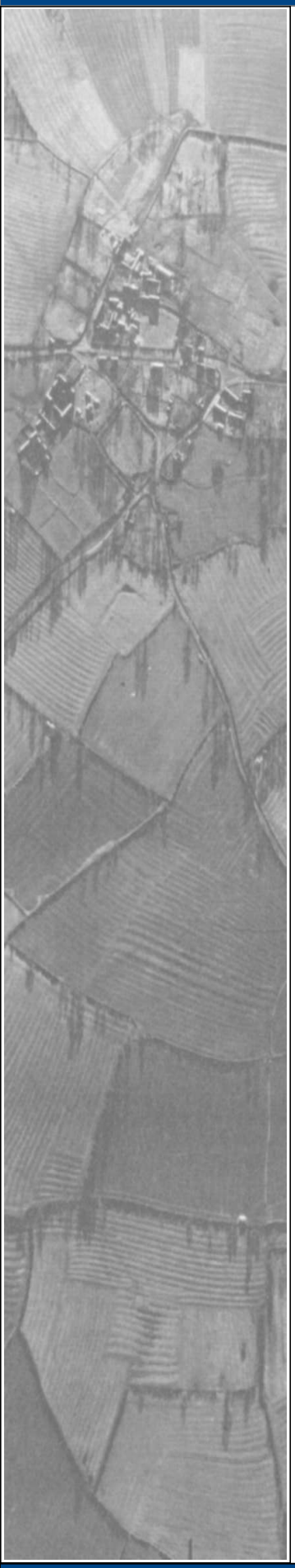

Little Keyford
Frome
Somerset

MAGNETOMETER SURVEY REPORT

for

Cotswold Archaeology

Kerry Donaldson & David Sabin

June 2022

Ref. no. J920

ARCHAEOLOGICAL SURVEYS LTD

Little Keyford
Frome
Somerset

MAGNETOMETER SURVEY REPORT

for

Cotswold Archaeology

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

Survey date – 10th June 2022
Ordnance Survey Grid Reference – **ST 77625 46470**

Somerset HER PRN: 47435

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CONTENTS

LIST OF FIGURES

LIST OF PLATES

LIST OF TABLES

SUMMARY

Detailed magnetometry was carried out by Archaeological Surveys Ltd within a single arable field on land at Little Keyford, Frome, Somerset. The results indicate the presence of a number of archaeological features, including a ring ditch and discrete, linear, curvilinear and rectilinear anomalies. A rectilinear anomaly could have an association with a formerly mapped field boundary to the south, however the response could indicate a rectilinear ditch with archaeological potential.

1 INTRODUCTION

1.1 Survey background

1.1.1 Archaeological Surveys Ltd was commissioned by Cotswold Archaeology to undertake a magnetometer survey of an area of land at Little Keyford on the southern edge of Frome in Somerset. The site has been outlined for a proposed residential development and the survey forms part of an archaeological assessment.

1.1.2 The geophysical survey was carried out in accordance with a Written Scheme of Investigation (WSI) produced by Archaeological Surveys (2022) and issued to the client prior to commencing the fieldwork. The survey has also been issued with the Somerset HER PRN: 47435.

1.2 Survey objectives and techniques

1.2.1 The objective of the survey was to use magnetometry to locate geophysical anomalies that may be archaeological in origin so that they may be assessed prior to development of the site. 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 Archaeological Surveys Ltd is a Registered Organisation with the Chartered Institute for Archaeologists and both company directors are Members of the Chartered Institute for Archaeologists (MCIfA) and have therefore been assessed for their technical competence and ethical suitability and abide by the CIfA Codes of Conduct. 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) (updated 2020) *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.

1.3.4 Where targeting of anomalies by excavation is to be carried out, care should be taken to place trenches over solid lines or features visible on the abstraction and interpretation plots. Archaeological Surveys abstraction and interpretation avoids the use of dashed or dotted line formats, and broken or fragmented lines used in interpretive plots may well correspond closely with truncation of archaeological features.

1.4 Site location, description and survey conditions

1.4.1 The site is located at Little Keyford on the southern edge of Frome in Somerset. It is centred on Ordnance Survey National Grid Reference (OS NGR) ST 77625 46470, see Figs 01 and 02.

1.4.2 The geophysical survey covers approximately 3.7ha within an agricultural field between the B3092 (The Mount) to the east and Little Keyford Lane to the west. The site had been left fallow after a maize crop was harvested the previous autumn and contained very rough ground and numerous patches of tall weed growth that were very difficult to traverse and frequently impeded survey resulting in a patchy dataset. A section of hedgerow related to a partly removed field boundary, runs through the centre of the southern part of the field and is orientated north west to south east, see Plate 1.

