MEJS/01

M11 JUNCTION 7A, ESSEX

GEOPHYSICAL SURVEY

commissioned by Ringway Jacobs

Pre-application

April 2016

HEADLAND ARCHAEOLOGY

REGISTERED ORGANISATION CIfA

M11 JUNCTION 7A, ESSEX

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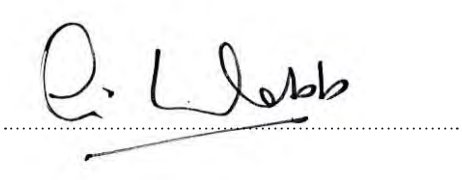
project info

HA JOB NO.	MEJS/01
NGR	TL 49462 12405
PARISH	Sheering, Matching,
LOCAL AUTHORITY	Essex
OASIS REF.	headland5-249547

project team

PROJECT MANAGER	Sam Harrison
AUTHOR	David Harrison
FIELDWORK	David Harrison, Joe Turner
GRAPHICS	David Harrison, Mano Kapazoglou, Rafael Maya-Torcelly
APPROVED BY	Alistair Webb – Project Manager



HEADLAND ARCHAEOLOGY

REGISTERED ORGANISATION CIfA

PROJECT SUMMARY

Headland Archaeology (UK) Ltd undertook a geophysical (magnetometer) survey, covering approximately 16 hectares on land north-east of Harlow, Essex, to provide information on the archaeological potential of the site of a new motorway junction and associated link road. The survey has identified a probable barrow along the route of the proposed link road along with linear anomalies (ditches) which may form part of an early field system. Elsewhere, anomalies have been identified which reflect the historical layout and division of the agricultural landscape as recorded on early Ordnance Survey maps. Therefore, on the basis of the geophysical survey, the archaeological potential across the majority of the site is assessed as being low although a high archaeological potential is ascribed to the area around the probable barrow.

CONTENTS

LIST OF ILLUSTRATIONS

M11 JUNCTION 7A, ESSEX

GEOPHYSICAL SURVEY

1 INTRODUCTION

Headland Archaeology (UK) Ltd was commissioned by Ringway Jacobs (The Client) on behalf of Essex County Council (ECC) to undertake a geophysical (magnetometer) survey at the site of a proposed new motorway junction (Junction 7A) on the M11 motorway and associated link road connecting Sheering Road (B183) to Gilden Way. The geophysical survey was requested by Maria Medlycott, ECC's archaeological planning archaeologist.

The work was undertaken in accordance with a Written Scheme of Investigation (WSI) (Ringway Jacobs 2016), with guidance within the National Planning Policy Framework (DCLG 2012) and in line with current best practice (David et al. 2008; CIfA 2014).

The survey was carried out between March 21st and March 24th 2016.

1.1 SITE LOCATION, TOPOGRAPHY AND LAND-USE

The survey area covered eight irregularly-shaped parcels of land (Area 1 to Area 8) either side of the M11 motorway located approximately 6km north of the existing Junction 7. The proposed link road comprised of a corridor of land connecting the M11 with Sheering Road (B183) (see **ILLUS 1**). The site is located within a rolling landscape, being at 73m above Ordnance Datum (aOD) within the north of Area 2 and generally sloping north-westwards to 44m aOD north-west of Area 5. At the time of the survey Area 1 and Area 2 contained a short wheat crop (see **ILLUS 2** and **ILLUS 3** respectively). Area 3 and Area 5 contained no crop and were being sown at the time of the survey (see **ILLUS 4**, **ILLUS 6** and **ILLUS 7**). Area 4 was overgrown and unsuitable for survey (see **ILLUS 5**). Area 6 and Area 8 were under a young crop of oil seed rape (see **ILLUS 8** and **ILLUS 10**) and Area 7 was unsuitable for survey due to overgrown vegetation (see **ILLUS 9**).

1.2 GEOLOGY AND SOILS

The underlying bedrock geology comprises London Clay Formation – clay, silt and sand, which is overlain by Lowestoft Formation – diamicton. A narrow band of Head – clay, silt, sand and gravel is recorded within the centre of the survey area running north/south alongside a drainage ditch (British Geological Survey 2016).

The soils within the lower-lying northern part of the scheme are classified in the Soilscape 7 association in the south which are characterised as freely draining, slightly acid base-rich soils. Elsewhere, the soils are classified in the Soilscape 9 association, which are characterised as lime-rich loams and clays with impeded drainage (LandIS 2016).

2 ARCHAEOLOGICAL BACKGROUND

A Heritage Statement (Jacobs 2014) compiled baseline heritage data for a study area extending 300m in all directions from the proposed scheme. Within the study area no heritage assets of High value were identified although nine assets of Medium value were identified including prehistoric and Roman archaeological remains, cropmarks and find spots. Four heritage assets were identified within the geophysical survey area including Potter's Croft Field Name (negligible value), the site of a Neolithic polished axe (low value), the site of Moor Hall (medium value) and the site of an Iron Age arrowhead and core (low value). The Heritage Statement concluded that there is potential for unknown archaeological remains within the scheme footprint.

3 AIMS, METHODOLOGY AND PRESENTATION

The main aim of the geophysical survey was to provide sufficient information to enable an assessment to be made of the impact of any proposed development on any potential sub-surface archaeological remains.

The general archaeological objectives of the geophysical survey were:

- to determine (so far as possible) the presence or absence of buried archaeological remains in the survey areas;
- to clarify the extent and layout of known sites of archaeological interest within or adjacent to the study area;
- to clarify the extent and layout of previously unknown buried remains within the survey areas; and
- to interpret any geophysical anomalies identified by the survey.

3.1 MAGNETOMETER SURVEY

Magnetic survey methods rely on the ability of a variety of instruments to measure very small magnetic fields associated with buried archaeological remains. Features such as a ditch, pit or kiln can act like a small magnet, or series of magnets, that produce distortions (anomalies) in the Earth's magnetic field. In mapping these slight variations, detailed plans of sites can be obtained as buried features often produce reasonably characteristic anomaly shapes and strengths (Gaffney and Gater 2003). Further information on soil magnetism and the interpretation of magnetic anomalies is provided in Appendix 1.

The survey was undertaken using four Bartington Grad601 sensors mounted at 1m intervals (1m traverse interval) onto a rigid carrying frame. The system is programmed to take readings at a frequency of 10Hz (allowing for a 10–15cm sample interval) on roaming traverses 4m apart. These readings are stored on an external weatherproof laptop and later downloaded for processing and interpretation. The system is linked to a Trimble R8s Real Time Kinetic (RTK) differential Global Positioning System (dGPS) outputting in NMEA mode to ensure a high positional accuracy for each data point.

MLGrad601 and MultiGrad601 (Geomar Software Inc.) software has been used to collect and export the data. Terrasurveyor V3.0.28.4 (DWConsulting) software has been used to process and present the data.

3.2 REPORTING

A general site location plan is shown in **ILLUS 1** at a scale of 1:10,000. **ILLUS 2** to **ILLUS 10** are general site condition photographs. A large scale (1:5,000) survey location plan showing the processed greyscale magnetometer data is presented in **ILLUS 11**. An overall interpretative plot is shown at the same scale in **ILLUS 12**.

Detailed data plots (greyscale and XY trace) and interpretative illustrations are presented at a scale of 1:1,000 in **ILLUS 13** to **ILLUS 36** inclusive with 1:500 plots and interpretations of areas of significant archaeology displayed in **ILLUS 37** to **ILLUS 39** inclusive.

Technical information on the equipment used, data processing and magnetic survey methodology is given in Appendix 1. Appendix 2 details the survey location information and Appendix 3 describes the composition and location of the site archive. A copy of the OASIS entry (Online Access to the Index of Archaeological Investigations) is reproduced in Appendix 4.

The survey methodology, report and any reco549mmendations comply with the Written Scheme of Investigation (Ringway Jacobs 2016) and guidelines outlined by English Heritage (David et al. 2008) and by the Chartered Institute for Archaeologists (ClfA 2014). All illustrations reproduced from Ordnance Survey (OS) mapping are with the permission of the controller of Her Majesty's Stationery Office (© Crown copyright).

The illustrations in this report have been produced following analysis of the data in 'raw' and processed formats and over a range of different display levels. All illustrations are presented to most suitably display and interpret the data from this site based on the experience and knowledge of management and reporting staff.

4 RESULTS AND DISCUSSION

Generally, the survey has detected a variable magnetic background throughout the surveyed area. Within this background, numerous areas of magnetic enhancement have been identified. These are discussed below and cross-referenced to specific examples on the interpretive figures, where appropriate.

FERROUS ANOMALIES

Ferrous anomalies, characterised as individual 'spikes', are typically caused by ferrous (magnetic) material, either on the ground surface or in the plough-soil. Little importance is normally given to such anomalies, unless there is any supporting evidence for an archaeological interpretation, as modern ferrous debris or material is common on most sites, often being present as a consequence of manuring or tipping/infilling. A dipolar linear anomaly, A, traversing Area 1 and Area 5 on a north-west/south-east alignment is due to a buried gas main (see **ILLUS 16** – **ILLUS 18** and **ILLUS 25** – **ILLUS 27**). Other high magnitude areas of magnetic disturbance which are located at the perimeters of the survey areas are caused by ferrous material within the adjacent field boundaries and by the close proximity of buildings.

AGRICULTURAL ANOMALIES

Analysis of historical mapping indicates that the division of land within the PDA has undergone minor alterations since unchanged since the publication of the first edition OS map in 1875. These alterations include the removal of field boundaries from within Area 2, Area 5 and Area 6. The former boundaries manifest in the data as linear anomalies, B (see **ILLUS 19** – **ILLUS 21**), C (see **ILLUS 16** – **ILLUS 18**) D and E (see **ILLUS 31** – **ILLUS 33**), and are thought to be due to soil-filled ditches. Two further clear linear anomalies, F and G, are identified within Area 6 and are thought to be caused by former boundaries which may have been removed prior to the publication of the first edition OS map (see **ILLUS 28** – **ILLUS 30**). Within the lower-lying parts of Area 5 and Area 6 several field drains are identified as faint 'speckled' linear anomalies. Elsewhere, several faint linear anomalies are identified on a number of different alignments. These are generally aligned parallel with, or at right angles to, existing or historical field boundaries and are likely to be due to plough furrows or ploughing headlands. A more clearly defined, localised area of north-west/south-east parallel linear plough trends is visible towards the east of Area 5 (see **ILLUS 22** – **ILLUS 24**).

GEOLOGICAL ANOMALIES

Discrete areas of magnetic enhancement are identified across the proposed scheme. These are generally sparsely distributed and are thought to be due to localised variations in the soils and the diamicton superficial deposits from which they derive. A narrow band of anomalies, H, towards the west of Area 5 (see **ILLUS 22** – **ILLUS 27**) corresponds to a break of slope and also to a band of Head - clay, silt, sand and gravel (British Geological Survey 2016). The anomalies are thought to be caused by the accumulation of deposits at this location.

