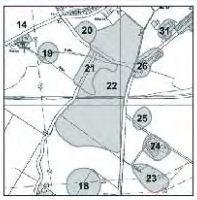
RFUW/02
DRAFT








ROCKFIELD FARM, UNDY

MONMOUTHSHIRE

Geophysical Survey

For Monmouthshire County Council

July 2016

HEADLAND ARCHAEOLOGY

DRAFT REPORT

ROCKFIELD FARM, UNDY

MONMOUTHSHIRE

Geophysical Survey

For Monmouthshire County Council

July 2016

HA Job no.:	RFUW/02
NGR:	343756,187724
Community:	Undy
Council:	Monmouth
Planning ref.:	Pre-application

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Alistair Webb BA MCIfA

DRAFT REPORT
CONTENTS

DRAFT REPORT

LIST OF ILLUSTRATIONS

ROCKFIELD FARM, UNDY, MONMOUTHSHIRE

GEOPHYSICAL SURVEY

Headland Archaeology (UK) Ltd undertook a geophysical (magnetometer) survey covering 12 hectares at Rockfield Farm, Undy, Monmouthshire, ahead of the proposed development of the site. The survey also covered 2.8 hectares to the north of the proposed development area which is designated as a safeguarding area for the M4 motorway relief road. The geophysical survey has identified linear anomalies consistent with a medieval and post-medieval agricultural landscape locating former strip field boundaries as well as evidence of later ridge and furrow ploughing. Anomalies probably locating remnant earthworks, possibly associated with post-medieval stock enclosure, are also identified. A single curvilinear anomaly of uncertain origin has been identified and has tentatively been interpreted as of possible archaeological origin. However, a non-archaeological cause is equally plausible. Based on the results of the survey and considering the conclusions of the desk-based assessment the archaeological potential of both the Outline Application Area and the M4 Safeguarding Area is considered to be low.

1 INTRODUCTION

Headland Archaeology (UK) Ltd was commissioned by Monmouthshire County Council (the Client) to undertake a geophysical (magnetometer) survey at Rockfield Farm, Undy to inform a planning application for a proposed development. The survey will inform forthcoming archaeological strategy in advance of the proposed development. The commission also included the survey of an additional area, outside of the Outline Application Area (OAA), which is designated as a Safeguarding Area for the M4 motorway relief road (see Illus 1).

The survey was carried out in accordance with a Written Scheme of Investigation (Headland Archaeology 2016) provided to the Client and approved by the Glamorgan Gwent Archaeological Trust's Archaeological Planning Officer (GGAT-APO). The requirements of Planning Policy Wales (Edition 8, January 2016), Ch.6 Conserving the Historic Environment and within Welsh Office Circular 60/96 Planning and the Historic Environment: Archaeology) and current best practice (English Heritage 2008) were also followed.

The survey was carried out between July 4th and July 6th 2016 in order to provide further information on the archaeological potential of the OAA.

1.1 SITE LOCATION, TOPOGRAPHY AND LAND-USE

The OAA comprises five fields (F1-F5) totalling 12 hectares around Rockfield Farm, Undy (NGR 343756, 187724). It is bound to the north by the Safeguarding Area for the M4 motorway relief road (which in turn, is bound to the north by the M48 motorway), to the east and west by pasture and to the south by residential properties and the B4245 Elms Hill. All fields were under pasture at the time of the survey (see Illus 2-7).

The OAA was gently undulating ranging from approximately 16m above Ordnance Datum (aOD) in the south-east to approximately 31m aOD in the north-west and 38m aOD in the south-west.

1.2 GEOLOGY AND SOILS

The underlying geology across the OAA comprises Limestone of the Black Rock Subgroup – Dolostone group in the north-west, the centre and south-and Mercia Mudstone – Conglomerate to the east and north (see Illus 8 - NERC 2016). No superficial deposits are recorded.

The soils are classified in the Soilscape 6 association, characterised as freely draining, slightly acid loams (Cranfield University 2016).

