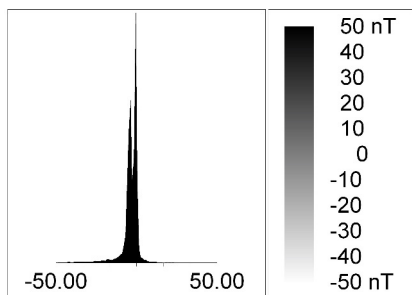
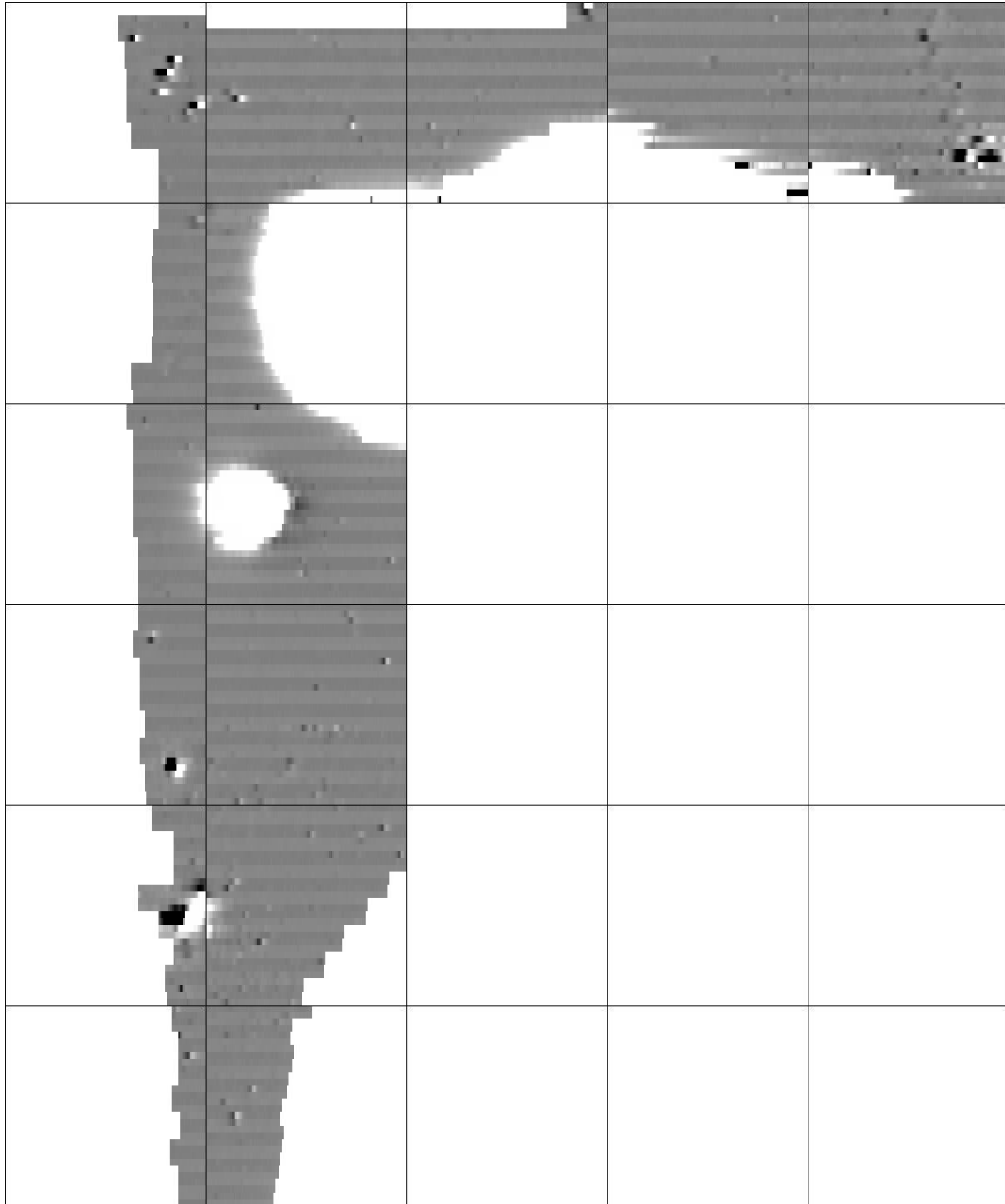
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Figure 1 Site location map



Figure 2 Location and layout of survey area




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Project Name: Lyveden Manor (LNBG13)		
Scale 1:1000	Drawn by:SM	Report No: 09/14