ARCHAEOLOGICAL AND POSSIBLE ARCHAEOLOGICAL ANOMALIES

A clear circular anomaly, I, has been identified on the north-west facing slope within Area 5, centred on NGR 549462,212405 (see **ILLUS 22** – **ILLUS 27** and **ILLUS 37** – **ILLUS 39**). The anomaly, caused by a soil-filled ditch, measures 24m in diameter and is thought to define the site of a barrow. A small gap in the south-west of the anomaly may indicate a deliberate entrance or causeway. Few clear anomalies are identified within the interior of the barrow although a probable pit is identified in the north-west.

To the immediate north and east of the probable barrow linear anomalies, J, K and L may be archaeological in origin (see **ILLUS 22** – **ILLUS 27**). The anomalies are broader and clearer than the nearby agricultural trends and, given the close proximity of the probable barrow, an archaeological origin is possible. The anomalies locate soil-filled ditches and may form part of an early field system. It is worthy of note, however, that anomalies K and L appear at approximate right angles to a number of field drains and an agricultural origin for these anomalies is plausible.

5 CONCLUSION

The geophysical survey has identified a definite area of archaeological potential in the form of a probable barrow. To the immediate north and east of the barrow linear ditches may form part of an early, unmapped, field system, although a modern agricultural origin is also possible. Elsewhere, no further anomalies of clear archaeological origin have been identified by the survey with the majority of the anomalies being due to the modern and historical agricultural use of the land. A gas main is also clearly identified traversing the north of the surveyed area.

Based solely on the results and interpretation of the geophysical data, the archaeological potential across the majority of the scheme is assessed to be low, although a high archaeological potential is ascribed to the area containing the probable barrow.

6 REFERENCES

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Chartered Institute for Archaeologists 2014 ***Standard and Guidance for archaeological geophysical survey*** ClfA.

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LandIS 2016 Website Available: www.landis.org.uk/soilscapes/ Accessed: April 6th 2016.

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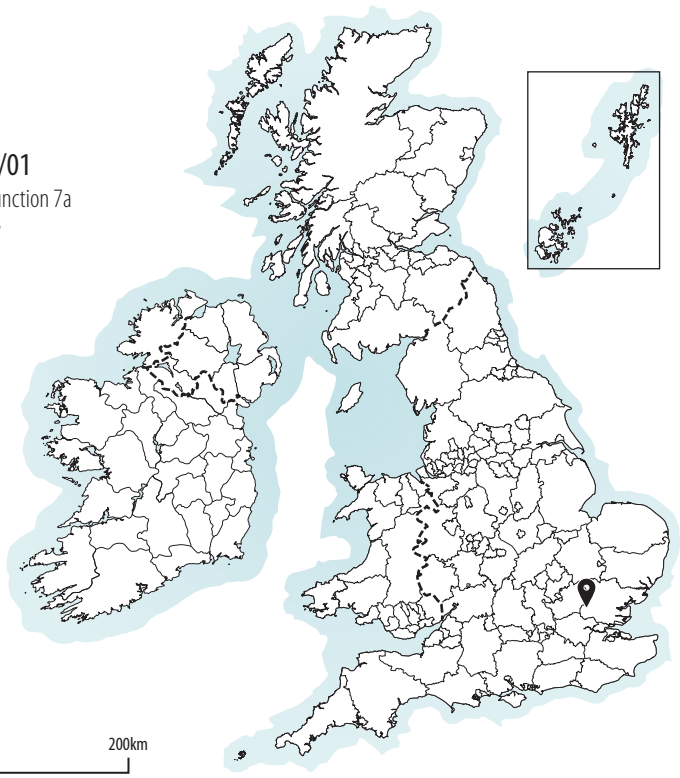

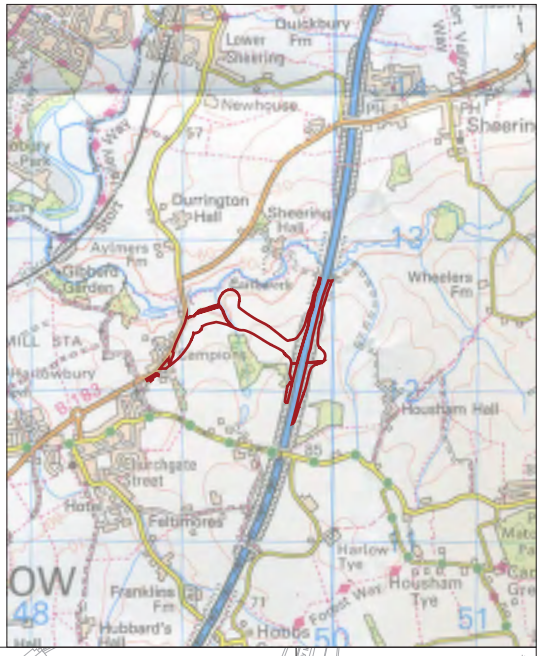

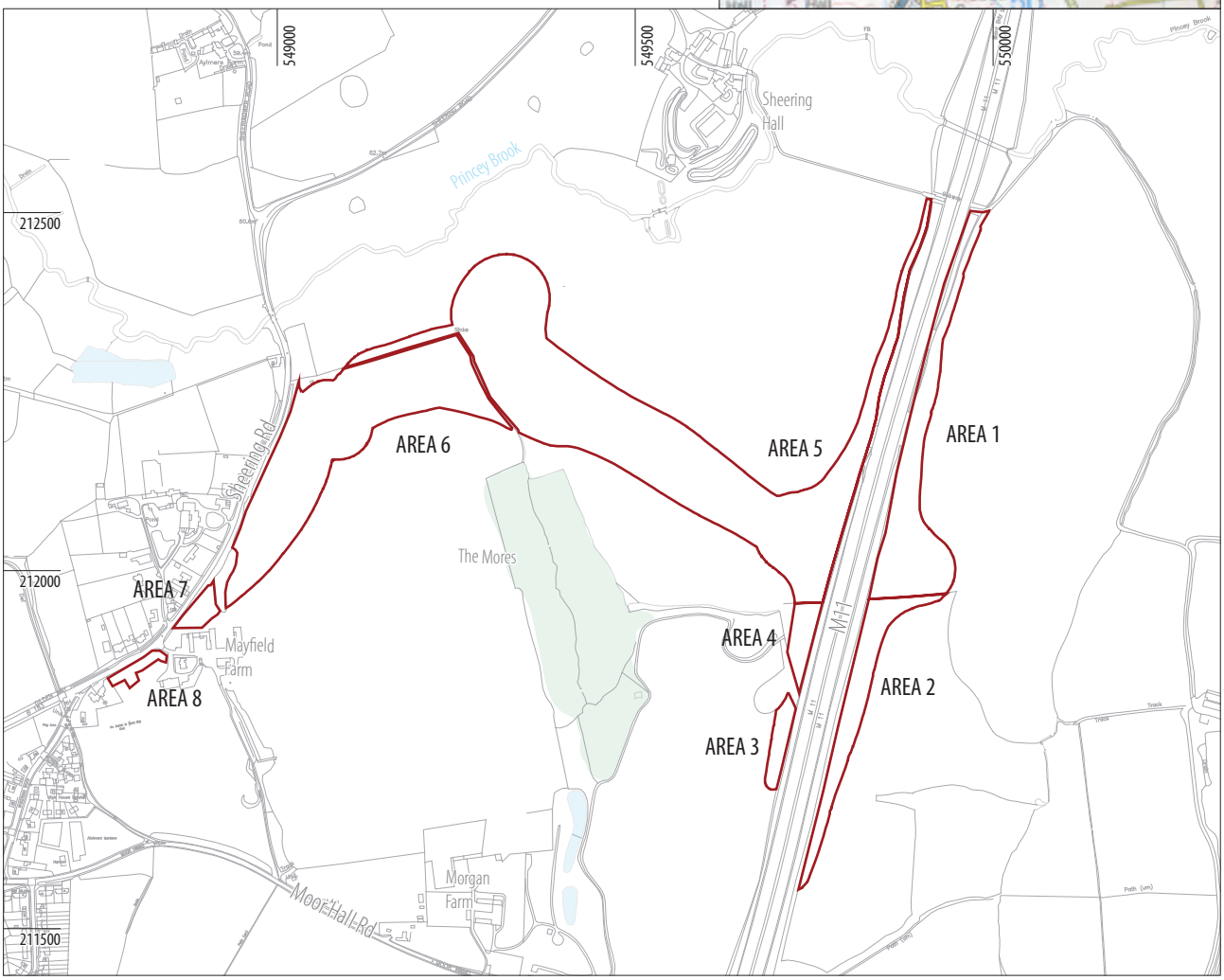

KEY
geophysical survey area

N
0 500m
1:10,000 @ A4

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NORTH

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ILLUS 1 Site location

ILLUS 2 General view of Area 1, looking north

ILLUS 3 General view of Area 2, looking south

ILLUS 4 General view of Area 3, looking south

ILLUS 5 General view of Area 4, looking north-east

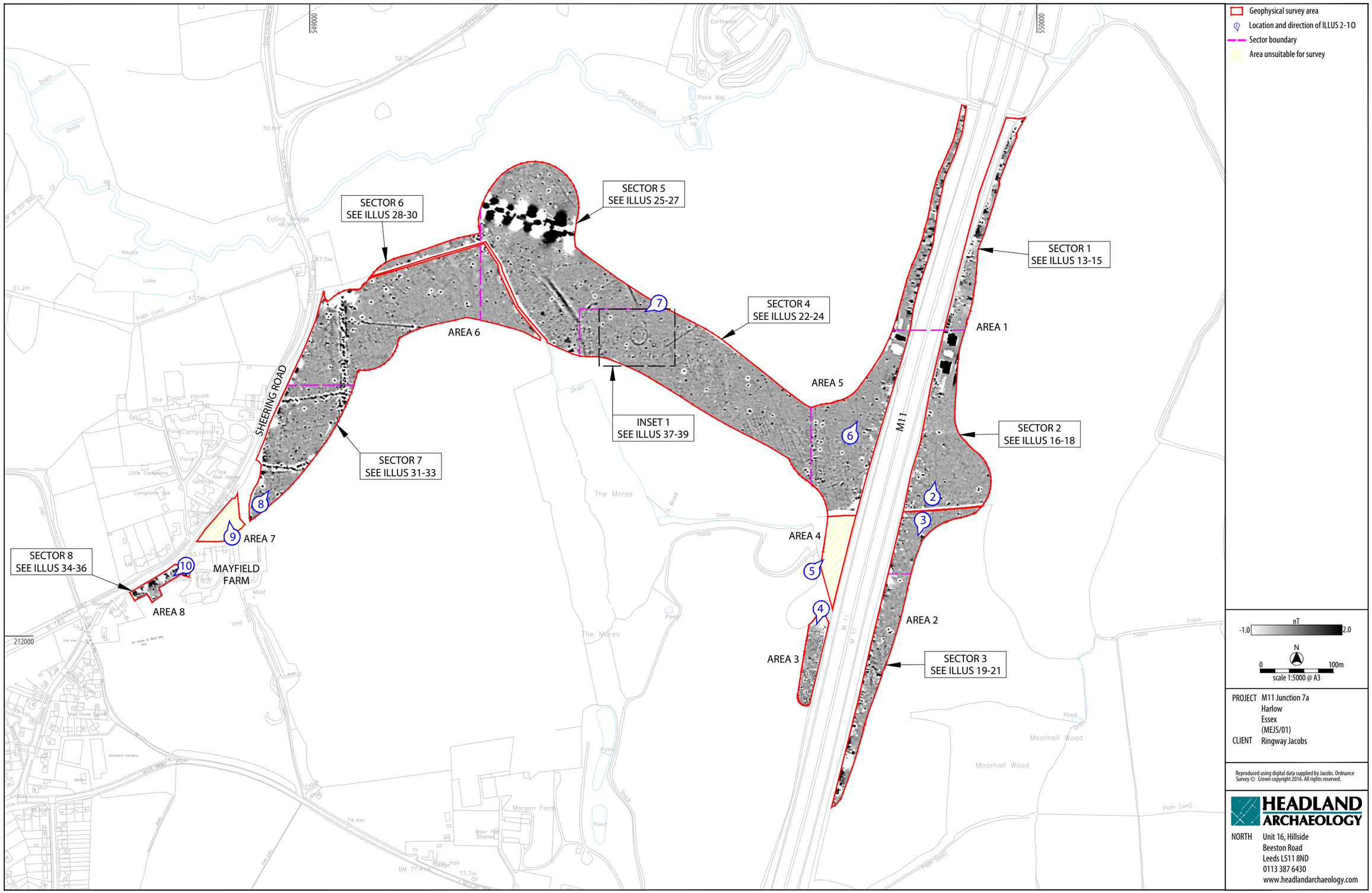
ILLUS 6 General view of Area 5 (east), looking north