2 ARCHAEOLOGICAL BACKGROUND

An Archaeological Desk-based Assessment (DBA) (Headland Archaeology 2016) identified '*that there are earthwork features … including former field boundaries and features that probably relate to stock control in the post-medieval period*''. These features are recorded as Historic Assets on the Glamorgan Gwent Archaeological Trust (GGAT) Historic Environment Record. In the wider study area two Scheduled Monuments have been identified. To the south-east of the OAA, a moated earthwork is recorded as the site of a former manor house (MM198 - see Illus 9). Approximately 600m to the east of the OAA there is a standing stone (MM068) of likely prehistoric origin. The DBA concluded that there was the potential for other currently unknown below ground archaeological remains within the OAA.

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 the proposed development on any potential sub-surface archaeological remains.

The general archaeological objectives of the geophysical survey were:

- to provide information about the nature and possible interpretation of any magnetic anomalies identified;
- to therefore model the presence/absence and extent of any buried archaeological features; and
- to prepare a report summarising the results of 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. A feature 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.

Marker canes were laid out using a Trimble VRS differential Global Positioning System (Trimble GeoXR model).

3.2 REPORTING

A general site location plan is shown in Illus 1 at a scale of 1:5,000. Illus 2 to Illus 7 are general site condition photographs. A large-scale (1:2,000) survey location plan showing the location and orientation of the photographs, overlain with geology and contour detail is presented in Illus 8. Illus 9 shows the historic assets recorded within the DBA at 1:2,000. Illus 10 shows the processed greyscale magnetometer data at the same scale. Illus 11 is an overall interpretation of the data at 1:2,000.

Detailed data plots (greyscale and XY trace) and interpretative illustrations are presented at a scale of 1:1,500 in Illus 12 to Illus 17 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.

The survey methodology, report and any recommendations comply with the Written Scheme of Investigation (Headland Archaeology 2016) and guidelines outlined by English Heritage (English Heritage 2008) and by the Chartered Institute for Archaeologists (CIfA 2014). All illustrations reproduced from Ordnance Survey 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

Magnetic Background

Generally, a variable magnetic background has been identified throughout the OAA and the M4 Safeguarding Area. This is due to near-surface variations in the underlying bedrock. Against this background numerous areas of magnetic enhancement (anomalies)

have been identified. The anomalies identified are discussed below and cross-referenced to the specific anomalies on the interpretive drawings where appropriate (see Illus 11).

4.1 OUTLINE APPLICATION AREA

4.1.1 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 high magnitude dipolar linear anomaly (**A** - see Illus 15-17) is recorded aligned north-west to south-east in F4. This anomaly is interpreted as an underground service pipe.

Several areas of broad magnetic disturbance have been identified within the survey area. To the south-west of F3 (**B** – see Illus 15-17) the disturbance is caused by farm machinery (See Illus 5) and possibly tipping. The disturbance to the east of F2 (**C** – see Illus 15-17) and the north of in F5 (**D** – see Illus 12-14) are both caused by the proximity of animal feeders.

Other areas of disturbance around the perimeter of the field edges can be attributed to the proximity of post and wire fencing and/or other ferrous material within the boundaries.

4.1.2 AGRICULTURAL ANOMALIES

Four parallel linear anomalies have been identified in F1 (**E**, **F**, **G**, and **H** - see Illus 12-14) aligned north-west/south-east. These anomalies correspond with strip field boundaries recorded on the 1842 Undy Tithe map. All of these boundaries had seemingly been lost by 1881 as they are not recorded on the first edition Ordnance Survey (OS) map. The alignment of these former boundaries is fossilised in the landscape by the extant boundary that separates F1 and F2. Lower magnitude linear trend anomalies on the same north-west/south-east alignment in F1 and across F2 are also interpreted as of agricultural origin being due to cultivation within the strip fields. In F1 the strip fields extend only as far as the bottom of the bank which locates a distinct mound in the landscape (see Illus 2).

Three other boundaries recorded on the tithe map but which are no longer extant by 1881 are identified as linear anomalies (**I**, **J** and **K** see Illus 12-17). Low magnitude anomaly, **I**, is aligned north/south at the western edge of F1 on the mound. Curvilinear anomaly **J** is located broadly parallel with the southern boundary of F5 and Anomaly **K** is aligned south-west/north-east in F3, to the east of Rockfield Farm.

