ARCHAEOLOGICAL SURVEYS

GEOPHYSICAL SURVEY REPORT

Ilchester to Barrington, Somerset
Gas Mains Reinforcement

Extended Magnetometer Survey
RDX7 to RDX8
East Lambrook

for

Cotswold Archaeology

on behalf of

National Grid and Somerset County Council

David Sabin and Kerry Donaldson

January 2007

Ref no. 169

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Report and fieldwork by David Sabin and Kerry Donaldson

Survey date – **December 28th and 29th 2006**
Ordnance Survey Grid Reference – **ST 437 185**

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SUMMARY

A magnetometer survey carried out in March 2006 by Archaeological Surveys, approximately 500m southeast of the village of East Lambrook in Somerset, revealed a number of prehistoric archaeological features including an interrupted ditch enclosure and part of a mortuary enclosure. The latter was not interpreted by the March survey but was identified during excavation carried out by Cotswold Archaeology ahead of pipe laying operations. Further geophysical survey was commissioned in order to fully define the extent of the enclosure and to determine the archaeological potential of the surrounding area.

The December survey succeeded in defining the full extent of the mortuary enclosure and has revealed an archaeologically rich landscape extending to the east and north. Additional features discovered by the new survey include ring-ditches associated with former round barrows and linear anomalies possibly related to land division and early agricultural activity.

1 INTRODUCTION

1.1 Survey background

1.1.1 Archaeological Surveys was commissioned by Cotswold Archaeology to undertake a geophysical survey of an area of land adjacent to Netherfield Farm to the southeast of the village of East Lambrook in Somerset. During September and October 2005, Archaeological Surveys carried out magnetometry for Cotswold Archaeology, on behalf of Laing O'Rourke, along the Ilchester to Barrington section of the South West Gas Mains Reinforcement Project. The pipeline route passed adjacent to Netherfield Farm although the land was unavailable for survey during 2005 due to the presence of sugar beet, however, a number of features of archaeological potential were revealed on land to the northeast within a 20m wide survey corridor (*Archaeological Surveys, Geophysical Survey Report – Ilchester to Barrington Gas Mains Reinforcement*). Magnetometry was achieved across the Netherfield Farm area in March 2006 after harvesting of the beet and a number of features were revealed including a Neolithic interrupted ditch enclosure, a supplementary report was produced for this work and other outstanding areas (*Archaeological Surveys, Geophysical Survey Report – Ilchester to Barrington Gas Mains Reinforcement (Supplementary Report)*).

1.1.2 Excavation carried out by Cotswold Archaeology ahead of pipe laying operations revealed the exceptional archaeological potential of the geophysical anomalies. In addition to an interrupted ditch enclosure, excavation revealed a mortuary enclosure only partially defined by the 2006 geophysical survey. The additional survey carried out in December 2006 for this report was designed to reveal the full extent of the mortuary enclosure and to define further archaeological features within the vicinity. The extended survey has been funded by National Grid and Somerset County Council.

1.2 Survey objectives

1.2.1 The main objective of the survey was to use magnetometry to define the full extent of the partially excavated mortuary enclosure. These monuments date to the Neolithic period and are generally poorly understood; it is likely that they were constructed to define areas for excarnation and other ceremonial practices associated with the dead.

1.2.2 Mortuary enclosures are widespread throughout the UK although regionally they are rare, fully defining the extent of the feature, and any associated features, is an important step in further understanding their function in prehistoric society and provides a non-destructive archive of an exceptionally important and early monument within British prehistory.

1.3 Site location

1.3.1 The survey area is located to the southeast of East Lambrook in Somerset. Central Ordnance Survey Grid Reference – ST 437 185.

1.4 Site description and conditions

1.4.1 The survey area crosses into five fields to the northeast of Netherfield Farmhouse however, the only substantial boundary is in the form of a hedgerow and fence that separates the survey into a northern and southern half. Although the southern half of the survey crosses into four fields they are only defined by narrow grassed strips which are presumably on the course of hedgerows that have been removed for agricultural access.

1.4.2 The northern half of the survey slopes down gently towards the north and east and at the time of survey was pasture. Survey was limited along the north western edge by a new post and wire fence that has been constructed to prevent access by animals and allow new grass to grow along the pipeline corridor where soil was removed during pipe laying operations. This area had already been subject to magnetometry survey in September/ October 2005.

1.4.3 The southern half of the survey area can be split again into a north western and south eastern half where the former was recently ploughed soil and the latter crosses into three fields that were all emerging arable crop, see Plates 1 and 2. The north western part is generally flat whilst towards within the south eastern section land slopes down to the north and east.

1.4.4 Surface conditions encountered were generally poor for geophysical survey. Recently ploughed and waterlogged soil within the south western part of the survey area created difficult walking conditions as did soft, waterlogged soil where arable crops were emerging within the south eastern section. Although day 1 of the survey had very good weather conditions with exceptionally high temperatures, day 2 produced very high winds and driving rain resulting in difficult surveying.

Plate 1 Southern part of survey area looking N – a section of removed hedgerow indicates the position of the new gas pipeline.

Plate 2 Southern part of the survey area looking to the NE – ring-ditches located by the survey lie within the immediate foreground.

1.5 Site history and archaeological potential

1.5.1 Ring-ditches had been recognised adjacent to the pipeline corridor from aerial photography and a wider zone of geophysics was initially commissioned for the 2005 survey in order to understand better the nature of these features and the impact the pipeline may have upon them. Although no access was available in 2005 due to a sugar beet crop, geophysics was carried out in March 2006 and a number of potentially archaeological anomalies were located. Excavation subsequently carried out by Cotswold Archaeology revealed a Neolithic interrupted ditch enclosure and a mortuary enclose.