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

Plate 1: Central southern part of the survey area showing tall clumps of thistles and a short section of hedgerow

1.5 Site history and archaeological potential

1.5.1 There are no designated or undesignated heritage assets within the site, but it has not previously been subject to archaeological investigation. It lay within the agricultural hinterland of Frome in the medieval period and the postulated boundary of a medieval deer park is situated just to the south of the survey area. The site was split into several fields until the late 20th century. In the wider vicinity a prehistoric ditch was recorded from geophysical survey and evaluation 600m to the south west and a small number of Roman pottery sherds and Mesolithic flint has also been located 550m to the east.

1.6 Geology and soils

1.6.1 The underlying solid geology across the majority of the site is limestone from the Cornbrash Formation with a narrow band of mudstone from the Forest Marble Formation along the south western edge (BGS, 2017).

1.6.2 The overlying soil across the survey area is from the Evesham 1 association and is a typical calcareous pelosol. It consists of a slowly permeable, calcareous, clayey soil associated with shallow, well drained, brashy, calcareous soils over limestone (Soil Survey of England and Wales, 1983).

1.6.3 Magnetometry carried out over similar geology and soil has produced good results, although they are often associated with naturally formed anomalies which, at times, can be difficult to distinguish from those with an anthropogenic origin. The site is, therefore, considered suitable for magnetic

survey.

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 ±40nT and ±10nT. Data are interpolated to a resolution of effectively 0.5m between tracks and 0.15m along each survey track.

2.3.4 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.

2.3.5 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.

2.3.6 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.

2.3.7 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.

2.3.8 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. Where further interpretation is possible, or where a number of possible origins should be considered, more subjective discussion is set out in Section 4.

2.3.9 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 approximately 3.7ha within a single field.

3.1.2 Magnetic anomalies located can be generally classified as positive linear and discrete positive responses of archaeological potential, positive anomalies of an uncertain origin, anomalies relating to land management, linear anomalies of an agricultural origin, areas of magnetic disturbance and strong discrete dipolar anomalies relating to ferrous objects.

3.1.3 Anomalies located within each survey area have been numbered and are described in 3.4 below with subsequent discussion in Section 4.

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 although numerous small patches could not be surveyed due to tall and dense thistle cover.

3.2.2 The data appear to indicate good magnetic contrast between the fill of former cut features and the adjacent natural subsoil and/or solid geology. Weak linear anomalies parallel with extant boundaries are related to modern cultivation. It is likely that many discrete and amorphous anomalies relate to naturally formed feature; however, it can be impossible to separate these from similar features of anthropogenic origin.

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 archaeological potential	Anomalies have the characteristics (mainly morphological) of a range of archaeological features such as pits, ring ditches, enclosures, etc. The category is used where there is a high level of confidence which may be due to additional supporting information where morphology is unclear or uncharacteristic.
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). The anomalies may be long and/or form rectilinear elements and they may relate to topographic features or be visible on early mapping. Associated agricultural anomalies (e.g. headlands, plough marks and former ridge and furrow) may support the interpretation. Parallel linear anomalies. The multiple dipolar response indicates ceramic land drains.
Anomalies with an agricultural origin	The anomalies are often linear and form a series of parallel responses or are parallel to extant land boundaries. Where the response is broad, former ridge and furrow is likely; narrow response is often related to modern ploughing. This category does not include agricultural features of early date or considered to be of archaeological potential (e.g. animal stockades, enclosures, farmsteads, etc).
Anomalies associated with magnetic debris	Strong discrete dipolar anomalies are responses to ferrous objects within the topsoil.
Anomalies with a modern origin	The magnetic response is often strong and dipolar indicative of ferrous material and may be associated with extant above surface features such as wire fencing, cables, pylons etc. Often a significant area around these features has a strong magnetic flux which may create magnetic disturbance; such disturbance can effectively obscure low magnitude anomalies if they are present. Fluxgate sensors may respond erratically adjacent to strong magnetic sources.

Table 1: List and description of interpretation categories

3.4 List of anomalies

Area centred on OS NGR 377625 146470, see Figs 03 – 05.

Anomalies of archaeological potential

(1) – Situated in the north eastern part of the site is a penannular ring ditch, which appears to have a deliberate south east facing entrance, although other gaps may be caused by truncation. It appears to contain a small number of pit-like features on the eastern side and similar anomalies can be seen externally to the west and could also be associated.