Anomaly **L**, also in F3 and aligned north-west/south-east, is similarly recorded as a boundary on the 1842 tithe map but by 1881 has fallen out of use as a boundary and is recorded as a footpath on all the Ordnance Survey editions up until the 1950s.

All other linear trend anomalies parallel with the former boundaries are due to cultivation within the strip fields.

The only anomalies that do not conform with this pattern are the closely spaced parallel anomalies aligned north-west/south-east in the south-eastern corner of F5 (**M** – see Illus 12-17). These anomalies are possibly indicative of ridge and furrow cultivation.

Much less regular and discontinuous anomalies recorded in F5 broadly correspond with the mapped locations of historic assets HA4 and HA2 identified in the DBA (Headland 2016). These features survive as slight earthwork banks (identified on LIDAR data) and have been interpreted as of likely post-medieval date possibly associated with stock enclosure. The anomalies (**N, O** and **P** – see Illus 12-14) correlate with the remnants of these former upstanding features.

4.1.3 GEOLOGICAL AND TOPOGRAPHICAL ANOMALIES

Linear trends in the data (**Q** – see Illus 15-17), aligned north/south along the eastern edge of F3 and F4, correspond closely with the contour data (see Illus 8) and are caused by the build-up of soil at breaks of slope. A similar build-up of soil causes the curvilinear anomaly (R – see Illus 12-14) which marks the base of the east/west aligned mound (see Illus 2).

Throughout the site numerous discrete anomalies, characterised as small areas of enhanced magnetic response are identified. These anomalies are due to variations in the composition of the plough-soil.

4.1.4 POSSIBLE ARCHAEOLOGICAL ANOMALIES

No anomalies of probable archaeological potential have been identified by the survey. However, one curvilinear trend anomaly (**S** – see Illus 12-14) of uncertain origin is highlighted as being of possible archaeological interest. The anomaly is identified in an elevated position in the north-west of the OAA and cannot readily be interpreted as agricultural or geological in origin as it does not align to any geological or topographical changes, or to the alignment of any boundaries. Therefore, a possible archaeological origin cannot be dismissed.

4.2 SAFEGUARDING AREA FOR M4 RELIEF ROAD

No anomalies of archaeological potential have been identified within the Safeguarding Area for the M4 motorway relief road. Series of parallel linear anomalies are identified throughout. Within the east of F1 the linear anomalies (**G**, and **H** - see Illus 12-14) correspond with strip field boundaries recorded on the 1842 Undy Tithe map. All other linear trend anomalies across the northern parts of F1-F3 are parallel with both the historical and existing pattern of land division and are likely to be due to former strip fields.

Broad curvilinear anomalies (**Q** – see Illus 15-17) aligned roughly north/south within the east of Field 3 correspond closely with the contour data (see Illus 8) and are caused by the build-up of soil at breaks of slope.

5 CONCLUSION

The geophysical survey has identified linear anomalies throughout the OAA and the Safeguarding Area for the M4 motorway relief road which are consistent with a medieval and post-medieval agricultural landscape. The anomalies probably locate former strip field boundaries as well as later ridge and furrow ploughing. Anomalies probably locating remnant earthworks, possibly associated with post-medieval stock enclosure, are also identified within the OAA. The majority of these features have previously been recorded in a desk-based assessment.

Anomalies indicative of geological and topographical variation are also noted throughout. One curvilinear trend anomaly of possible archaeological origin has been located in an elevated position within the north-west of the OAA. However, this interpretation is considered tentative and a modern, agricultural or even a geological origin is also plausible. Therefore, based solely on the results and interpretation of the geophysical survey data, the archaeological potential of both the OAA and the M4 Safeguarding Area is assessed as low.

6 REFERENCES

Chartered Institute for Archaeologists (CIfA) 2014 Standard and guidance for archaeological geophysical survey [online document] Accessed 6 June 2016 from http://www.archaeologists.net/sites/default/files/CIfAS&GGeophysics_1.pdf

Cranfield University 2016 Cranfield Soil and Agrifood Institute Soilscapes [online] Accessed 12 July 2016 from www.landis.org.uk/soilscapes/

Department of Communities and Local Government (DCLG) 2012 National Planning Policy Framework [online document] Accessed 6 June 2016 from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf

English Heritage 2008 Geophysical Survey in Archaeological Field Evaluation: Research and Professional Services Guidelines (2nd edition) [online document] Accessed 6 June 2016 from http://content.historicengland.org.uk/images-books/publications/geophysical-survey-in-archaeological-field-evaluation/geophysics-guidelines.pdf

Gaffney, C & Gater, J 2003 Revealing the Buried Past: Geophysics for Archaeologists The History Press: Stroud

Headland Archaeology, 2016. *Rockfield Farm, Undy, Monmouthshire Geophysical Survey Written Scheme of Investigation* Unpublished document

Headland Archaeology, 2015. *Rockfield Farm, Undy, Monmouthshire Archaeological Desk-Based Assessment* Unpublished document

Natural Environment Research Council (NERC) 2016 British Geological Survey [online] Accessed 12 July 2016 from http://www.bgs.ac.uk/

APPENDIX 1 MAGNETOMETER SURVEY

1.1 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.

1.2 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 (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

The site grid was laid out using a Trimble VRS differential Global Positioning System (Trimble GeoXR model). The accuracy of this equipment is better than 0.01m. The survey grids 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, and a PDF of the report

The digital archive will be submitted to The National Monuments Record of Wales (NMRW) in accordance with the RCAHMS Guidelines for Archiving of Archaeological Projects (V13, 2013). The project will also 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.

