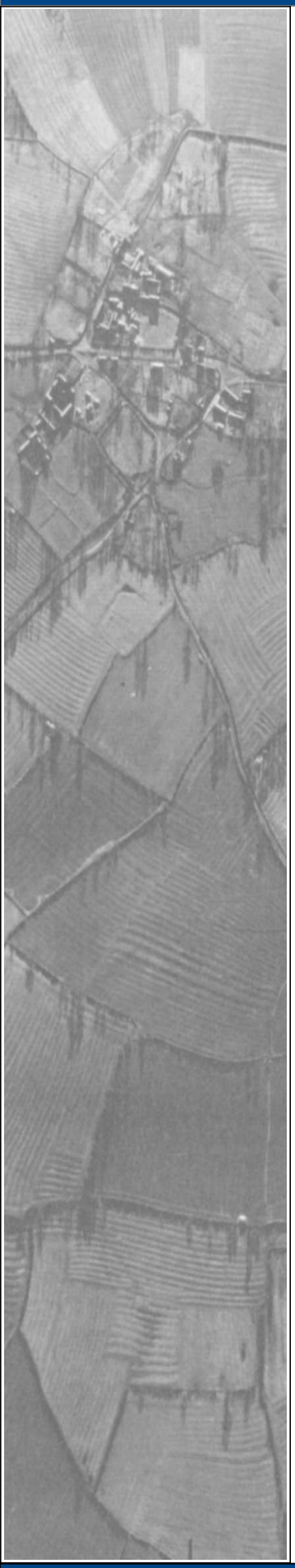

North Draycot Park Farm
Seagry
Wiltshire

MAGNETOMETER SURVEY REPORT

for

Mr & Mrs Ryall

Kerry Donaldson & David Sabin

May 2021

Ref. no. J858

ARCHAEOLOGICAL SURVEYS LTD

North Draycot Park Farm
Seagry
Wiltshire

MAGNETOMETER SURVEY REPORT

for

Mr & Mrs Ryall

Fieldwork by David Sabin BSc (Hons) MCIfA
Report by Kerry Donaldson BSc (Hons)
Report checked by David Sabin
Primary archive location - Archaeological Surveys Ltd, Yatesbury, Wiltshire

Survey dates – 16th, 19th & 21st April 2021
Ordnance Survey Grid Reference – **ST 93578 79942 & ST 93575 79690**

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SUMMARY

A detailed magnetometry survey was carried out over approximately 10ha of land at North Draycot Park Farm, Seagry, Wiltshire, ahead of a proposed tree planting scheme. Mature trees were bulldozed ahead of dumping of spoil from cuttings along the M4 motorway to the south in 1969. The results support the evidence for widespread ground disturbance and dumping including several large ferrous items within the southern part of the site. A number of negative linear anomalies were also located, but it is not clear if they pre-date the parkland tree planting, or if they are associated with the removal of the trees, or related to ground disturbance or land drainage measures. In the northern part of the site the majority of the anomalies appear to relate to variations within the underlying geology, with others associated with a previously mapped circular tree enclosure ring and possible tracks.

1 INTRODUCTION

1.1 Survey background

1.1.1 Archaeological Surveys Ltd was commissioned by Martin and Celia Ryall to undertake a magnetometer survey of an area of land at North Draycot Park Farm near Seagry in Wiltshire. The site has been outlined for a proposed programme of tree planting.

1.2 Survey objectives and techniques

1.2.1 The objective of the survey was to use magnetometry to inform on the archaeological potential of the site prior to the tree planting programme. The methodology is considered an efficient and effective approach to archaeological prospection.

1.2.2 Geophysical survey can provide useful information on the archaeological potential of a site; however, the outcome of any survey relies on a number of factors and as a consequence results can vary. The success in meeting the aims and objectives of a survey is, therefore, often impossible to predetermine.

1.3 Standards, guidance and recommendations for the use of this report

1.3.1 The survey and report follow the recommendations set out by: European Archaeological Council (2015) *Guidelines for the Use of Geophysics in Archaeology;* Institute for Archaeologists (2002) *The use of Geophysical Techniques in Archaeological Evaluations.* The work has been carried out to the Chartered Institute for Archaeologists (2014) *Standard and Guidance for Archaeological Geophysical Survey.*

1.3.2 Archaeological Surveys Ltd provide a detailed geophysical survey report and it is recommended that where possible the contents should be considered in full. The Summary provides a brief overview of the results with more detail available in the Discussion and/or Conclusion. The *List of anomalies* within the Results provides a detailed assessment of the anomalies within separate categories which can be useful in inferring a level of confidence to the interpretation. Quality and factors influencing the interpretation of anomalies is also set out within the results.

1.3.3 It is recommended that the full report should always be considered when using data and interpretation plots; where this is not possible, in the field for example, the abstraction and interpretation plots should retain their colour coding and be used with a corresponding legend.

1.4 Site location, description and survey conditions

1.4.1 The site is located within the northern part of the former Draycot Park, post medieval parkland, which was divided into two by the construction of the M4 Motorway between 1969-71. The survey was carried out within Area 1 in the northern part of the site, centred on Ordnance Survey National Grid Reference (OS NGR) ST 93578 79942 and within Area 2 to the south centred on ST 93575 79690, see Figs 01 and 02.

1.4.2 The geophysical survey includes approximately 1.5ha within Area 1 which covers a steep, south facing slope and more level ground to the north of it in the northern part of the site. Area 2 covers 8.5ha and is situated approximately 70m to the south of Area 1 and includes a north facing slope lying to the north of more level ground. It is bounded to the south by the M4 Motorway cutting.

1.4.3 Ground cover within Area 1 is grass with a number of well spaced young trees. Within Area 2 the land is mainly covered by weak grass and moss with dense rushes covering a significant portion of the area. A small number of young trees are located in the north eastern part of the area and several ancient oaks are located to the east.

1.4.4 The ground cover and convex land profile within the northern part of Area 2 would tend to indicate widespread soil dumping, ground make-up and/or modern landscaping associated with the construction of the M4. Along the northern boundary of Area 2, soil scars indicate a lack of organic topsoil and several large pieces of partly buried oak may indicate the remains of ancient trees visible on mid 20th century Ordnance Survey mapping, and presumably removed during the motorway landscaping operation.

Plate 1: Looking north towards Area 1 from edge of Area 2

Plate 2: North eastern part of Area 2 looking north showing lighter grass over area of ground make-up

1.4.5 The ground conditions across the site were generally considered to be favourable for the collection of magnetometry data. Weather conditions during the survey were fine.

1.5 Site history and archaeological potential

1.5.1 The site lies within the post medieval parkland of Draycot Park which was divided east to west by construction of the M4 Motorway started in 1969. The motorway lies immediately south of the site and within a cutting, during construction a number of archaeological features were recorded before their destruction. These include the location of two post medieval buildings, one 45m to the south and another 220m south west, a post medieval midden 135m south east and former earthworks associated with a square enclosure 120m to the south. Mapping from the 19th and 20th centuries, as well as aerial photographs from the 1940s, show dozens of mature trees, with several areas of trees and rhododendrons formally enclosed within rings or ovals. The majority of the trees have been removed during the mid to late 20th century with much of the southern part of the site subject to bulldozing of ancient oaks and infill during construction of the motorway cutting to the south (Couzens, 2001). The remains of several buried trees can be seen within along the northern limit of the area of ground make-up, see Plate 3.

Plate 3: Buried tree at northern edge of Area 2

1.6 Geology and soils

1.6.1 The underlying geology across the majority of the site is mudstone from the Kellaways Clay Member with sandstone from the Kellaways Sand Member in the northern part of Area 1 and along the southern part of Area 2 (BGS, 2017).

1.6.2 The overlying soil across the site is mapped as from the Wickham 3 association and is a typical stagnogley soil. It consists of a slowly permeable, seasonally waterlogged, fine loamy over clayey soil (Soil Survey of England

and Wales, 1983).

1.6.3 During construction of the M4 to the south, large quantities of spoil were spread across the majority of Area 2. The spoil is recorded as sticky blue clay from cuttings further along the route, with no attempt at draining of the clay made, resulting in poor vegetation (Couzens, 2001). The vegetation on this part of the site is impoverished yellow coloured grass and moss with widespread and often dense rushes (see Plates 2 & 3) due to the lack of topsoil and dumping of clay; however, it also appears that quantities of sandy soil were also dumped as seen at the northern edge of Area 2 (Plate 4).