ILLUS 7 General view of Area 5 (west), looking south-west

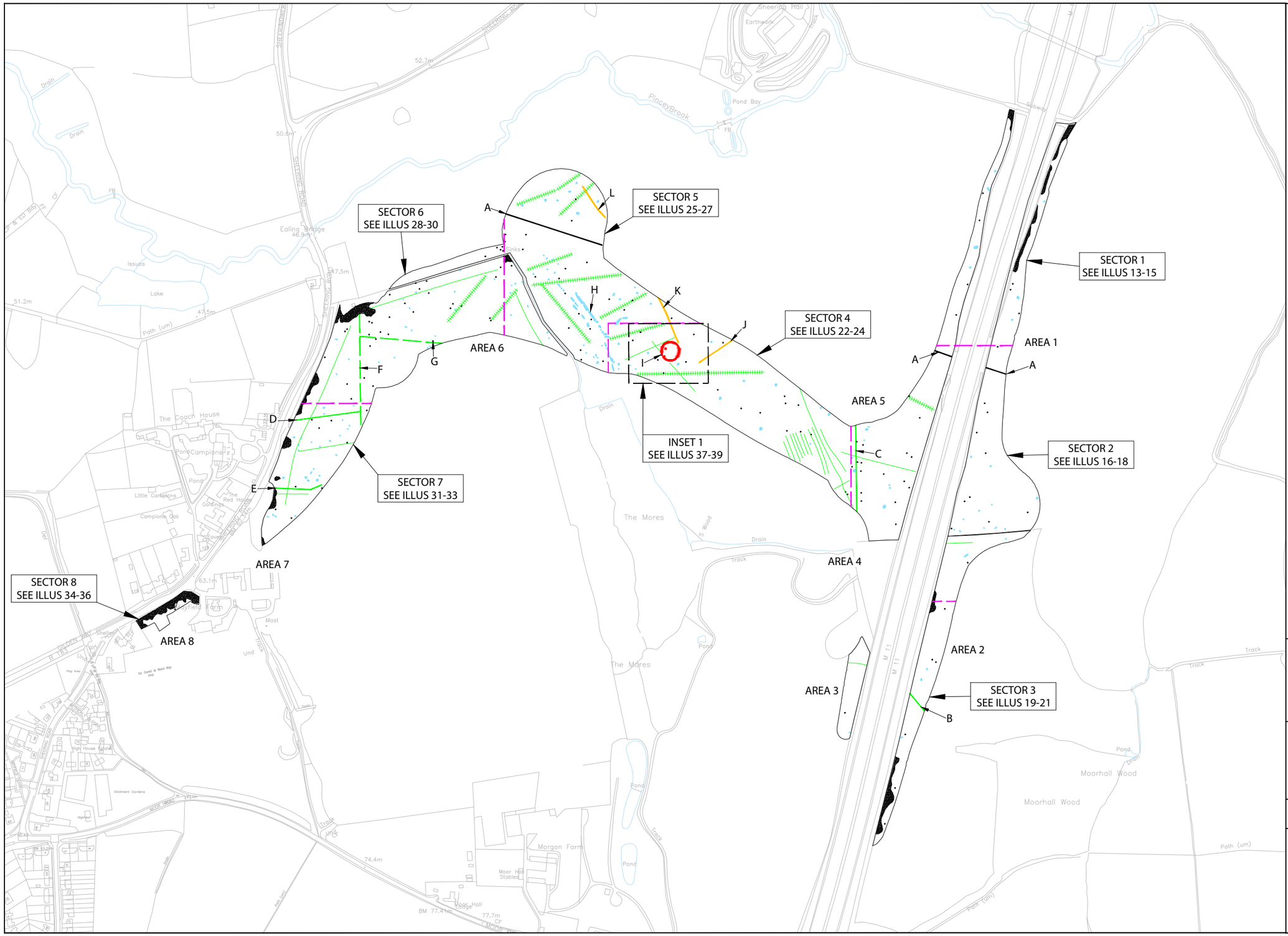
ILLUS 8 General view of Area 6, looking north-east

ILLUS 9 General view of Area 7, looking north

ILLUS 10 General view of Area 8, looking south-west



Illus 11
Survey location showing processed greyscale magnetometer data



Sector boundary

TYPE OF ANOMALY	INTERPRETATION
Dipolar Isolated	Ferrous Material
Magnetic Disturbance	Ferrous Material
Dipolar Linear	Service Pipe
Linear Trend	Agricultural
Linear Trend	Field Drain
Linear	Former Field Boundary
Linear	Former Field Boundary?
Magnetic Enhancement	Geology
Magnetic Enhancement	Archaeology?
Magnetic Enhancement	Archaeology

N

0 100m

scale 1:5000 @ A3

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Illus 12
Overall interpretation of magnetometer data

549800

550000

Subway

212600

AREA 5

AREA 1

212400

Sector boundary

nT

-1.0 2.0

N

0 25m

scale 1:1,000 @ A3

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Illus 13
Processed greyscale magnetometer data; Sector 1

549800

550000

Subway

212600

AREA 5

AREA 1

212400

Sector boundary

5.0nT/cm

N

0 25m

scale 1:1,000 @ A3

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Illus 14
XY trace plot of magnetometer data; Sector 1

549800

550000

Subway

212600

AREA 5

AREA 1

A

212400

Sector boundary

TYPE OF ANOMALY	INTERPRETATION
Dipolar Isolated	Ferrous Material
Magnetic Disturbance	Ferrous Material
Dipolar Linear	Service Pipe
Magnetic Enhancement	Geology

N

0 25m

scale 1:1,000 @ A3

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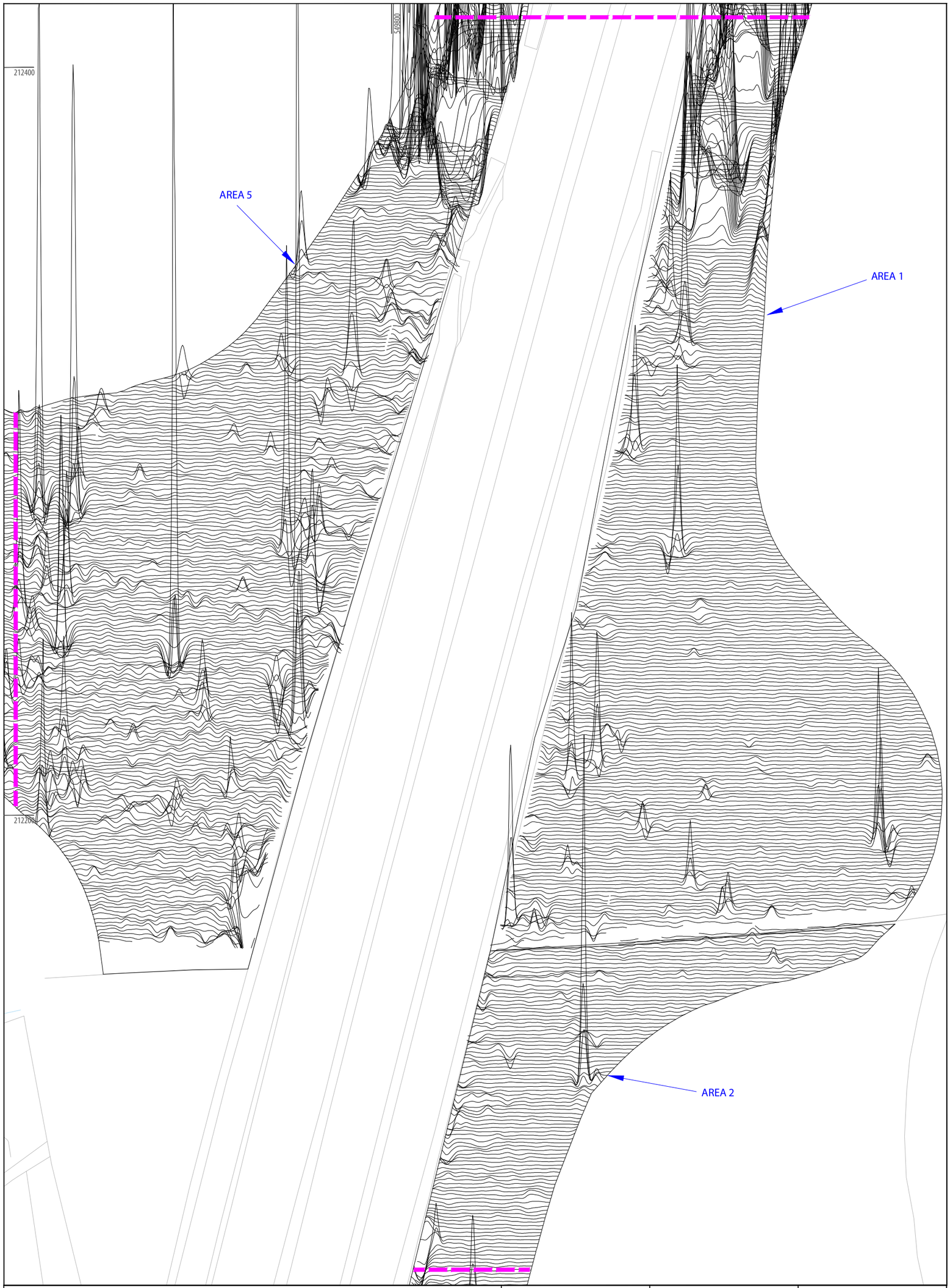
Illus 15
Interpretation of magnetometer data; Sector 1