Figure 3 Area 1 minimally processed data greyscale plot

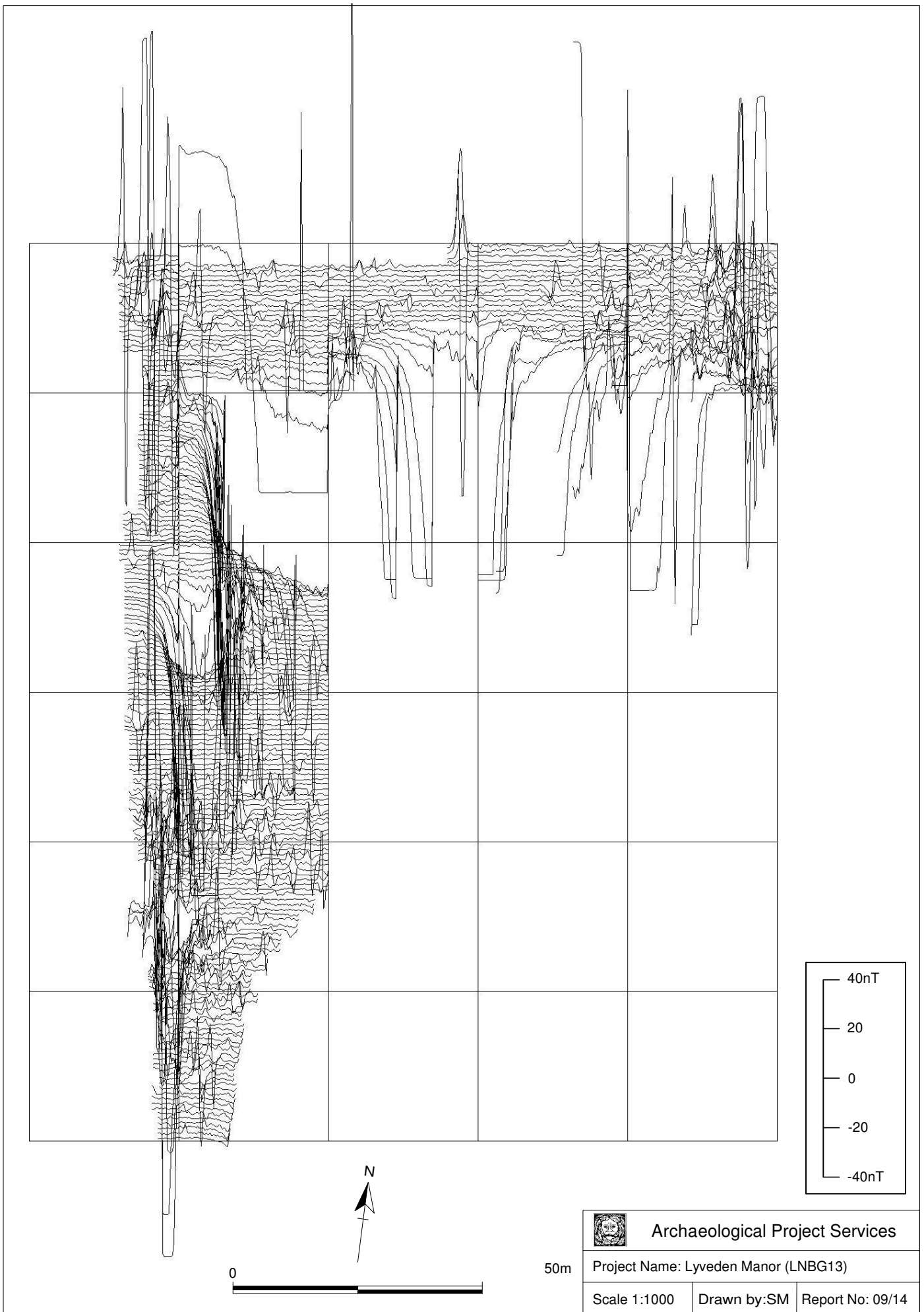
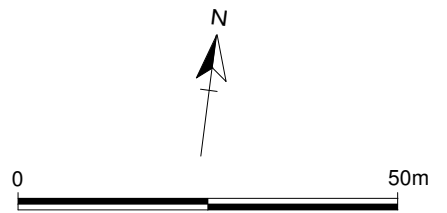
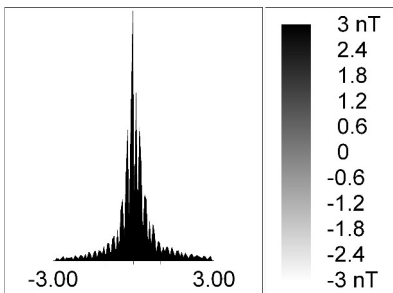