1.5.2 Considering the objective of the survey to define the full extent of the mortuary enclosure, and the location of other archaeological features by aerial photography, excavation and geophysics within the immediate vicinity of the

survey area, the potential for locating further archaeological features was expected to be very high.

1.6 Geology and soils

1.6.1 The underlying geology is Lower/Middle Lias (BGS 2001). It is of note that other regions of the UK where Lower and Middle Lias geology is present in close proximity, have also produced very good results using magnetic surveying techniques.

1.6.2 The survey area is located on stagnogleyic argillic brown earths. These soils are generally slowly permeable and seasonally waterlogged with some clay enriched subsoils (Soil Survey of England and Wales 1983).

2 METHODOLOGY

2.1 Technical synopsis

2.1.1 Detailed magnetometry records localised magnetic fields that can relate to former human activity. Alteration of iron minerals present within topsoil is related to activities such as burning and the break down of biological material. These minerals become weakly magnetic within the Earth's magnetic field and can accumulate in features such as ditches and pits that are cut into the underlying subsoil. Mapping this magnetic variation can provide evidence of former settlement and land use. Additional technical details can be found in Appendix A.

2.1.2 The localised variations in magnetism are measured as sub-units of the tesla which is a SI unit of magnetic flux density. These sub-units are nanoteslas (nT) which are equivalent to 10^{-9} tesla (T).

2.2 Equipment details and configuration

2.2.1 The detailed magnetic survey was carried out using a Bartington Grad601-2 gradiometer. This instrument effectively measures a magnetic gradient between two fluxgate sensors mounted vertically 1m apart. Two sets of sensors are mounted on a single frame 1m apart horizontally. The instrument is extremely sensitive and is able to measure magnetic variation to 0.1 nanoTesla (nT). All readings are saved to an integral data logger for analysis and presentation.

2.2.2 Data was collected at 0.25m centres along traverses 1m apart. The survey area was separated into 20m by 20m grids giving 1600 recorded measurements per grid. This sampling interval is very effective at locating archaeological features and is the recommended methodology for archaeological prospection (English Heritage, 1995).

2.2.3 The survey area was located in the field using a CSI Wireless dGPS (differential Global Positioning System) and the survey grids were set out

using a Topcon GTS802 robotic total station. The dGPS uses an error correction signal transmitted from ground-based beacons and is considered as having sub-metre accuracy. A number of parameters are constantly monitored in order to achieve best accuracy.

2.3 Data processing and presentation

2.3.1 Magnetometry data downloaded from the Grad 601-2 data logger is analysed and processed in specialist software known as ArcheoSurveyor. The software allows greyscale plots to be produced for presentation and display.

2.3.2 Only minimal processing is carried out in order to enhance the results of the survey for display. Appendix B contains metadata information and lists the processing schedule carried out to create the greyscale plots used in the following figures.

2.3.3 An abstraction and interpretation is offered for geophysical anomalies located by the survey. A brief summary of each anomaly is set out in list form within the results (Section 3), to allow a rapid assessment of features within each survey area. Where further interpretation is possible or where a number of possible origins should be considered, further more detailed discussion is set out in Section 4.

2.3.4 The main form of data display used in this report is the greyscale plot. Processed data has been shown at ±3nT (Figure 03) and an enhanced plot at ±1nT (Figure 04) in order to better define low contrast anomalies. Greyscale plots are followed by an abstraction and interpretation plot (Figure 06) and anomalies are numbered for ease of reference. In addition to the extended survey area, previous geophysics ahead of the pipe laying operations has been included in a ‘combined’ plot (Figure 05) to illustrate the distribution of archaeological anomalies within the vicinity of the new survey.

2.3.5 Graphic raster images in windows bitmap format are initially prepared in ArcheoSurveyor. These images are combined with base mapping using AutoCAD LT 2007 creating DWG file formats. All images are fully embedded within the file and not externally referenced. Although AutoCAD DWG files are a universally excepted format, the programme does not handle fully embedded graphics well and there is inevitable compromise of quality. Quality is also compromised by rotation of graphics in order to allow the data to be orientated with respect to grid north; this is considered acceptable as the survey results are effectively georeferenced allowing relocation of features using GPS, resection method etc.. A digital archive including raster images is produced with this report allowing separate analysis if necessary, see 2.4 below.

2.4 Archive

2.4.1 Survey results are produced in hardcopy using A4 for text and A3 for plots (all plots are scaled for A3). In addition digital data created during the survey is supplied on CD. Further information on the production of the report and the digital formats involved in its creation are set out below.

2.4.2 This report has been prepared using the following software on a Windows XP platform:

- ArcheoSurveyor version 2.1.2.2 (geophysical data analysis)
- AutoCAD LT 2007 (report figures)
- JASC Paint Shop Pro 8 (image rotation)
- Microsoft Word 2000 (document text)
- PDF Creator version 0.9 (PDF archive).

2.4.3 Digital data is supplied on CD ROM and includes the following files:

- ArcheoSurveyor grid and composite files for all geophysical data
- CSV files for raw and processed composites
- Composite graphics as windows bitmaps
- AutoCAD DWG file in 2000 version
- Microsoft Word 2000 doc file
- PDFs of all figures
- Photographic record in JPEG format.