Plate 4: Exposed section of ground make-up along northern edge of Area 2

1.6.4 The underlying geology and soils are frequently associated with low magnetic contrast and low levels of magnetic susceptibility. Furthermore, the widespread dumping of clay and sand from the motorway construction has altered the natural geology and soils within Area 2.

2 METHODOLOGY

2.1 Technical synopsis

2.1.1 Magnetometry survey records localised magnetic fields that can be associated with features formed by human activity. Magnetic susceptibility and magnetic thermoremnance (also known as thermoremanence) are factors associated with the formation of localised fields.

2.1.2 Iron minerals within the soil may become altered by burning and the break down of biological material; effectively the magnetic susceptibility of the soil is increased, and the iron minerals become magnetic in the presence of the Earth's magnetic field. Accumulations of magnetically enhanced soils within features, such as pits and ditches, may produce magnetic anomalies that can be mapped by magnetic prospection.

2.1.3 Magnetic thermoremnance can occur when ferrous minerals have been heated to high temperatures such as in a kiln, hearth, oven etc. On cooling, a permanent magnetisation may be acquired due to the presence of the Earth's magnetic field. Certain natural processes associated with the formation of some igneous and metamorphic rock may also result in magnetic thermoremnance.

2.1.4 The localised variations in magnetism are measured as sub-units of the Tesla, which is a SI unit of magnetic flux density. These sub-units are nano Teslas (nT), which are equivalent to 10^{-9} Tesla (T). Additional details are set out in 2.2 below and within Appendix A.

2.2 Equipment configuration, data collection and survey detail

2.2.1 The detailed magnetic survey was carried out using a SENSYS MAGNETO®MXPDA 5 channel cart-based system. The instrument has 5 fluxgate gradiometers (FGM650) spaced 0.5m apart with readings recorded at 20Hz. The cart is pushed at walking speed and not towed. Each sensor is not zeroed in the field as the vertical axis alignment is precisely fixed leaving sensor offsets that are removed during data processing. The fixing of the vertical alignment ensures the sensors are not unduly influenced by localised magnetic fields and that the vertical component of a magnetic anomaly is measured. The gradiometers have a measurement range of ±8000nT, although the recorded range is ±3000nT, and resolution is around 0.1nT. They are linked to a Leica GS10 RTK GNSS with data recorded by SENSYS MAGNETO®MXPDA software on a rugged PDA computer system.

2.2.2 Due to the fixed offsets within the fluxgate sensors, as a result of the manufacturing and tensioning process, the survey data do not provide a visually useful dataset until a zero median traverse algorithm is applied. It is recognised that this has the potential to affect some anomalies detrimentally by removing linear features orientated parallel to survey transects. However, this has not been noted as a particular problem with the system due to the high resolution data collection, generally long length of traverses and variability within the magnetic characteristics of a linear anomaly.

2.2.3 Data are collected along a series of parallel survey transects to achieve 100% coverage of the surveyable land. The length of each transect is variable and relates to the size of the survey area and other factors including ground conditions. A visual display allows accurate placing of transects and helps maintain the correct separation between adjacent traverses. Data are not

collected within fixed grids and data points are considered to be random even though the data are collected in a systematic manner covering all accessible areas (Aspinall, Gaffney and Schmidt, 2009).

2.2.4 Fluxgate sensors are highly sensitive to temperature change and this manifests as drift during the course of a survey. This can be particularly noticeable during the morning as temperatures rise and the equipment warms or cools. Sensor drift within the course of a traverse will appear as a line trending from negative to positive after processing with a zero median traverse algorithm. To remove the potential for temperature drift, data were collected after a 20 minute stabilisation period and traverses were limited to a time of generally <100s.

2.3 Data processing and presentation

2.3.1 Magnetic data collected by the MAGNETO®MXPDA cart-based system are initially prepared using SENSYS MAGNETO®DLMGPS software. The software effectively allocates a geographic position for each data point and can compensate for fixed offsets present within the FGM650 sensors. The offsets are positive or negative values present on all fluxgate gradiometer sensors. Some systems use manual or electronic balancing to effectively zero the sensors; however, this is a short term measure that is prone to drift through temperature changes and vibration and can easily be incorrectly set due to localised magnetic fields. The FGM650 sensors are very accurately aligned to the vertical magnetic gradient and are highly stable showing negligible drift on long traverses. The offset values are removed using TerraSurveyor software.

2.3.2 Survey tracks are analysed and georeferenced raw data (UTM Z30N) are then exported in ASCII format for further analysis and display within TerraSurveyor. The removal of the offset values (compensation) of the sensors is also carried out in TerraSurveyor using a zero median traverse function. Data are then considered to be minimally processed. Note: without the zero median traverse function it is not possible to create a meaningful data plot as all sensors have a different offset value. Although a zero median traverse algorithm can remove anomalies aligned with the survey tracks, in practice this rarely occurs due to the use of long traverses, high resolution measurement and variability within the magnetic susceptibility of long linear features.

2.3.3 The minimally processed data are collected between limits of ±3000nT and clipped for display at ±3nT. Data are interpolated to a resolution of effectively 0.5m between tracks and 0.15m along each survey track.

2.3.4 Additional data processing has been carried out in the form of both low pass and high pass filtering. Low pass filtering effectively removes high frequency variation along a traverse that has been caused by uneven ground and associated vibration. High pass filtering effectively removes low frequency variation along a traverse that has been caused by large magnetic bodies, cultivation or rapid temperature change. Data treated to additional processing

have been compared to unprocessed data to ensure that no significant anomalies have been removed.

2.3.5 Appendix C contains metadata concerning the survey and data attributes and is derived directly from TerraSurveyor. Reference should be made to Appendix B for further information on processing.

2.3.6 A TIF file is produced by TerraSurveyor software along with an associated world file (.TFW) that allows automatic georeferencing (OSGB36 datum) when using GIS or CAD software. The main form of data display used in the report is the minimally processed greyscale plot. With regard to the Sensys MXPDA, minimally processed data are considered by the manufacturer to be data that are compensated by SENSYS MAGNETO DLMGPS software, see 2.3.1 and 2.3.2. Note: traceplots are not considered to be appropriate as they do not provide an accurate or useful assessment of the magnetic anomalies due to the very high density of data collection. In addition, traceplots cannot be meaningfully plotted against base mapping and in areas of complexity traces may be lost or highly confused. Traceplots may be used to demonstrate characteristic magnetic profiles across discrete features where it is considered beneficial.

2.3.7 The raster images are combined with base mapping using ProgeCAD Professional 2021, creating DWG (2018) file formats. All images are externally referenced to the CAD drawing in order to maintain good graphical quality. The CAD plots are effectively georeferenced facilitating relocation of features using GNSS, resection method, etc.

2.3.8 An abstraction and interpretation is drawn and plotted for all geophysical anomalies located by the survey. Anomalies are abstracted using colour coded points, lines and polygons. All plots are scaled to landscape A3 for paper printing. Appendix E sets out CAD layer names with colour and graphic content for each interpretation category, see 3.3.

2.3.9 A brief summary of each anomaly, with an appropriate reference number, is set out in list form within the results (Section 3) to allow a rapid and objective assessment of features within each survey area.

2.3.10 A digital archive is produced with this report, see Appendix D below. The main archive is held at the offices of Archaeological Surveys Ltd.

3 RESULTS

3.1 General assessment of survey results

3.1.1 The detailed magnetic survey was carried out over a total of two survey areas covering approximately 10ha.

3.1.2 Magnetic anomalies located can be generally classified as positive and negative anomalies of an uncertain origin, anomalies associated with land management, anomalies associated with ground disturbance/dumping, areas of magnetic debris and strong discrete dipolar anomalies relating to ferrous objects. Anomalies located within each survey area have been numbered and are described in 3.4 and 3.5 below.

3.2 Statement of data quality and factors influencing the interpretation of anomalies

3.2.1 Data are considered representative of the magnetic anomalies present within the site. There are no significant defects within the dataset.

3.2.2 The results from Area 1 tend to infer low magnetic susceptibility levels within the soil. The presence of negative anomalies may relate to low earthwork features constructed from subsoil of very low magnetic susceptibility, the area is unlikely to have been subject to modern ploughing. Infilled ruts, land drainage or other former cut features may appear as negative anomalies if they contain soil of very low magnetic susceptibility.

