ARCHAEOLOGICAL SERVICES WYAS

# Land at Stonemead Farm
# Worminster Down
# Somerset

## Geophysical Survey

Report no. 2634

June 2014

Client: Cotswold Archaeology

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# Land at Stonemead Farm
# Worminster Down
# Somerset

## Geophysical Survey

*Summary*

*A geophysical (magnetometer) survey covering approximately 43 hectares was carried out on Worminster Downs, near Wells, Somerset, to support a planning application for a proposed solar park development. Three definite areas of archaeological activity have been identified including a probable Romano-British 'ladder' settlement identified in the vicinity of a previously recorded cluster of Roman pottery and quern stone surface finds. No anomalies have been identified to corroborate the presence of the Roman road or possible Iron Age hillfort which are recorded as being within the proposed development area in the Somerset Historic Environment Record.*

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## Report Information

| | |
|---|---|
| Client: | Cotswold Archaeology |
| Address: | Building 11, Kemble Enterprise Park, Kemble, Cirencester, GL7 6BQ |
| Report Type: | Geophysical Survey |
| Location: | Stonemead Farm, Worminster Down |
| District: | North Wootton |
| County: | Somerset |
| Grid Reference: | ST 562 430 |
| Period(s) of activity: | Roman? |
| Report Number: | 2634 |
| Project Number: | 4247 |
| Site Code: | SMF14 |
| OASIS ID: | archaeol11-186389 |
| Museum Accession No.: | n/a |
| Date of fieldwork: | May - June 2014 |
| Date of report: | June 2014 |
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| Illustrations: | Sam Harrison |
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| Research: | n/a |

Authorisation for distribution: ---------------------------------------------------


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# 1 Introduction

Archaeological Services WYAS (ASWYAS) were commissioned by Cotswold Archaeology (CA), to undertake a geophysical (magnetometer) survey of land at Stonemead Farm, Worminster Down, Somerset (see Fig. 1), in order to support a planning application for a proposed solar park development. The work was undertaken in accordance with a Project Design (Harrison 2014) supplied to and approved by CA, with guidance contained within the National Planning Policy Framework (2012) and in line with current best practice (David *et al.* 2008). The survey was carried out between May 26th and June 6th 2014 in order to provide additional information on the archaeological potential of the site.

**Site location, topography and land-use**

The Proposed Development Area (PDA) is located at Worminster Down, 3km south-east of the town of Wells, Somerset and centred at ST 562 430. The site comprised of three irregularly-shaped pasture fields (Fields 1 – 3; see plates) which are bound by woodland on all but the southern side, which is bound by agricultural farmland (see Fig. 2).

Worminster Down lies upon a prominent hilltop which is flanked on all sides by steep slopes. The topography on the top of the hill is undulating (see Fig.3) but trends towards a low ridge at the centre of the site which lies at approximately 115m above Ordnance Datum.

**Soils and geology** (see Fig. 3)

The solid geology comprises linear bands of sedimentary rock formations which are aligned north-west/south-east. The formations include mudstone of the Langport Member, Blue Lias Formation, Charmouth Mudstone, Mercia Mudstone and Blue Anchor Formation. No superficial deposits are recorded across any part of the site (British Geological Survey 2014).

The soils are classified in the Worcester association, being characterised as slightly acidic loams and clays with impeded drainage (Soil Survey of England and Wales 1983).

# 2 Archaeological Background

An Archaeological Assessment (Cotswold Archaeology 2014) identified three potential heritage assets within the PDA (see Fig. 2). Within the north of the site, a possible hillfort is recorded, identified on aerial photographs as a series of concentric cropmarks, although subsequent analysis has indicated that the cropmarks are almost certainly the result of geological formation processes. The site is recorded within the Somerset Historic Environment Record (HER), Ref. 25369. Within the central-western part of the site surface finds of Roman pottery and quern stone fragments (HER 15942) are thought to be suggestive of possible Roman settlement. The English Heritage Archives record the route of a Roman road between Sea Mills to Hornblotton as passing though the east of the site, although there is no evidence of this route within the site or the wider environs, and the road course is assumed to be a projection based upon the joining of widely disparate known locations.

## 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 potential sub-surface archaeological remains and for further evaluation or mitigation proposals, if appropriate, to be recommended. To achieve this aim a magnetometer survey covering all parts of the PDA currently accessible was carried out.

The general objectives of the geophysical survey were:

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

**Magnetometer survey**

The site grid was laid out using a Trimble VRS differential Global Positioning System (Trimble 5800 model). Bartington Grad601 magnetic gradiometers were used during the survey, taking readings at 0.25m intervals on zig-zag traverses 1m apart within 30m by 30m grids, so that 3600 readings were recorded in each grid. These readings were stored in the memory of the instrument and later downloaded to computer for processing and interpretation. Geoplot 3 (Geoscan Research) software was used to process and present the data. Further details are given in Appendix 1.

**Reporting**

A general site location plan, incorporating the 1:50000 Ordnance Survey (OS) mapping, is shown in Figure 1. Figure 2 is a large scale survey location plan displaying the processed greyscale magnetometer data at a scale of 1:4000. Figure 3 depicts the geology detail of the site at the same scale. The overall data interpretation, also at a scale of 1:4000 is shown as Figure 4. Detailed data plots ('raw' and processed) and full interpretative figures are presented at a scale of 1:1000 in Figures 5 to 28 inclusive.

Further technical information on the equipment used, data processing and survey methodologies is given in Appendix 1 and Appendix 2. Appendix 3 describes the composition and location of the site archive.

The survey methodology, report and any recommendations comply with the Project Design (Harrison 2014) and guidelines outlined by English Heritage (David *et al.* 2008) and by the Institute for Archaeologists (IfA 2013). All figures reproduced from Ordnance Survey mapping are with the permission of the controller of Her Majesty's Stationery Office (© Crown copyright).

The figures 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 figures are presented to most suitably display and interpret the data from this site based on the experience and knowledge of Archaeological Services staff.

## 4 Results and Discussion (see Figs 5 to 28 inclusive)

Generally, a low level of background magnetic response has been recorded throughout the PDA with the majority of the identified magnetic anomalies (areas of magnetic enhancement) being concentrated within, or close to, two north-west/south-east bands. The reason for this disparity is thought to be geological in nature and is discussed in detail below. The anomalies identified by the survey fall into several different types and categories according to their origin. These are discussed below and cross-referenced to specific examples and locations within the site, where appropriate.

**Ferrous Anomalies**

Ferrous responses, either as individual ‘spike’ anomalies or more extensive areas of magnetic disturbance, are typically caused by modern ferrous (magnetic) debris, either on the ground surface or in the plough-soil, or are due to the proximity of magnetic material in field boundaries, buildings or other above ground features. Little importance is normally given to such anomalies, unless there is any supporting evidence for an archaeological interpretation, as ferrous debris or material is common on rural sites, often being present as a consequence of manuring or tipping/infilling. Throughout the PDA individual iron ‘spike’ anomalies are common but there is no obvious pattern or clustering to their distribution to suggest anything other than a random background scatter of ferrous debris in the soil.

Dipolar linear anomalies, **A**, **B**, **C, D** and **E,** locate the routes of sub-surface service pipes which traverse Field 2 in a number of directions. Anomalies **A, B** and **C** intersect at a broad area of magnetic disturbance, **F**, caused by a reservoir capped with a concrete platform and associated manhole covers (see Plate 4). Towards the north-east of the field, areas of magnetic disturbance, **G** and **H**, located along the length of service pipe **A** are caused by a water trough and an open manhole respectively.

Areas of magnetic disturbance at the perimeters of the fields are due to ferrous material forming part of, or adjacent to, the field boundaries.

**Agricultural Anomalies**

Analysis of historical mapping indicates that over the past 260 years the division and layout of land within the PDA has been altered by the removal of several field boundaries to create larger open fields. Seven of these former boundaries manifest within the PDA as faint, low-magnitude linear anomalies **I**, **J**, **K**, **L**, **M**, **N** and **O**, broadly aligned north/south. The anomalies are due to the contrast between the soil-filled ditch and the surrounding soils. Three east/west aligned former boundaries have not been detected by the survey, the reason for which is unclear but may be due to the traverse direction and subsequent data processing.

Alternatively, it is possible that there is insufficient contrast between the ditch fill and the soils within these parts of the site for the feature to manifest clearly as a magnetic anomaly.

Numerous linear and rectilinear anomalies have been identified by the survey, predominantly within the west of Field 2. The anomalies are 'speckled' in appearance and are typical of field drains. The magnetic response is caused by the properties of the material used to backfill the drains.

**Geological Anomalies**

Throughout the PDA north-west/south-east diffuse linear trends and discrete areas of magnetic enhancement of varying magnitude have been identified. These increase in frequency, and concentrate, within two bands, **P** and **Q**, which correspond closely to geological interfaces within the mudstone bedrock (see Fig. 3). The anomalies are thought to be caused by striations within the mudstone bedrock. Within the south-east of Field 2, higher magnitude linear anomalies which appear within one of these bands, **Q**, may have some archaeological potential (see below).

Throughout the survey area a plethora of discrete anomalies, characterised as localised areas of enhanced magnetic response, have been identified. These anomalies are also interpreted as geological in origin, being caused by variation in the composition of the soils from which they derive.

**Quarrying Anomalies**

An isolated cluster of amorphous anomalies, **R**, has been identified within the east of Field 3. The anomalies are thought to relate to an area of localised extraction, being caused by the magnetic material used as back-fill. The anomalies correspond to cropmarks visible on a 1946 aerial photograph.

**Possible Archaeological Anomalies**

A fragmented linear anomaly, **S**, can be seen traversing Field 1 and Field 2 on an east-west orientation. The anomaly corresponds closely to a geological boundary and may be due to near-surface geological variation, although the consistent magnitude and regularity of the anomaly is suggestive of a soil-filled feature, perhaps indicating a former boundary. However, as no former field boundaries are shown in this location on historical mapping, there is potential for this anomaly to have earlier origins.

Three further high-magnitude linear anomalies, **T**, **U**, **V**, within the south-east of Field 2 may be archaeological in nature, but in the absence of any clear archaeological pattern a geological or topographical origin is thought probable.

**Archaeological Anomalies**

Three areas of potential archaeological remains have been identified by the geophysical survey. These are characterised by linear and rectilinear anomalies (ditches) which appear to form patterns of land division and/or enclosure. They include:

*Area 1*

Within Field 1 a number of linear and rectilinear anomalies have been identified which appear to form up to five sub-square enclosures, **W**, **X**, **Y**, **Z**, **AA**. The enclosures are aligned north-east/south-west, parallel with the adjacent field boundary and appear to form a pattern of Romano-British ladder settlement. This interpretation is given further credence given the close proximity of the Roman pottery and quern stone find spot (HER 15942; see Fig. 2). Numerous discrete areas of magnetic enhancement, perhaps being due to pits, have been attributed a possible archaeological interpretation given their close proximity to the enclosures including a concentration of high magnitude anomalies, **AB**, towards the southern end of the settlement.

*Area 2*

Within the west of Field 2 a rectangular enclosure, **AC**, has been identified in an elevated location, appended to the corner of former field boundary, **L,** which is depicted on the 1766 Survey of the Manor of Worminster. The enclosure measures 20m by 25m and may be due to a small agricultural field, although the identification of linear and discrete areas of magnetic enhancement within the interior of the enclosure may indicate pits and ditches. Two short linear anomalies, **AD** and **AE**, to the east and west of the enclosure appear on the same north/south alignment and may form outlying former boundary ditches.

*Area 3*

Due south of **AC**, within the centre of Field 3, a clear rectilinear anomaly, **AF**, has been identified on a north-east/south-west orientation. A curvilinear anomaly, **AG**, is appended to its north-western extent. These anomalies indicate soil-filled ditches although their function is unclear. They do not appear to form complete enclosures although this may be as a result of subsequent ploughing. South and east of the ditches, a number of discrete areas of magnetic enhancement have been ascribed a possible archaeological interpretation due to their close proximity to the ditches, although they form no clear archaeological pattern and a geological cause is possible.

## 5 Conclusions

The magnetometer survey has identified three areas of archaeology within the central and southern parts of the PDA. The most extensive and obvious area is identified within the central-western part of the site and corresponds to the location of Roman pottery and quern stone surface finds (HER 15942). Here, up to five rectilinear enclosures have been identified in a pattern typical of Roman-British ladder settlement. Numerous anomalies within the interior of the enclosures may indicate occupational activity.

Two further areas of potential archaeological remains have been identified within the centre and south of the PDA as rectilinear anomalies, indicating soil-filled ditches, although their form and function is less obvious. It is likely that these anomalies indicate the plough-damaged remains of former enclosures of uncertain period.

Elsewhere, a possible former landscape boundary feature has been identified, dividing the site from east to west. The anomaly is not depicted on any historical mapping and therefore may have earlier origins.

No anomalies have been identified by the survey to confirm the presence of the Roman road or the Iron Age hillfort which are recorded within the PDA in the Somerset HER.