(2) – A number of fragmented, positive curvilinear anomalies are located 10-15m north east of anomaly (1). Although poorly defined, it is possible that they relate to further ring ditch features.

(3) – A number of irregularly shaped positive linear responses could relate to a fragmented rectilinear feature with archaeological potential.

(4) – An L-shaped positive linear anomaly is situated in the northern part of the site and appears to relate to a cut feature.

(5) – Two parallel, positive linear anomalies are located in the eastern part of the site. Although they cannot be seen to extend further south, they appear to relate to parallel ditches spaced approximately 1.6m apart.

(6) – A positive rectilinear anomaly has been located in the central part of the site. The eastern part extends towards, but not beyond the former land boundary (12) and the northern part is parallel with (12); however, it appears to have been truncated in places by agricultural activity and its morphology suggests that it may have some antiquity.

(7) – An amorphous positive anomaly lies immediately north of anomaly (6) and appears to have its southern edge bounded by the ditch. The response is variable and this is usually indicative of former quarrying.

(8) – The northern part of the site contains a number of discrete, positive anomalies with a response of 25-50nT which may indicate an archaeological origin.

Anomalies with an uncertain origin

(9) – Much of the survey area contains numerous discrete, positive responses. They are often clustered or in linear groups, and they generally have a weak response. While it is possible that they relate to cut, pit-like features with archaeological potential, there is a general lack of pattern or morphology and a natural origin is also possible.

(10) – A fragmented, sinuous positive anomaly is located in the south eastern part of the site. Its morphology appears too irregular for an association with former agricultural activity and its origin is uncertain.

(11) – A sinuous, weakly positive, narrow linear anomaly appears to truncate the northern part of anomaly (1) and extend northwards and southwards beyond it. The origin of the anomaly is uncertain, but it could relate to a cut, ditch-like feature.

Anomalies associated with land management

(12) – A negative linear anomaly crosses the southern part of the survey area with a west south west to east north east orientation where it then turns to the south east. This corresponds to an earthwork bank visible on LiDAR imagery and which relates to a former field boundary mapped until the late 20th century.

(13) – A positive linear anomaly relates to a former field boundary mapped during the 19th and 20th centuries.

Anomalies with an agricultural origin

(14) – Parallel linear anomalies relate to former agricultural activity. Only the general trend has been shown and not all of the anomalies have been abstracted for clarity of other features.

4 DISCUSSION

4.1.1 The survey has located a number of anomalies with archaeological potential. These include a penannular ring ditch (1), which appears to have a 2.8m wide, south east facing entrance. The outer diameter of the ring ditch is approximately 13.5m with a ditch of between 0.5m and 1m wide. The western side is very weak and indistinct, and it may have been truncated by a sinuous linear anomaly (11) on the northern

edge. It appears to contain a small number of pit-like features on the eastern side and similar anomalies can be seen externally to the west and could also be associated. To the north and north east of anomaly (1) are a number of less well defined and fragmented positive curvilinear responses (2) and rectilinear and linear anomalies (3 - 5), which appear to indicate further possible cut features. The northern part of the site contains a number of discrete, positive responses (8) and although many are similar to pit-like anomalies (9), they are generally stronger at 25-50nT, which could indicate an association with burnt material.

4.1.2 A positive rectilinear anomaly has been located in the central part of the site (6). The eastern part extends towards, but not beyond former land boundary (12) and the northern part is parallel with (12); however, it has evidence of an additional internal L-shaped feature in the north eastern corner and may cut or bound an area of possible former quarrying (7). Although there is an apparent association with the former boundary (12), the response indicates a ditch that has been truncated in places by agricultural activity that may relate to ridge and furrow or strip fields and the morphology of the anomaly may indicate an enclosure of some antiquity. The response is generally 4-15nT, but towards the north eastern corner and adjacent to the western edge of (7) there are discrete sections of the ditch that have a response of 40-120nT, indicating an association with intensely burnt material

4.1.3 Much of the survey area contains numerous discrete, positive responses (9). They are often clustered or in linear groups, and they generally have a response of 4-10nT. While it is possible that they relate to cut, pit-like features with archaeological potential, there is a general lack of pattern or morphology. Such anomalies can also be associated with naturally formed features such as tree throw pits, or solution features within the underlying geology, or they can be formed during the process of ploughing the shallow underlying cornbrash with an accumulation of soil within the resulting depressions.