3.2.3 The ground make-up within Area 2 is of uncertain depth but considered likely to increase towards the north with possibly very little make-up near the southern boundary. It is also uncertain as to whether the area contains infilled hollows or other former surface features. The detection of features below ground make-up of around 1m is unlikely given the soils are likely to support quite low magnetic susceptibility. It is also possible that where ground infill or make-up includes mixed soils of differing magnetic susceptibility then anomalies may be formed.

3.3 Data interpretation

3.3.1 The list of sub-headings below attempts to define a number of separate categories that reflect the range and type of features located during the survey. A general explanation of the characteristics of the magnetic anomalies is set out for each category in order to justify interpretation, see Table 1.

Interpretation category	Description and origin of anomalies
Anomalies with an uncertain origin	The category applies to a range of anomalies where there is not enough evidence to confidently suggest an origin. Anomalies in this category may well be related to archaeologically significant features, but equally relatively modern features, geological/pedological features and agricultural features should be considered. Morphology may be unclear or uncharacteristic and there may be a lack of additional supporting information. Positive anomalies are indicative of magnetically enhanced soils that may form the fill of 'cut' features or may be produced by accumulation within layers or 'earthwork' features; soils subject to burning may also produce positive anomalies. Negative anomalies are produced by material of comparatively low magnetic susceptibility such as stone and subsoil.
Anomalies relating to land management	Anomalies are mainly linear and may be indicative of the magnetically enhanced fill of cut features (i.e. ditches), or a negative response to sand-filled cut features. Negative anomalies can also be associated with former walling
Anomalies associated with magnetic debris	Magnetic debris often appears as areas containing many small dipolar anomalies that may range from weak to very strong in magnitude. They often occur where there has been dumping or ground make-up and are related to magnetically thermoremnant materials such as brick or tile or other small fragments of ferrous material. This type of response is occasionally associated with

	kilns, furnace structures, hearths and nail spreads from former wooden structures or rooves and may, therefore, be archaeologically significant. It is also possible that the response may be caused by natural material such as certain gravels and fragments of igneous or metamorphic rock. Strong discrete dipolar anomalies are responses to ferrous objects within the topsoil.
Anomalies with a natural origin	Naturally formed magnetic anomalies are caused by localised variability in the magnetic susceptibility of soils, subsoils and other drift or solid geologies. Anomalies may be amorphous, linear or curvilinear and may appear 'fluvial' or discrete; the latter are almost impossible to distinguish from pit-like anomalies with an anthropogenic origin. Fluvial, glacial and periglacial processes may be responsible for their formation within drift material and subsoil. Igneous and metamorphic activity can lead to anomalies within more solid geology.
Anomalies associated with ground disturbance/dumping	Magnetically variable anomalies which may be negative indicating a response to geology/drift deposits and/or positive indicating an increased depth of topsoil. Very strongly magnetic anomalies are a response to highly magnetic material of modern origin which can be used as ground make-up

Table 1: List and description of interpretation categories

3.4 List of anomalies - Area 1

Area centred on OS NGR 393578 189942, see Figs 06 – 08.

Anomalies with an uncertain origin

(1) – Positive linear anomalies cannot be confidently interpreted as cut features.

(2) – A short, negative linear anomaly close to the south eastern corner corresponds to an extant linear cut into the slope.

(3) – Negative linear anomalies in the western part of the survey area could relate to tracks or possible water rilling.

Anomalies associated with land management

(4) – A negative curvilinear anomaly relates to the remains of a formerly mapped circular bank that enclosed a group of trees within the parkland. This was no longer mapped from the 1980s.

Anomalies with a natural origin

(5) – A zone of magnetically variable responses relates to natural variations within the underlying geology.

3.5 List of anomalies - Area 2

Area centred on OS NGR 373575 179690, see Figs 09 – 11.

Anomalies with an uncertain origin

(6) – A large number of negative linear anomalies can be seen in the centre of the

survey area. It is not clear if these relate to sand-filled features that pre-date the tree removal and dumping of spoil from the motorway construction, or if they are directly associated with the 20th century ground disturbance, or possibly land drainage measures.

(7) – A number of parallel negative linear anomalies appears to be associated with a group of pit-like anomalies at the south eastern corner of the survey area. The narrow series of negative anomalies could relate to vehicle tracks associated with ground disturbance during construction of the motorway cutting, with the pit-like features associated with dumped material.

Anomalies associated with ground disturbance/dumping

(8) – Much of the site contains evidence for widespread ground disturbance. There are several zones of magnetically variable responses which would be consistent with the removal of trees and also ground make-up.

Anomalies associated with magnetic debris

(9) – Patches of magnetic debris and several discrete strong dipolar anomalies relate to ferrous material within the dumped soil. Several responses relate to large ferrous objects which are deeply buried.

(10) – Patches of magnetic debris in the northern part of the site relate to the former southern edge of the oval-shaped tree/rhododendron ring to the north.

4 CONCLUSION

4.1.1 The geophysical survey was conducted over two areas within the former Draycot Park post medieval parkland. The results from the northern part of the site reveal anomalies generally associated with a formerly mapped circular tree enclosure and variations in the underlying geology. Other anomalies lack a coherent morphology and cannot be confidently interpreted as cut features.

4.1.2 In the southern part of the site there are anomalies that support the evidence for the area being subject to ground disturbance and make-up with material redistributed across the site from the cutting of the M4 Motorway to the south. Some of the material is highly magnetic with the indication that several large ferrous objects are buried at depth. There are also a number of negative linear anomalies. They lie within a zone that was previously mapped as containing a large number of mature trees within the parkland. It is not possible to determine if they pre-date the tree planting, or if they are associated with the tree clearance and ground disturbance or if they are later attempts at land drainage measures.

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Appendix A – basic principles of magnetic survey

Iron minerals are always present to some degree within the topsoil and enhancement associated with human activity is related to increases in the level of magnetic susceptibility and thermoremnant material. Magnetic susceptibility is an induced magnetism within a material when it is in the presence of a magnetic field. This can be thought of as effectively permanent due to the presence of the Earth's magnetic field. Thermoremnant magnetism occurs when ferrous material is heated beyond a specific temperature known as the Curie Point. Demagnetisation occurs at this temperature with re-magnetisation by the Earth's magnetic field upon cooling.

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

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

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

Magnetic survey or magnetometry can be carried out using a fluxgate gradiometer and may be referred to as gradiometry. The SENSYS gradiometer is a passive instrument consisting of two fluxgate sensors mounted vertically 65cm apart. The instrument is carried about 10-20cm above the ground surface and the upper sensor measures the Earth's magnetic field as does the lower sensor but this is influenced to a greater degree by any localised buried magnetic field. The difference between the two sensors will relate to the strength of the magnetic field created by the buried feature.

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

Appendix B – data processing notes

Clipping

Minimum and maximum values are set and replace data outside of the range with those values. Extreme values are removed improving colour or greyscale contrast associated with data values that may be archaeologically significant. Different ranges are applied to data in order to determine the most suitable for anomaly abstraction and display.

High Pass Filter

Removes low frequency anomalies within the data that are not considered to be archaeologically significant and may be natural in origin. A window passes over the data, the mean of all the data within the window is subtracted from the centre value. The size of the window is adjusted as is the weighting which may be uniform or Gaussian. The process is used to improve the visibility of anomalies of interest.

Low Pass Filter

Removes high frequency anomalies or 'noise' within datasets and provides a smoother output. A window passes over the data, the mean of all the data within the window is used to replace the centre value. The size of the window is adjusted as is the weighting. The process is used to improve the visibility of anomalies of interest.

Zero Median/Mean Traverse

The median (or mean) of data from each traverse is calculated ignoring data outside a threshold value, the median (or mean) is then subtracted from the traverse. The process is used to equalise differences between the offset values of the gradiometer sensors. The process can remove archaeological features that run along a traverse but with the high resolution datasets created by the Sensys FGM650 sensors and the method of data collection this has not been a notable problem. In fact, the removal of offsets using software avoids carrying out a balancing procedure on site, which inevitably can never be done in magnetically clean conditions and results in improperly aligned fluxgate sensors and/or electronic adjustment values.