***The results and subsequent interpretation of data from geophysical surveys should not be treated as an absolute representation of the underlying archaeological and non-archaeological remains. Confirmation of the presence or absence of archaeological remains can only be achieved by direct investigation of sub-surface deposits.***

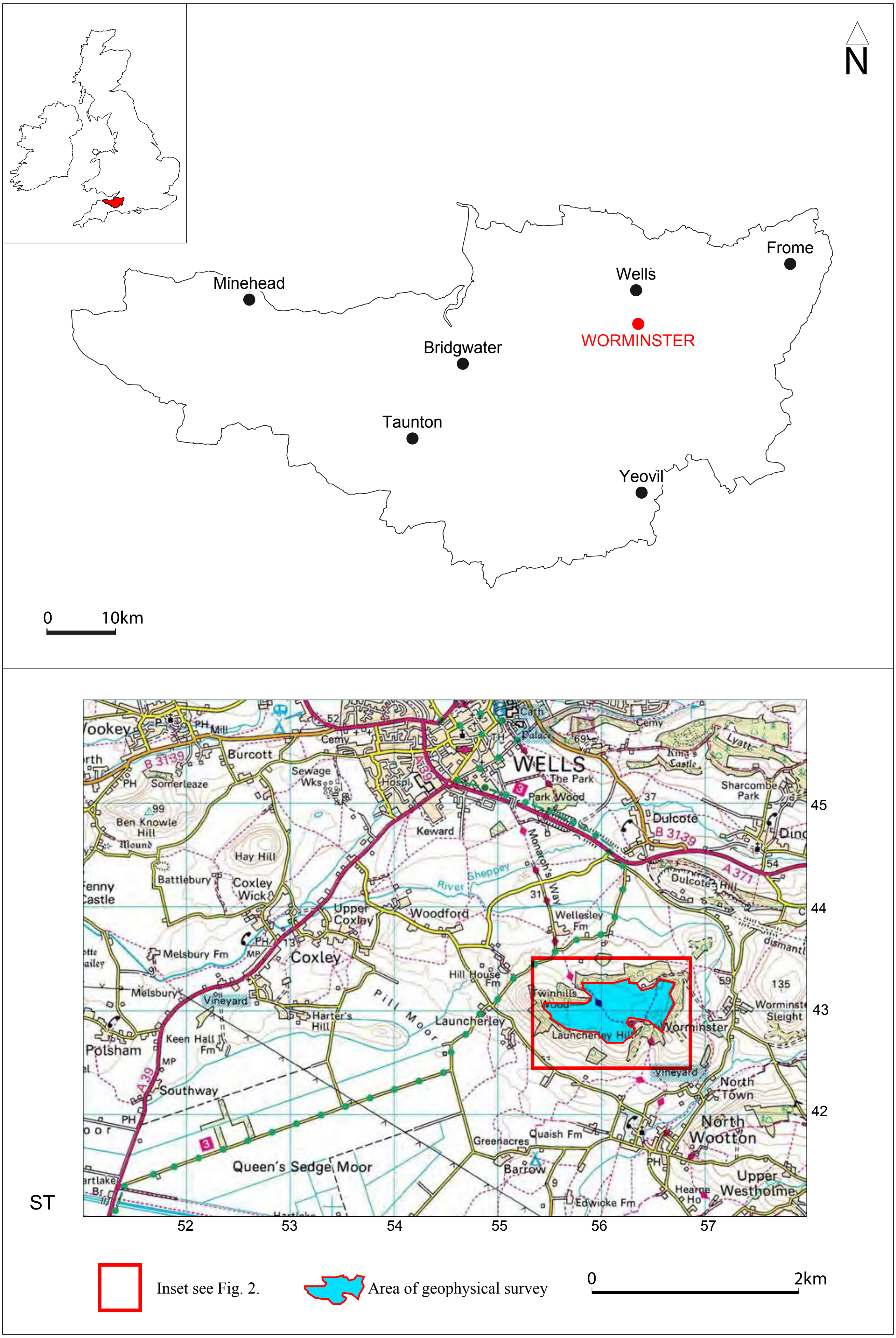


*Fig. 1. Site location*

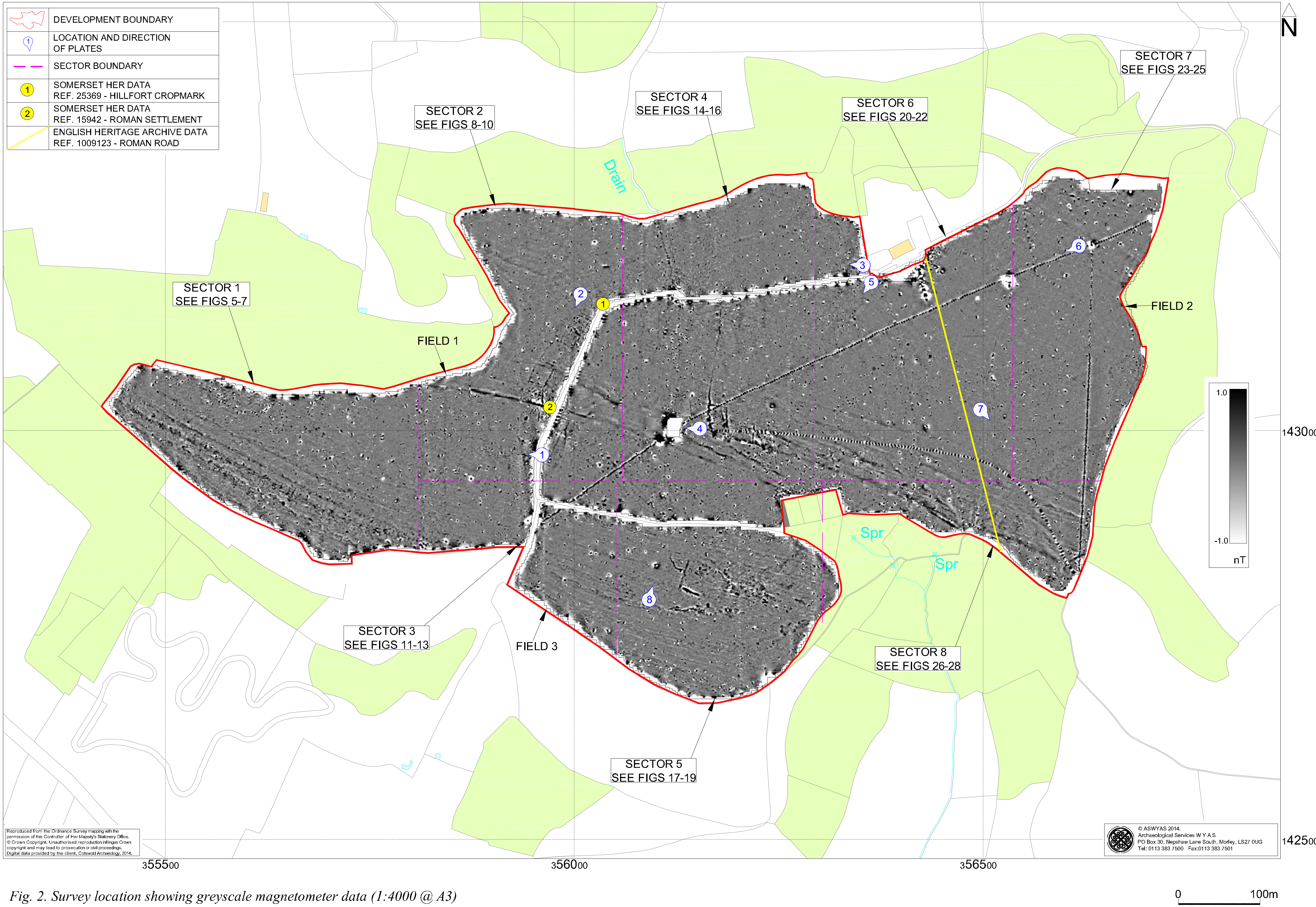


*Fig. 2. Survey location showing greyscale magnetometer data (1:4000 @ A3)*

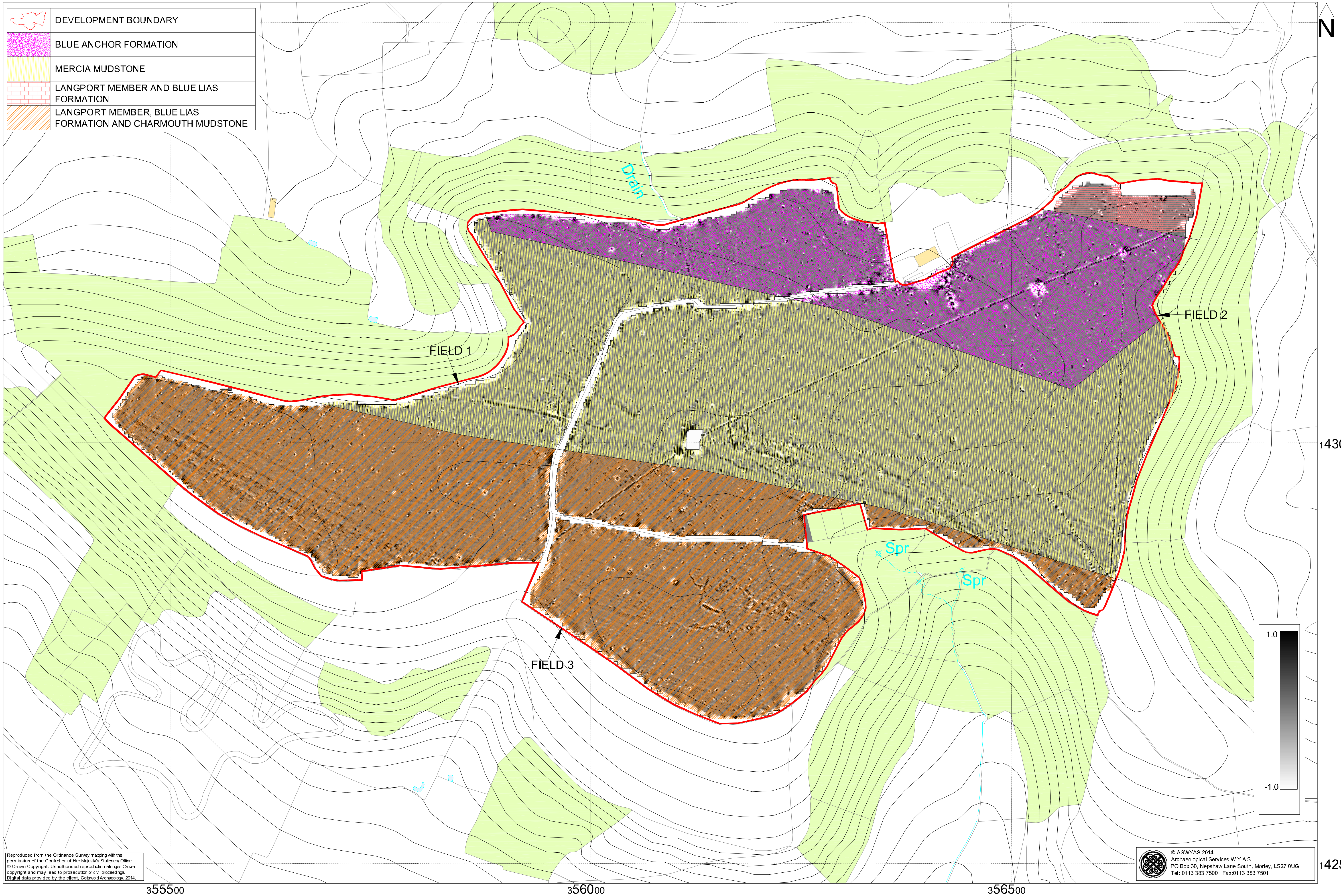


*Fig. 3. Survey location showing greyscale magnetometer data, geology detail (after BGS 2014) and contours (1:4000 @ A3)*