2.4.4 The CD ROM structure is formed from a tree of directories under the title J169 E Lambrook – CD. Directory titles include Data, Documentation, CAD, PDFs and Photos. Multiple directories exist under Data – each data directory holds grid, composite and graphic files with CSV composite data held in export.

2.4.5 The CAD file contains embedded graphics as bitmaps, see 2.3.4, with separate A3 size layouts for each figure. Layouts are fixed using frozen layers and named views allowing straightforward plotting or analysis on screen.

3 RESULTS

3.1 General overview

3.1.1 The detailed magnetometry survey was carried out over an area of approximately 4ha. Geophysical anomalies located can be generally classified as positive linear and discrete positive responses of archaeological origin, positive linear and discrete anomalies of uncertain origin, linear anomalies of an agricultural origin, areas of magnetic disturbance and strong dipolar anomalies relating to ferrous objects and material in the topsoil.

3.1.2 The listing of sub-headings below attempts to define a number of separate categories that reflect the range and type of features located during the survey. A basic explanation of the characteristics of the magnetic anomalies is

set out for each category in order to justify interpretation. Sub-headings are then used to group anomalies with similar characteristics for each survey area.

Anomalies with an archaeological origin

Positive anomalies

The category is used where there is a degree of confidence in the interpretation, such as ring-ditches or enclosures. Without this level of confidence anomalies would fall into the uncertain category (see below).

Anomalies with an uncertain origin

Positive anomalies

The category applies to a range of anomalies where there is not enough evidence to confidently suggest an origin. Anomalies in this category may well be related to archaeologically significant features but equally relatively modern features, geological/ pedological anomalies and agricultural features should be considered.

Anomalies with an agricultural origin

Modern agricultural anomalies
Former ridge and furrow
Land drains
Extant land boundaries

Where confidence is high that anomalies have been caused by agricultural features this category is applied. The anomalies are often linear and form a series of parallel responses or are parallel to extant land boundaries. Where the response is broad, former ridge and furrow is likely; narrow response is often related to more modern ploughing.

Anomalies with a modern origin

Magnetic disturbance

The magnetic response is often strong and dipolar indicative of ferrous material and may be associated with extant above surface features such as wire fencing, cables etc. Often a significant area around such features has a strong magnetic flux which may create magnetic disturbance – such disturbance can effectively obscure low magnitude anomalies if they are present.

3.1.3 List of anomalies:

Anomalies with an archaeological origin

(1) – Mortuary enclosure, approximately 86m by 24m, possible ‘entrance’ at eastern corner.

(2) – Ring-ditch with an OD of 29m, north eastern section obscured by a hedgerow although there is slight evidence that the feature crosses into the field to the northeast. Probably associated with a former round barrow.

(3) – Ring-ditch with an OD of 29m, missing section towards the north may be obscured or removed by modern ploughing. Probably associated with a former round barrow.

(4) - Ring-ditch with an OD of 28.5m. Probably associated with a former round barrow.

(5) - Ring-ditch with an OD of 29m, extends beyond the limit of the surveyed area. Probably associated with a former round barrow.

(6) - Ring-ditch with an OD of 24m and of very low magnitude. Missing sections may have been destroyed by ploughing.

(7) – Positive curvilinear anomalies may represent ring-ditches or associated features.

(8) - Positive curvilinear anomaly of very low magnitude may represent a cut feature of archaeological origin.

(9) - Several positive linear anomalies adjacent to the ring-ditches are likely to represent former ditch-like features associated with land division. Although this division may be for agricultural purposes, it is possible that areas have been delineated for other ritual/ ceremonial purposes and relate to the funerary monuments.

(10) – Discrete positive anomalies that may relate to pit-like features.

(11) – Rectilinear elements appear to form a possible enclosure towards the northern corner of the survey area.

(12) – A series of positive linear anomalies within the northern part of the survey area may be associated with anomaly 11 and may represent early land division for agricultural purposes.

Anomalies with an uncertain origin

(13) – Several positive linear anomalies within the survey area may represent cut features although there relationship with archaeological features is uncertain and they may therefore be relatively modern in origin.

(14) – A discrete positive anomaly that may partly be obscured by the nearby field boundary. It is possible that this anomaly relates to archaeological features immediately to the south.

Anomalies with an agricultural origin

(15) – Several very low magnitude parallel linear anomalies are located within the northern part of the survey area and have a northwest to southeast orientation. The width and spacing of these anomalies would be consistent with former ridge and furrow field systems.

(16) – Linear anomalies visible across much of the survey area have been caused by modern ploughing.

Other anomalies associated with agriculture include low magnitude multiple dipolar anomalies typical of ceramic/ terracotta land drains. There are also linear anomalies associated with extant agricultural boundaries that may have bee former hedgerows or tracks.

Anomalies with a modern origin

(17) – A zone of magnetic disturbance has been caused by the new gas pipeline outside the survey area to the northwest (it is of note that the new pipe would effectively obscure anomalies across a zone 60m wide).

4 DISCUSSION

4.1 The magnetometer survey has revealed further evidence for a landscape containing monuments associated with the dead. In addition to defining the full extent of the mortuary enclosure, a series of ring-ditches almost certainly related to former round barrows has been revealed. The survey has also located a number of linear anomalies that appear to respect and may therefore be associated with the ring-ditches.