Appendix C – survey and data information

Area 1 minimally processed data
Filename: J858-mag-Area1-proc.xcp
Instrument Type: Sensys DLMGPS
Units:
UTM Zone: 30U
Survey corner coordinates (X/Y):OSGB36
Northwest corner: 393497.37, 180012.47 m
Southeast corner: 393659.07, 179868.32 m
Collection Method: Randomised
Sensors: 5
Dummy Value: 32702
Dimensions
Survey Size (meters): 162 m x 144 m
X&Y Interval: 0.15 m
Source GPS Points: Active: 468600, Recorded: 468600
Stats
Max: 2
Min: -2
Std Dev: 0.65
Mean: 0.00
Median: 0.00
Composite Area: 2.3309 ha
Surveyed Area: 1.5026 ha
PROGRAM
Name: TerraSurveyorPre
Version: 3.0.36.24
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to UTM).
3 DeStripe Median Traverse:
4 Clip from -3.00 to 3.00
4 Clip from -2.00 to 2.00

Area 1 filtered data

Filename: J858-mag-Area1-proc-hpf-lpf.xcp
Stats
Max: 2.21
Min: -2.20
Std Dev: 0.46
Mean: 0.00
Median: 0.00
GPS based Proce7
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to UTM).
3 DeStripe Median Traverse:
4 High pass Uniform (median) filter: Window dia: 300
5 Lo pass Uniform (median) filter: Window dia: 13
6 Clip from -3.00 to 3.00
7 Clip from -2.00 to 2.00

Area 2 minimally processed data

Filename: J858-mag-Area2-proc.xcp
Northwest corner: 393375.00, 179826.02 m
Southeast corner: 393790.65, 179559.47 m
Dimensions
Survey Size (meters): 416 m x 267 m
X&Y Interval: 0.15 m
Source GPS Points: Active: 2853368, Recorded: 2853368
Stats
Max: 3.32
Min: -3.30
Std Dev: 0.99
Mean: 0.01
Median: 0.00
Composite Area: 11.079 ha
Surveyed Area: 8.6564 ha
GPS based Proce4
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to UTM).
3 DeStripe Median Traverse:
4 Clip from -3.00 to 3.00

Area 2 filtered data

Filename: J858-mag-Area2-proc-hpf-lpf.xcp
Northwest corner: 393375.003528357, 179826.028484288 m
Southeast corner: 393790.653528357, 179559.478484288 m
Max: 2.0
Min: -2.0
Std Dev: 0.869
Mean: 0.01
Median: 0.00

GPS based Proce7
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to UTM).
3 DeStripe Median Traverse:
4 High pass Uniform (median) filter: Window dia: 300
5 Lo pass Uniform (median) filter: Window dia: 13
6 Clip from -3.00 to 3.00
7 Clip from -2.00 to 2.00

Appendix D – digital archive

Archaeological Surveys Ltd hold the primary digital archive at their offices in Wiltshire. Data are backed-up onto an on-site data storage drive and at the earliest opportunity data are copied to CD ROM for storage on-site and off-site.

A PDF copy will be supplied to the Wiltshire Historic Environment Record with greyscale images and abstraction layers made available on request. The report will also be uploaded to the Online AccesS to the Index of archaeological investigationS (OASIS).

Archive contents:

File type	Naming scheme	Description
Data	J858-mag-**[area number/name]**.asc J858-mag-**[area number/name]**.xcp J858-mag-**[area number/name]**-proc.xcp	Raw data as ASCII CSV TerraSurveyor raw data TerraSurveyor minimally processed data
Graphics	J858-mag-**[area number/name]**-proc.tif	Image in TIF format
Drawing	J858-**[version number]**.dwg	CAD file in 2018 dwg format
Report	J858 report.odt	Report text in LibreOffice odt format

Table 2: Archive metadata

Appendix E – CAD layers for abstraction and interpretation plots

The table below sets out Archaeological Surveys Ltd CAD layer names with associated colours and graphical content. Where CAD files are available layers may be extracted for further CAD/GIS use. Note: hatched

polygon boundaries are contained within layers with the RGB colour code 254, 255, 255 (near white) in order to prevent their visibility.

Report sub-heading and associated CAD layer names	Colour with RGB index		Layer content
Anomalies with an uncertain origin			
AS-ABST MAG POS LINEAR UNCERTAIN		255,127,0	Line, polyline or polygon (solid)
AS-ABST MAG NEG LINEAR UNCERTAIN		Blue 0,0,255	Line, polyline or polygon (solid)
AS-ABST MAG POS DISCRETE UNCERTAIN		255,127,0	Solid donut, point or polygon (solid)
Anomalies relating to land management			
AS-ABST MAG NEG LINEAR PARKLAND FEATURE		76, 153,133	Line, polyline or polygon (solid)
Anomalies associated with magnetic debris			
AS-ABST MAG DEBRIS		132, 132, 132	Polygon (cross hatched ANSI37)
AS-ABST MAG STRONG DIPOLAR		132, 132, 132	Solid donut, point or polygon (solid)
Anomalies with a modern origin			
AS-ABST MAG DISTURBANCE		132, 132, 132	Polygon (hatched ANSI31)
AS-ABST MAG SERVICE		132, 132, 132	Line or polyline
Anomalies with a natural origin			
AS-ABST MAG NATURAL FEATURES		Yellow 255,255,0	Polygon (cross hatched ANSI37)
Anomalies associated with ground disturbance			
AS-ABST MAG GROUND DISTURBANCE		204, 178,102	Polygon (net)

Table 3: CAD layering

Appendix F – copyright and intellectual property

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Tel: 01249 814 231

Archaeological Surveys
Specialist Geophysical Surveyors

Geophysical Survey
North Draycot Park Farm
Seagry
Wiltshire

Map of survey area

Survey location

Site centred on OS NGR
ST 93578 79942 & ST 93575 79690

SCALE 1:25 000

0m 500m 1000m

SCALE TRUE AT A3

DRAWN BY	CHECKED BY	
KTD	DJS	FIG 01

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Referencing information

393300 393350 393400 393450 393500 393550 393600 393650 393700 393750 393800 393850 393900

180000 179950 179900 179850 179800 179750 179700 179650 179600 179550

N

Area 1

Trees

Area 2

Referencing grid to OSGB36 datum at 50m intervals

- Area 1 - 393550 179950
- Area 2 - 393550 179700
- Survey tracks
- Survey track start
- Survey track stop