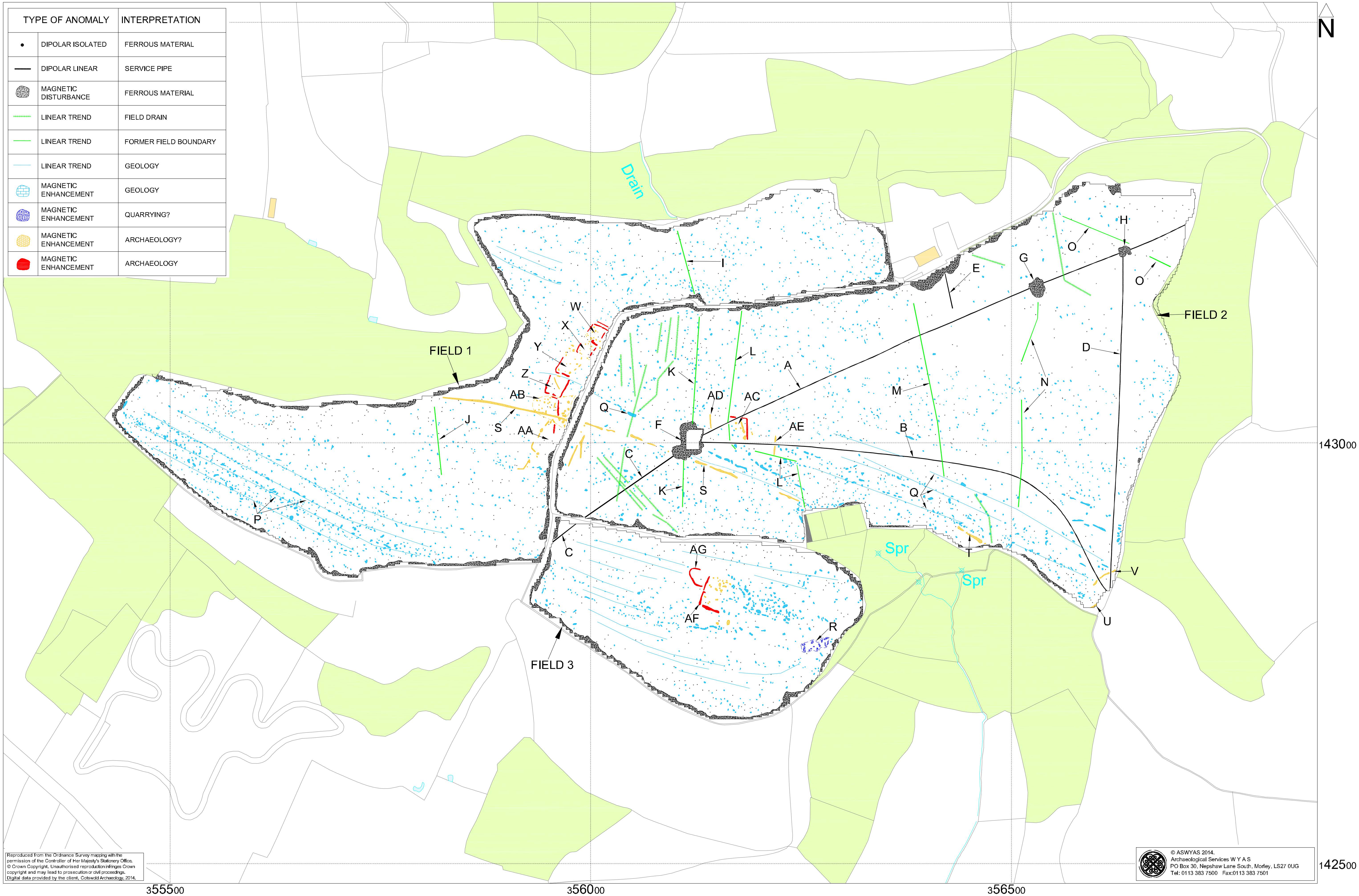


*Fig. 4. Overall interpretation of magnetometer data (1:4000 @ A3)*

0 100m

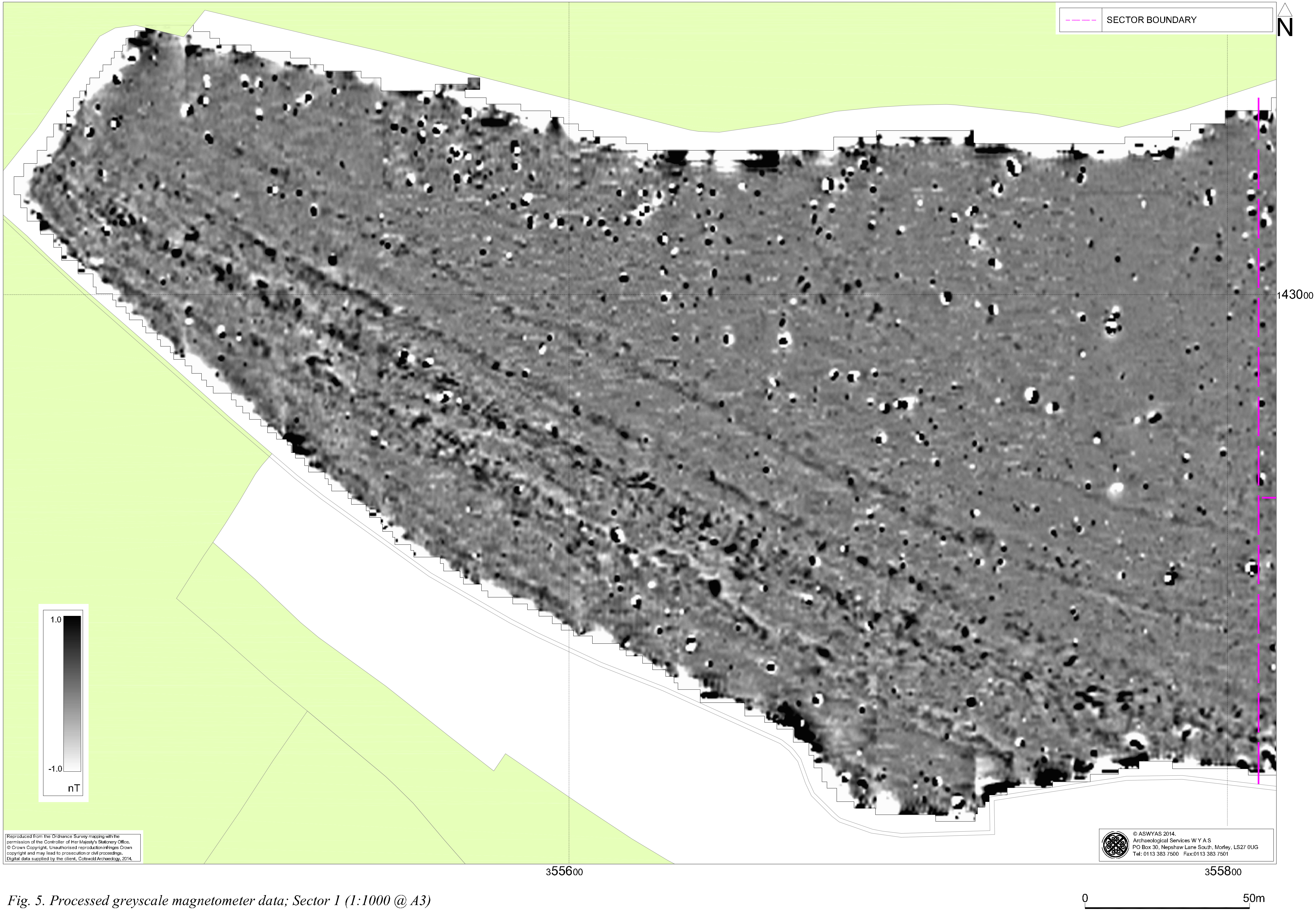






*Fig. 5. Processed greyscale magnetometer data; Sector 1 (1:1000 @ A3)*

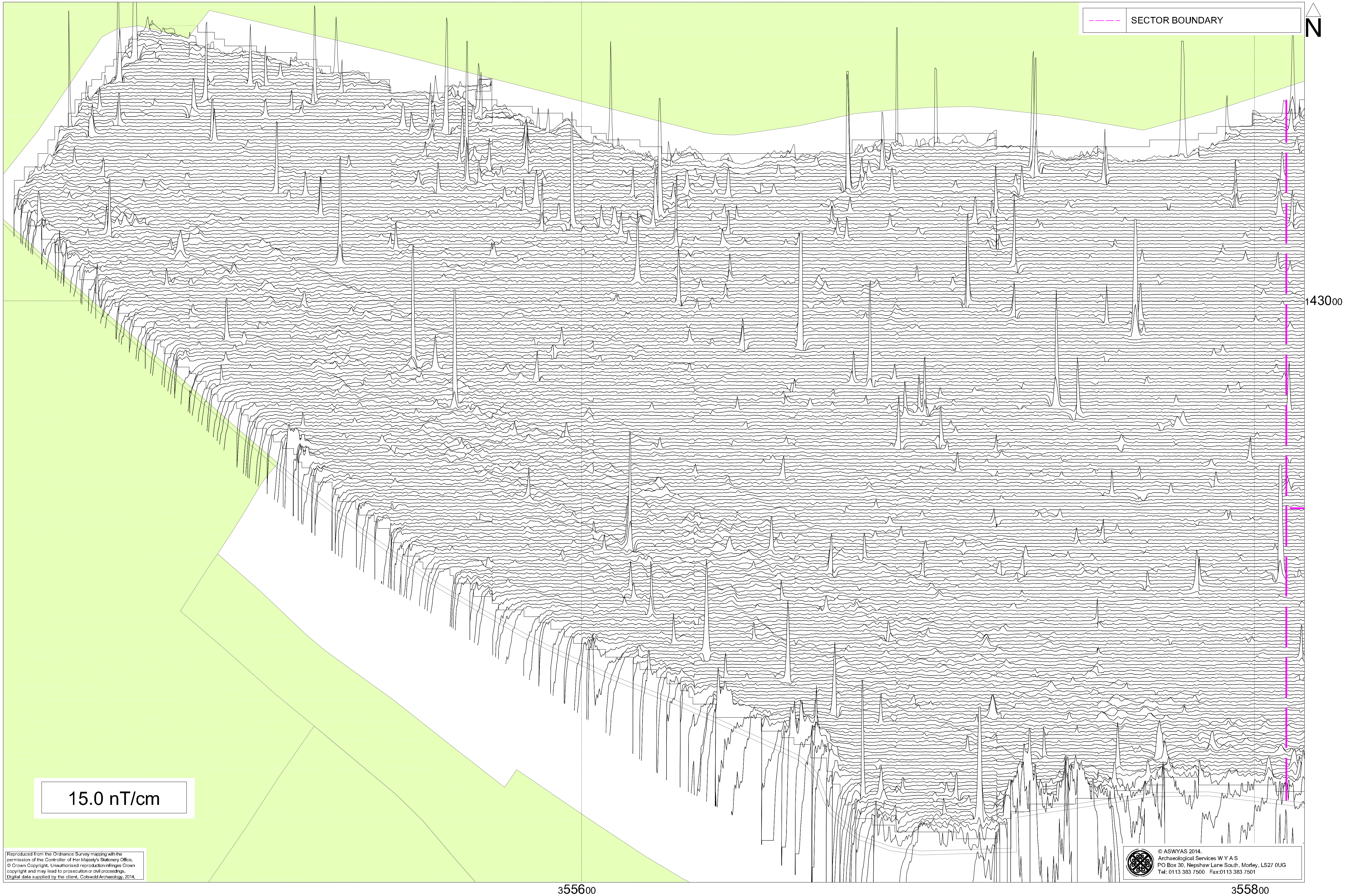


*Fig. 6. XY trace plot of minimally processed magnetometer data; Sector 1 (1:1000 @ A3)*

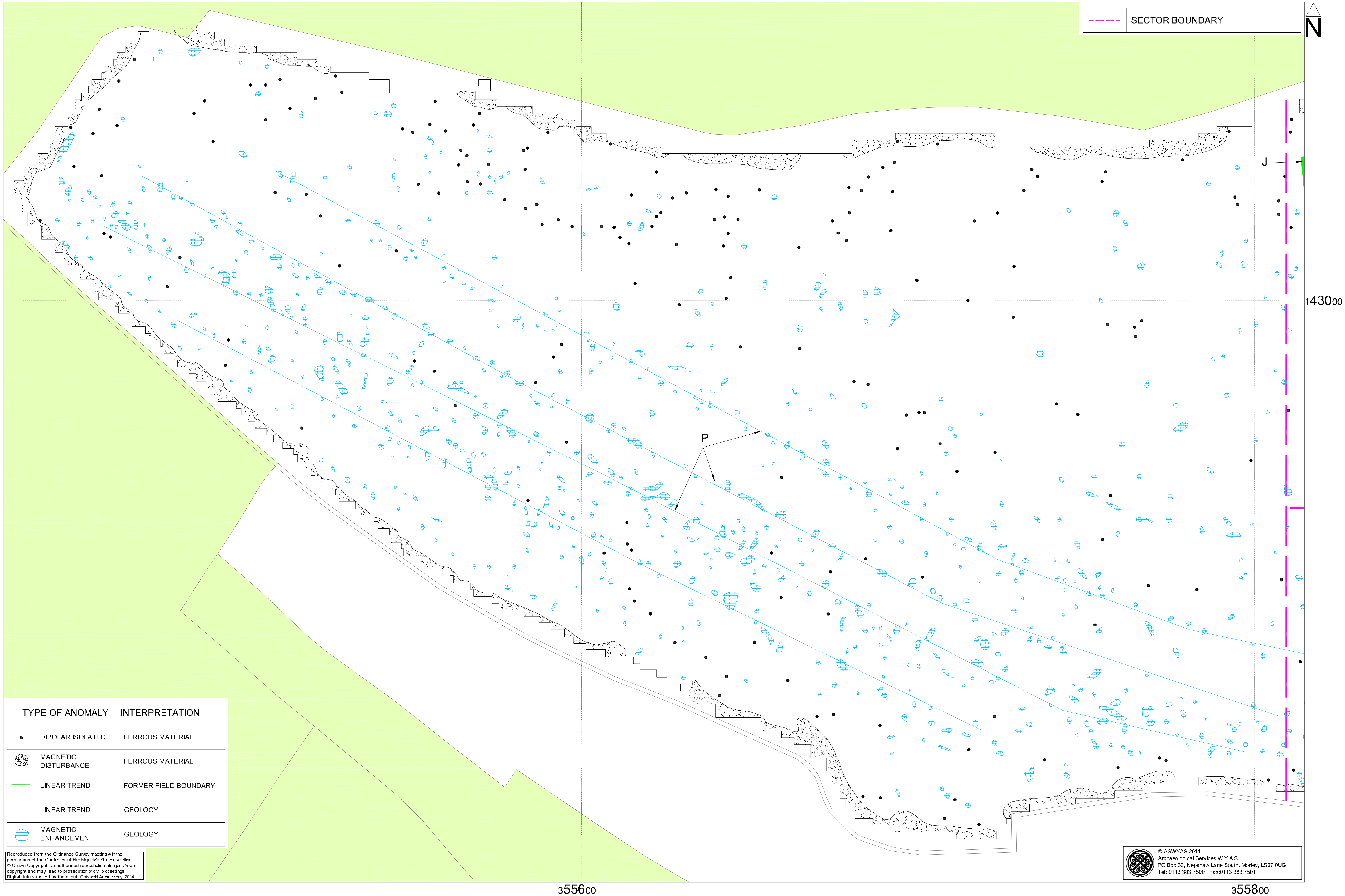


*Fig. 7. Interpretation of magnetometer data; Sector 1 (1:1000 @ A3)*

0 50m


*Fig. 8. Processed greyscale magnetometer data; Sector 2 (1:1000 @ A3)*

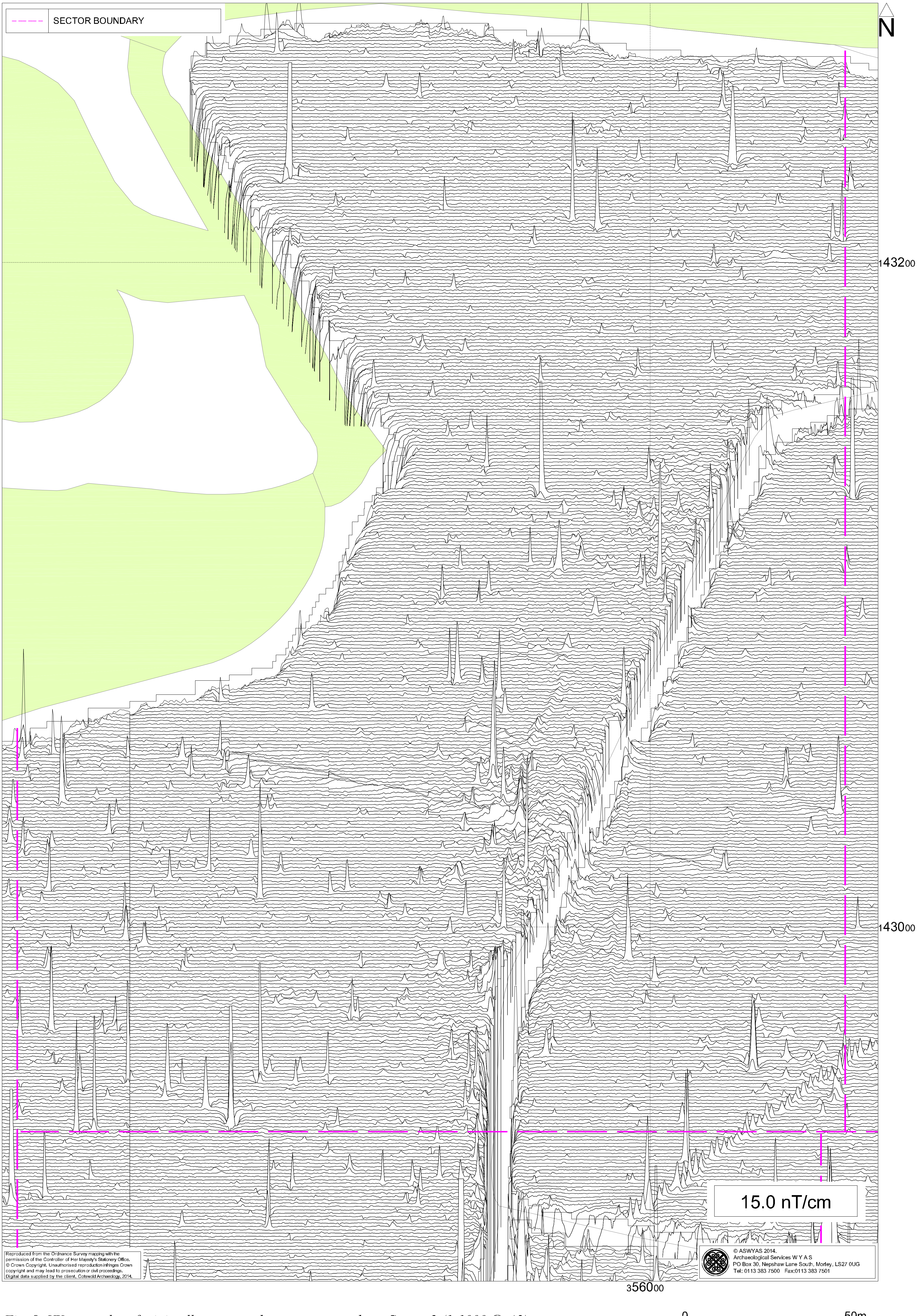


*Fig. 9. XY trace plot of minimally processed magnetometer data; Sector 2 (1:1000 @ A3)*