4.2 Analysis of the spatial relationship between the ring-ditches and the mortuary enclosure may hint at deliberate zonation across the site. For example, the barrows appear to the east and form an arc or line immediately adjacent to the east of the mortuary enclosure, there may also be links to the enclosure through linear anomalies extending from ring-ditch anomaly (3), Figure 06. There also appears to be higher levels of magnetic enhancement within anomalies forming the southern side of the mortuary enclosure and the western/ north western sides of ring-ditch (3) including the linear anomaly extending to the southwest from (3). The increased enhancement may be related to increased anthropogenic activity within this area, such as burning, although it is possible that lower levels of enhancement associated with other ring-ditches to the south and east has been caused by deeper ploughing of the ditches effectively forming shallower features of lower magnetic contrast. The very low magnetic contrast and the fragmented nature of ring-ditch (6) would support evidence of severe agricultural disturbance and a more peripheral position away from anthropogenically enhanced soils.

4.2 Within the northern half of the survey area there is evidence of ditches forming a possible enclosure and a series of rectilinear anomalies that may form field boundaries associated with the enclosure. The division of the landscape in this area may hint at agricultural activity, in particular the layout of the ditches would suggest control of livestock. Any relationship with the mortuary enclosure and barrows to the south cannot be clearly determined from the survey.

4.3 Anomalies located within the northern half of the survey area are possibly more indicative of agricultural activity and settlement which would suggest a change in land use that correlates with the transition from high ground to the river valley. The funerary monuments on the high ground overlook the valley of the River Parrett to the north and east which may have been a favoured zone for settlement.

5 CONCLUSION

5.1 The geophysical survey has clearly defined the extent of the mortuary enclosure and has indicated a landscape associated with monuments of the dead that may extend well beyond the limits of the surveyed area. It is possible that the site was a focal point for activity for a long period through the Neolithic into the Bronze Age.

5.2 Anomalies located to the north of the mortuary enclosure suggest a change to settlement and agricultural activity within the valleys of the River Parrett and Lambrook Brook.

6 REFERENCES

British Geological Survey, 2001, *Solid Geology Map, UK South Sheet, 1:625 000 scale, 4th edition.*

English Heritage, 1995, *Geophysical survey in archaeological field evaluation. Research and Professional Service Guideline No 1*.

Soil Survey of England and Wales, 1983, *Soils of England and Wales, Sheet 5 South West England.*

Appendix A – basic principles of magnetic survey

Iron minerals are always present to some degree within the topsoil and enhancement associated with human activity is related to increases in the level of magnetic susceptibility and thermoremnant material.

Magnetic susceptibility is an induced magnetism within a material when it is in the presence of a magnetic field. This can be thought of as effectively permanent due to the presence of the Earth's magnetic field.

Thermoremnant magnetism occurs when ferrous material is heated beyond a specific temperature known as the Curie Point. Demagnetisation occurs at this temperature with re-magnetisation by the Earth's magnetic field on cooling.

Enhancement of magnetic susceptibility can occur in areas subject to burning and complex fermentation processes on biological material; these are frequently associated with human settlement. Thermoremnant features include ovens, hearths and kilns. In addition thermoremnant material such as tile and brick may also be associated with human activity and settlement.

Silting and deliberate infilling of ditches and pits with magnetically enhanced soil can create an area of enhancement compared with the surrounding soils and subsoils into which the feature is cut. Mapping enhanced areas will produce linear and discrete anomalies allowing an assessment and characterisation of hidden subsurface features.

It should be noted that areas of negative enhancement can be produced from material having lower magnetic properties compared to topsoil. This is common for many sedimentary bedrocks and subsoils which were often used in the construction of banks and walls etc. Mapping these 'negative' anomalies may also reveal archaeological features.

Magnetic survey or magnetometry can be carried out using a fluxgate gradiometer and may be referred to as gradiometry. The gradiometer is a passive instrument consisting of two fluxgate sensors mounted vertically 1m apart. The instrument is carried about 30cm above the ground surface and the upper sensor measures the Earth's magnetic field as does the lower sensor but this is influenced to a greater degree by any localised buried field. The difference between the two sensors will relate to the strength of magnetic field created by the buried feature. If no enhanced feature is present the field measured by both sensors will be similar and the difference close to zero.

There are a number of factors that may affect the magnetic survey and these include soil type, local geology and previous human activity. Situations arise where magnetic disturbance associated with modern services, metal fencing, dumped waste material etc., obscures low magnitude fields associated with archaeological features.

Appendix B – metadata

Raw magnetometer data

COMPOSITE
Filename: mag.xcp
Instrument Type: Grad 601 (Magnetometer)
Units: nT
Surveyed by: DJS on 29/12/2006
Direction of 1st Traverse: NW
Collection Method: ZigZag
Sensors: 2 @ 1.00 m spacing.
Dummy Value: 32702
Origin: One

Dimensions
Composite Size (readings): 720 x 240
Survey Size (feet): 180 ft x 240 ft
Grid Size: 20 x 20
X Interval: 0.25
Y Interval: 1