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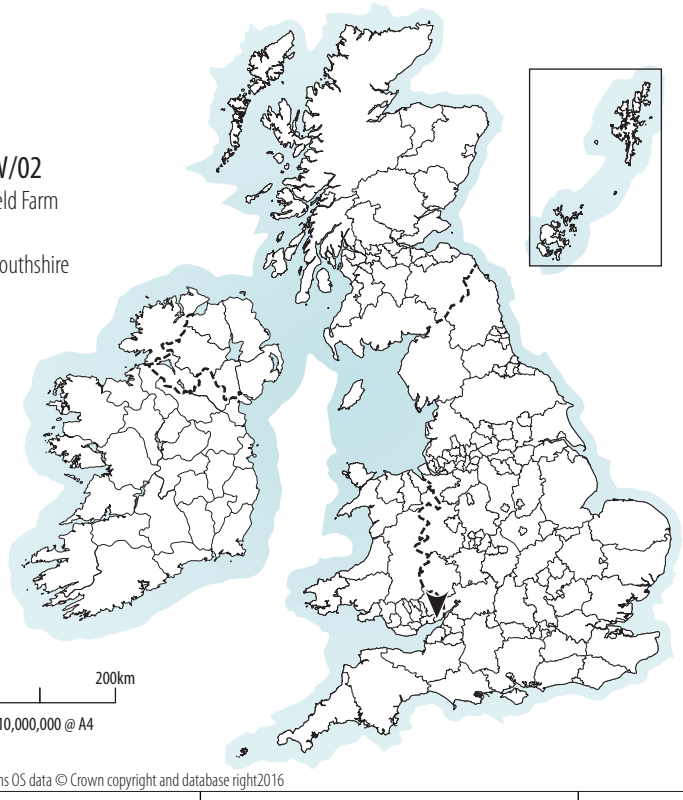
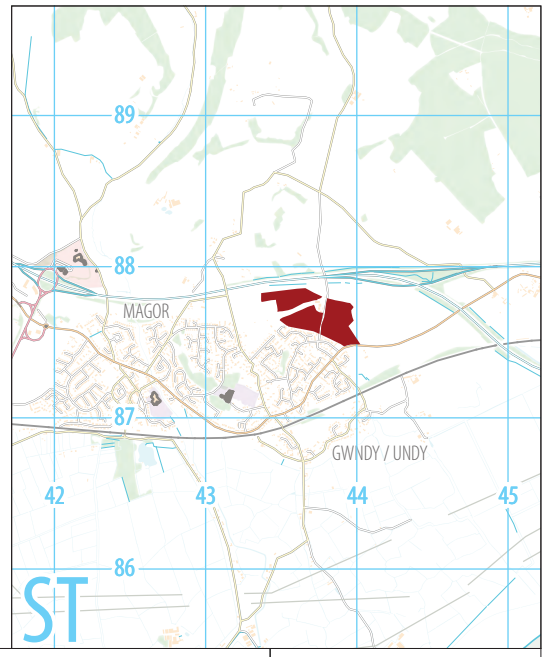
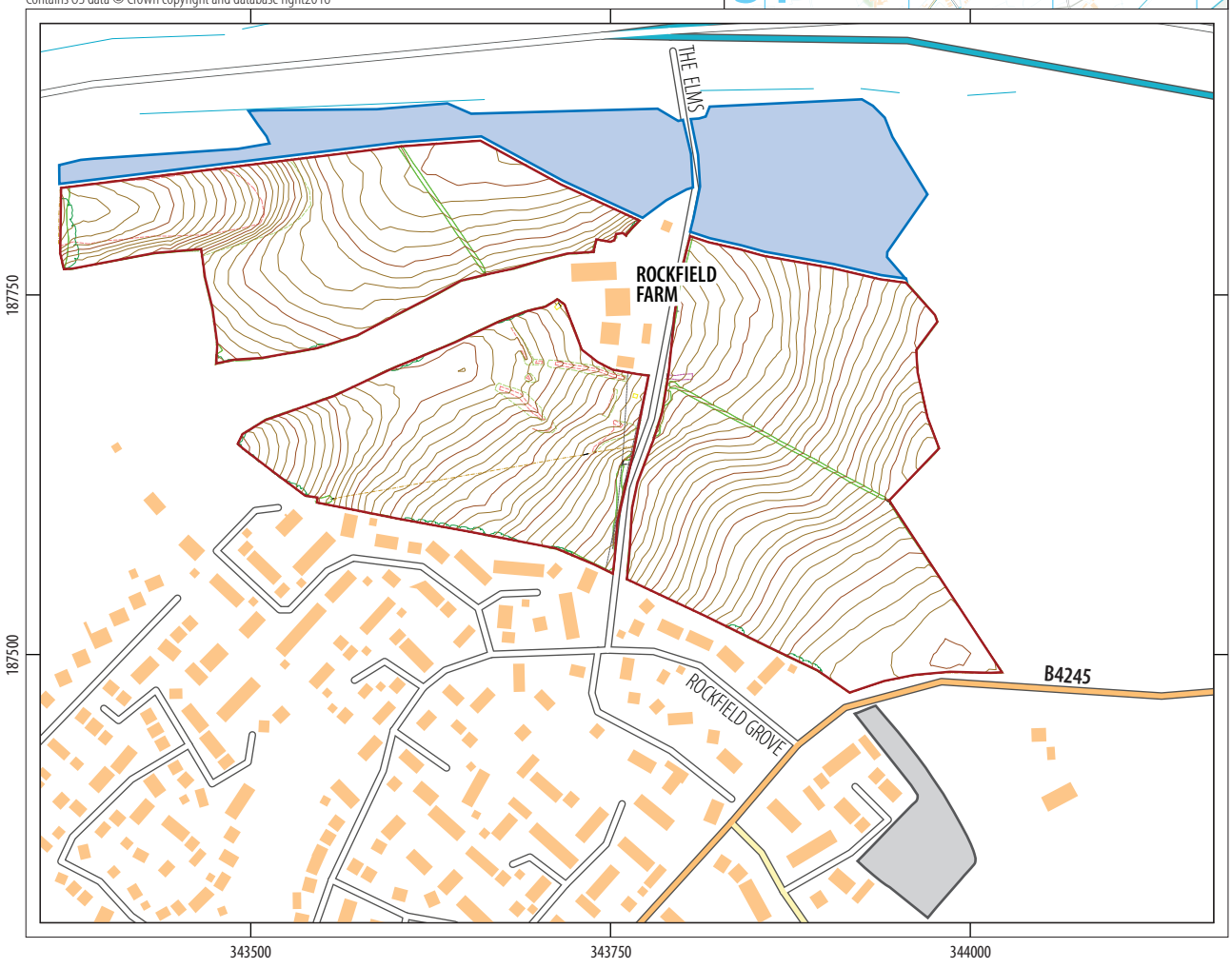
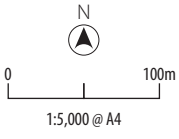
Monmouthshire









KEY
- outline application area
- safeguarding area for M4 relief road
- scheduled monument