Figure 4 Area 1 minimally processed data trace plot




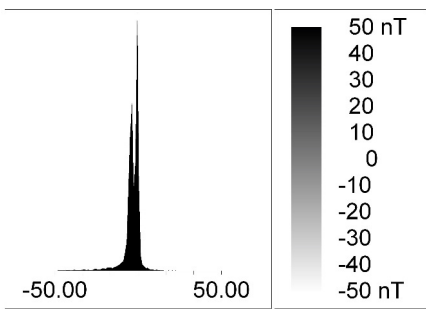
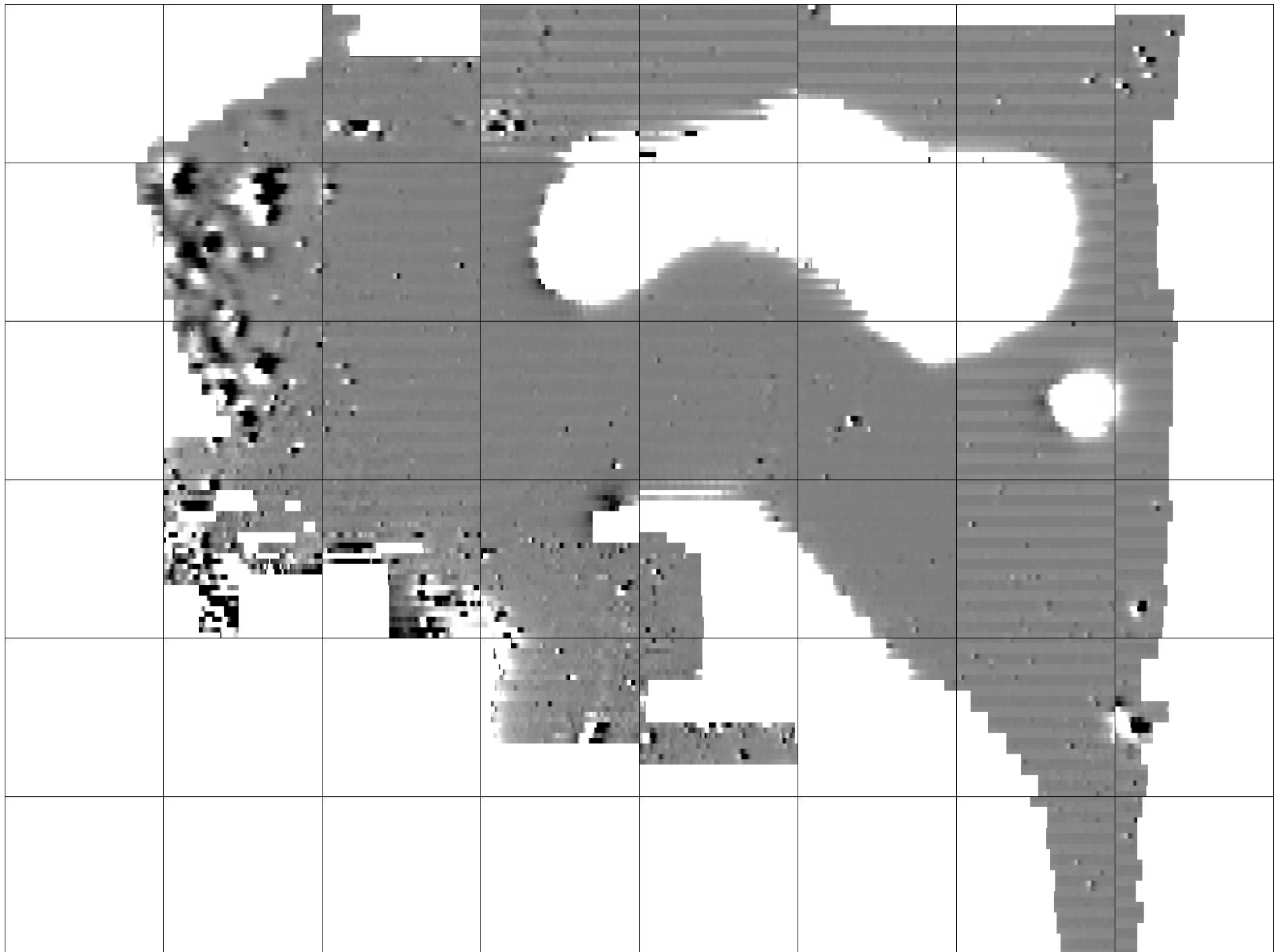
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Figure 5 Area 1 processed data greyscale plot




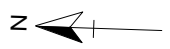
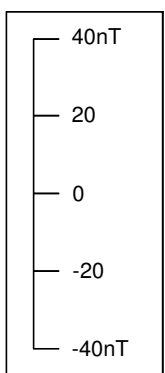
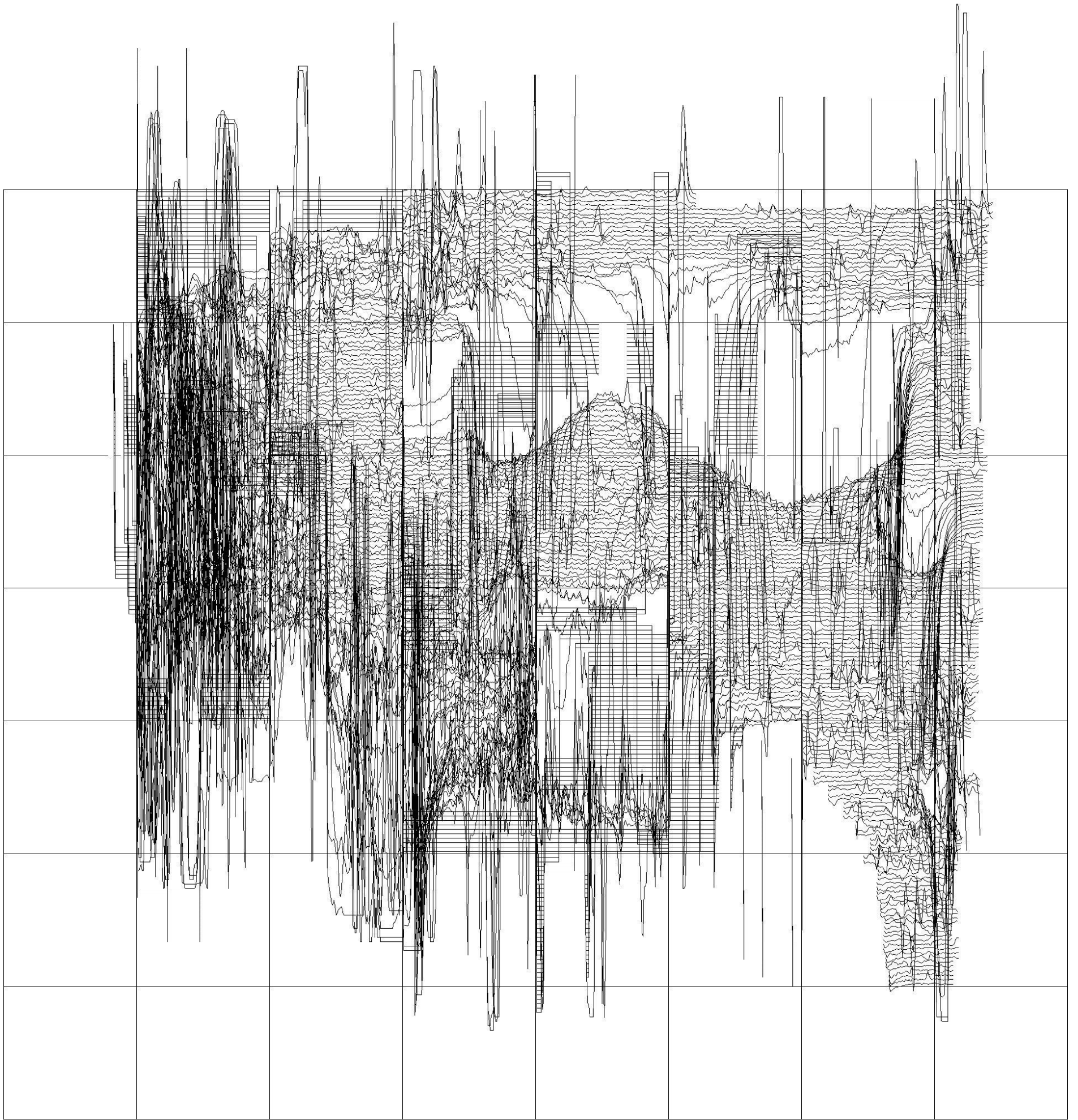
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Figure 6 Area 2 minimally processed data greyscale plot