Illus 16
Processed greyscale magnetometer data; Sector 2



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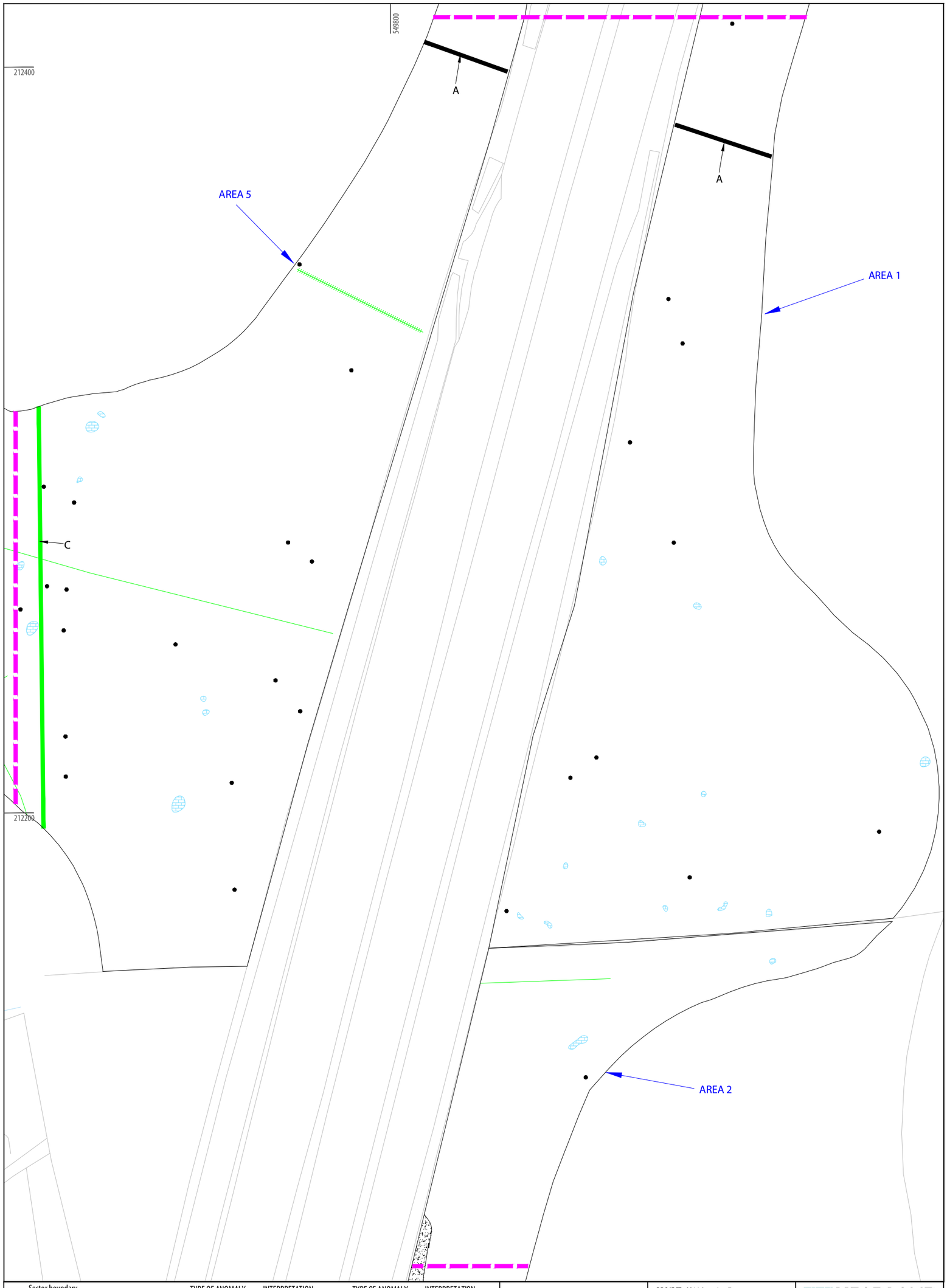
XY trace plot of magnetometer data; Sector 2



Illus 18
Interpretation of magnetometer data; Sector 2

Illus 19
Processed greyscale magnetometer data; Sector 3

549800

212000

211800

M 11

M 11

AREA 4

AREA 2

Sector boundary

5.0nT/cm

N

0 25m

scale 1:1,000 @ A3

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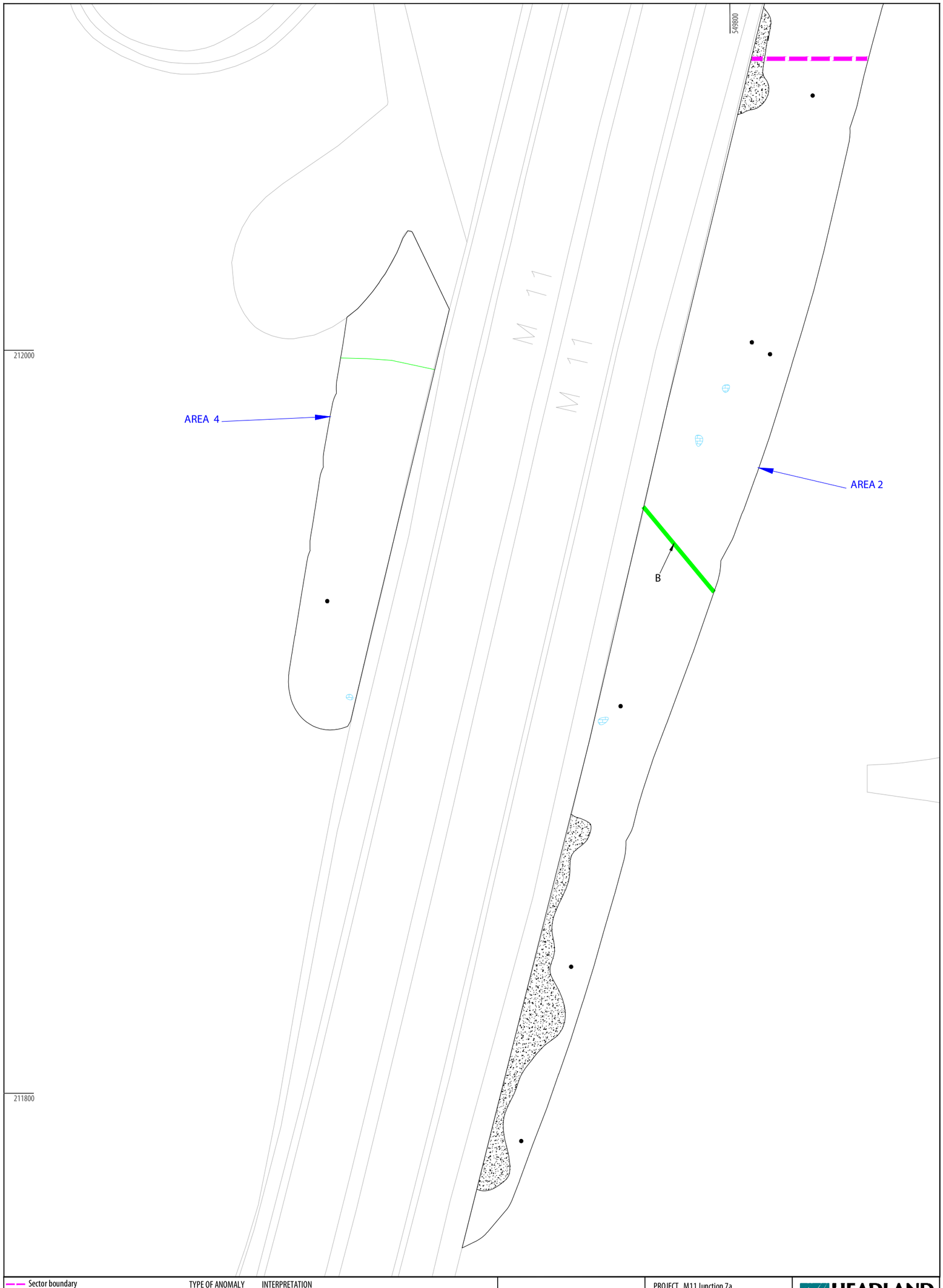
Illus 20
XY trace plot of magnetometer data; Sector 3



Sector boundary

TYPE OF ANOMALY	INTERPRETATION
Dipolar Isolated	Ferrous Material
Magnetic Disturbance	Ferrous Material
Linear Trend	Agricultural
Linear	Former Field Boundary
Magnetic Enhancement	Geology

N

0 25m

scale 1:1,000 @ A3

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Illus 21
Interpretation of magnetometer data; Sector 3

549600

549400

INSET 1
SEE ILLUS 37-39

AREA 5

Sector boundary

-1.0 nT 2.0

N

0 25m

scale 1:1,000 @ A3

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Illus 22

Processed greyscale magnetometer data; Sector 4

549600

549600

INSET 1
SEE ILLUS 37-39

AREA 5

Sector boundary

5.0nT/cm

N

0 25m

scale 1:1,000 @ A3

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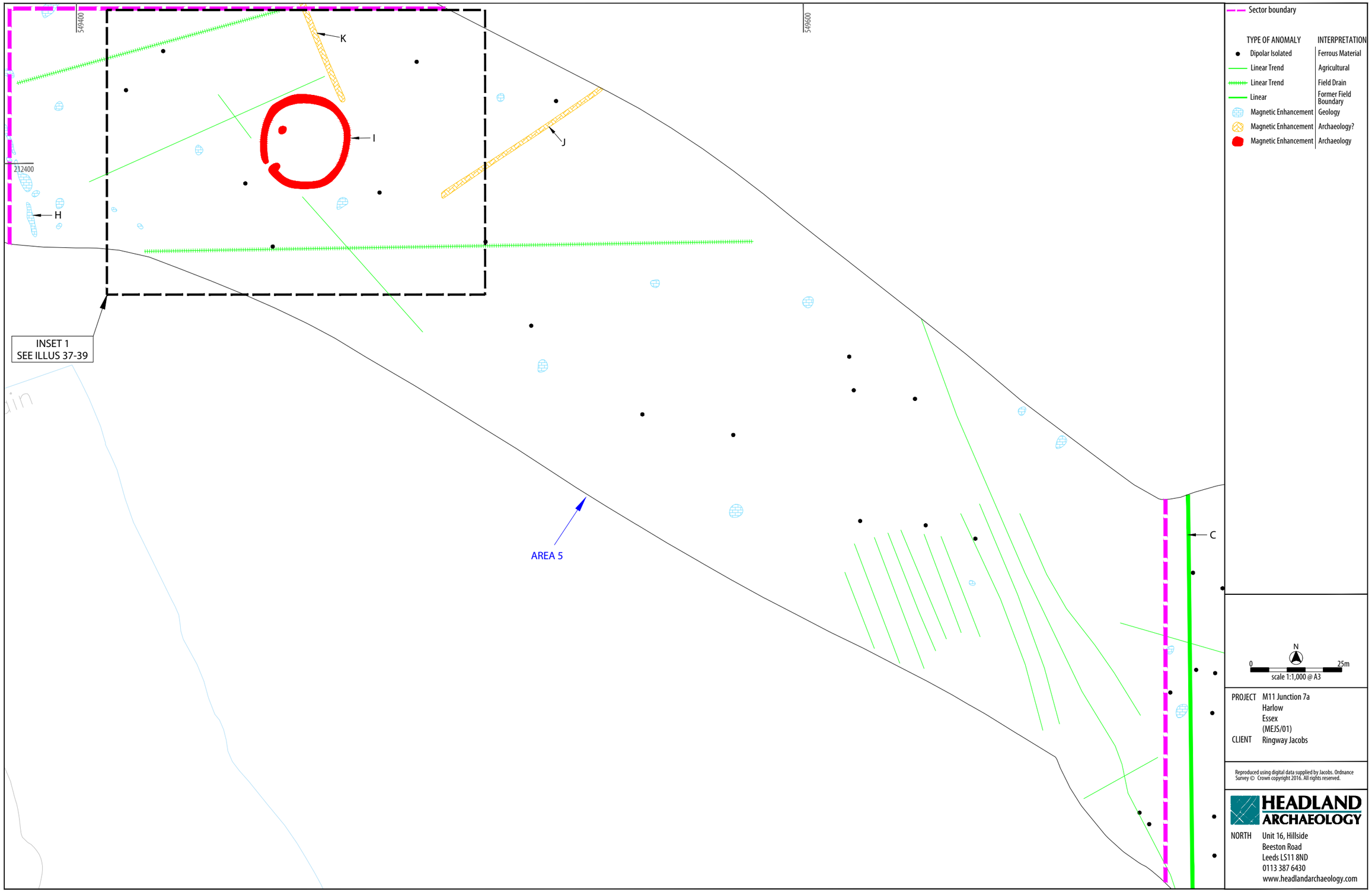
Illus 23