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ILLUS 1 Site location

Illus 2. General view of Field 1, looking south-west

Illus 3. General view of Field 2, looking north-west

Illus 4. General view of Field 3, looking south-east

Illus 5. General view of Field 4, looking north-east

Illus 6. General view of Field 5, looking north-west

Illus 7. General view of Field 6, looking north-east

343400
343600
343800
344000
187800
187600
FIELD 1
FIELD 2
FIELD 3
FIELD 4
FIELD 5
Rockfield Farm
B4245
2
3
4
5
6
7

Outline Application Area
Safeguarding Area for M4 relief road
Location and direction of ILLUS 2-7

BEDROCK GEOLOGY
Mercia Mudstone Group - Conglomerate
Black Rock Limestone Subgroup - Dolostone

nT
-1.0
2.0
N
0
50m
scale 1:2,000 @ A3

PROJECT Rockfield Farm
Undy
Monmouthshire
(RFUW/02)

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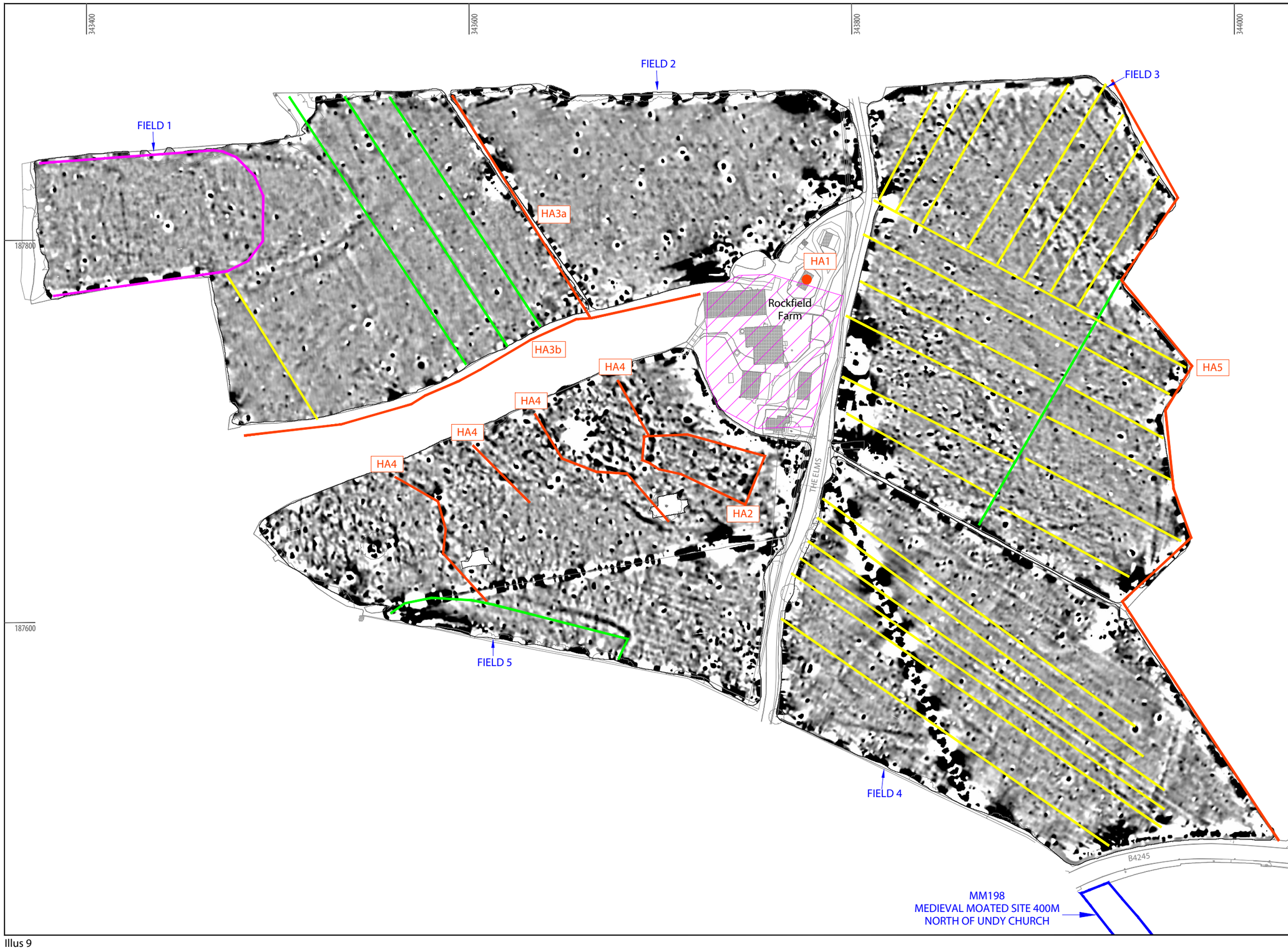
Illus 8
Survey location showing location of Illus 2-7 overlain with contour and geology detail (after NERC 2016)