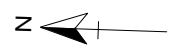
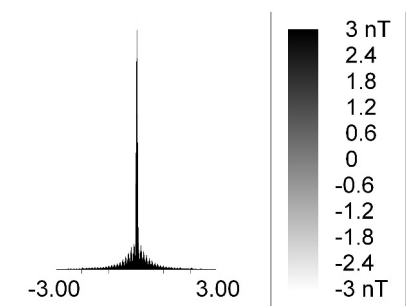
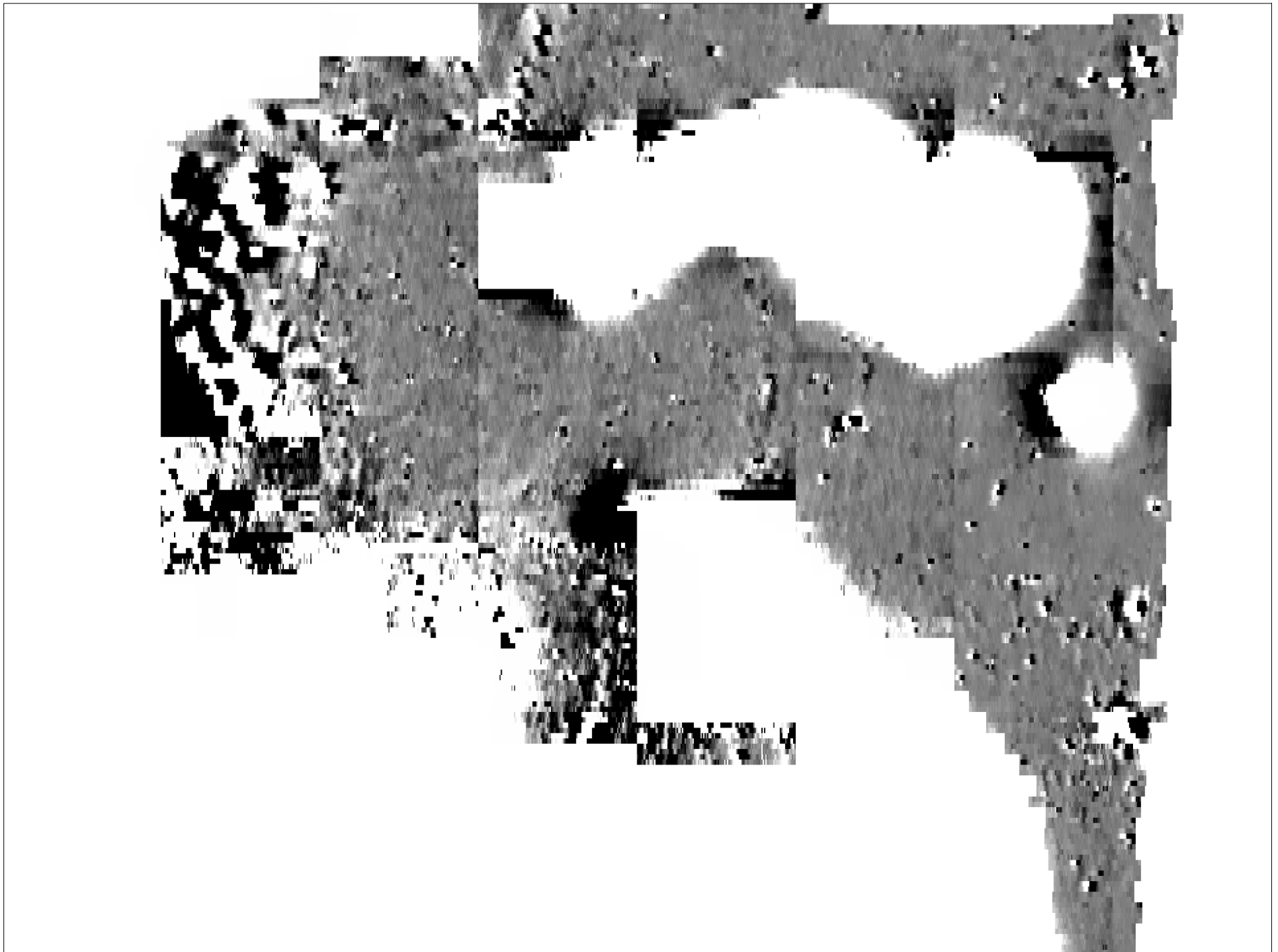
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Figure 7 Area 2 minimally processed data trace plot