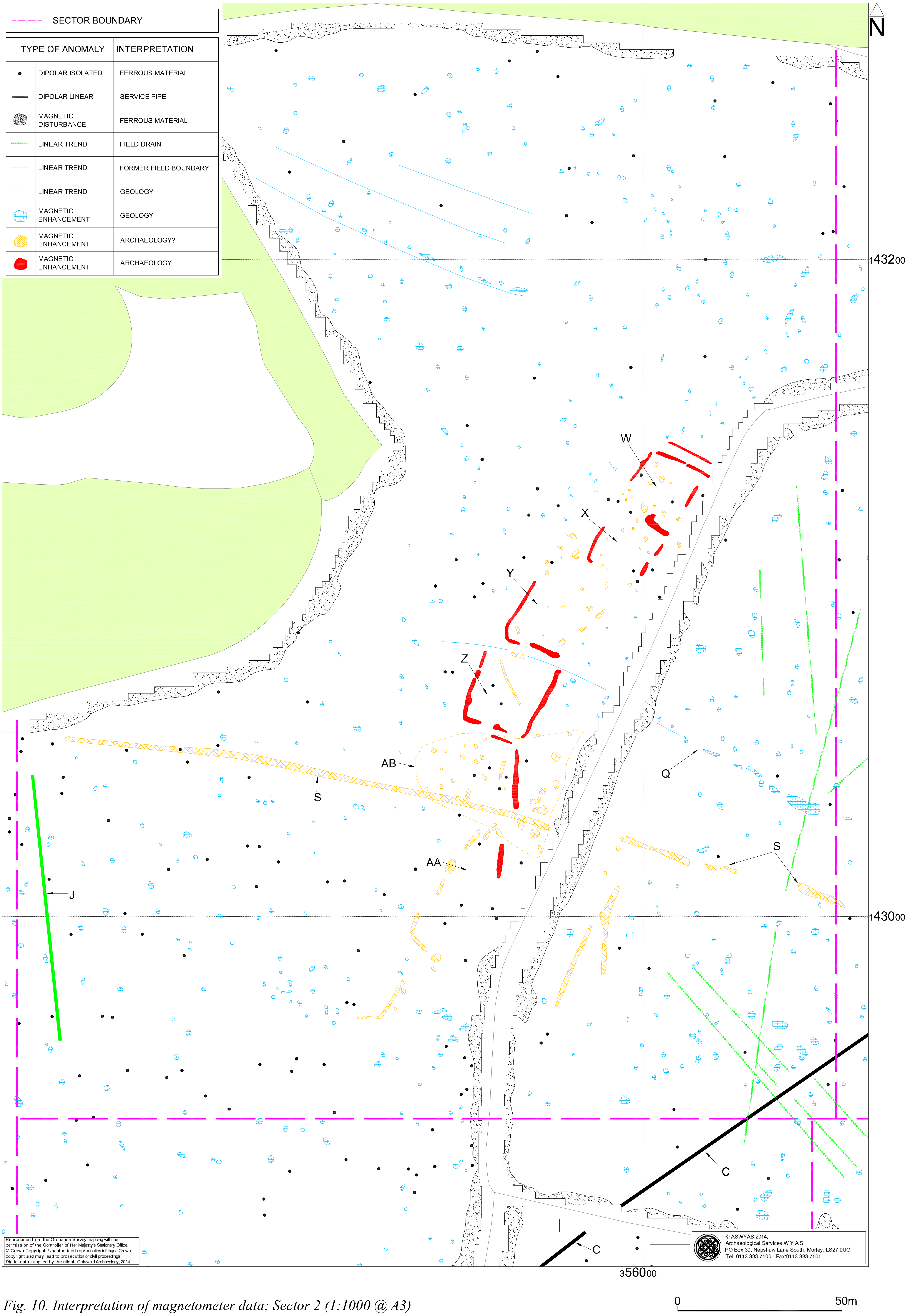


*Fig. 10. Interpretation of magnetometer data; Sector 2 (1:1000 @ A3)*

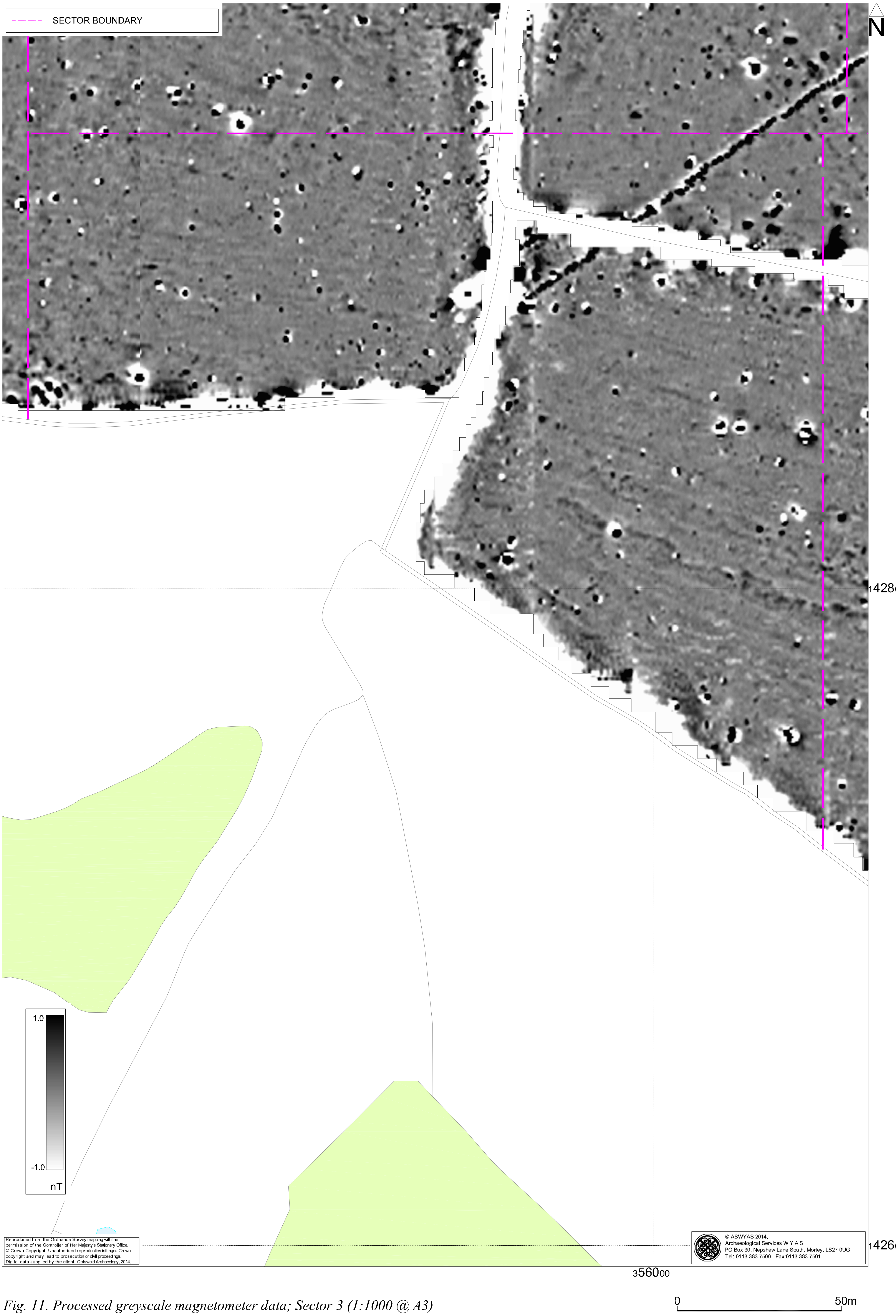


*Fig. 11. Processed greyscale magnetometer data; Sector 3 (1:1000 @ A3)*


*Fig. 12. XY trace plot of minimally processed magnetometer data; Sector 3 (1:1000 @ A3)*