XY trace plot of magnetometer data; Sector 4



Illus 24

Interpretation of magnetometer data; Sector 4

549400

212600

AREA 5

AREA 6

212400

INSET 1
SEE ILLUS 37-39

Drain

Sector boundary

nT
-1.0 2.0

N
0 25m
scale 1:1,000 @ A3

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Illus 25
Processed greyscale magnetometer data; Sector 5

549400

212600

AREA 5

212400

AREA 6

INSET 1
SEE ILLUS 37-39

Drain

Sector boundary

5.0nT/cm

N

0 25m

scale 1:1,000 @ A3

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Illus 26
XY trace plot of magnetometer data; Sector 5

549400

212600

L

A

Sinks

AREA 5

H

K

H

I

212400

AREA 6

INSET 1
SEE ILLUS 37-39

Drain

Sector boundary	TYPE OF ANOMALY	INTERPRETATION	TYPE OF ANOMALY	INTERPRETATION
	Dipolar Isolated	Ferrous Material	Magnetic Enhancement	Geology
	Magnetic Disturbance	Ferrous Material	Magnetic Enhancement	Archaeology?
	Dipolar Linear	Service Pipe	Magnetic Enhancement	Archaeology
	Linear Trend	Agricultural		
	Linear Trend	Field Drain		
	Linear	Former Field Boundary		

N

0 25m

scale 1:1,000 @ A3

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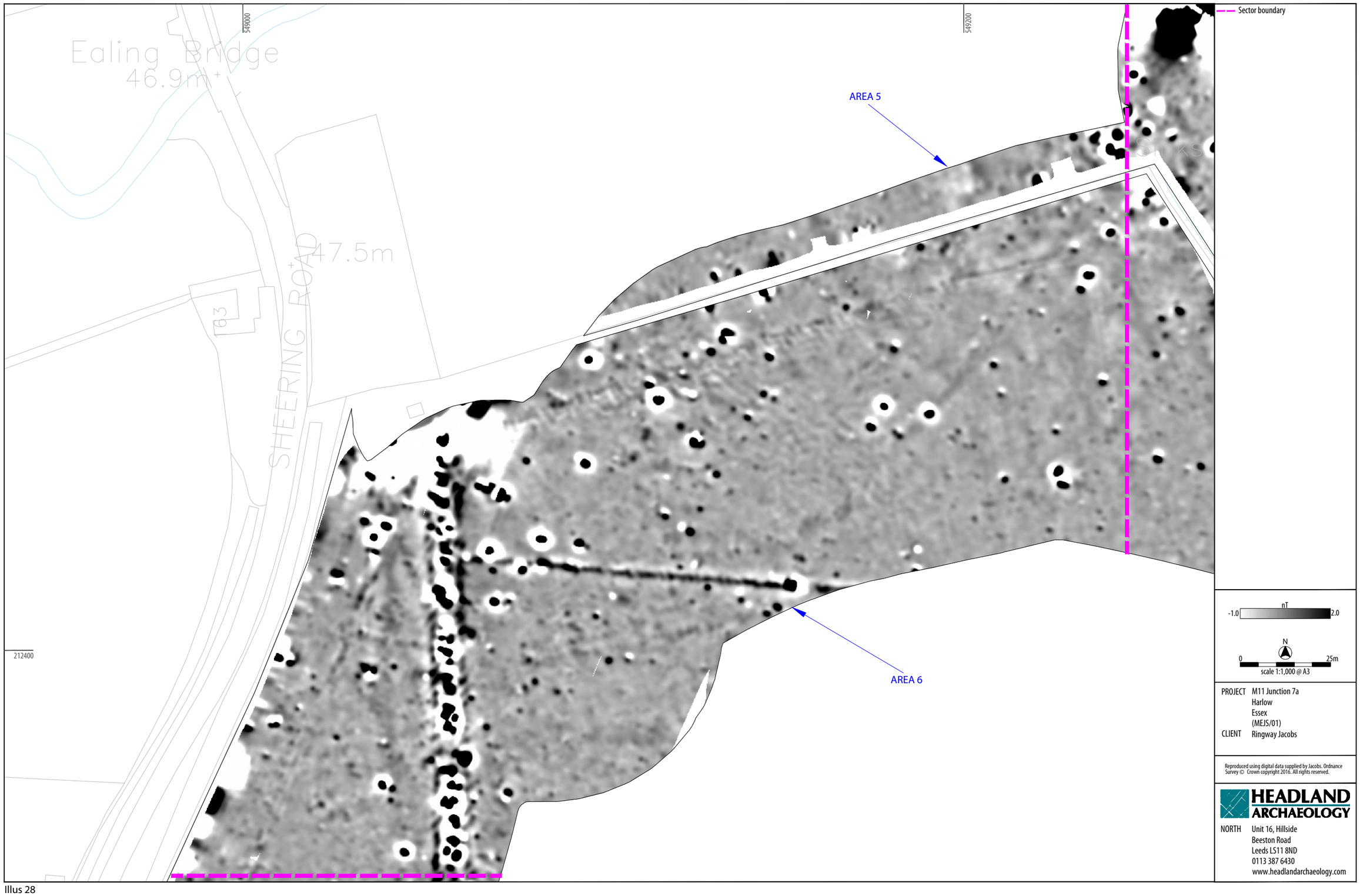
Illus 27
Interpretation of magnetometer data; Sector 5



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Illus 28
Processed greyscale magnetometer data; Sector 6

549000

549200

Ealing Bridge
46.9m

47.5m

163

SHEERING ROAD

AREA 5

AREA 6

Sector boundary

212400

5.0nT/cm

N

0 25m

scale 1:1,000 @ A3

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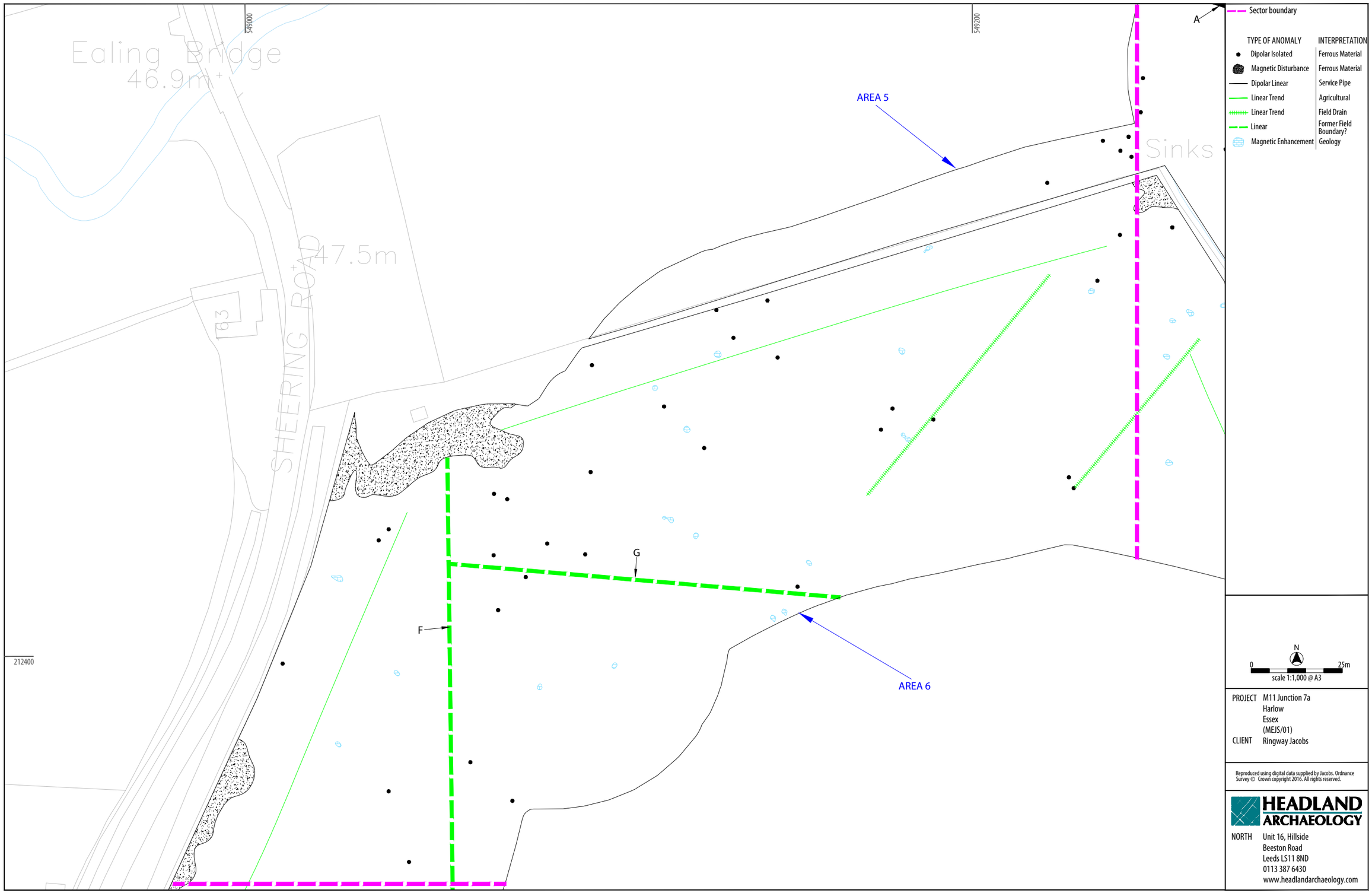
Illus 29