SCALE 1:2000

0m 20 40 60 80 100m

SCALE TRUE AT A3

DRAWN BY	CHECKED BY	
KTD	DJS	FIG 02

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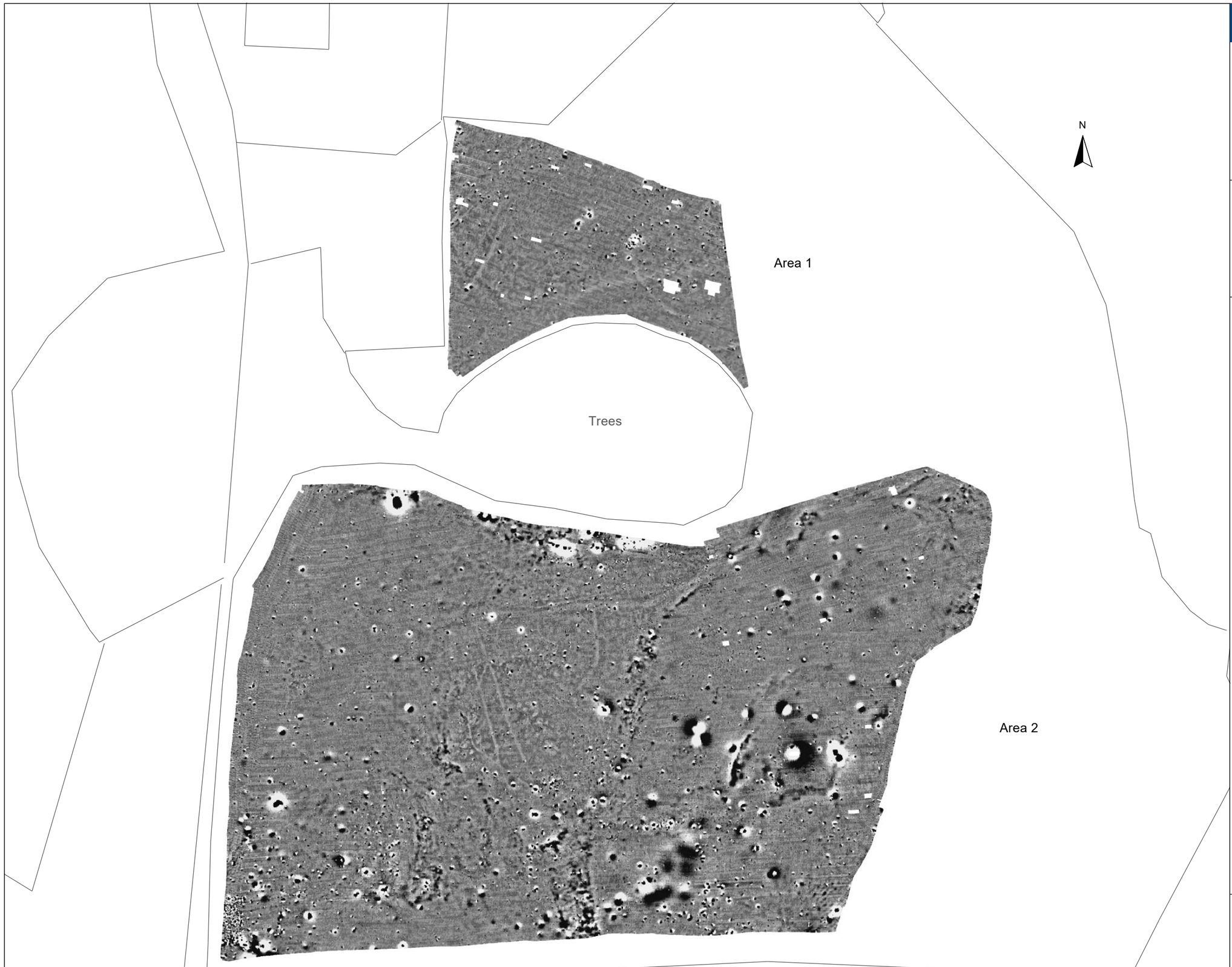
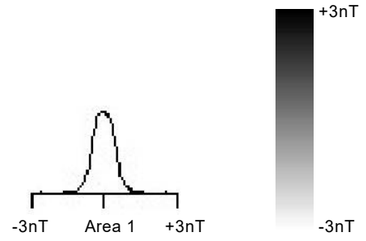
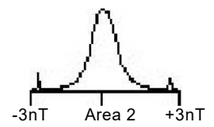
Greyscale plot of minimally processed magnetometer data







SCALE 1:2000

0m 20 40 60 80 100m

SCALE TRUE AT A3

DRAWN BY	CHECKED BY	
KTD	DJS	FIG 03

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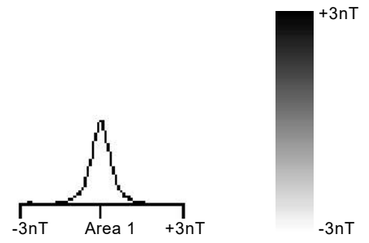
Greyscale plot of filtered magnetometer data

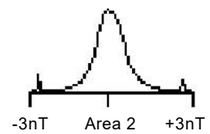
N

Area 1

Trees

Area 2





SCALE 1:2000

0m 20 40 60 80 100m

SCALE TRUE AT A3

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KTD	DJS	FIG 04

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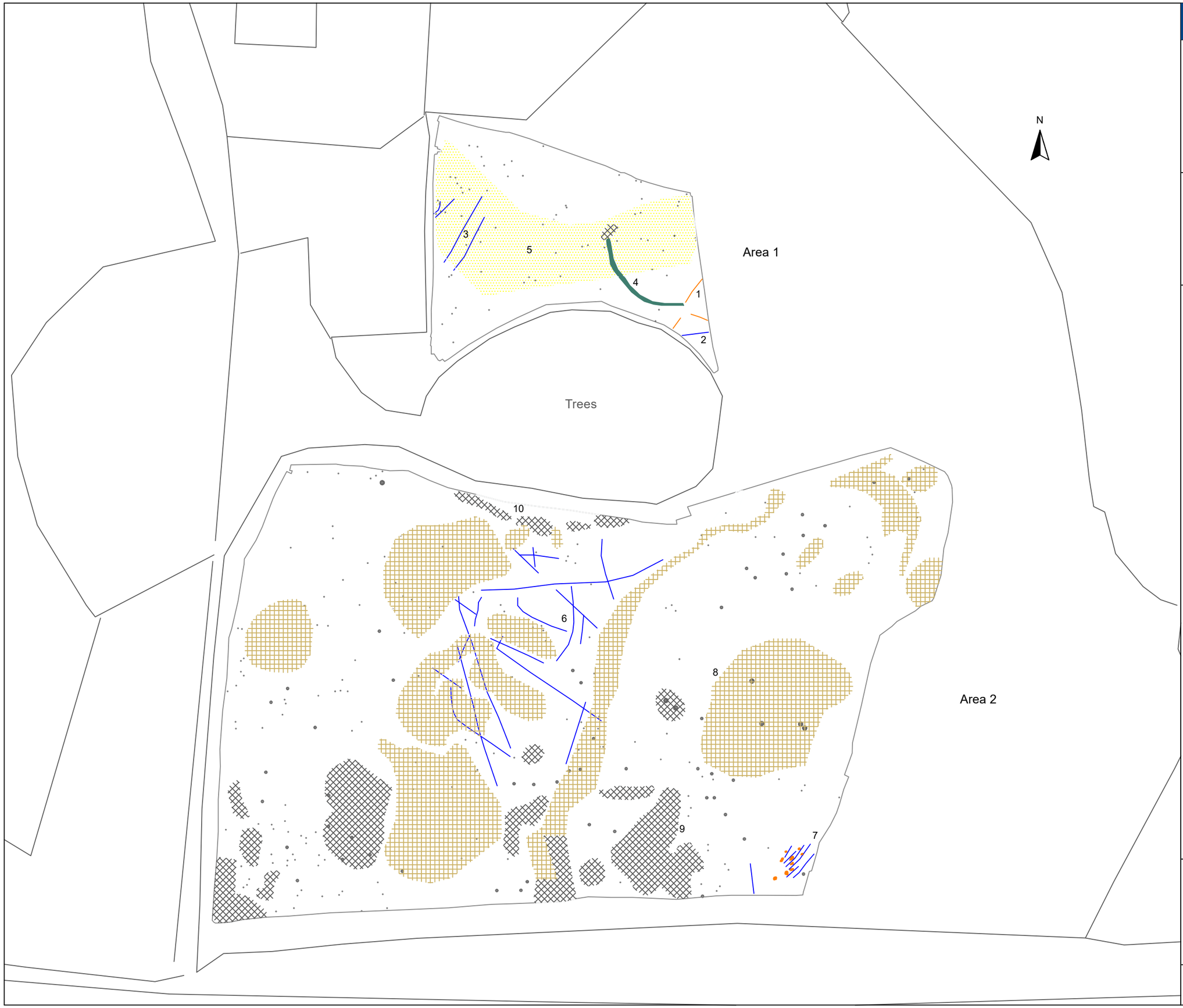
Abstraction and interpretation of magnetic anomalies



- Curvilinear anomaly - parkland feature
- Positive linear anomaly - possible ditch-like feature
- Negative linear anomaly - material of low magnetic susceptibility
- Discrete positive response - possible pit-like feature
- Variable magnetic response - ground disturbance/make-up
- Variable magnetic response - natural variations in underlying geology
- Magnetic debris - spread of magnetically thermoremnant/ferrous material
- Strong dipolar anomaly - ferrous object