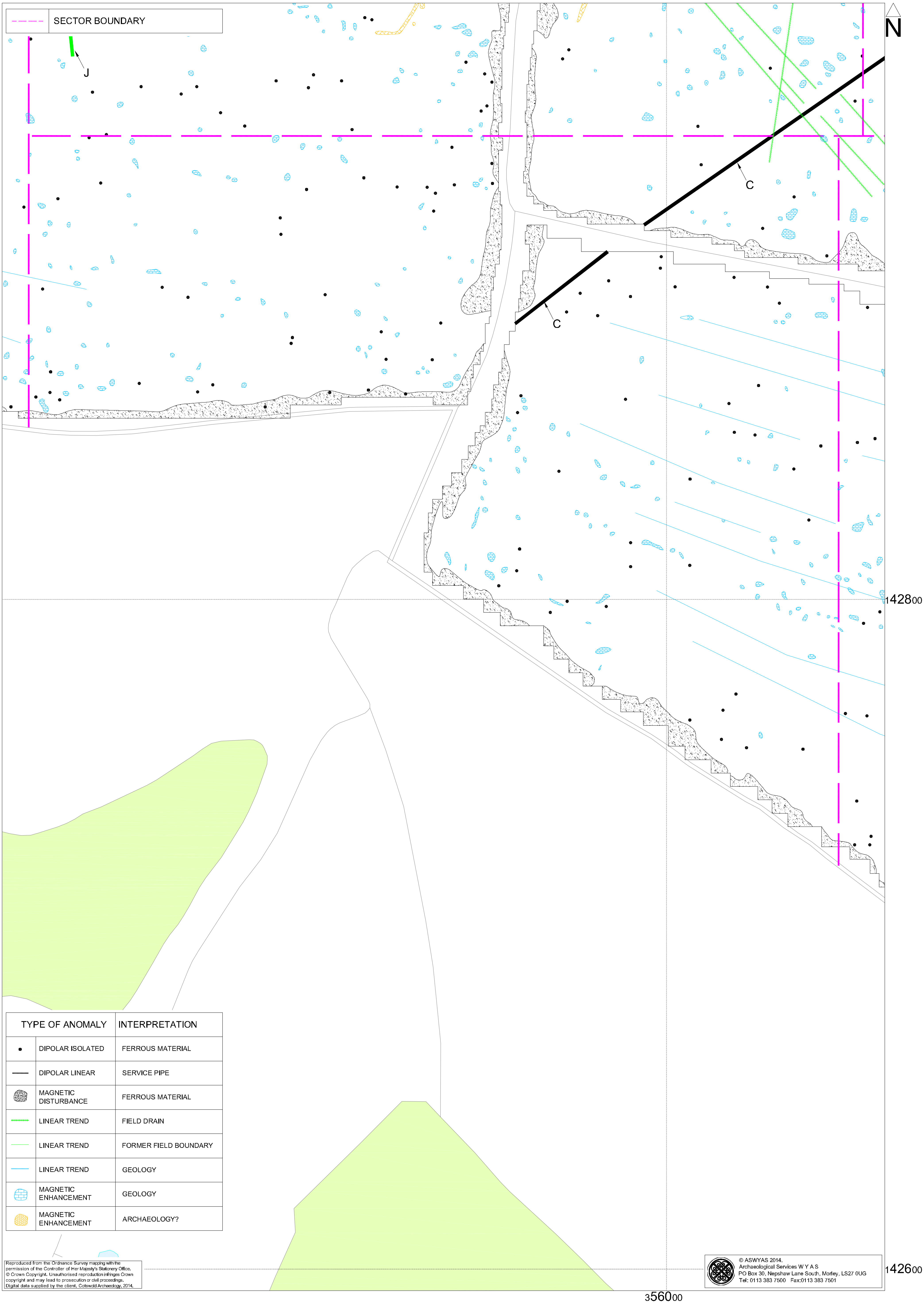


*Fig. 13. Interpretation of magnetometer data; Sector 3 (1:1000 @ A3)*

0 50m

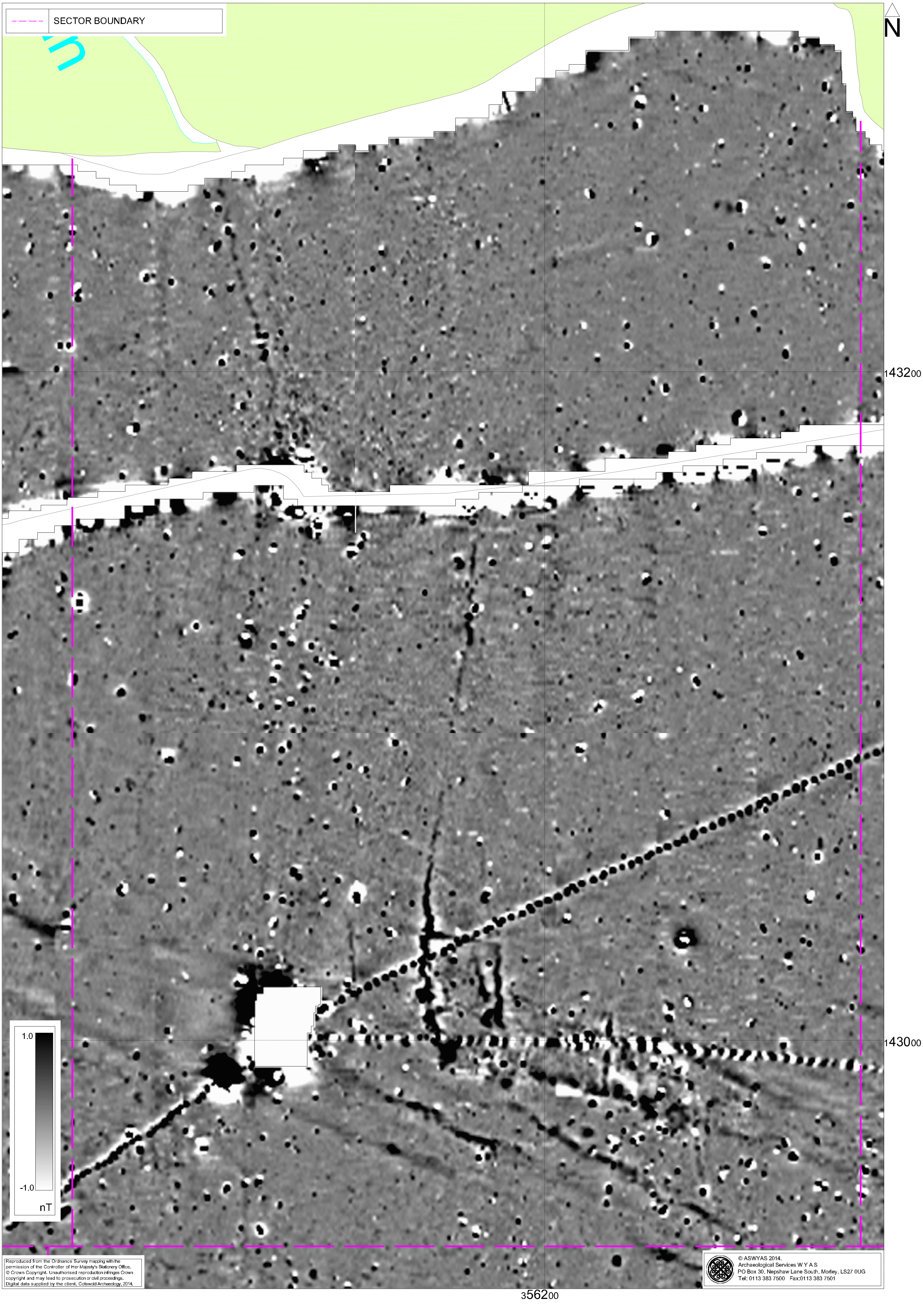


*Fig. 14. Processed greyscale magnetometer data; Sector 4 (1:1000 @ A3)*

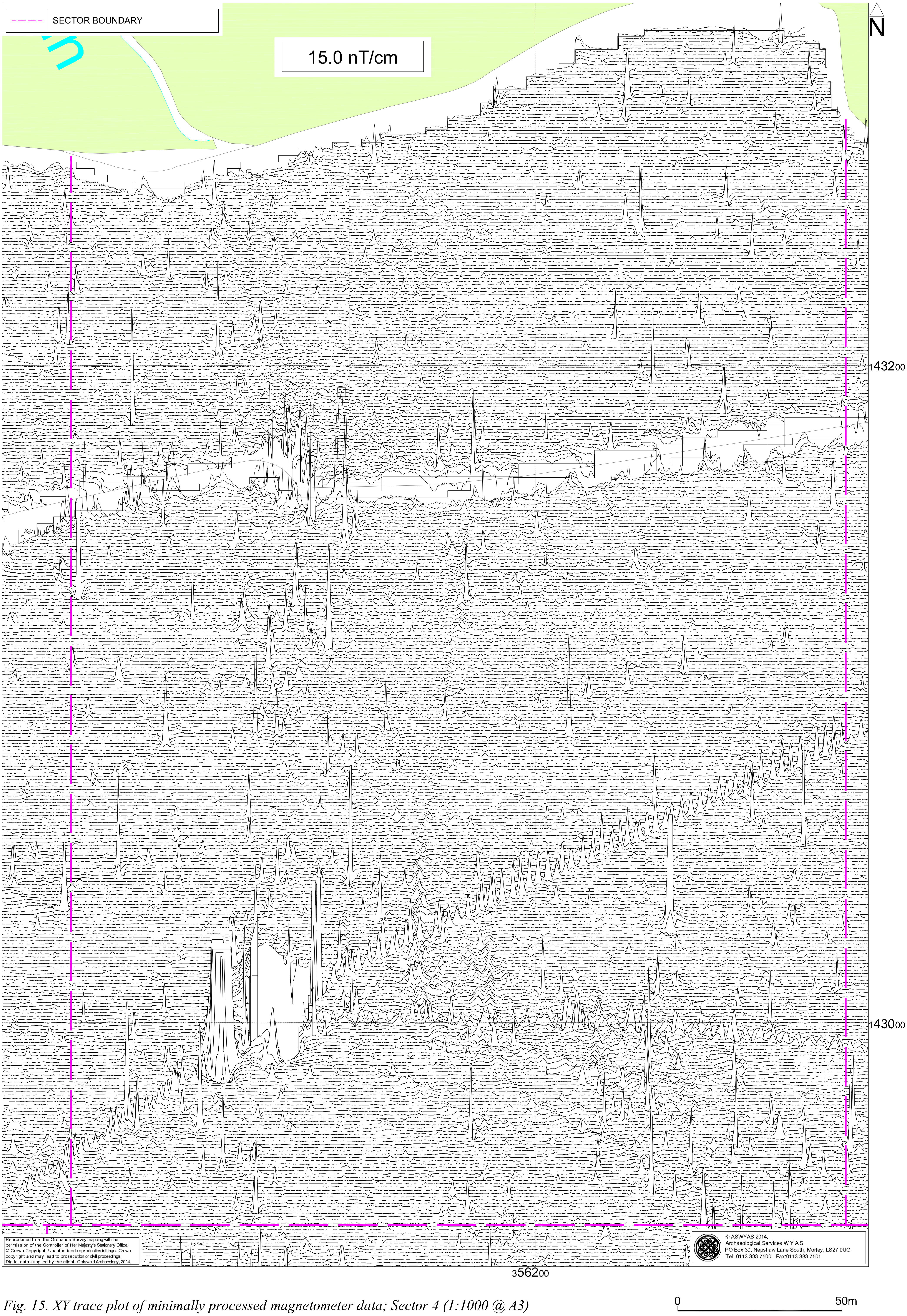


*Fig. 15. XY trace plot of minimally processed magnetometer data; Sector 4 (1:1000 @ A3)*

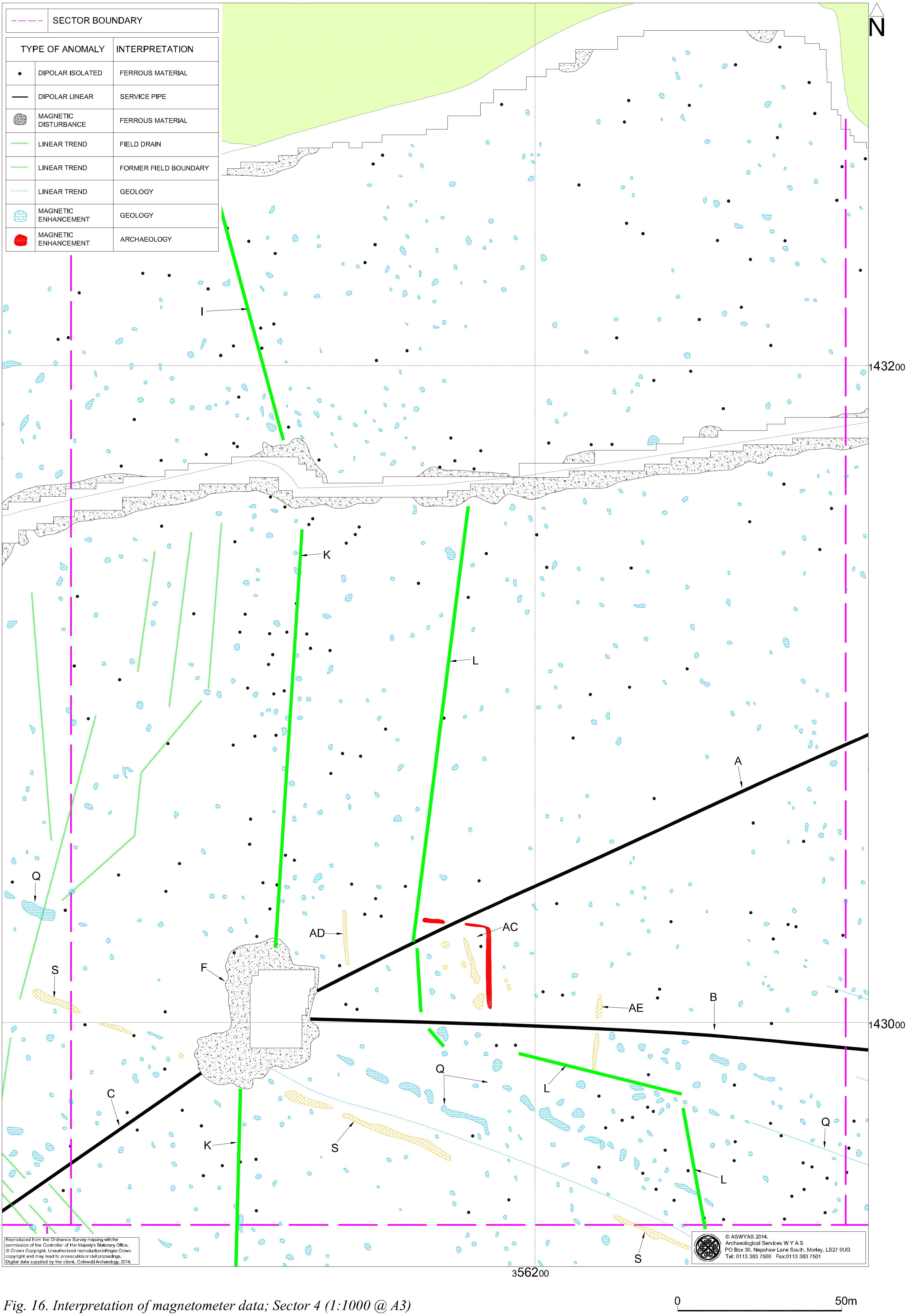


*Fig. 16. Interpretation of magnetometer data; Sector 4 (1:1000 @ A3)*

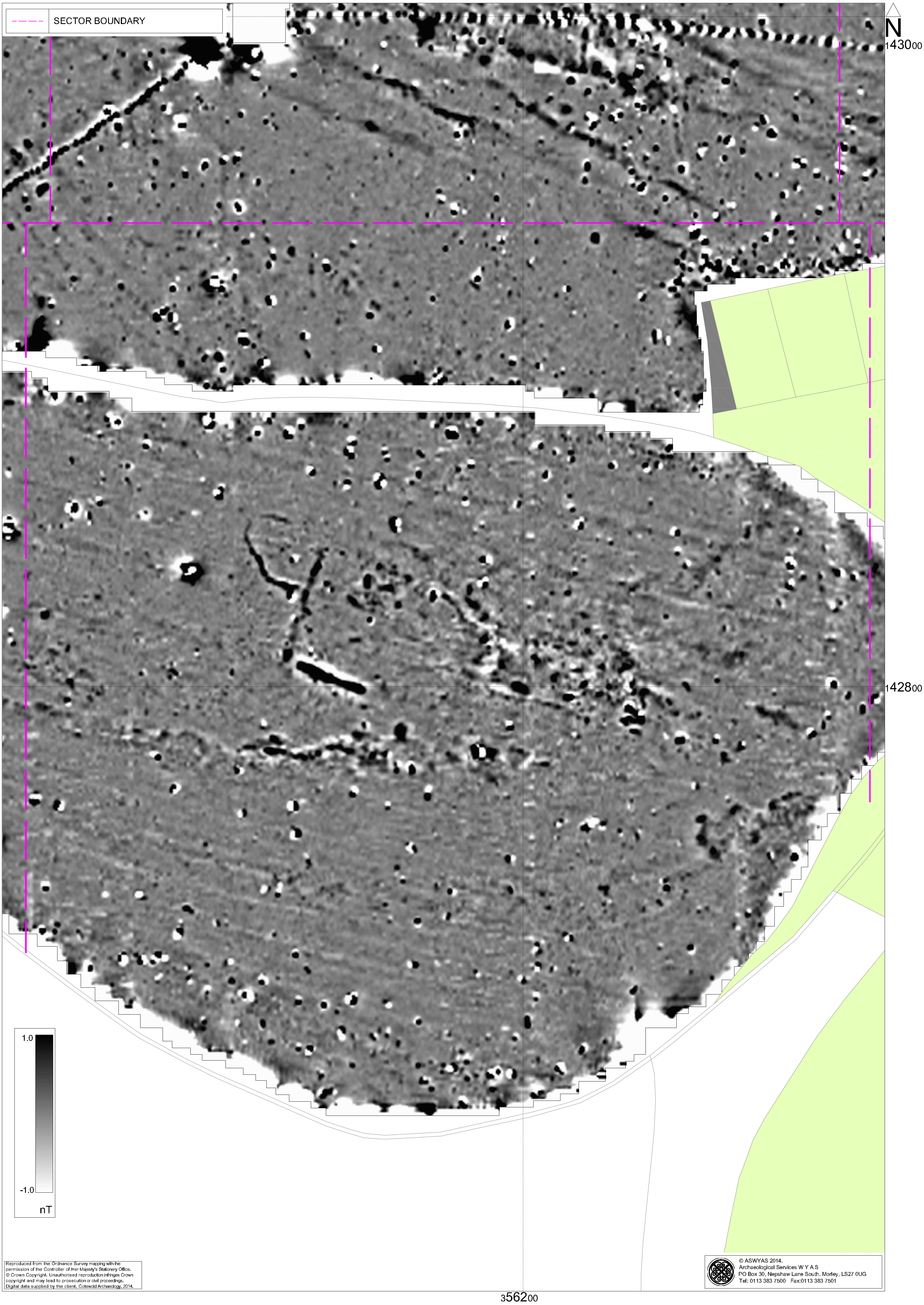





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*Fig. 17. Processed greyscale magnetometer data; Sector 5 (1:1000 @ A3)*

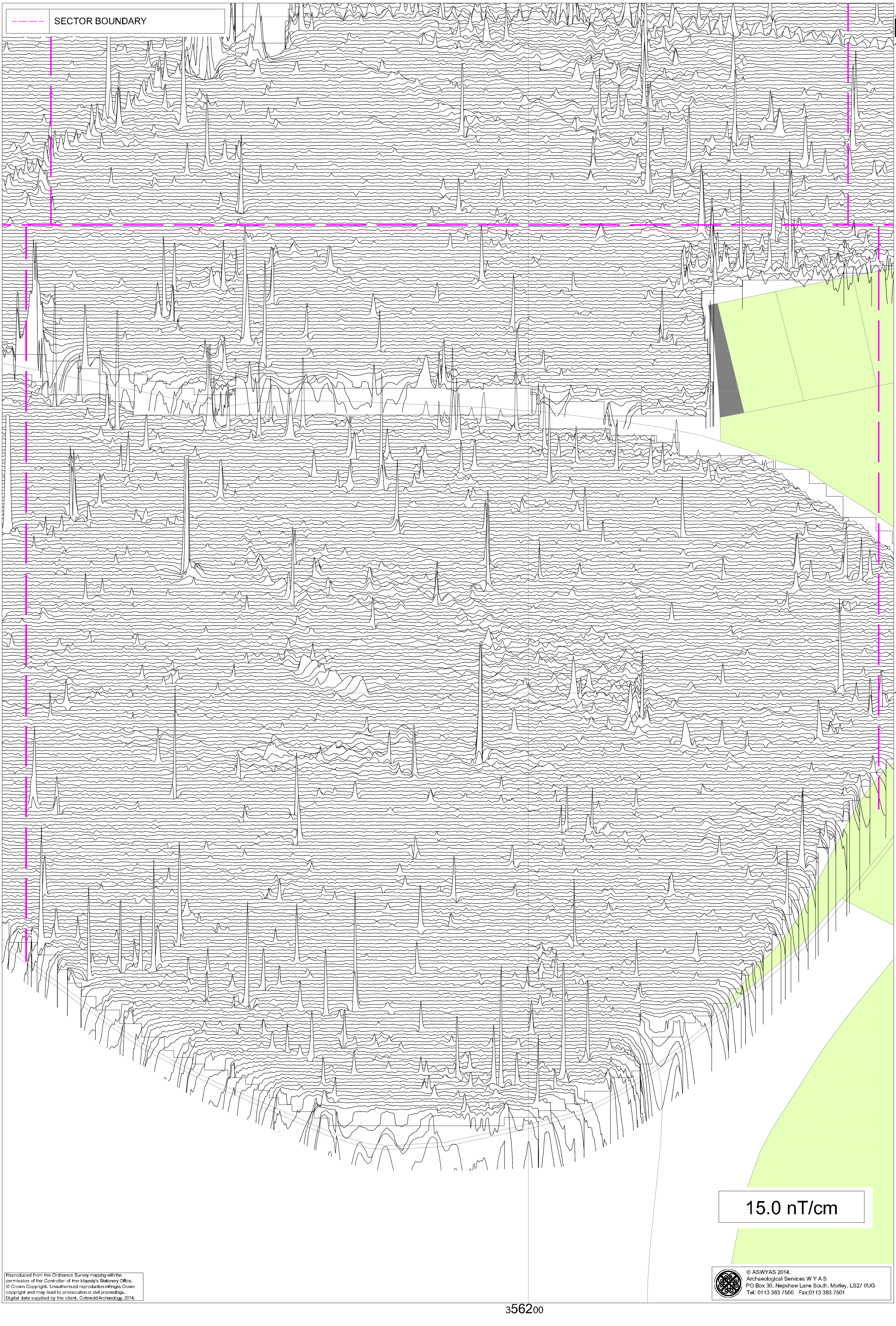


*Fig. 18. XY trace plot of minimally processed magnetometer data; Sector 5 (1:1000 @ A3)*