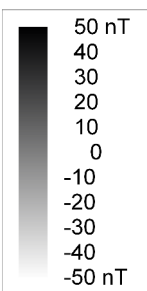
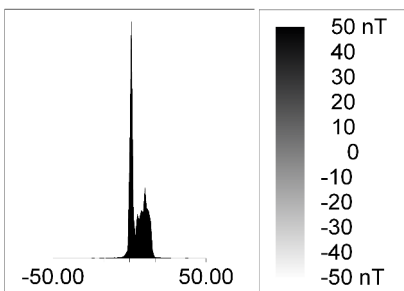
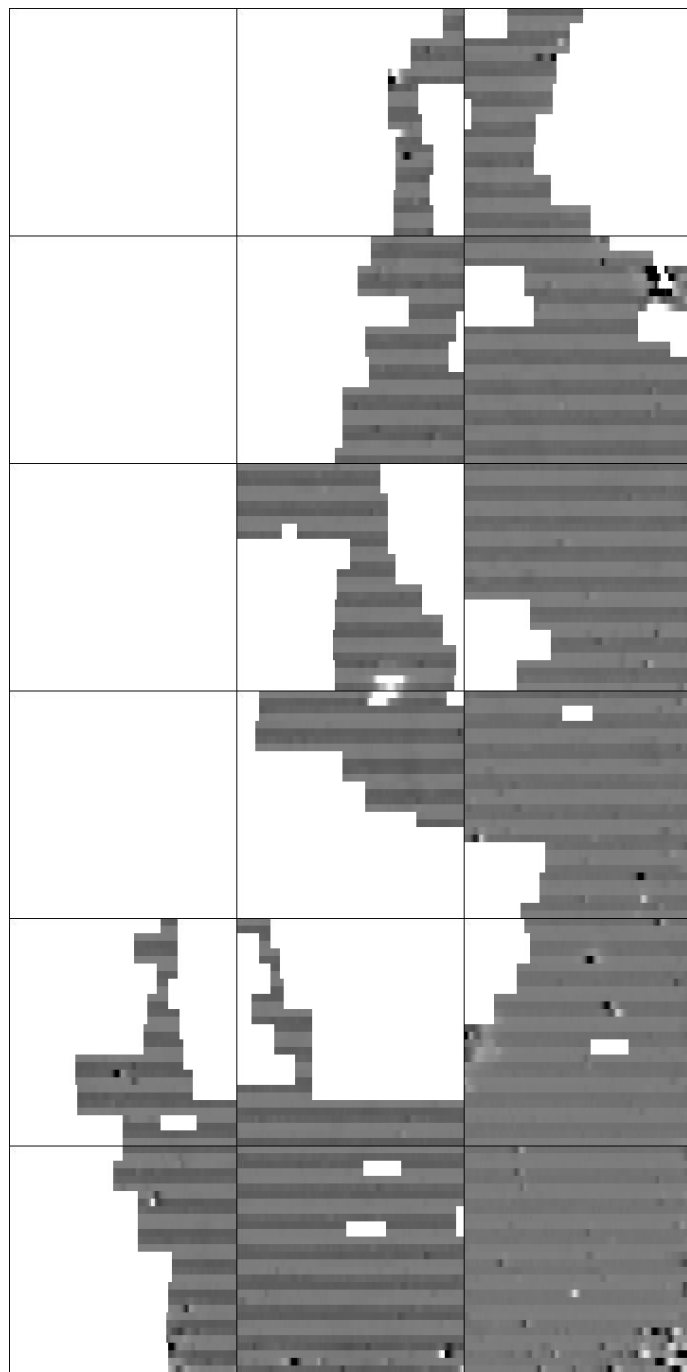
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Figure 8 Area 2 processed data greyscale plot




	Archaeological Project Services	
Project Name: Lyveden Manor (LNBG13)		
Scale 1:1000	Drawn by:SM	Report No: 09/14