SCALE 1:2000

0m 20 40 60 80 100m

SCALE TRUE AT A3

DRAWN BY	CHECKED BY	
KTD	DJS	FIG 05

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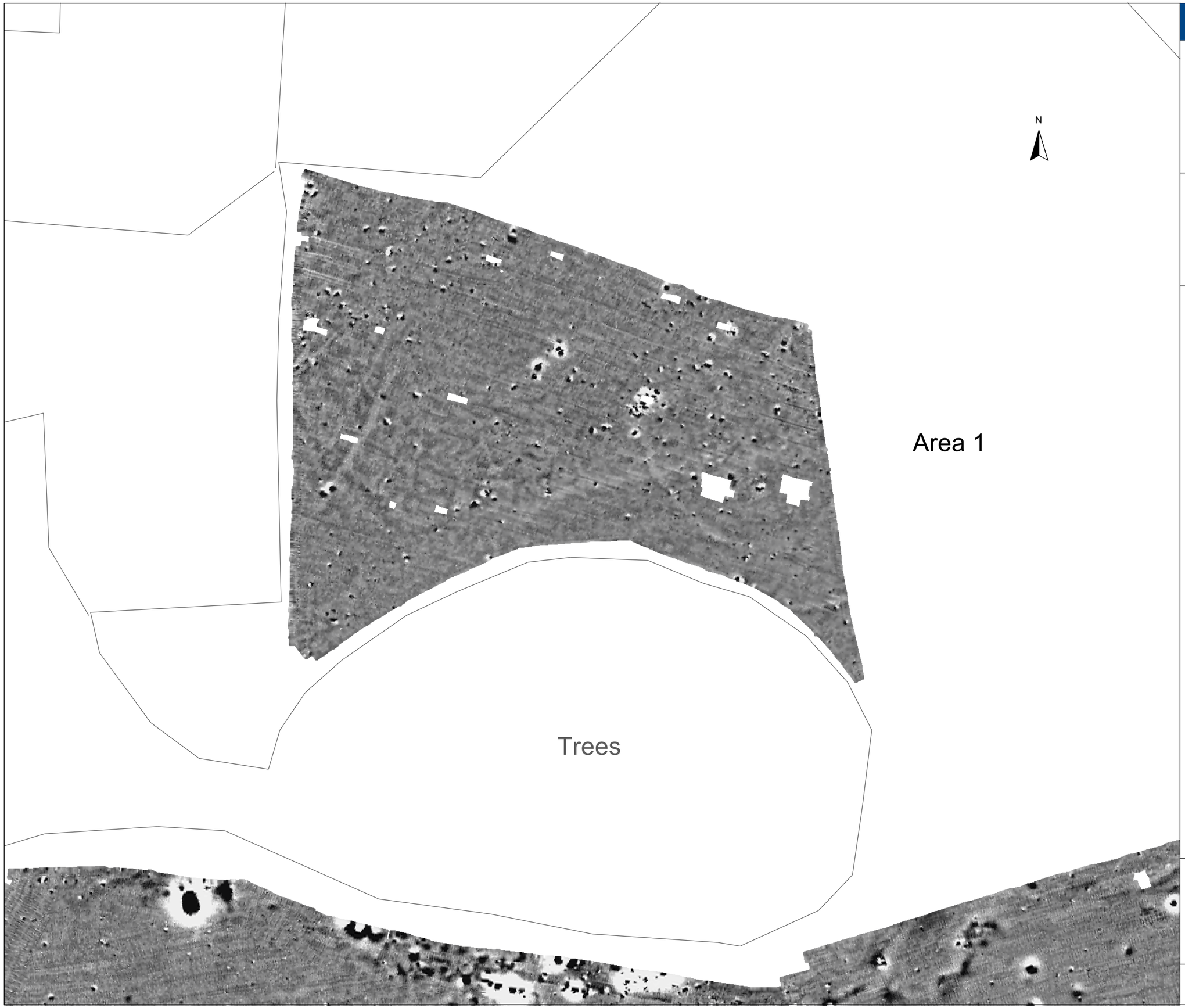
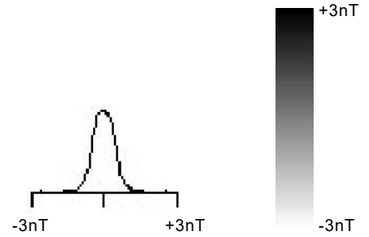
Greyscale plot of minimally processed magnetometer data - Area 1





SCALE 1:1000

0m 10 20 30 40 50m

SCALE TRUE AT A3

DRAWN BY	CHECKED BY	
KTD	DJS	FIG 06

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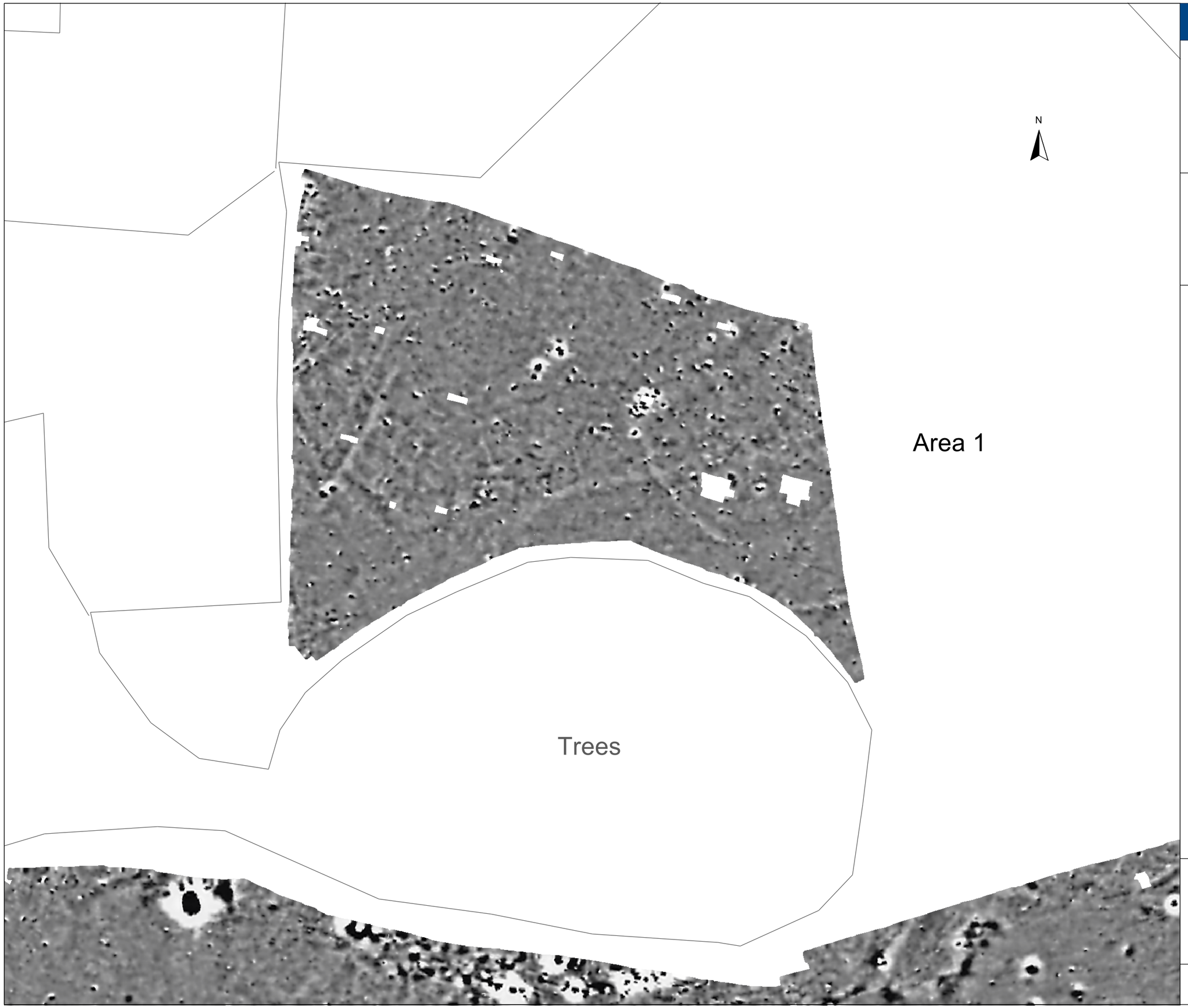
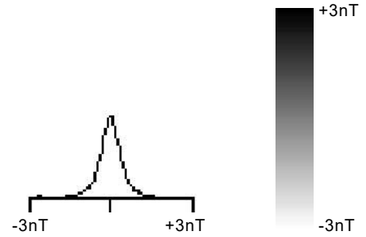
Greyscale plot of filtered magnetometer data - Area 1