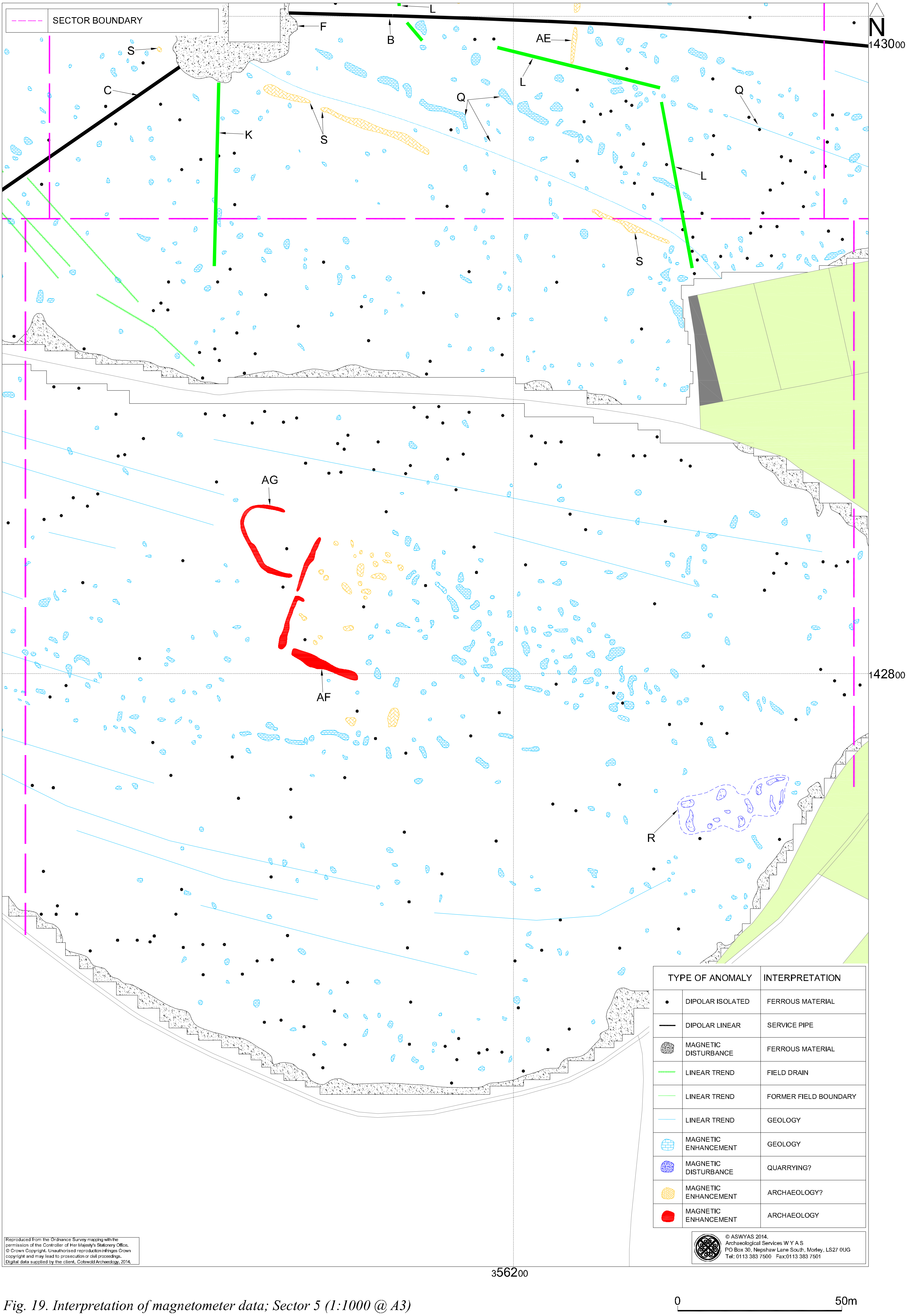


*Fig. 19. Interpretation of magnetometer data; Sector 5 (1:1000 @ A3)*

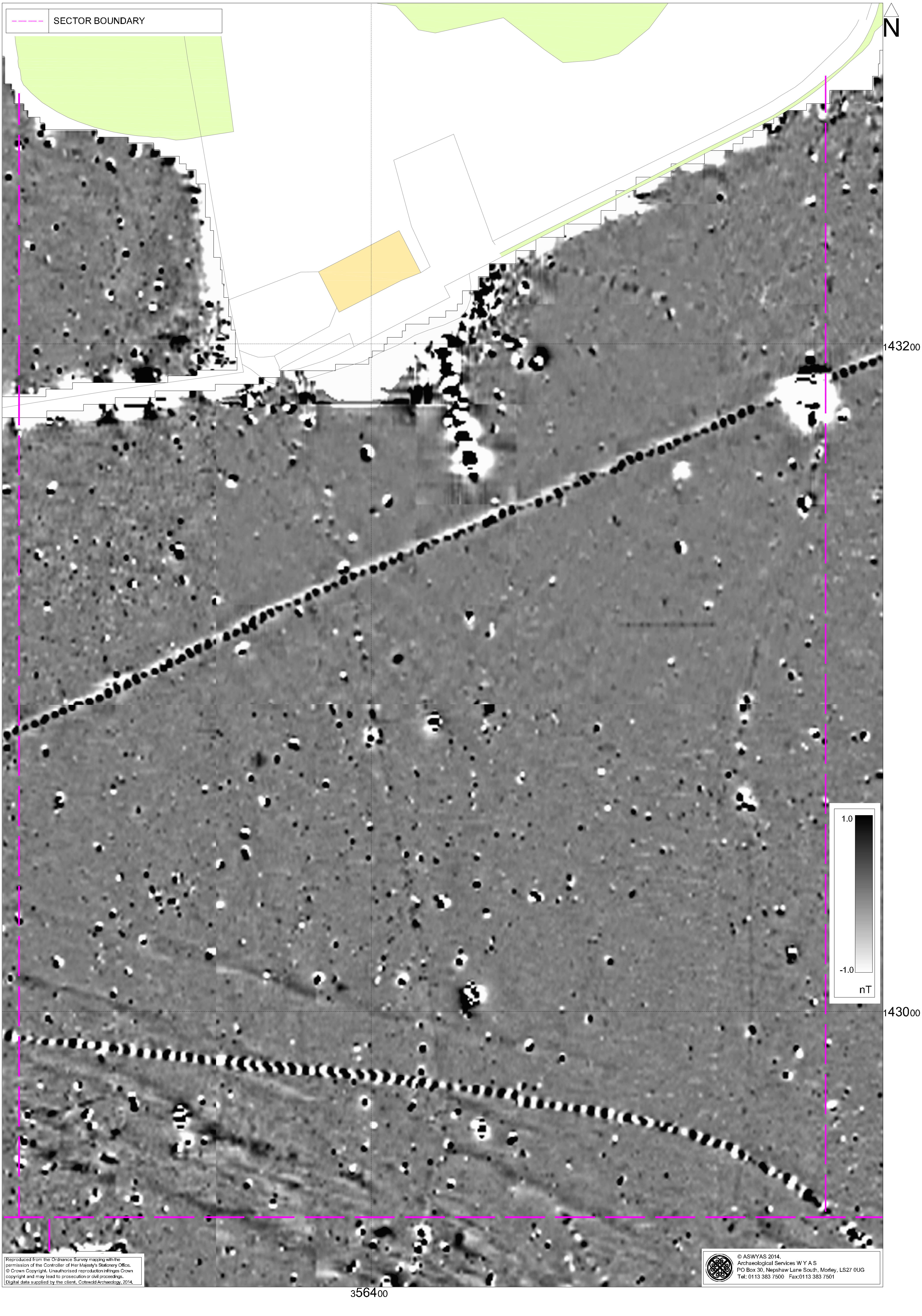


*Fig. 20. Processed greyscale magnetometer data; Sector 6 (1:1000 @ A3)*

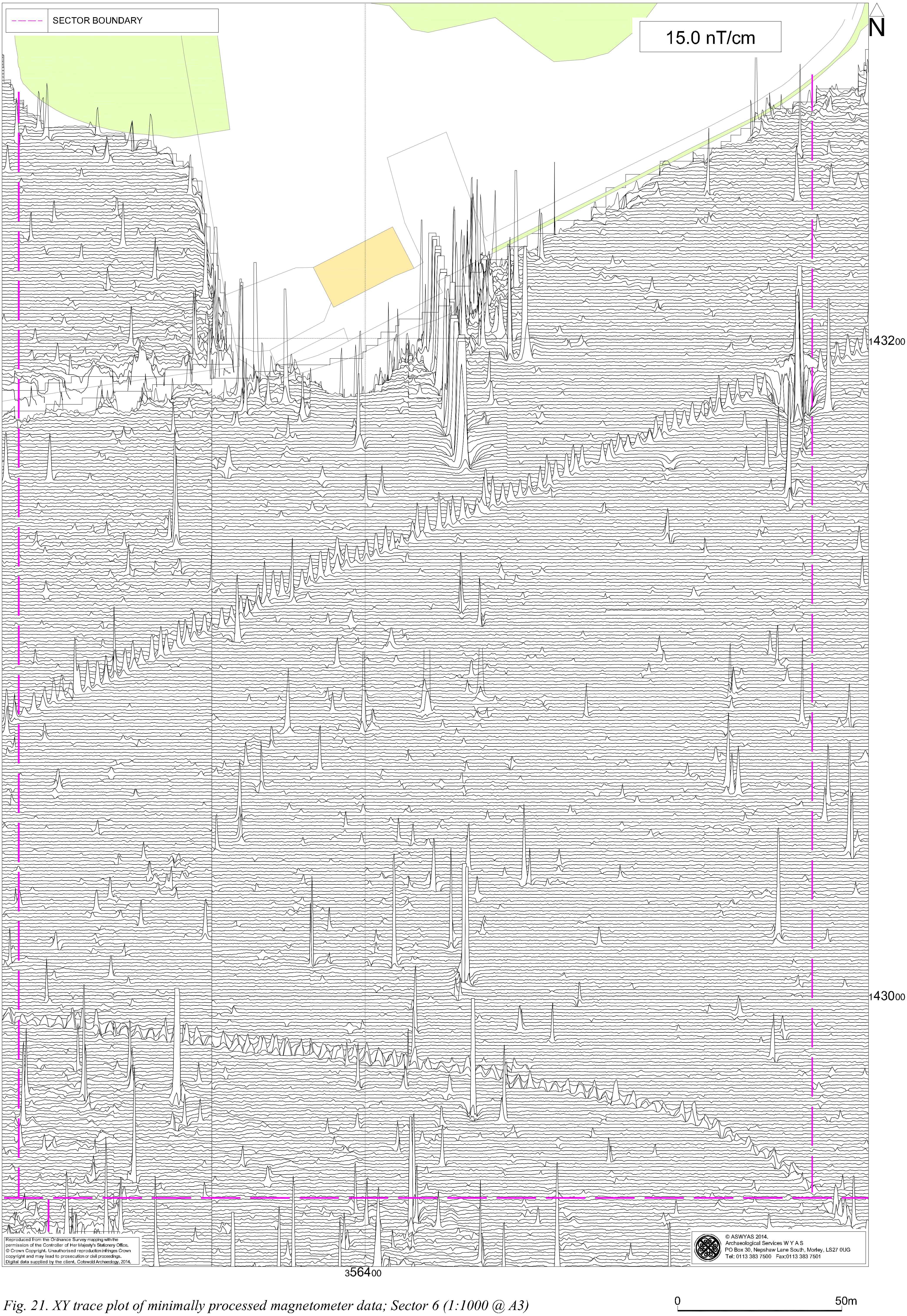


*Fig. 21. XY trace plot of minimally processed magnetometer data; Sector 6 (1:1000 @ A3)*