Figure 9 Area 3 minimally processed data greyscale plot

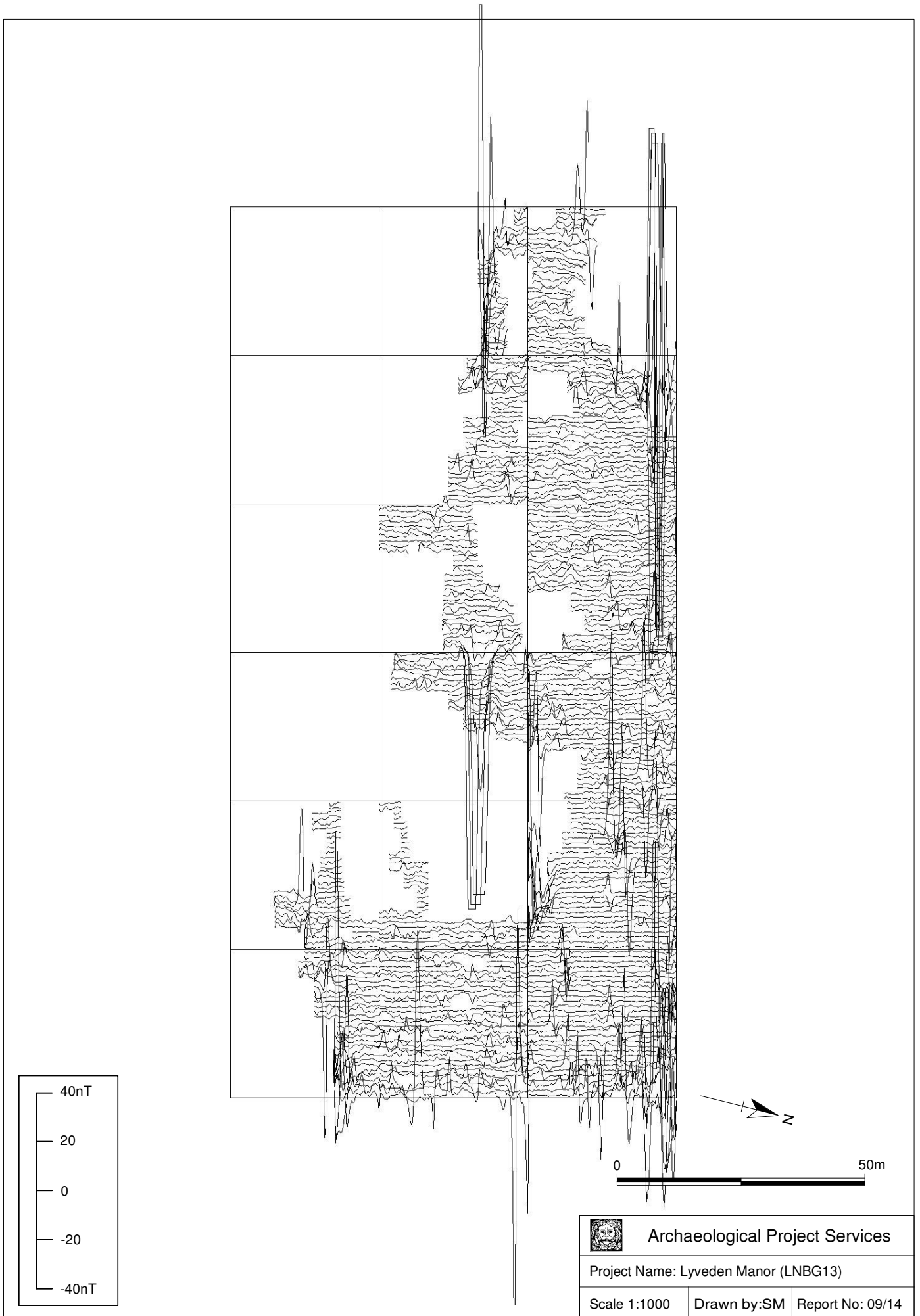
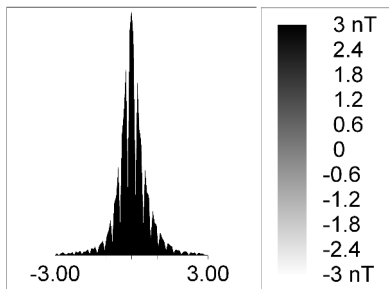
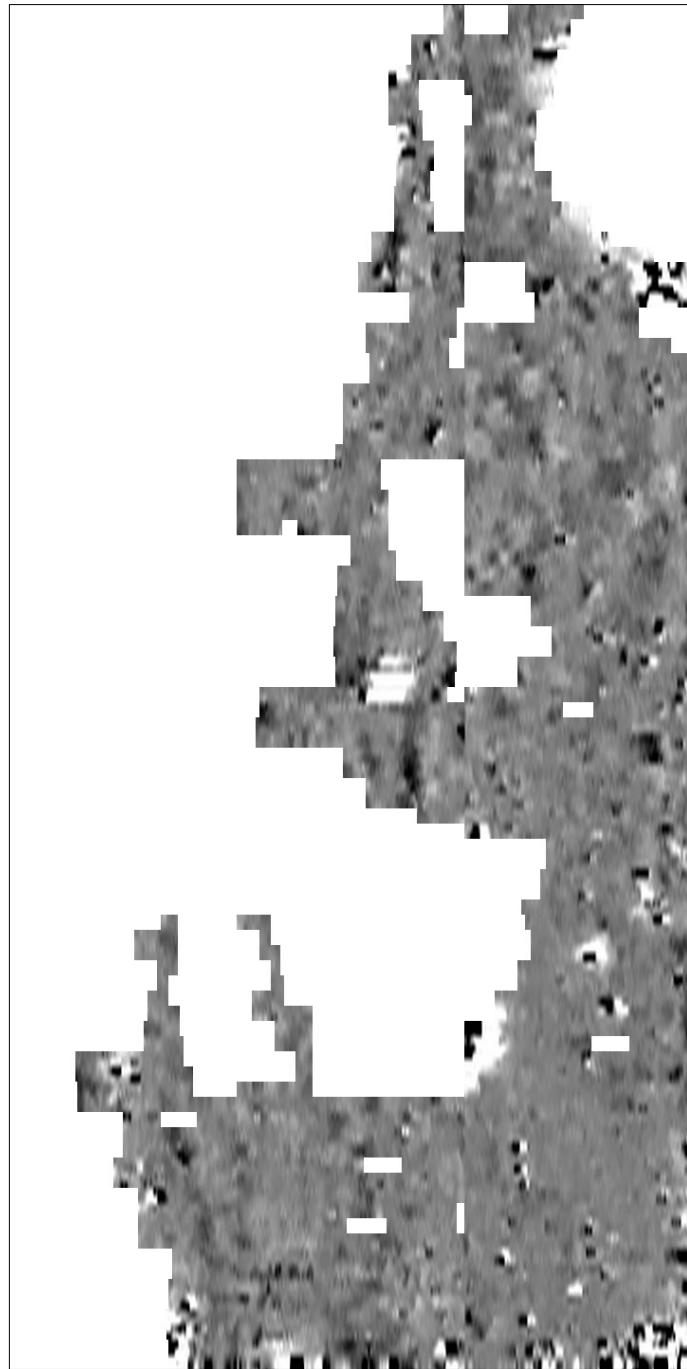