5 CONCLUSION

5.1.1 The geophysical survey located a number of anomalies primarily in the northern half of the site that appear to relate to cut features with archaeological potential. These include a penannular ring ditch and a number of positive linear, rectilinear and curvilinear anomalies along the north eastern edge of the site. A positive rectilinear anomaly has also been located in the centre of the site and although it appears to have an association with a formerly mapped field boundary which relates to an earthwork bank, the rectilinear anomaly may have archaeological potential. A number of pits have also been located, some with very strong responses possibly indicating an association with burnt or occupation material. Weaker pits could also have an archaeological origin but they lack a coherent morphology or layout and a natural origin, or an association with ground disturbance through ploughing, is also possible.

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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.

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

Minimally processed data

Filename: J920-mag-proc.xcp
Instrument Type: Sensys DLMGPS
Units:
UTM Zone: 30U
Survey corner coordinates (X/Y):OSGB36
Northwest corner: 377488.58, 146625.01 m
Southeast corner: 377718.95, 146299.51 m
Collection Method: Randomised
Sensors: 5
Dummy Value: 32702
Dimensions
Survey Size (meters): 230 m x 326 m
X&Y Interval: 0.125 m
Source GPS Points: Active: 1317245, Recorded: 1317245
Stats
Max: 11.05
Min: -11.00
Std Dev: 3.23
Mean: 0.22
Median: 0.04
Composite Area: 7.4987 ha
Surveyed Area: 3.2246 ha
PROGRAM
Name: TerraSurveyorPre
Version: 3.0.36.24
GPS based Proce4
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to UTM).
3 DeStripe Median Traverse:
4 Clip from -10.00 to 10.00
Stats
Max: 44.20
Min: -44.00
Std Dev: 4.40
Mean: 0.38
Median: 0.06
GPS based Proce4
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to UTM).
3 DeStripe Median Traverse:
4 Clip from -40.00 to 40.00

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 Somerset 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	J920-mag.asc J920-mag.xcp J920-mag-proc.xcp	Raw data as ASCII CSV TerraSurveyor raw data TerraSurveyor minimally processed data
Graphics	J920-mag-proc.tif	Image in TIF format
Drawing	J920-**[version number]**.dwg	CAD file in 2018 dwg format
Report	J920 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 archaeological potential			
AS-ABST MAG POS DISCRETE ARCHAEOLOGY		Red 255,0,0	Solid donut, point or polygon (solid)
AS-ABST MAG POS ARCHAEOLOGY		Red 255,0,0	Polygon (cross hatched ANSI37)
AS-ABST MAG POS LINEAR ARCHAEOLOGY		Red 255,0,0	Polyline or polygon (solid)
AS-ABST MAG POS CURVILINEAR RING DITCH		Magenta 255,0,255	Polyline or polygon (solid)
Anomalies with an uncertain origin			
AS-ABST MAG POS LINEAR UNCERTAIN		255,127,0	Line, polyline or polygon (solid)

AS-ABST MAG POS DISCRETE UNCERTAIN		255,127,0	Solid donut, point or polygon (solid)
AS-ABST MAG POS UNCERTAIN		255,127,0	Polygon (cross hatched ANSI37)
Anomalies relating to land management			
AS-ABST MAG BOUNDARY		127,0,0	Line, polyline or polygon (solid or cross hatched ANSI37)
Anomalies with an agricultural origin			
AS-ABST MAG AGRICULTURAL		Green 0,255,0	Line or polyline
Anomalies associated with magnetic debris			
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)

Table 3: CAD layering

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Specialist Geophysical Surveyors