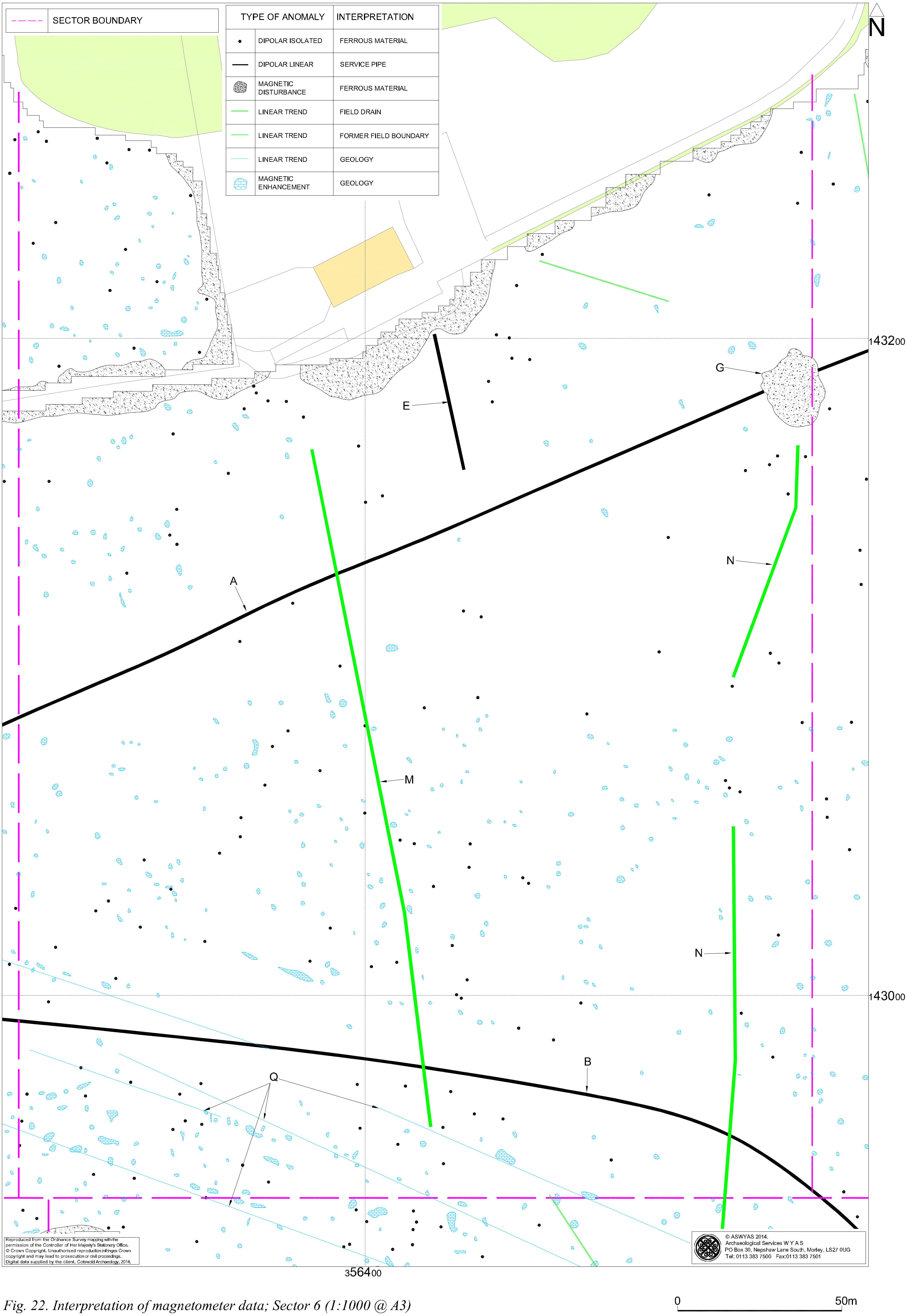


*Fig. 22. Interpretation of magnetometer data; Sector 6 (1:1000 @ A3)*

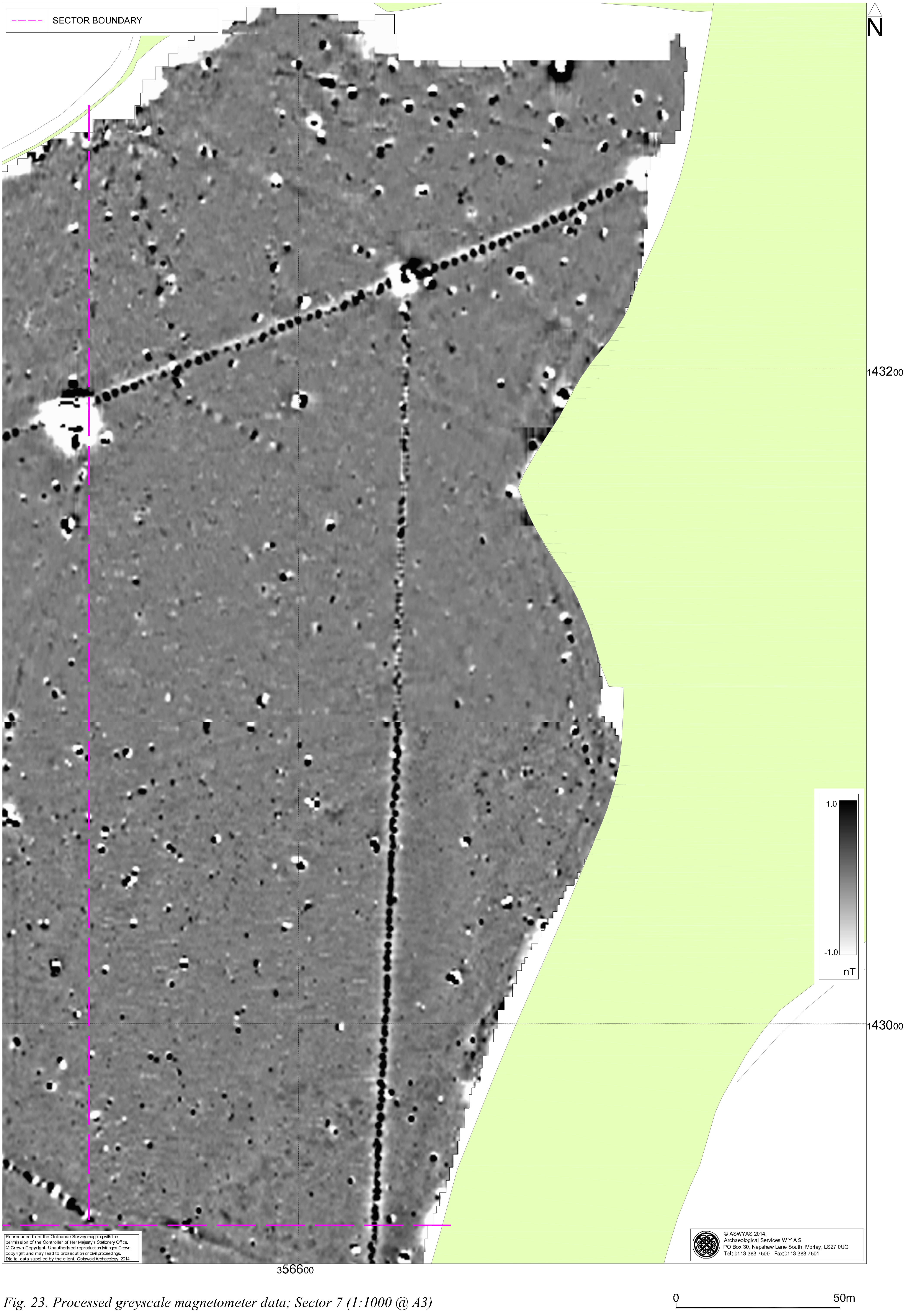


*Fig. 23. Processed greyscale magnetometer data; Sector 7 (1:1000 @ A3)*

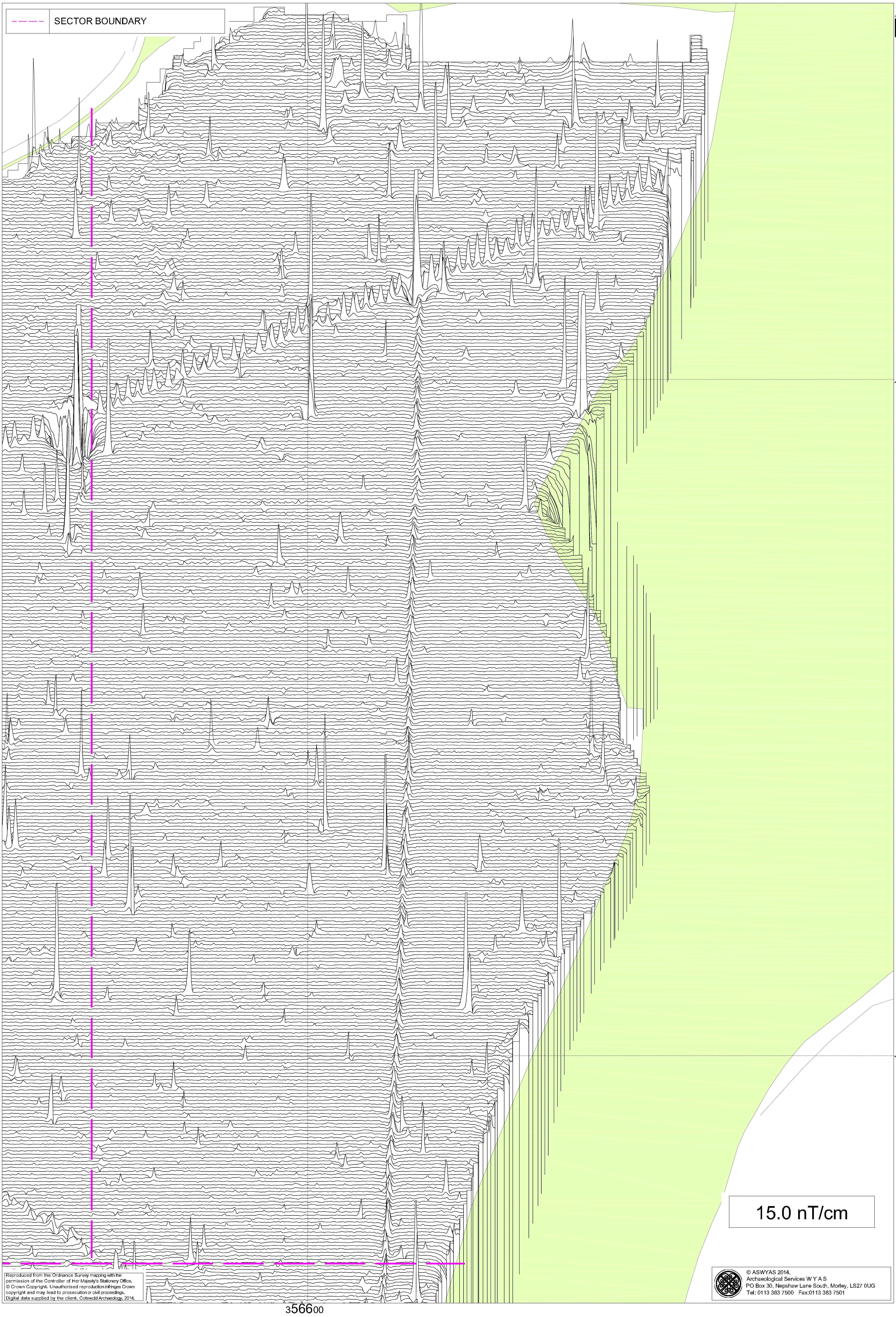





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*Fig. 24. XY trace plot of minimally processed magnetometer data; Sector 7 (1:1000 @ A3)*