SCALE 1:1000

0m 10 20 30 40 50m

SCALE TRUE AT A3

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KTD	DJS	FIG 07

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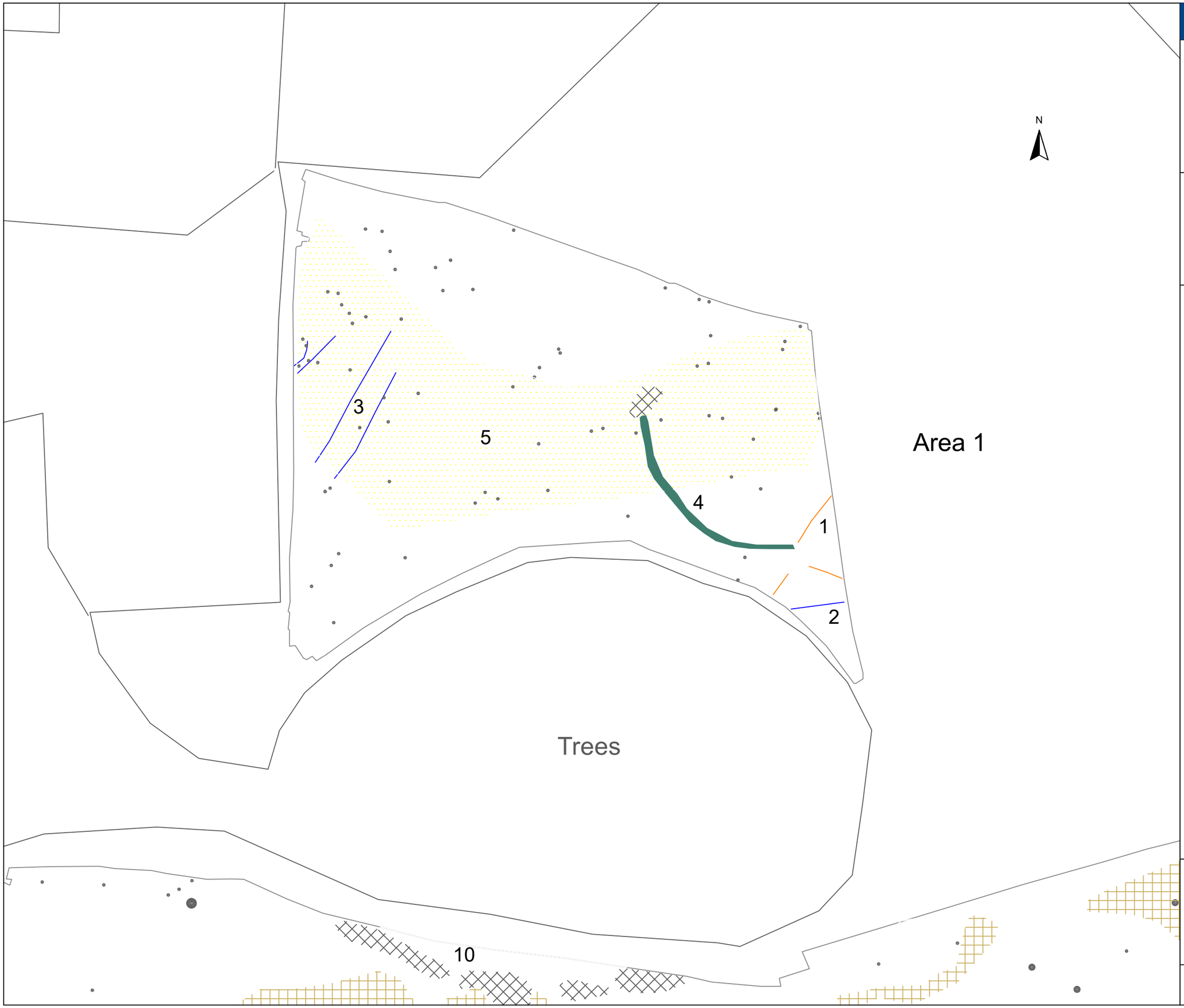
Abstraction and interpretation of magnetic anomalies - Area 1



- Curvilinear anomaly - parkland feature
- Positive linear anomaly - possible ditch-like feature
- Negative linear anomaly - material of low magnetic susceptibility
- Variable magnetic response - ground disturbance/make-up
- Variable magnetic response - natural variations in underlying geology
- Magnetic debris - spread of magnetically thermoremnant/ferrous material
- Strong dipolar anomaly - ferrous object

SCALE 1:1000

0m 10 20 30 40 50m

SCALE TRUE AT A3

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KTD	DJS	FIG 08

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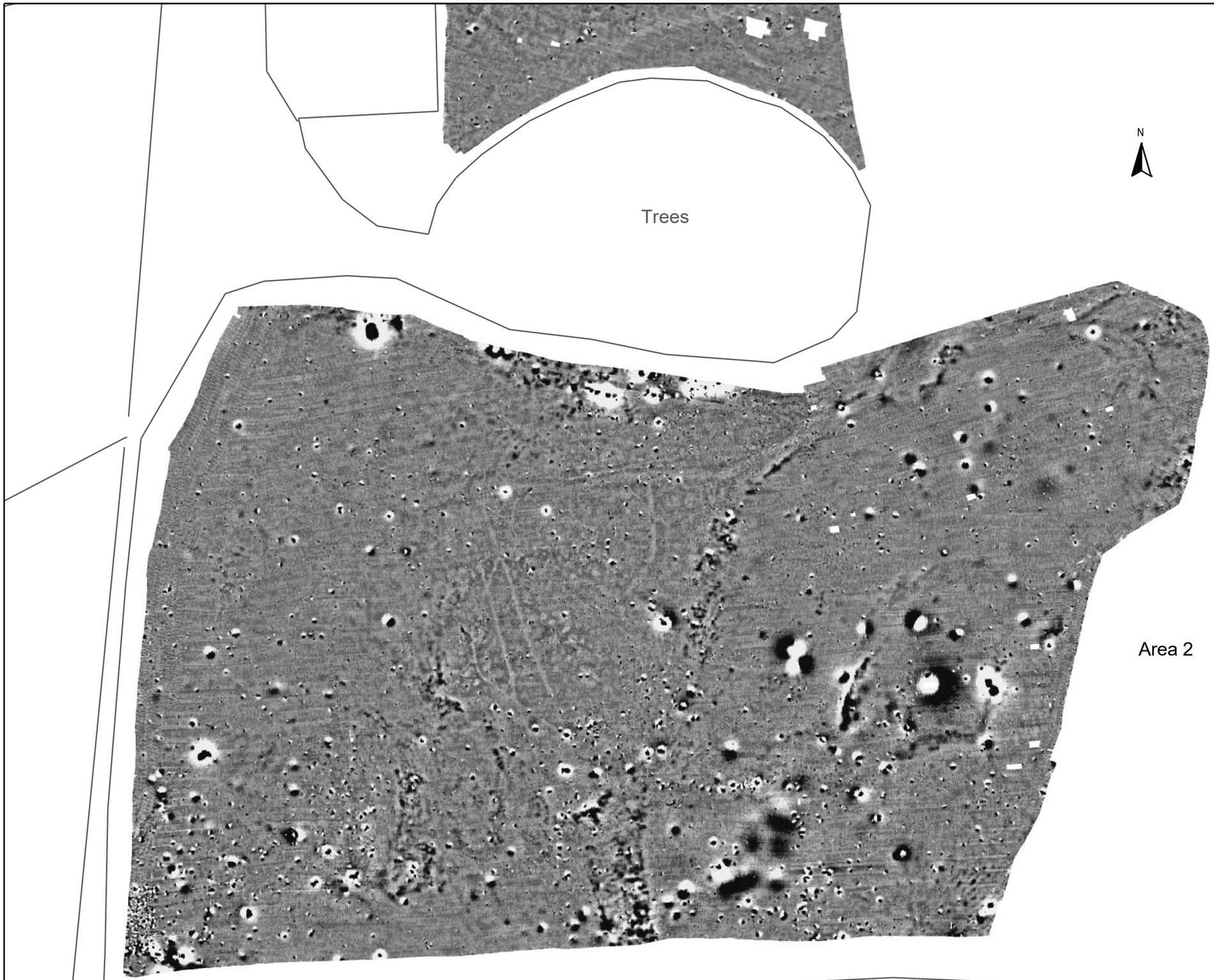
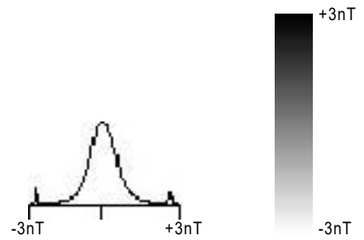
Greyscale plot of minimally processed magnetometer data - Area 2