Figure 10 Area 3 minimally processed data trace plot




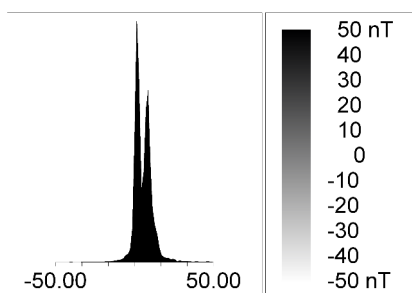
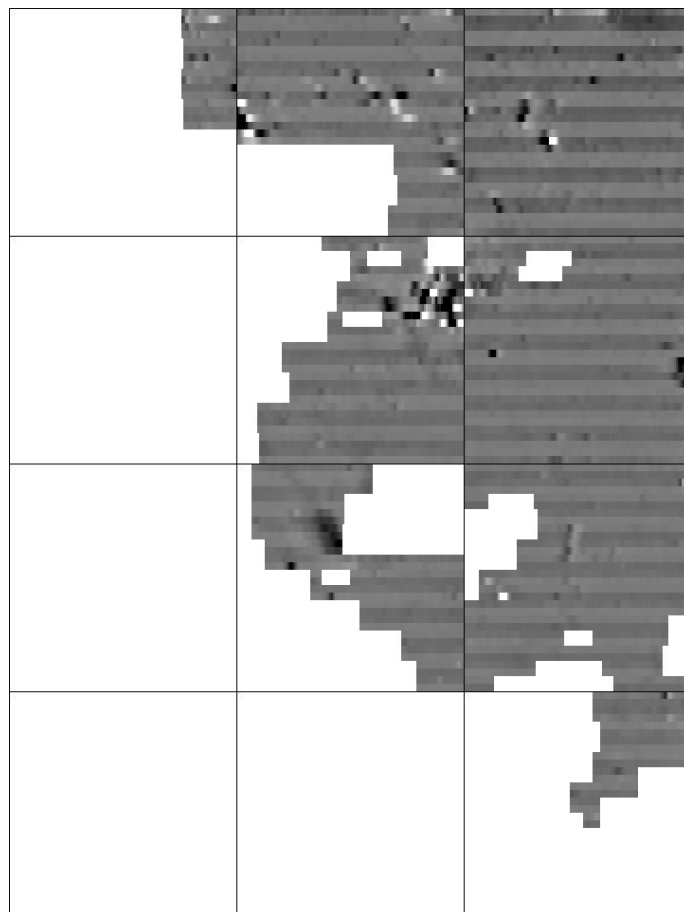
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Figure 11 Area 3 processed data greyscale plot




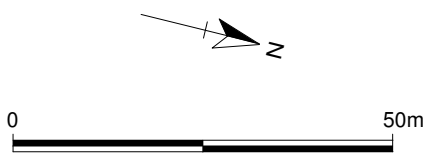
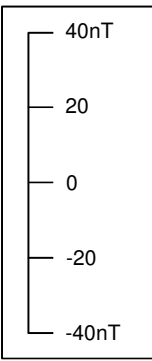
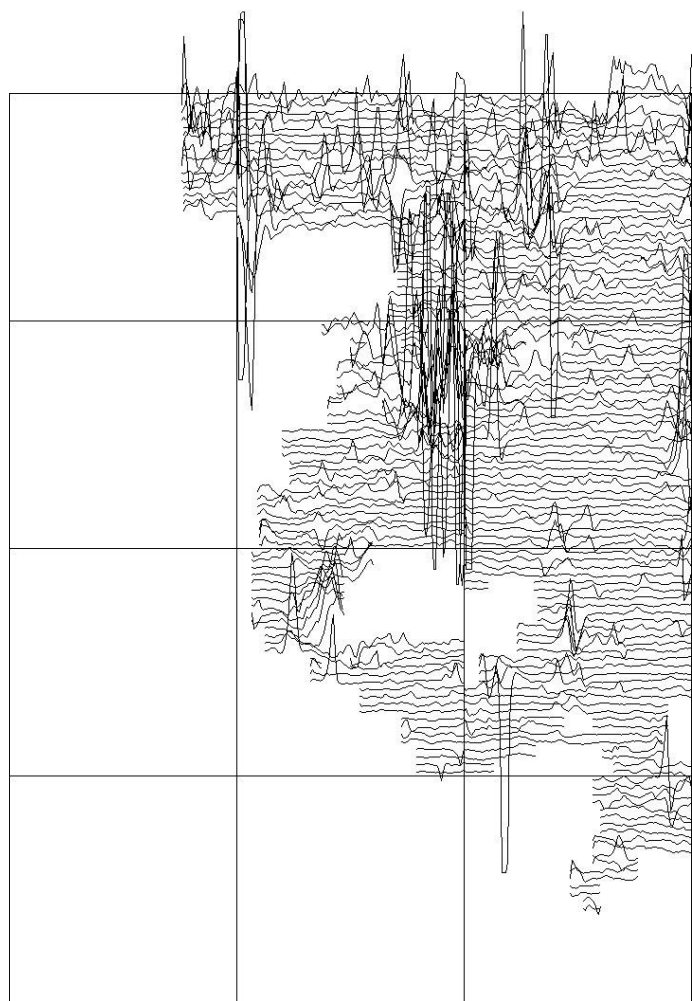
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Figure 12 Area 4 minimally processed data greyscale plot