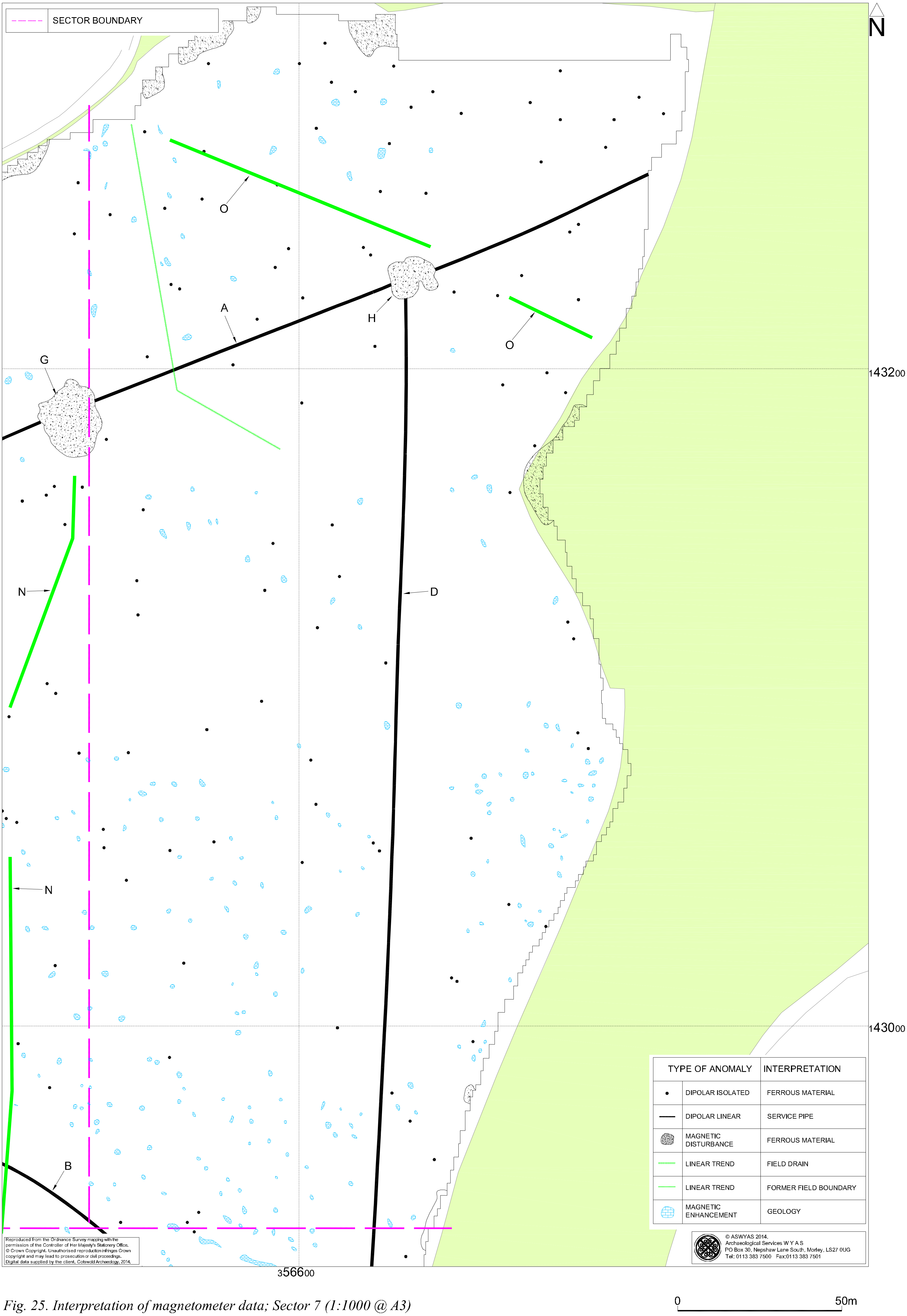


*Fig. 25. Interpretation of magnetometer data; Sector 7 (1:1000 @ A3)*

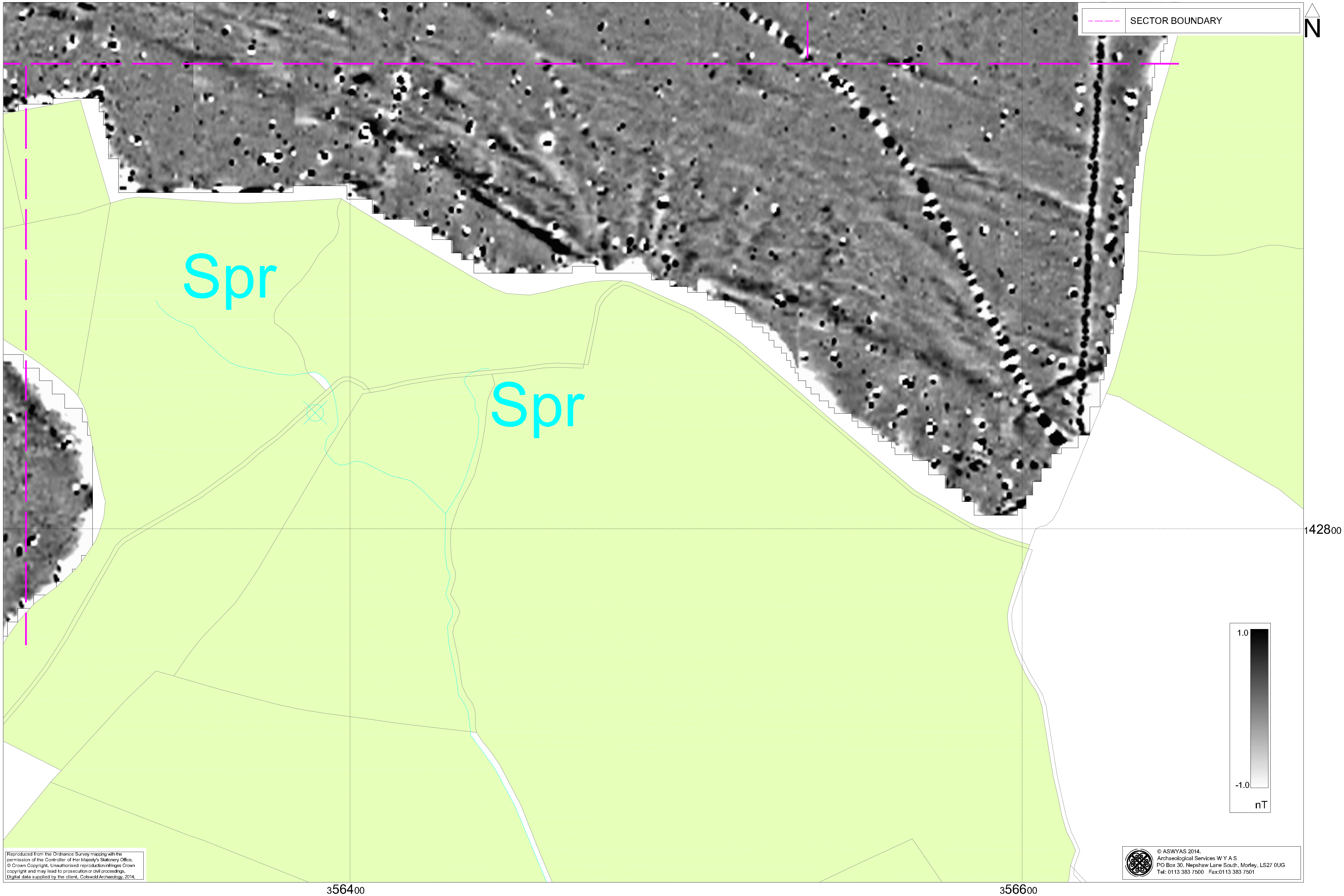


*Fig. 26. Processed greyscale magnetometer data; Sector 8 (1:1000 @ A3)*

0 50m

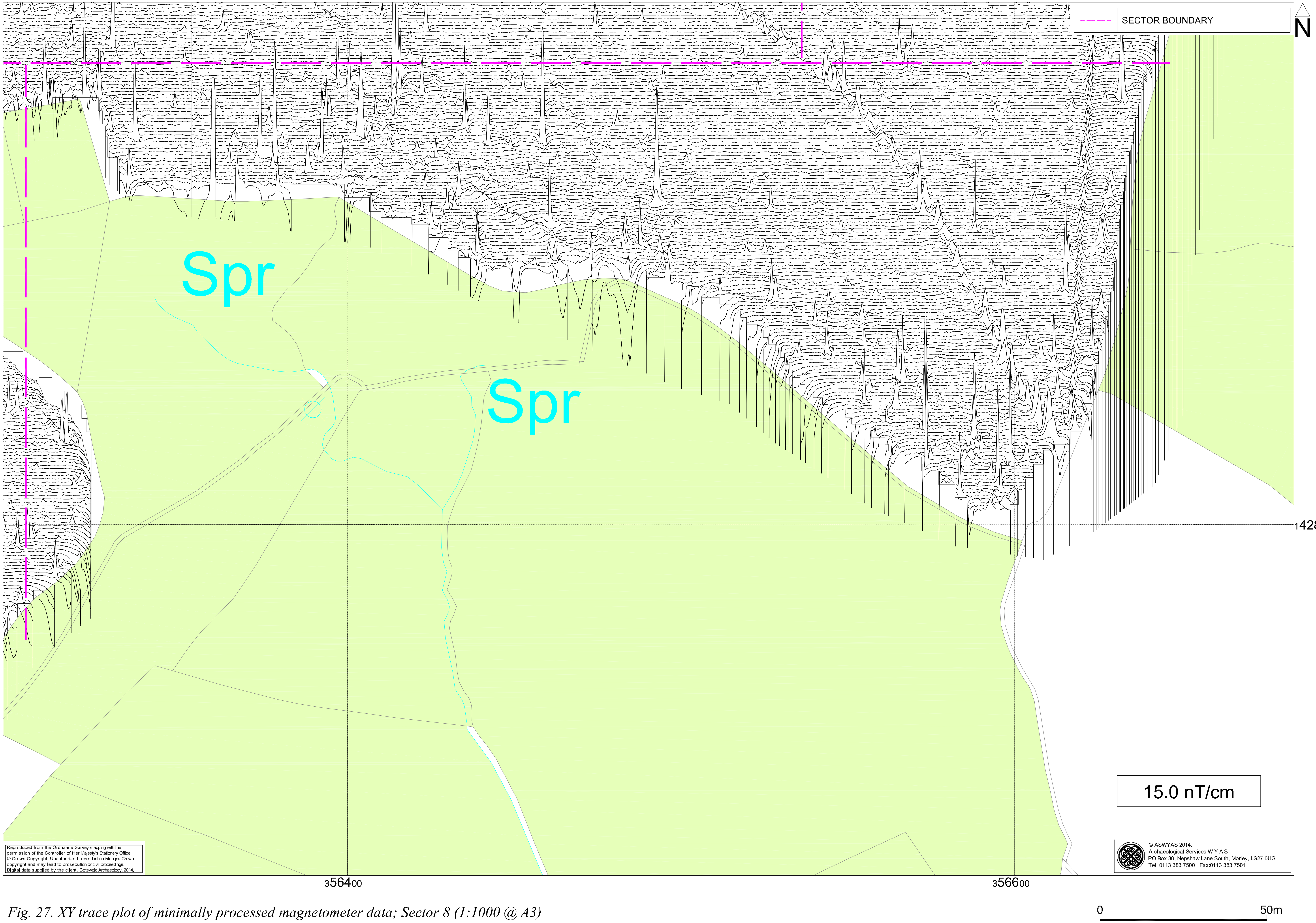


*Fig. 27. XY trace plot of minimally processed magnetometer data; Sector 8 (1:1000 @ A3)*

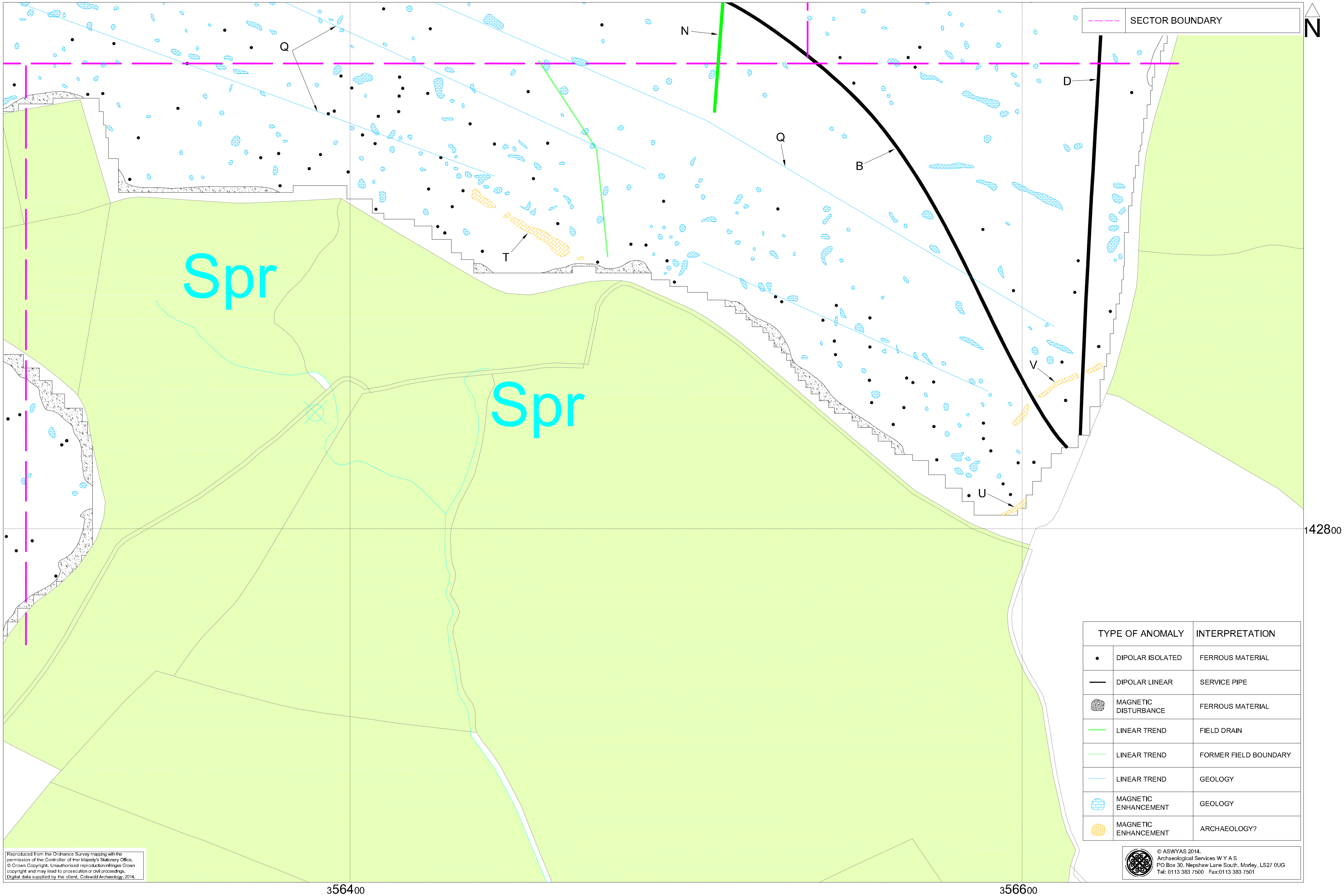


*Fig. 28. Interpretation of magnetometer data; Sector 8 (1:1000 @ A3)*

0 50m

*Plate 1. General view of Field 1 (west), looking west*

*Plate 2. General view of Field 1 (centre), looking south-west*

*Plate 3. General view of Field 1 (east), looking west*

*Plate 4. View of reservoir within west of Field 2, looking west*

*Plate 5. General view of Field 2 (west), looking south-west*

*Plate 6. General view of Field 2 (east), looking south-west*

*Plate 7. General view of Field 2 (south-east), looking south-east*

*Plate 8. General view of Field 3, looking north*

## Appendix 1: Magnetic survey - technical information

### 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 haemetite. 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 and the fermentation and bacterial effects associated with rubbish decomposition. The area of enhancement is usually quite large, mainly due to the tendency of discard areas to extend beyond the limit of the occupation site itself, and spreading by the plough. An advantage of magnetic susceptibility over magnetometry is that a certain amount of occupational activity will cause the same proportional change in susceptibility, however weakly magnetic is the soil, and so does not depend on the magnetic contrast between the topsoil and deeper layers. Susceptibility survey is therefore able to detect areas of occupation even in the absence of cut features. On the other hand susceptibility survey is more vulnerable to the masking effects of layers of colluvium and alluvium as the technique, using the Bartington system, can generally only measure variation in the first 0.15m of ploughsoil.

### 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.

**Methodology: Magnetic Susceptibility Survey**

There are two methods of measuring the magnetic susceptibility of a soil sample. The first involves the measurement of a given volume of soil, which will include any air and moisture that lies within the sample, and is termed volume specific susceptibility. This method results in a bulk value that it not necessarily fully representative of the constituent components of the sample. For field surveys a Bartington MS2 meter with MS2D field loop is used due to its speed and simplicity. The second technique overcomes this potential problem by taking into account both the volume and mass of a sample and is termed mass specific susceptibility. However, mass specific readings cannot be taken in the field where the bulk properties of a soil are usually unknown and so volume specific readings must be taken. Whilst these values are not fully representative they do allow general comparisons across a site and give a broad indication of susceptibility changes. This is usually enough to assess the susceptibility of a site and evaluate whether enhancement has occurred.

**Methodology: Gradiometer Survey**

There are two main methods of using the fluxgate gradiometer for commercial evaluations. The first of these is referred to as ***magnetic scanning*** and requires the operator to visually identify anomalous responses on the instrument display panel whilst covering the site in widely spaced traverses, typically 10m apart. The instrument logger is not used and there is therefore no data collection. Once anomalous responses are identified they are marked in the field with bamboo canes and approximately located on a base plan. This method is usually employed as a means of selecting areas for detailed survey when only a percentage sample of the whole site is to be subject to detailed survey.

The disadvantages of magnetic scanning are that features that produce weak anomalies (less than 2nT) are unlikely to stand out from the magnetic background and so will be difficult to detect. The coarse sampling interval means that discrete features or linear features that are parallel or broadly oblique to the direction of traverse may not be detected. If linear features are suspected in a site then the traverse direction should be perpendicular (or as close as is possible within the physical constraints of the site) to the orientation of the suspected features. The possible drawbacks mentioned above mean that a 'negative' scanning result should be validated by sample detailed magnetic survey (see below).

The second method is referred to as ***detailed survey*** and employs the use of a sample trigger to automatically take readings at predetermined points, typically at 0.25m intervals, on zig-zag traverses 1m apart. These readings are stored in the memory of the instrument and are later dumped to computer for processing and interpretation. Detailed survey allows the visualisation of weaker anomalies that may not have been detected by magnetic scanning.

During this survey a Bartington Grad601 magnetic gradiometer was used taking readings on the 0.1nT range, at 0.25m intervals on zig-zag traverses 1m apart within 30m by 30m square grids. The instrument was checked for electronic and mechanical drift at a common point and calibrated as necessary. The drift from zero was not logged.

**Data Processing and Presentation**

The detailed gradiometer data has been presented in this report in XY trace and greyscale formats. In the former format the data shown is 'raw' with no processing other than grid biasing having been done. The data in the greyscale images has been interpolated and selectively filtered to remove the effects of drift in instrument calibration and other artificial data constructs and to maximise the clarity and interpretability of the archaeological anomalies. During the survey extreme changes in the weather caused water ingress within some of the instruments resulting in spurious readings being recorded in certain areas. This manifests in the greyscale images as parallel ‘speckled’ lines, orientated north/south along the grid edges and is most noticeable within the north-east and north-west of the dataset. Despite the spurious, artificial readings, there is thought to be minimal loss of data and the overall archaeological interpretation of the site is unaffected.

An XY plot presents the data logged on each traverse as a single line with each successive traverse incremented on the Y-axis to produce a ‘stacked’ plot. A hidden line algorithm has been employed to block out lines behind major ‘spikes’ and the data has been clipped. The main advantage of this display option is that the full range of data can be viewed, dependent on the clip, so that the ‘shape’ of individual anomalies can be discerned and potentially archaeological anomalies differentiated from ‘iron spikes’. Geoplot 3 software was used to create the XY trace plots.

Geoplot 3 software was used to interpolate the data so that 3600 readings were obtained for each 30m by 30m grid. The same program was used to produce the greyscale images. All greyscale plots are displayed using a linear incremental scale.

## Appendix 2: Survey location information

The site grid was laid out using a Trimble VRS differential Global Positioning System (Trimble 5800 model). The accuracy of this equipment is better then 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 co-ordinates are measured off hard copies of the mapping rather than using the digital co-ordinates.

***Archaeological Services WYAS cannot accept responsibility for errors of fact or opinion resulting from data supplied by a third party.***

## Appendix 3: Geophysical archive

The geophysical archive comprises:-

- an archive disk containing compressed (WinZip 8) files of the raw data, report text (Microsoft Word 2000), and graphics files (Adobe Illustrator CS2 and AutoCAD 2008) files; and
- a full copy of the report.

At present the archive is held by Archaeological Services WYAS although it is anticipated that it may eventually be lodged with the Archaeology Data Service (ADS). Brief details may also be forwarded for inclusion on the English Heritage Geophysical Survey Database after the contents of the report are deemed to be in the public domain (i.e. available for consultation in the Somerset Historic Environment Record).

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