Stats
Max: 99.70
Min: -3000.00
Std Dev: 22.53
Mean: -0.59

Processes: 1
1 Base Layer

Source Grids: 88
1 Col:0 Row:0 grids\46.asg
2 Col:0 Row:1 grids\47.asg
3 Col:0 Row:2 grids\48.asg
4 Col:0 Row:3 grids\49.asg
5 Col:1 Row:0 grids\40.asg
6 Col:1 Row:1 grids\41.asg
7 Col:1 Row:2 grids\42.asg
8 Col:1 Row:3 grids\43.asg
9 Col:1 Row:4 grids\44.asg
10 Col:1 Row:5 grids\45.asg
11 Col:2 Row:0 grids\34.asg
12 Col:2 Row:1 grids\35.asg
13 Col:2 Row:2 grids\36.asg
14 Col:2 Row:3 grids\37.asg
15 Col:2 Row:4 grids\38.asg
16 Col:2 Row:5 grids\39.asg
17 Col:3 Row:0 grids\28.asg
18 Col:3 Row:1 grids\29.asg
19 Col:3 Row:2 grids\30.asg
20 Col:3 Row:3 grids\31.asg
21 Col:3 Row:4 grids\32.asg
22 Col:3 Row:5 grids\33+84.asg
23 Col:3 Row:6 grids\85.asg
24 Col:3 Row:7 grids\86.asg
25 Col:3 Row:8 grids\87.asg
26 Col:3 Row:9 grids\88.asg
27 Col:3 Row:10 grids\89.asg
28 Col:3 Row:11 grids\90.asg
29 Col:4 Row:0 grids\22.asg
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31 Col:4 Row:2 grids\24.asg
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33 Col:4 Row:4 grids\26.asg
34 Col:4 Row:5 grids\27+78.asg
35 Col:4 Row:6 grids\79.asg
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37 Col:4 Row:8 grids\81.asg
38 Col:4 Row:9 grids\82.asg
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46 Col:5 Row:5 grids\21+72.asg
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48 Col:5 Row:7 grids\74.asg
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56 Col:6 Row:3 grids\14.asg
57 Col:6 Row:4 grids\15+64.asg
58 Col:6 Row:5 grids\65.asg
59 Col:6 Row:6 grids\66.asg
60 Col:6 Row:7 grids\67.asg
61 Col:6 Row:8 grids\68.asg
62 Col:6 Row:9 grids\69.asg
63 Col:6 Row:10 grids\70.asg
64 Col:6 Row:11 grids\93.asg
65 Col:7 Row:0 grids\06.asg
66 Col:7 Row:1 grids\07.asg
67 Col:7 Row:2 grids\08.asg
68 Col:7 Row:3 grids\09.asg
69 Col:7 Row:4 grids\10+51.asg
70 Col:7 Row:5 grids\58.asg
71 Col:7 Row:6 grids\59.asg
72 Col:7 Row:7 grids\60.asg
73 Col:7 Row:8 grids\61.asg
74 Col:7 Row:9 grids\62.asg
75 Col:7 Row:10 grids\63.asg
76 Col:7 Row:11 grids\94.asg
77 Col:8 Row:0 grids\01.asg
78 Col:8 Row:1 grids\02.asg
79 Col:8 Row:2 grids\03.asg
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81 Col:8 Row:4 grids\05+50.asg
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83 Col:8 Row:6 grids\53.asg
84 Col:8 Row:7 grids\54.asg
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87 Col:8 Row:10 grids\57.asg
88 Col:8 Row:11 grids\95.asg

Processed magnetometer data (1)

Filename: mag-proc1.xcp

Stats
Max: 3.00
Min: -3.00
Std Dev: 0.87
Mean: 0.00

Processes: 7
1 Base Layer
2 Clip from -10 to 10
3 DeStripe Median Traverse: Grids: 46.asg 47.asg 48.asg 49.asg 40.asg 41.asg 42.asg 43.asg 44.asg 45.asg 34.asg 35.asg 36.asg 37.asg 38.asg 39.asg 28.asg 29.asg 30.asg 31.asg 32.asg 33+84.asg 85.asg 86.asg 87.asg 88.asg 89.asg 90.asg 22.asg 23.asg 24.asg 25.asg 26.asg 27+78.asg 79.asg 80.asg 81.asg 82.asg 83.asg 91.asg 16.asg 17.asg 18.asg 19.asg 20+71.asg 21+72.asg 73.asg 74.asg 75.asg 76.asg 77.asg 92.asg 11.asg 12.asg 13.asg

14.asg 15+64.asg 65.asg 66.asg 67.asg 68.asg 69.asg
70.asg 93.asg 06.asg 07.asg 08.asg 09.asg 10+51.asg
58.asg 59.asg 60.asg 61.asg 62.asg 63.asg 94.asg
4 DeStripe Mean Traverse: Grids: 01.asg 02.asg 03.asg
04.asg 05+50.asg 52.asg 53.asg 54.asg 55.asg 56.asg
57.asg 95.asg Threshold: 1.5 SDs
5 De Stagger: Grids: All Mode: Both By: -1 intervals
6 De Stagger: Grids: All Mode: Both By: -1 intervals
7 Clip from -3 to 3

Processed magnetometer data (2)