Illus 9
Greyscale magnetometer data showing historic assets identified by archaeological desk-based assessment (Headland 2016)

343400
343600
343800
344000
187800
187600

FIELD 1
FIELD 2
FIELD 3
FIELD 4
FIELD 5

SECTOR 1
SEE ILLUS 12-14

SECTOR 2
SEE ILLUS 15 - 17

Rockfield Farm

THE ELMS

B4245

Safeguarding Area for M4 relief road
Sector boundary

nT
-1.0
2.0

N

0
50m
scale 1:2,000 @ A3

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Illus 10
Overall greyscale magnetometer data

Safeguarding Area for M4 relief road

Sector boundary

TYPE OF ANOMALY	INTERPRETATION
Dipolar Isolated	Ferrous Material
Magnetic Disturbance	Ferrous Material
Dipolar Linear	Service Pipe
Linear Trend	Ridge and Furrow?
Linear Trend	Ploughing
Linear	Boundaries recorded on 1842 tithe map
Linear	Probable Strip Field Boundaries
Magnetic Enhancement	Earthwork?
Linear Trend	Geology/ Topography
Magnetic Enhancement	Geology
Linear Trend	Archaeology?

N

0 50m

scale 1:2,000 @ A3

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Illus 11
Overall interpretation of magnetometer data

343400
343500
343600
343700

187900
187800
187700
187600
187500

FIELD 1
FIELD 2
FIELD 5

Safeguarding Area for M4 relief road
Sector boundary

nT
-1.0
2.0

N
0
50m
scale 1:1,500 @ A3

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Illus 12
Processed greyscale magnetometer data; Sector 1

343400
343500
343600
343700
187900
187800
187700
187600
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FIELD 1
FIELD 2
FIELD 5
Safeguarding Area for M4 relief road
Sector boundary
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scale 1:1,500 @ A3
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Illus 13
XY trace plot of magnetometer data; Sector 1

343400 343500 343600 343700

187900 187800 187700 187600 187500

FIELD 1 FIELD 2 FIELD 5

I S R G H F E D P N O M J

Safeguarding Area for M4 relief road
Sector boundary

TYPE OF ANOMALY	INTERPRETATION	TYPE OF ANOMALY	INTERPRETATION
Dipolar Isolated	Ferrous Material	Linear	Geological Variation
Magnetic Disturbance	Ferrous Material	Magnetic Enhancement	Geology
Linear Trend	Ridge and Furrow?	Linear Trend	Archaeology?
Linear Trend	Ploughing		
Linear	Boundaries recorded on 1842 tithe map		
Magnetic Enhancement	Earthwork?		

N
0 50m
scale 1:1,500 @ A3

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Illus 14
Interpretation of magnetometer data; Sector 1

343400
343500
343600
343700
187900
187800
187700
187600
187500
FIELD 2
FIELD 3
FIELD 4
FIELD 5
Rockfield Farm
THE ELMS
B4245

Safeguarding Area for M4 relief road
Sector boundary

nT
-1.0
2.0
N
0
50m
scale 1:1,500 @ A3

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Illus 15
Processed greyscale magnetometer data; Sector 2

343400
343500
343600
343700
187900
187500
FIELD 2
FIELD 3
FIELD 4
FIELD 5
Rockfield Farm
THE ELMS
B4245

Safeguarding Area for M4 relief road
Sector boundary

20.0nT/cm
N
0
50m
scale 1:1,500 @ A3

PROJECT Rockfield Farm
Undy
Monmouthshire
(RFUW/02)

CLIENT Monmouth County Council

Reproduced using survey data provided by Orion Heritage Ltd.