Geophysical Survey
Little Keyford
Frome
Somerset

Map of survey area

● Survey location

Site centred on OS NGR
ST 77625 46470

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

377450 377500 377550 377600 377650 377700 377750 377800

146600 146550 146500 146450 146400 146350 146300

N

Vegetation

Hedge

Referencing grid to OSGB36 datum at 50m intervals

377600 146500

Survey tracks

Survey track start

Survey track stop

SCALE 1:1250

0m 10 20 30 40 50m

SCALE TRUE AT A3

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KTD	DJS	FIG 02

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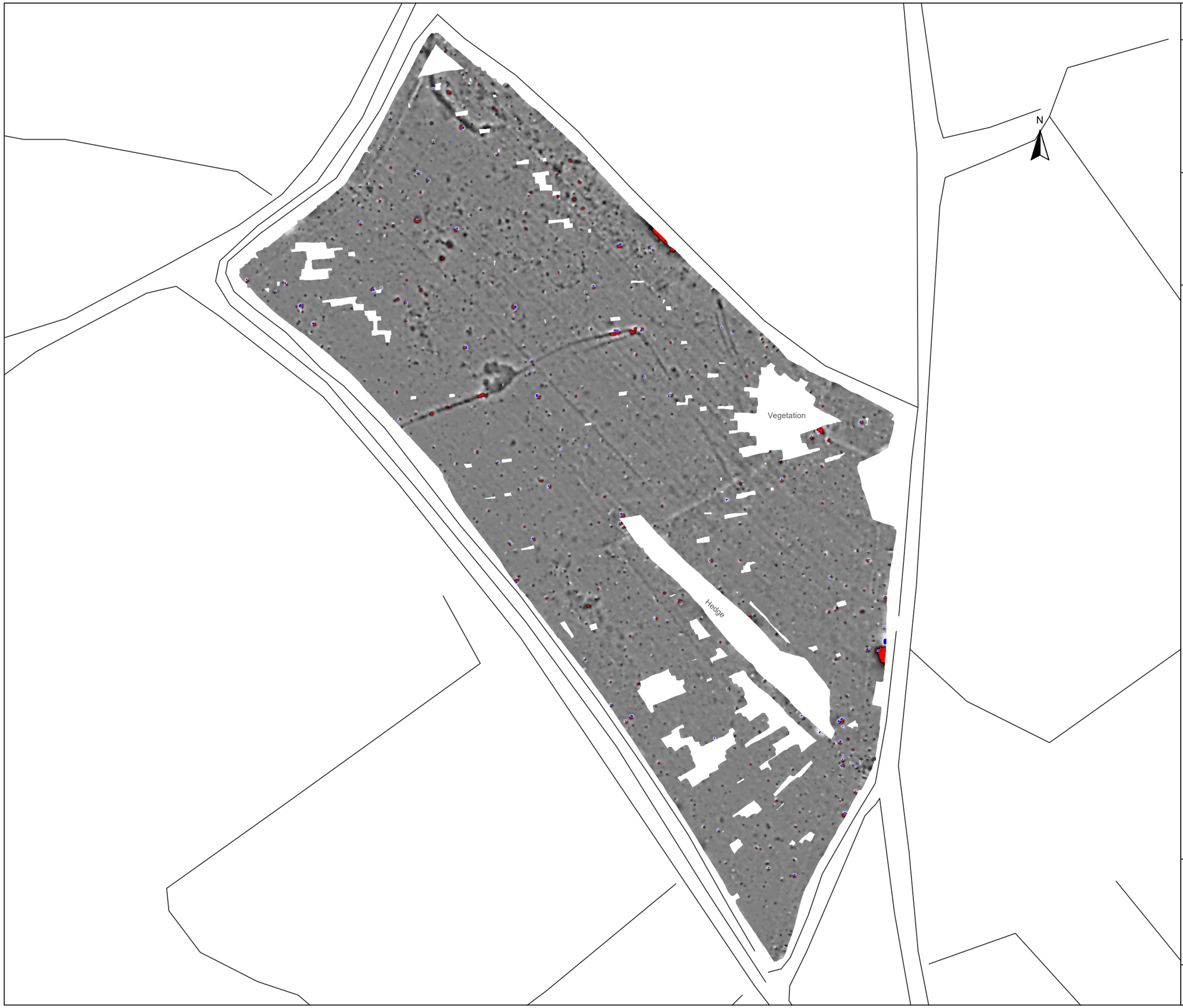
Greyscale plot of minimally processed magnetometer data clipped at ±40nT