Filename: mag-proc2.xcp

Stats
Max: 1.00
Min: -1.00
Std Dev: 0.53
Mean: 0.00

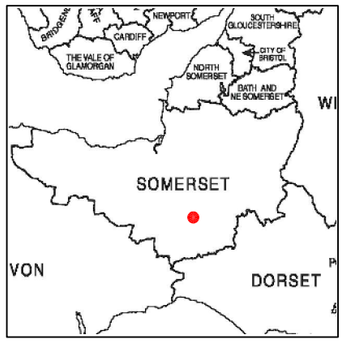
Processes: 8
1 Base Layer
2 Clip from -10 to 10
3 DeStripe Median Traverse: Grids: 46.asg 47.asg
48.asg 49.asg 40.asg 41.asg 42.asg 43.asg 44.asg 45.asg
34.asg 35.asg 36.asg 37.asg 38.asg 39.asg 28.asg 29.asg
30.asg 31.asg 32.asg 33+84.asg 85.asg 86.asg 87.asg
88.asg 89.asg 90.asg 22.asg 23.asg 24.asg 25.asg 26.asg
27+78.asg 79.asg 80.asg 81.asg 82.asg 83.asg 91.asg
16.asg 17.asg 18.asg 19.asg 20+71.asg 21+72.asg 73.asg
74.asg 75.asg 76.asg 77.asg 92.asg 11.asg 12.asg 13.asg
14.asg 15+64.asg 65.asg 66.asg 67.asg 68.asg 69.asg
70.asg 93.asg 06.asg 07.asg 08.asg 09.asg 10+51.asg
58.asg 59.asg 60.asg 61.asg 62.asg 63.asg 94.asg
4 DeStripe Mean Traverse: Grids: 01.asg 02.asg 03.asg
04.asg 05+50.asg 52.asg 53.asg 54.asg 55.asg 56.asg
57.asg 95.asg Threshold: 1.5 SDs
5 De Stagger: Grids: All Mode: Both By: -1 intervals
6 De Stagger: Grids: All Mode: Both By: -1 intervals
7 Clip from -3 to 3
8 Clip from -1 to 1

Archaeological Surveys

Geophysical Survey
Ilchester to Barrington
Gas Mains Reinforcement

Extended Geophysics
RDX7 to RDX8

Map of survey area



Survey location

Site centred on OS NGR
ST 437 185

SCALE 1:50 000

0km 1 2km

FIG 01

Archaeological Surveys

Geophysical Survey
Ilchester to Barrington
Gas Mains Reinforcement

Extended Geophysics
RDX7 to RDX8

Referencing information

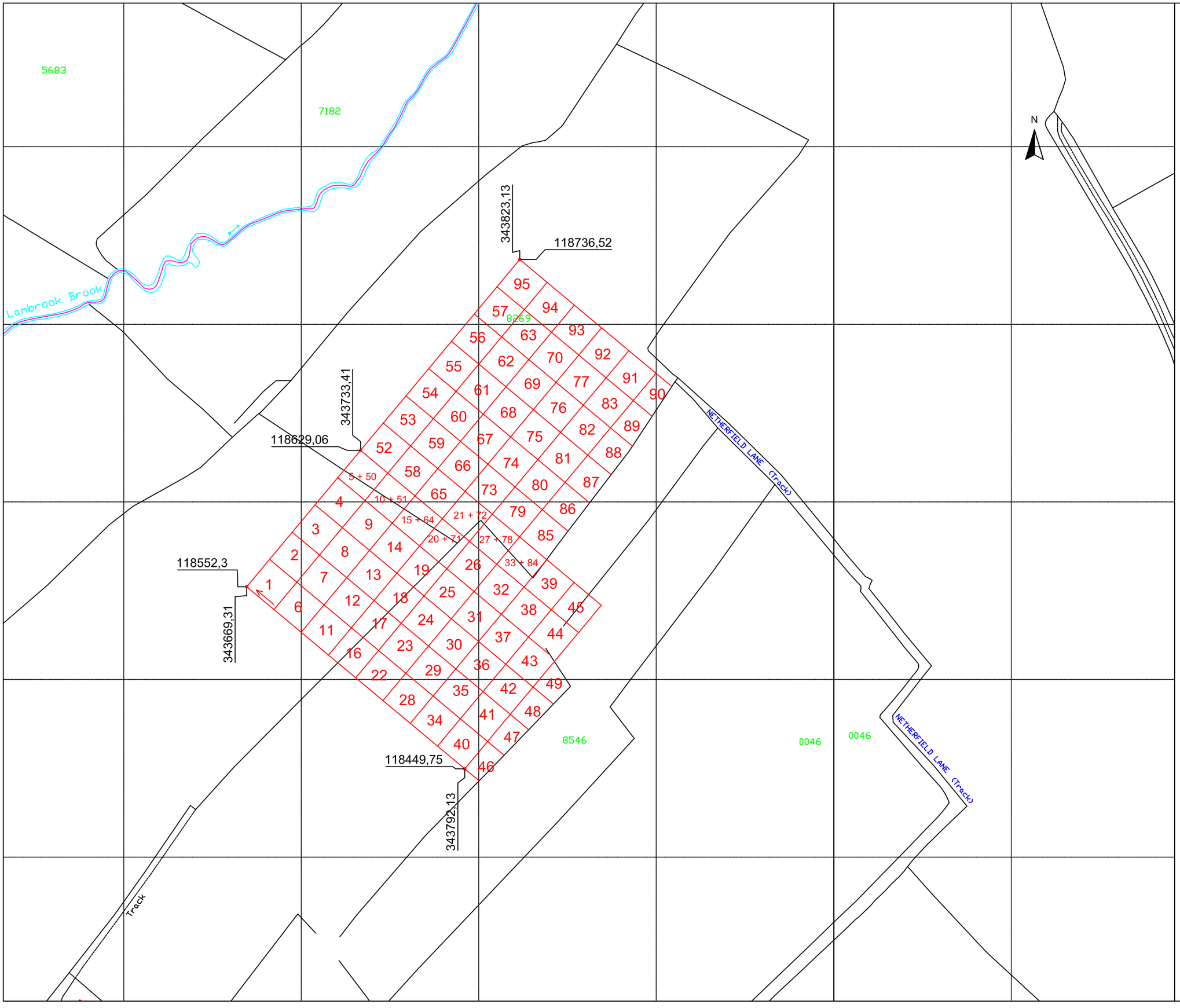
Based on OS coordinates (OSGB36)