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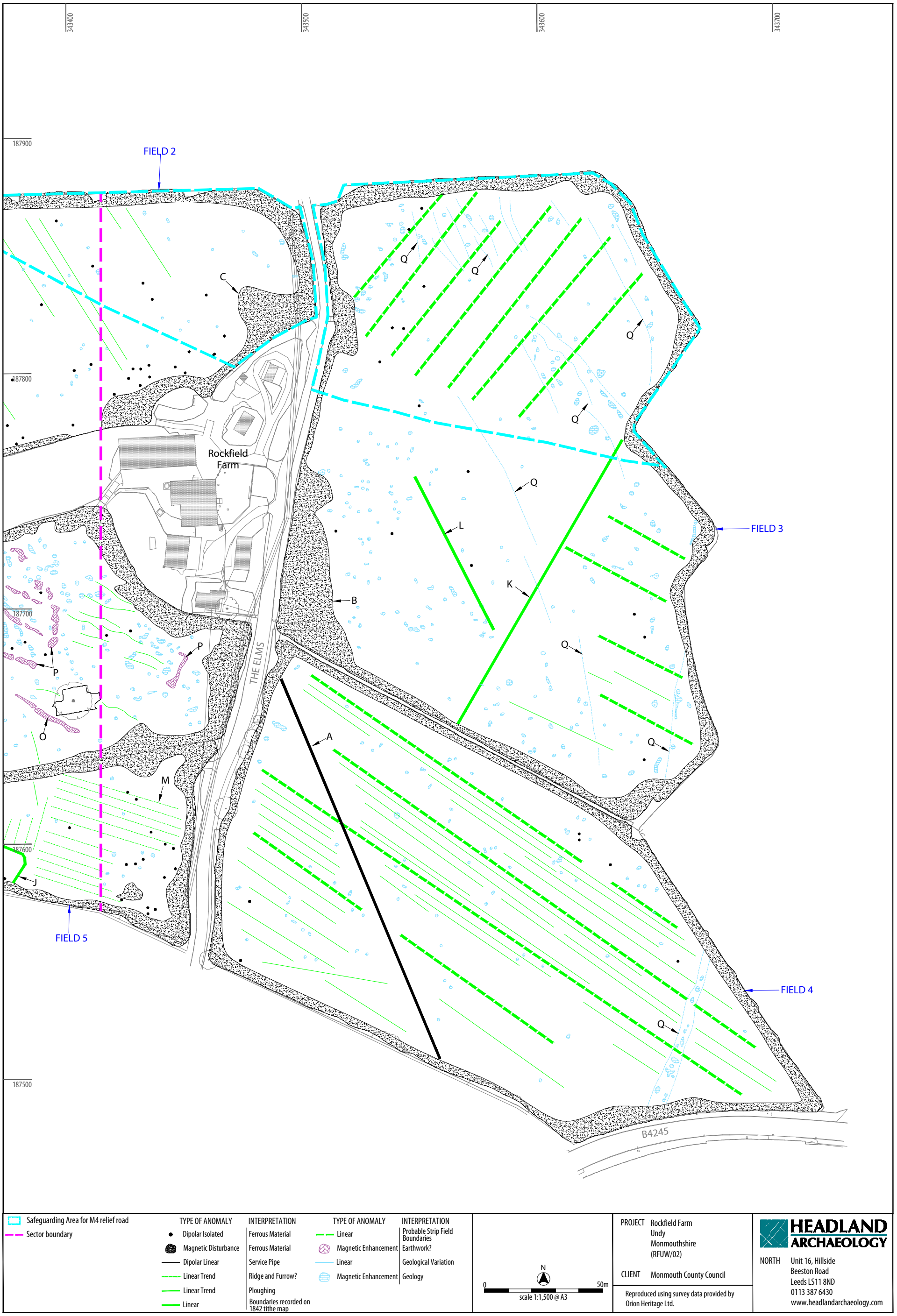
Illus 16
XY trace plot of magnetometer data; Sector 2



Illus 17
Interpretation of magnetometer data; Sector 2