XY trace plot of magnetometer data; Sector 6



Illus 30
Interpretation of magnetometer data; Sector 6

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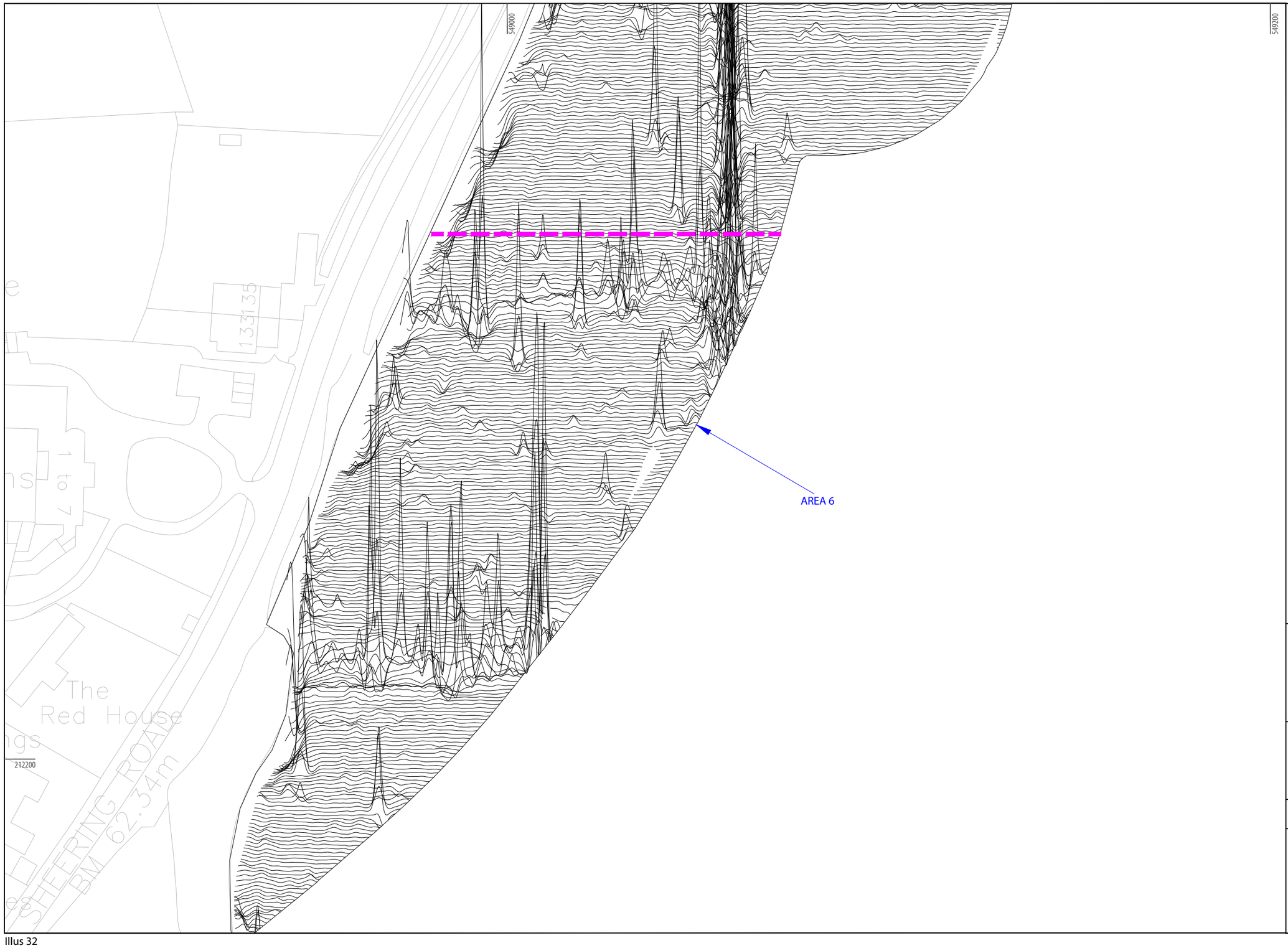
Illus 31
Processed greyscale magnetometer data; Sector 7



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Illus 32
XY trace plot of magnetometer data; Sector 7

549000

549200

212200

F

D

E

AREA 6

133135

The Red House

SHEERING ROAD

BM 62.34m

Sector boundary

TYPE OF ANOMALY	INTERPRETATION
Dipolar Isolated	Ferrous Material
Magnetic Disturbance	Ferrous Material
Linear Trend	Agricultural
Linear	Former Field Boundary
Linear	Former Field Boundary?
Magnetic Enhancement	Geology

N

0 25m

scale 1:1,000 @ A3

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HEADLAND ARCHAEOLOGY

NORTH Unit 16, Hillside
Beeston Road
Leeds LS11 8ND
0113 387 6430
www.headlandarchaeology.com

Illus 33

Interpretation of magnetometer data; Sector 7

Sector boundary

nT
-1.0 2.0

N
0 25m
scale 1:1,000 @ A3

PROJECT M11 Junction 7a
Harlow
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NORTH Unit 16, Hillside
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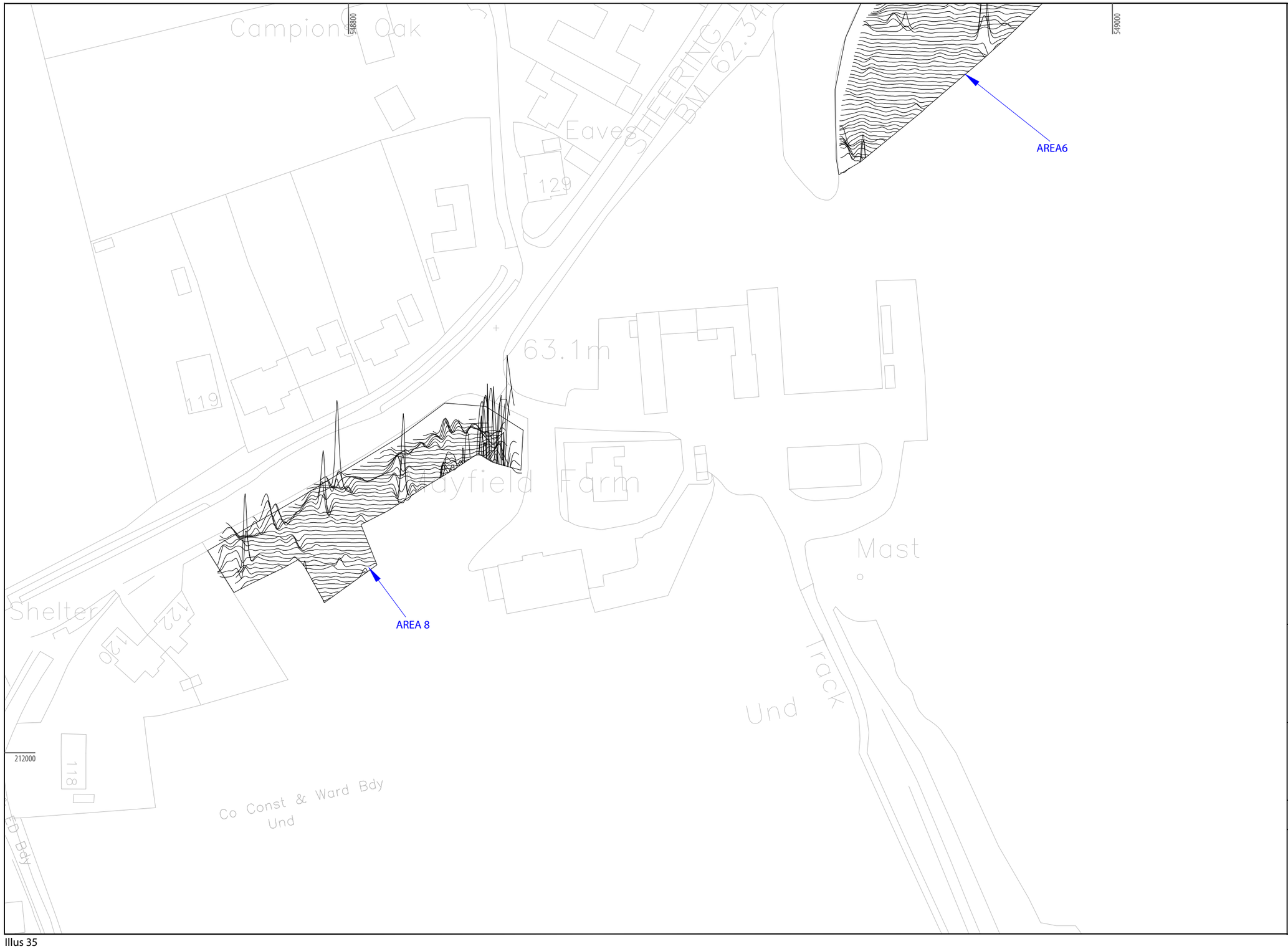
Leeds LS11 8ND
0113 387 6430
www.headlandarchaeology.com