+40nT
+30nT
-30nT
-40nT
-40nT
+40nT

SCALE 1:1250

0m 10 20 30 40 50m

SCALE TRUE AT A3

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KTD	DJS	FIG 03

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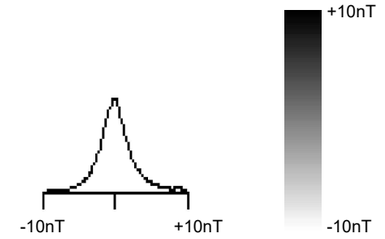
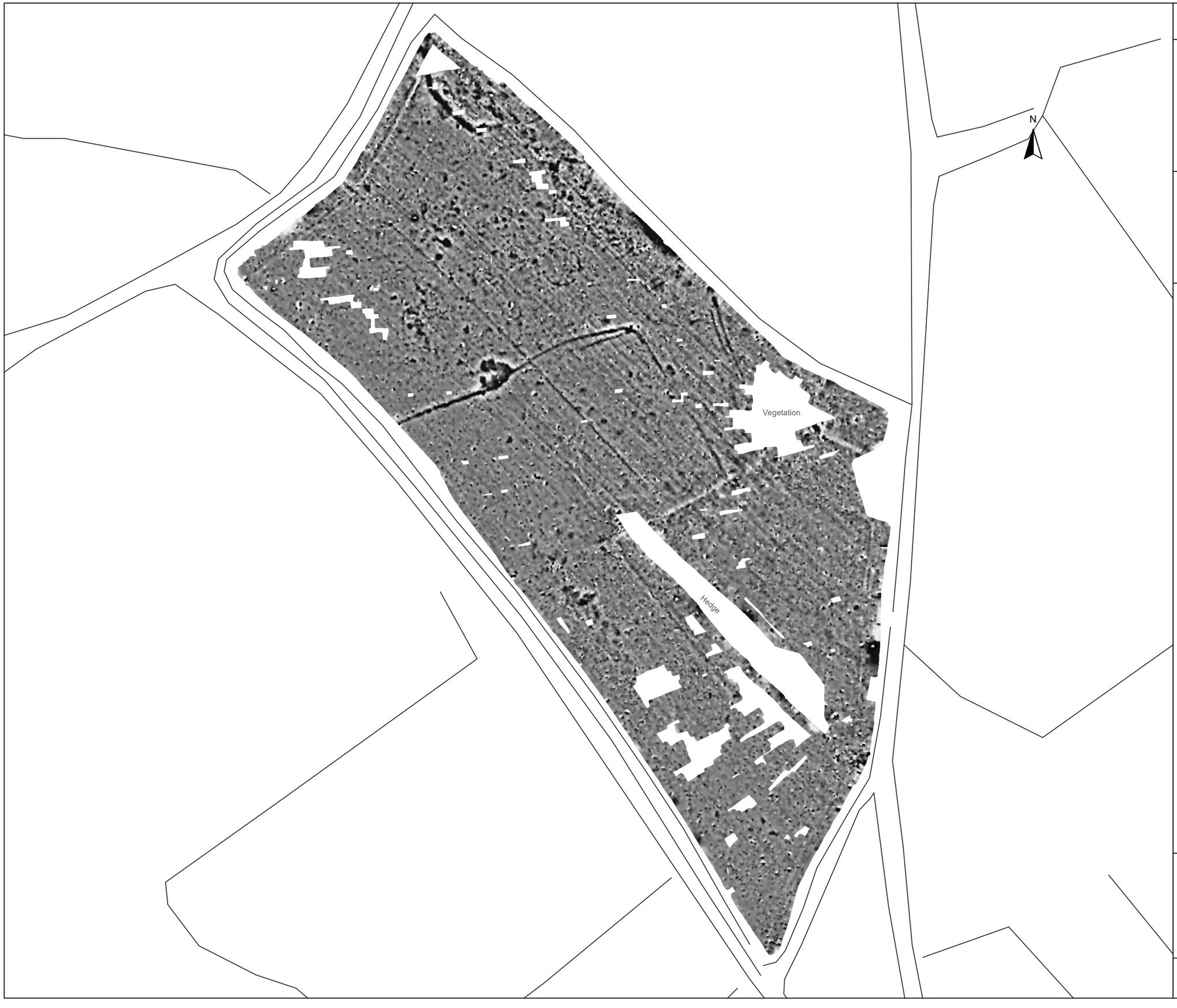
Greyscale plot of minimally processed magnetometer data clipped at ±10nT





SCALE 1:1250

0m 10 20 30 40 50m

SCALE TRUE AT A3

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Abstraction and interpretation of magnetic anomalies

N

Vegetation

Hedge

- Positive linear anomaly - cut feature of archaeological potential
- Positive curvilinear anomaly - ring ditch
- Positive linear anomaly - possible ditch-like feature
- Linear anomaly - of agricultural origin
- Linear anomaly - former field boundary
- Discrete positive response - cut feature of archaeological potential
- Discrete positive response - possible pit-like feature
- Positive anomaly - magnetic enhancement of archaeological potential
- Positive anomaly - magnetically enhanced material
- Magnetic disturbance from ferrous material
- Strong dipolar anomaly - ferrous object
- Abstraction boundary

SCALE 1:1250

0m 10 20 30 40 50m

SCALE TRUE AT A3

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KTD	DJS	FIG 05