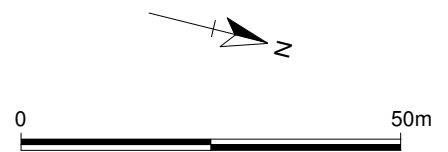
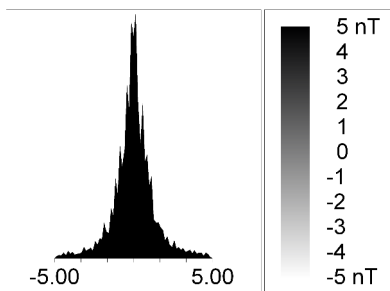
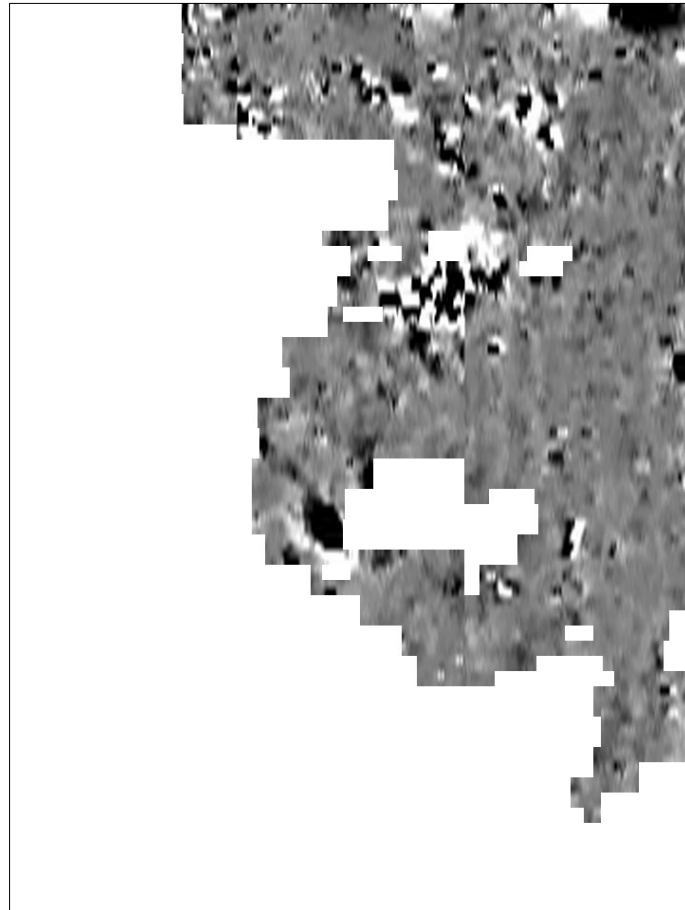
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Figure 13 Area 4 minimally processed data trace plot




	Archaeological Project Services	
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Figure 14 Area 4 processed data greyscale plot



Figure 15 Processed data greyscale combined plot

Appendix 1 THE ARCHIVE

The archive consists of:

- 2 Daily record sheets
- 1 Report text and illustrations
- Digital data

File names	lnbg13-01.xgd lnbg13-02.xgd lnbg13-03.xgd lnbg13-04.xgd lnbg13-05.xgd lnbg13-06.xgd lnbg13-07.xgd lnbg13-08.xgd lnbg13-09.xgd lnbg13-10.xgd lnbg13-11.xgd lnbg13-12.xgd lnbg13-13.xgd lnbg13-14.xgd lnbg13-15.xgd lnbg13-A01.xgd lnbg13-A02.xgd lnbg13-A03.xgd lnbg13-A04.xgd lnbg13-A05.xgd lnbg13-A06.xgd lnbg13-A07.xgd lnbg13-A08.xgd lnbg13-A09.xgd lnbg13-A10.xgd	lnbg13-A11.xgd lnbg13-A12.xgd lnbg13-A13.xgd lnbg13-A14.xgd lnbg13-A15.xgd lnbg13-A16.xgd lnbg13-A17.xgd lnbg13-A18.xgd lnbg13-A19.xgd lnbg13-A20.xgd lnbg13-A21.xgd lnbg13-A22.xgd 01.xgd 02.xgd 03.xgd 04.xgd 05.xgd 06.xgd 07.xgd 08.xgd 09.xgd 10.xgd 11.xgd 12.xgd 13.xgd	14.xgd 15.xgd 16.xgd 17.xgd 18.xgd 19.xgd 20.xgd 21.xgd 22.xgd 23.xgd 24.xgd 25.xgd 26.xgd 27.xgd 28.xgd 29.xgd 29-05-13.xcp 30-05-13.xcp 17-01-14.xcp 17-01-14A.xcp
Explanation of codes used in file names	xgd files are magnetometer grids, named with site code and number in the order surveyed. Suffix "-a" indicates rotation to consistent orientation of first line (south from northeast corner). xcp files are composites containing record of all the data and processes used to produce the end product		
Description of file formats	All files are in plain text xml format with header data defining survey and processing parameters		
List of codes used in files	D indicates a "dummy" value within the composite data		
Hardware, software and operating systems	ArchaeSurveyor 2.5.19 running under Windows 7		
Date of last modification	22-01-14		
Indications of known areas of weakness in data	None		

All primary records are currently kept at:

Archaeological Project Services, The Old School, Cameron Street, Heckington, Lincolnshire, NG34 9RW

The ultimate destination of the project archive is:

The National Trust

Archaeological Project Services Site Code:

LNBG13

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