Illus 34
Processed greyscale magnetometer data; Sector 8



Sector boundary

5.0nT/cm

N

0 25m

scale 1:1,000 @ A3

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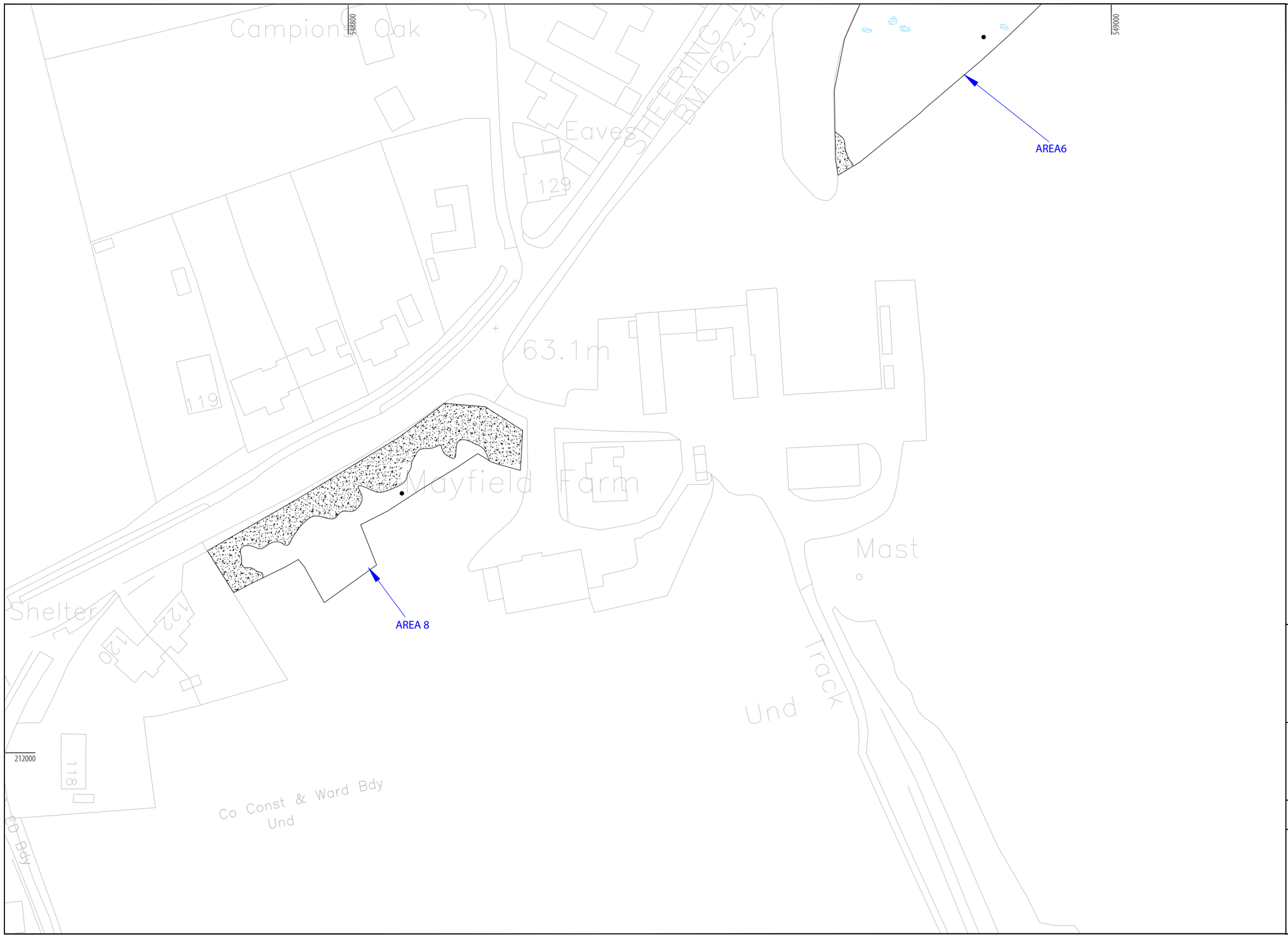
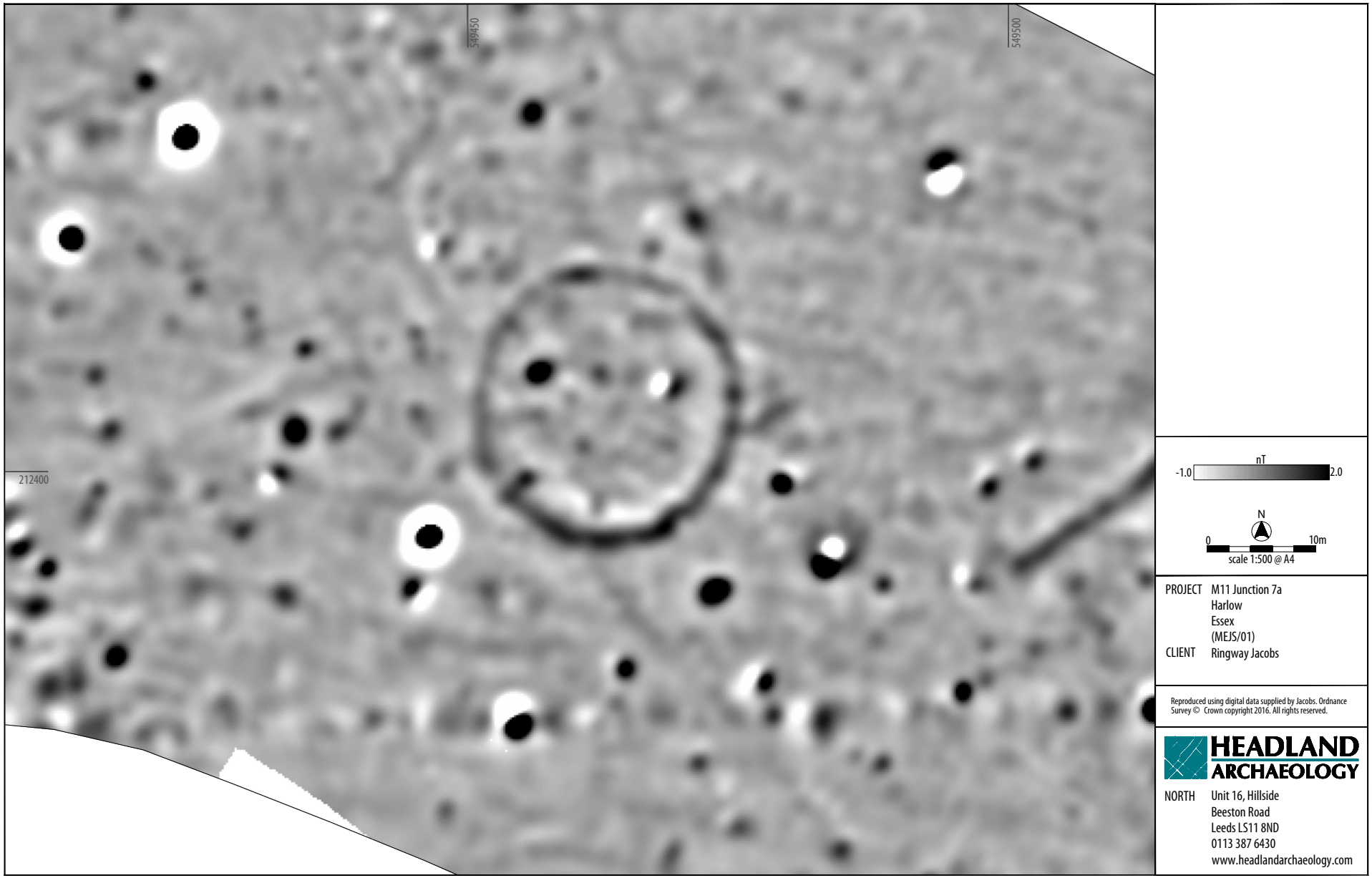
Illus 35

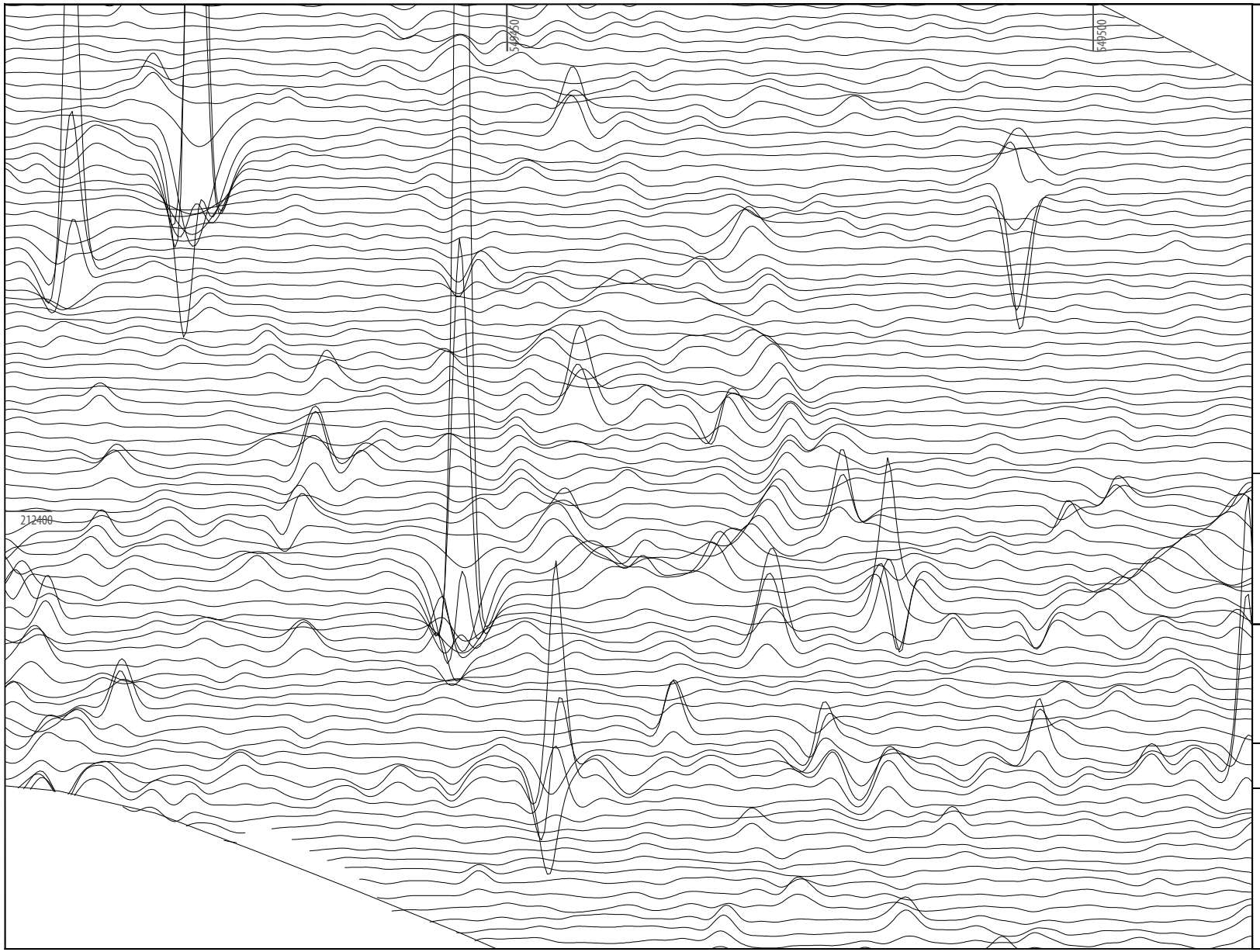
XY trace plot of magnetometer data; Sector 8



Illus 36
Interpretation of magnetometer data; Sector 8



Illus 37
Processed greyscale magnetometer data; Inset 1



10.0nT/cm

N

0 10m

scale 1:500 @ A4

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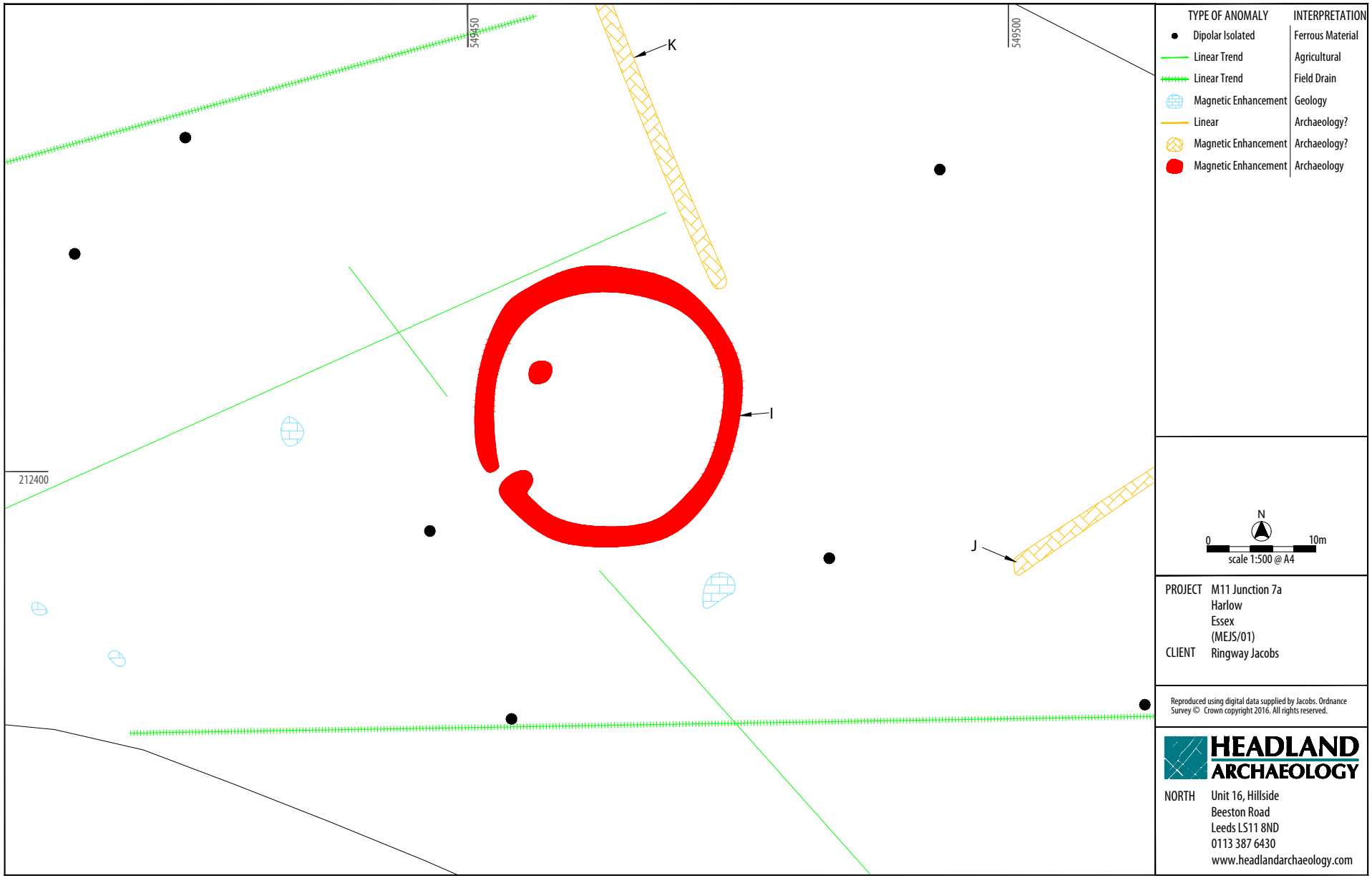
HEADLAND ARCHAEOLOGY