Survey start and traverse direction

SCALE 1:2000

0m 20 40 60 80 100m

FIG 02

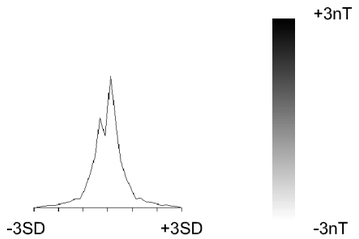


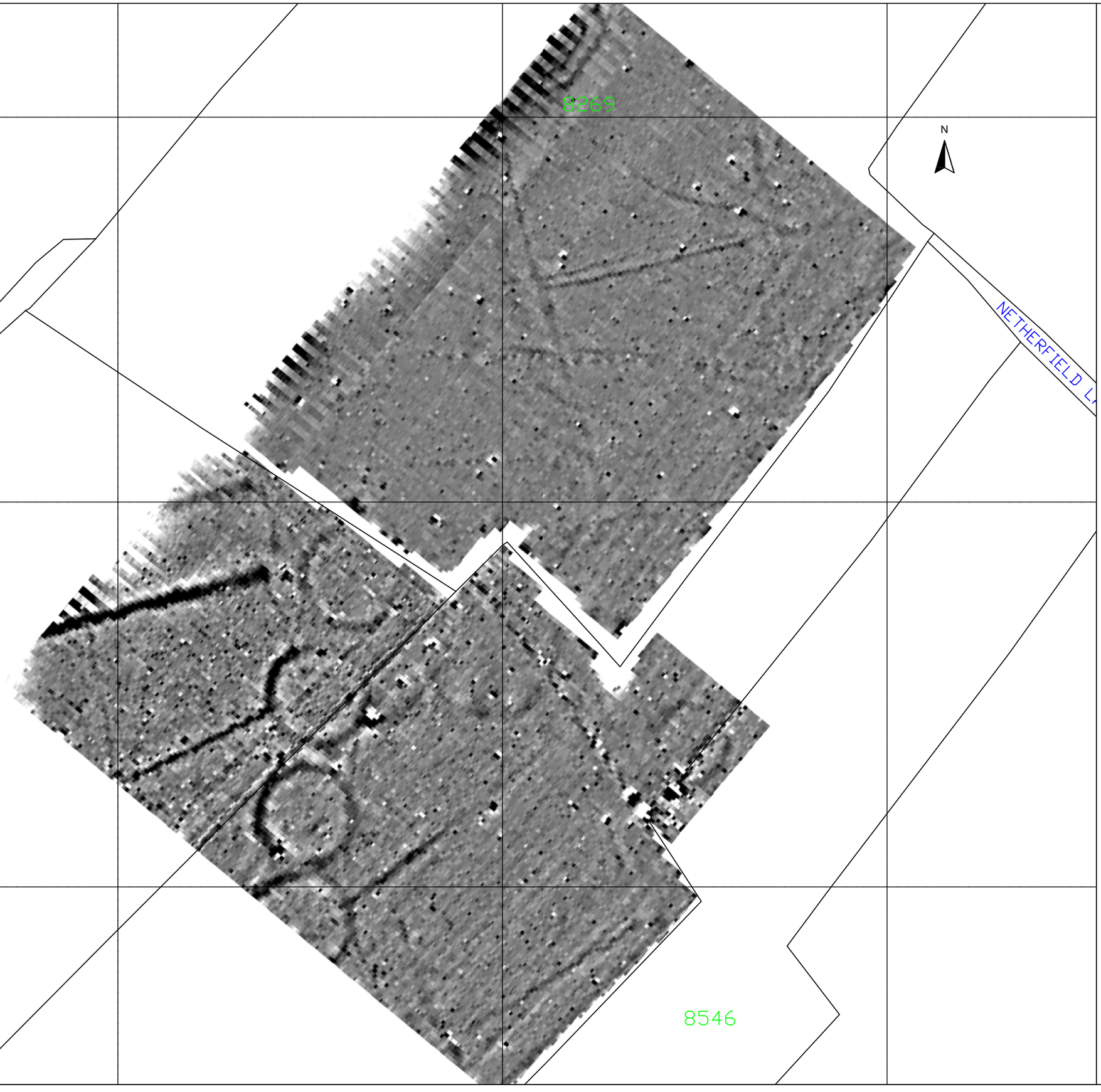
Archaeological Surveys

Geophysical Survey
Ilchester to Barrington
Gas Mains Reinforcement

Extended Geophysics
RDX7 to RDX8

Greyscale plot of processed magnetometer data (1)