SCALE 1:1500

0m 10 20 30 40 50m

KTD	DJS	FIG 09

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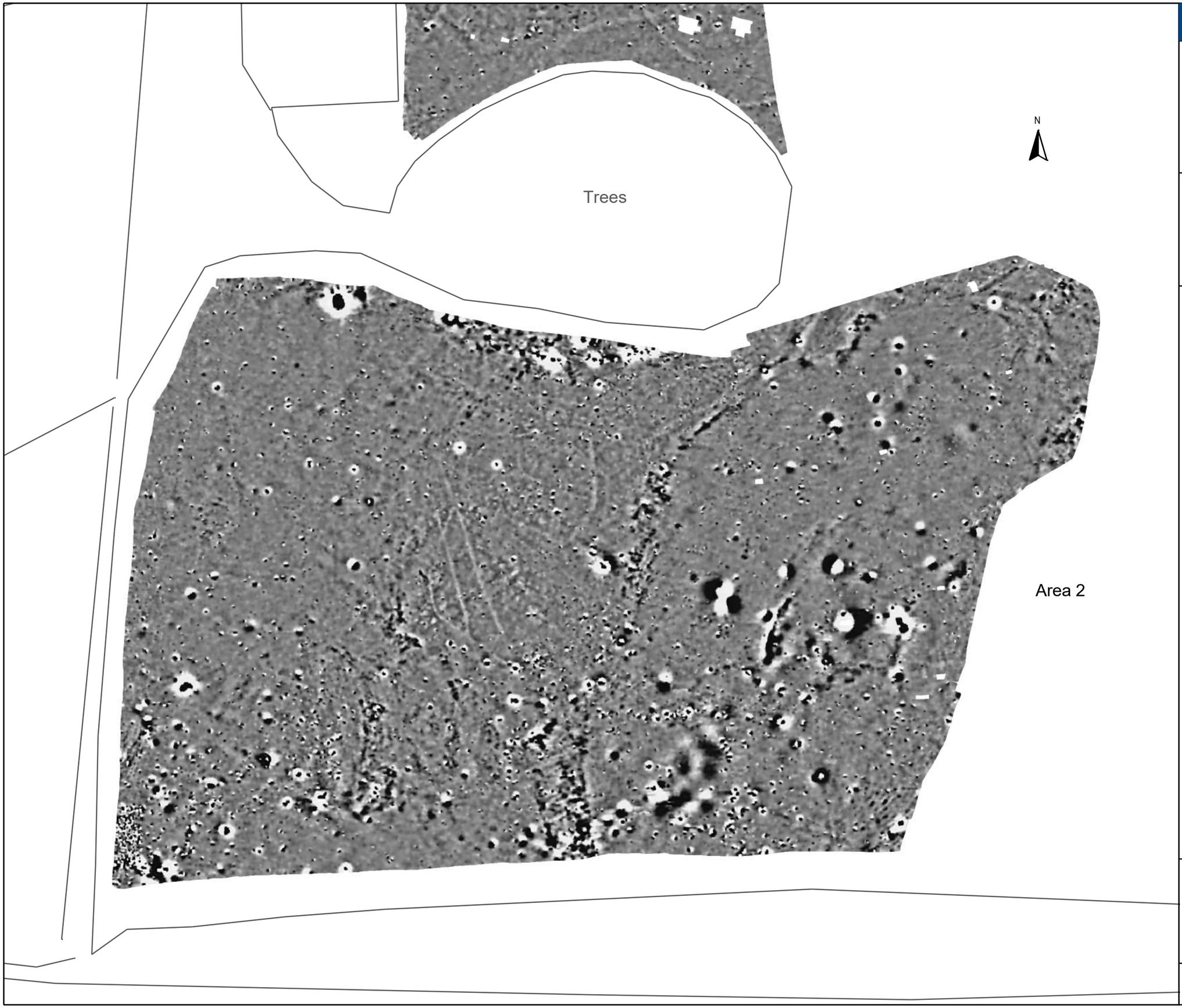
Greyscale plot of filtered magnetometer data - Area 2



+3nT
-3nT
-3nT
+3nT

SCALE 1:1500

0m 10 20 30 40 50m

KTD	DJS	FIG 10

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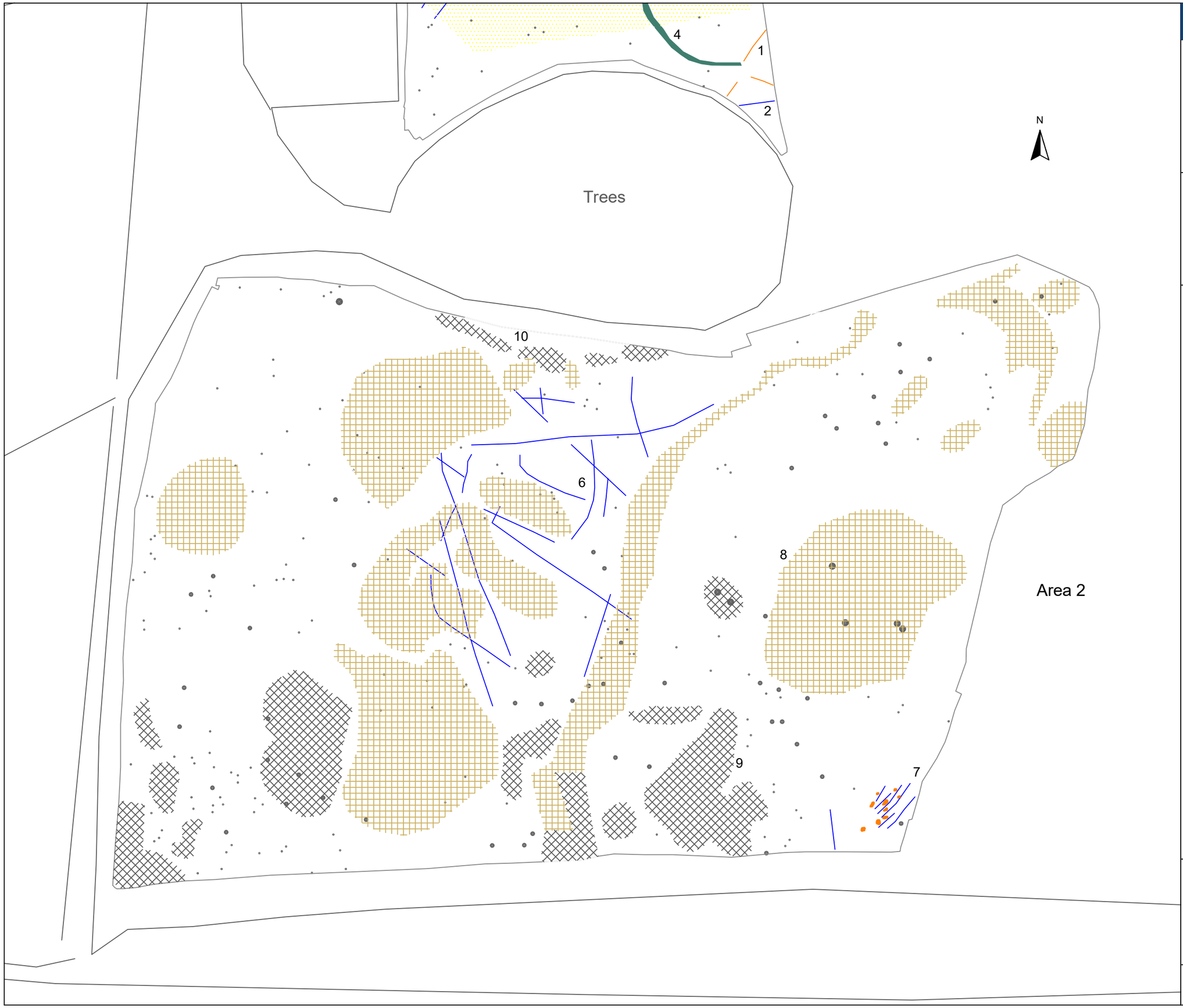
Abstraction and interpretation of magnetic anomalies - Area 2



- Positive linear anomaly - possible ditch-like feature
- Negative linear anomaly - material of low magnetic susceptibility
- Discrete positive response - possible pit-like feature
- Variable magnetic response - ground disturbance/make-up
- Magnetic debris - spread of magnetically thermoremnant/ferrous material
- Strong dipolar anomaly - ferrous object

SCALE 1:1500

0m 10 20 30 40 50m

SCALE TRUE AT A3

DRAWN BY	CHECKED BY	
KTD	DJS	FIG 11