NORTH Unit 16, Hillside
Beeston Road
Leeds LS11 8ND
0113 387 6430
www.headlandarchaeology.com

Illus 38
XY trace plot of magnetometer data; Inset 1



Illus 39
Interpretation of magnetometer data; Inset 1

7 APPENDICES

APPENDIX 1 MAGNETOMETER SURVEY

Magnetic susceptibility and soil magnetism

Iron makes up about 6% of the Earth's crust and is mostly present in soils and rocks as minerals such as maghaemite and haematite. These minerals have a weak, measurable magnetic property termed magnetic susceptibility. Human activities can redistribute these minerals and change (enhance) others into more magnetic forms so that by measuring the magnetic susceptibility of the topsoil, areas where human occupation or settlement has occurred can be identified by virtue of the attendant increase (enhancement) in magnetic susceptibility. If the enhanced material subsequently comes to fill features, such as ditches or pits, localised isolated and linear magnetic anomalies can result whose presence can be detected by a magnetometer (fluxgate gradiometer).

In general, it is the contrast between the magnetic susceptibility of deposits filling cut features, such as ditches or pits, and the magnetic susceptibility of topsoils, subsoils and rocks into which these features have been cut, which causes the most recognisable responses. This is primarily because there is a tendency for magnetic ferrous compounds to become concentrated in the topsoil, thereby making it more magnetic than the subsoil or the bedrock. Linear features cut into the subsoil or geology, such as ditches, that have been silted up or have been backfilled with topsoil will therefore usually produce a positive magnetic response relative to the background soil levels. Discrete feature, such as pits, can also be detected.

The magnetic susceptibility of a soil can also be enhanced by the application of heat. This effect can lead to the detection of features such as hearths, kilns or areas of burning.

Types of magnetic anomaly

In the majority of instances anomalies are termed 'positive'. This means that they have a positive magnetic value relative to the magnetic background on any given site. However some features can manifest themselves as 'negative' anomalies that, conversely, means that the response is negative relative to the mean magnetic background.

Where it is not possible to give a probable cause of an observed anomaly a '?' is appended.

It should be noted that anomalies interpreted as modern in origin might be caused by features

that are present in the topsoil or upper layers of the subsoil. Removal of soil to an archaeological or natural layer can therefore remove the feature causing the anomaly.

The types of response mentioned above can be divided into five main categories that are used in the graphical interpretation of the magnetic data:

Isolated dipolar anomalies (iron spikes)

These responses are typically caused by ferrous material either on the surface or in the topsoil. They cause a rapid variation in the magnetic response giving a characteristic 'spiky' trace. Although ferrous archaeological artefacts could produce this type of response, unless there is supporting evidence for an archaeological interpretation, little emphasis is normally given to such anomalies, as modern ferrous objects are common on rural sites, often being present as a consequence of manuring.

Areas of magnetic disturbance

These responses can have several causes often being associated with burnt material, such as slag waste or brick rubble or other strongly magnetised/fired material. Ferrous structures such as pylons, mesh or barbed wire fencing and buried pipes can also cause the same disturbed response. A modern origin is usually assumed unless there is other supporting information.

Linear trend

This is usually a weak or broad linear anomaly of unknown cause or date. These anomalies are often caused by agricultural activity, either ploughing or land drains being a common cause.

Areas of magnetic enhancement/positive isolated anomalies

Areas of enhanced response are characterised by a general increase in the magnetic background over a localised area whilst discrete anomalies are manifest by an increased response (sometimes only visible on an XY trace plot) on two or three successive traverses. In neither instance is there the intense dipolar response characteristic exhibited by an area of magnetic disturbance or of an 'iron spike' anomaly (see above). These anomalies can be caused by infilled discrete archaeological features such as pits or post-holes or by kilns. They can also be caused by pedological variations or by natural infilled features on certain geologies. Ferrous material in the subsoil can also give a similar response. It can often therefore be very difficult to establish an anthropogenic origin without intrusive investigation or other supporting information.

Linear and curvilinear anomalies

Such anomalies have a variety of origins. They may be caused by agricultural practice (recent ploughing trends, earlier ridge and furrow regimes or land drains), natural geomorphological features such as palaeochannels or by infilled archaeological ditches.

APPENDIX 2 SURVEY LOCATION INFORMATION

An initial survey base station was established using a Trimble VRS differential Global Positioning System (dGPS). The magnetometer data was georeferenced using a Trimble RTK differential Global Positioning System (Trimble R8s model).

Temporary sight markers were laid out using a Trimble VRS differential Global Positioning System (Trimble R8s model) to guide the operator and ensure full coverage. The accuracy of this dGPS equipment is better than 0.01m.

The survey data were then super-imposed onto a base map provided by the client to produce the displayed block locations. However, it should be noted that Ordnance Survey positional accuracy for digital map data has an error of 0.5m for urban and floodplain areas, 1.0m for rural areas and 2.5m for mountain and moorland areas. This potential error must be considered if coordinates are measured off hard copies of the mapping rather than using the digital coordinates.

Headland Archaeology cannot accept responsibility for errors of fact or opinion resulting from data supplied by a third party.

APPENDIX 3 GEOPHYSICAL SURVEY ARCHIVE

The geophysical archive comprises:

› an archive disk containing the raw data in XYZ format, a raster image of each greyscale plot with associate world file, and a PDF of the report

The project will be archived in-house in accordance with recent good practice guidelines (http://guides.archaeologydataservice.ac.uk/g2gp/Geophysics_3). The data will be stored in an indexed archive and migrated to new formats when necessary.

APPENDIX 4 OASIS DATA COLLECTION FORM: ENGLAND

OASIS ID: headland5-249547

PROJECT DETAILS	
PROJECT NAME	M11 Junction 7a, Essex
SHORT DESCRIPTION OF THE PROJECT	Headland Archaeology (UK) Ltd undertook a geophysical (magnetometer) survey, covering approximately 16 hectares on land north-east of Harlow, Essex, to provide information on the archaeological potential of the site of a new motorway junction and associated link road. The survey has identified a probable barrow along the route of the proposed link road along with linear anomalies (ditches) which may form part of an early field system. Elsewhere, anomalies have been identified which reflect the historical layout and division of the agricultural landscape as recorded on early Ordnance Survey maps. Therefore, on the basis of the geophysical survey, the archaeological potential across the majority of the site is assessed as being low although a high archaeological potential is ascribed to the area around the probable barrow.
PROJECT DATES	Start: 21-03-2016 End: 24-03-2016
PREVIOUS/FUTURE WORK	Not known / Not known
ANY ASSOCIATED PROJECT REFERENCE CODES	MEJS - Sitecode
ANY ASSOCIATED PROJECT REFERENCE CODES	01 - Contracting Unit No.
TYPE OF PROJECT	Field evaluation
SITE STATUS	None
CURRENT LAND USE	Cultivated Land 4 - Character Undetermined
MONUMENT TYPE	N/A None
MONUMENT TYPE	N/A None
SIGNIFICANT FINDS	N/A None
SIGNIFICANT FINDS	N/A None
METHODS & TECHNIQUES	"Geophysical Survey"
DEVELOPMENT TYPE	Road scheme (new and widening)
PROMPT	National Planning Policy Framework - NPPF
POSITION IN THE PLANNING PROCESS	Not known / Not recorded
SOLID GEOLOGY (OTHER)	London Clay Formation
DRIFT GEOLOGY (OTHER)	Head
TECHNIQUES	Magnetometry
PROJECT LOCATION	
COUNTRY	England
SITE LOCATION	ESSEX HARLOW HARLOW M11 Junction 7a
POSTCODE	CM17 0NG
STUDY AREA	16 Hectares
SITE COORDINATES	TL 549462 212405 51.867720180389 0.250756673246 51 52 03 N 000 15 02 E Point
PROJECT CREATORS	

NAME OF ORGANISATION	Headland Archaeology
PROJECT BRIEF ORIGINATOR	Ringway Jacobs
PROJECT DESIGN ORIGINATOR	Headland Archaeology
PROJECT DIRECTOR/MANAGER	Harrison, S
PROJECT SUPERVISOR	Harrison, D
TYPE OF SPONSOR/FUNDING BODY	Developer

PROJECT ARCHIVES

PHYSICAL ARCHIVE EXISTS?	No
DIGITAL ARCHIVE EXISTS?	No
DIGITAL MEDIA AVAILABLE	"Geophysics"
PAPER ARCHIVE EXISTS?	No
PAPER MEDIA AVAILABLE	"Report"

PROJECT BIBLIOGRAPHY 1

PUBLICATION TYPE	Grey literature (unpublished document/manuscript)
TITLE	M11 Juntion 7A, Essex; Geophysical Survey
AUTHOR(S)/EDITOR(S)	Harrison, D.
DATE	2016
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PLACE OF ISSUE OR PUBLICATION	Leeds
DESCRIPTION	A4 report

ENTERED BY	David Harrison (david.harrison@headlandarchaeology.com)
ENTERED ON	25 April 2016

SOUTH & EAST
Headland Archaeology
Building 68C, Wrest Park, Silsoe
Bedfordshire MK45 4HS

01525 861 578
southandeast@headlandarchaeology.com

MIDLANDS & WEST
Headland Archaeology
Unit 1, Clearview Court, Twyford Road
Hereford HR2 6JR

01432 364 901
midlandsandwest@headlandarchaeology.com

NORTH
Headland Archaeology
Unit 16, Hillside, Beeston Road
Leeds LS11 8ND

0113 387 6430
north@headlandarchaeology.com

SCOTLAND
Headland Archaeology
13 Jane Street
Edinburgh EH6 5HE

0131 467 7705
scotland@headlandarchaeology.com

www.headlandarchaeology.com