SCALE 1:1000

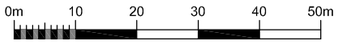


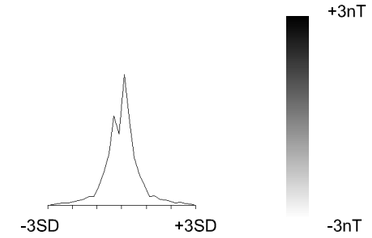
FIG 03

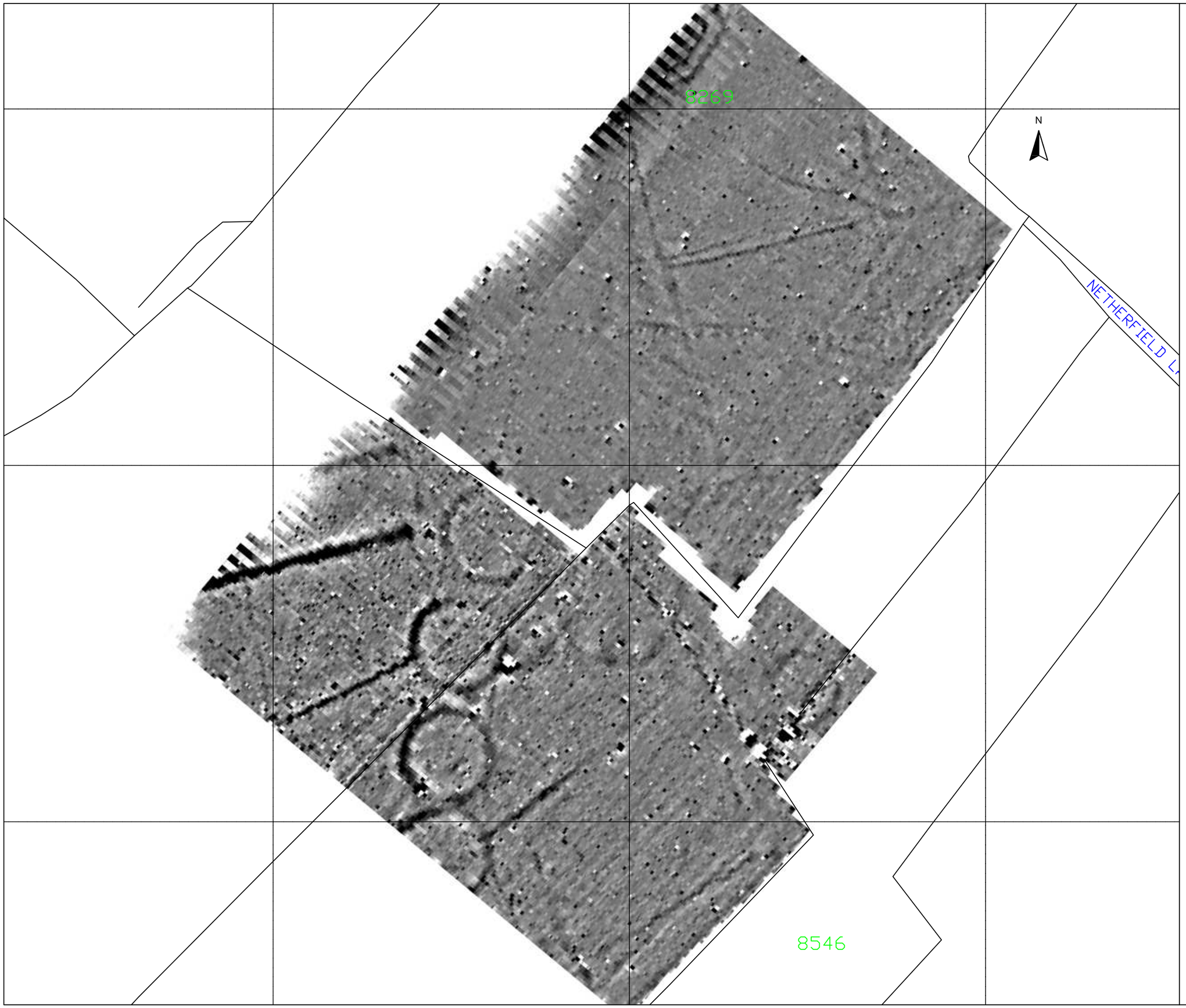
Archaeological Surveys

Geophysical Survey
Ilchester to Barrington
Gas Mains Reinforcement

Extended Geophysics
RDX7 to RDX8

Greyscale plot of processed magnetometer data (1)





SCALE 1:1000

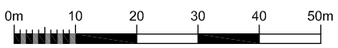


FIG 03

Archaeological Surveys

Geophysical Survey
Ilchester to Barrington
Gas Mains Reinforcement

Extended Geophysics
RDX7 to RDX8

Greyscale plot of processed magnetometer data - combined survey areas

+1nT

-1nT

SCALE 1:2000

0m 20 40 60 80 100m

FIG 05

Area 46b

Area 47

Area 48

N

Lambrook

4282

5683

7182

Drain

Lambrook Brook

CS

Co Const, ED & Ward Bdy

8269

NETHERFIELD LANE (track)

4658

8546

0046

0046

BM 19.78m

Hayes Barn

19.5m

4633

Track

Netherfield Farm

Archaeological Surveys

Geophysical Survey
Ilchester to Barrington
Gas Mains Reinforcement

Extended Geophysics
RDX7 to RDX8

Abstraction and interpretation of magnetometer anomalies

- Positive linear anomaly - cut feature of archaeological origin
- Positive linear anomaly - uncertain origin
- Positive linear anomaly - land drain/ piped drainage
- Linear anomaly - recent agricultural origin (trend only)
- Linear anomaly - possible former ridge and furrow (trend only)
- Linear anomaly - related to extant agricultural boundaries and tracks
- Discrete positive response - cut feature of possible archaeological origin
- Discrete positive response - uncertain origin
- Magnetic disturbance from gas pipe
- Strong dipolar anomaly - ferrous object in topsoil

SCALE 1:1000

0m 10 20 30 40 50m

FIG 06

N

NETHERFIELD L

8269

8546