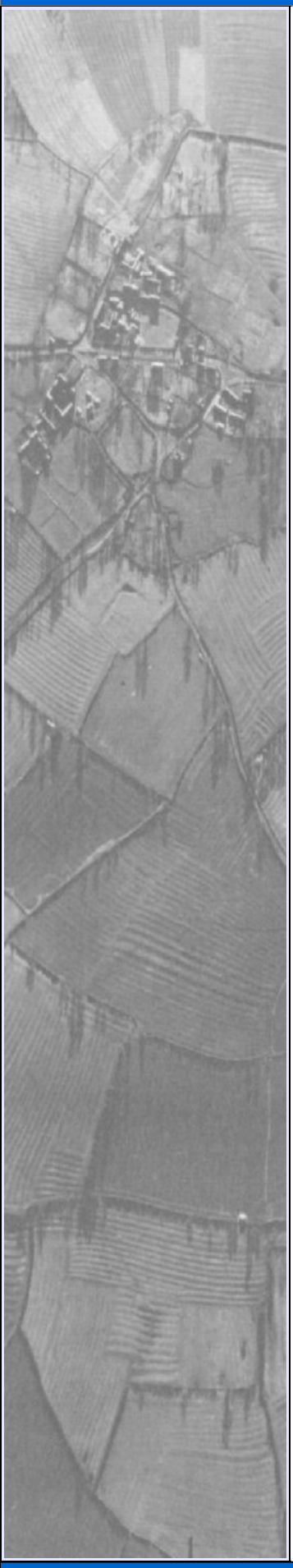

Land at Catsbrain Farm
Kingsdown
Swindon

MAGNETOMETER SURVEY REPORT

for

Cotswold Archaeology

Kerry Donaldson & David Sabin

June 2017

Ref. no. J717

ARCHAEOLOGICAL SURVEYS LTD

Land at Catsbrain Farm
Kingsdown
Swindon

Magnetometer Survey Report

for

Cotswold Archaeology

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 date – 24th May 2017
Ordnance Survey Grid Reference – **SU 17540 89090**

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SUMMARY

Detailed magnetometry was carried out by Archaeological Surveys Ltd on land at Catsbrain Farm, Kingsdown, Stratton St Margaret, Swindon. The survey located a number of pit-like features at the north western end of the site which could have some archaeological potential, although an association with agricultural activity or tree throw pits is possible. The site also contains a number of positive linear and rectilinear anomalies some of which are parallel to linear anomalies relating to agricultural activity and land drainage. It is, therefore, possible that they are also associated with land drainage but they do not have a regular appearance. The survey located numerous anomalies associated with agricultural activity and also two formerly mapped field boundaries.

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 Catsbrain Farm, Kingsdown, Swindon. The site has been outlined for a proposed development of a battery storage facility. The survey forms part of an archaeological assessment of the site.

1.1.2 The geophysical survey was carried out in accordance with a Written Scheme of Investigation (WSI) produced by Archaeological Surveys (2017) and approved by Melanie Pomeroy-Kellinger, County Archaeologist for Wiltshire Council, prior to commencing the fieldwork.

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 The survey and report generally follow the recommendations set out by: English Heritage (2008) *Geophysical survey in archaeological field evaluation;* 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 Site location, description and survey conditions

1.3.1 The site is located at Catsbrain Farm within the parish of Stratton St Margaret to the north of Swindon. It is centred on Ordnance Survey National Grid Reference (OS NGR) SU 17540 89090, see Figs 01 and 02.

1.3.2 Although the battery storage area covers less than 0.2ha, the geophysical survey was carried out over the entire field in which the proposed development is outlined. Cable routes and other infrastructure may extend within the field, and it was considered prudent to cover a larger area to aid the interpretation of anomalies.

Plate 1: Survey area looking north west

1.3.3 Approximately 1ha was surveyed within a field of ungrazed pasture. The perimeter of the site was overgrown by mature hedgerows, and survey was not possible in the southern corner of the field due to tall and dense ground vegetation.

1.3.4 The ground conditions across the site were generally considered to be acceptable for the collection of magnetometry data. Weather conditions during the survey were warm and humid.

1.4 Site history and archaeological potential

1.4.1 A Heritage Desk-Based Assessment has been produced for the site (Cotswold Archaeology, 2017). The site lies just to the west of Kingsdown Crematorium where prehistoric activity from the Palaeolithic, Mesolithic and Neolithic have been recorded from flint artefact findspots. Two prehistoric flint tools were also located within Catsbrain Farm to the east of the site. Archaeological

investigations have recorded Bronze Age settlement c300m south west of the site, with an enclosure complex, pits, postholes and a probable round house identified. A cremation burial was also recorded c430m south west of the site. Iron Age occupation is also recorded over 630m south east of the site on the South Marston Industrial Estate and Honda car plant with late Iron Age and early Roman occupation at the Triangle Site, c380m south west of the site, with two contracted burials located. A number of findspots of Roman artefacts were also found 60m west of the site at the Kingsdown Crematorium.

1.4.2 The site contains ridge and furrow earthworks that are visible on LiDAR imagery. The dismantled Swindon to Highworth branch line bounds the western edge of the site. Although there are no recorded designated or undesignated heritage assets within the site, the location of a number of finds dating from the prehistoric, Roman, medieval and post-medieval periods, directly to the west at the Kingsdown Crematorium, indicate that there may be some potential for the site to contain previously unrecorded archaeological features.

1.5 Geology and soils

1.5.1 The underlying solid geology across the site is undifferentiated sandstone, siltsone and mudstone from the Hazelbury Bryan Formation and Kingston Formation (Corallian Group) with overlying alluvial deposits along the northern and eastern edge (BGS, 2017).

1.5.2 The overlying soil across the survey area is from the Evesham 2 association and is a typical calcareous pelosol. It consists of a slowly permeable, calcareous, clayey soil (Soil Survey of England and Wales, 1983).

1.5.3 Magnetometry survey carried out across similar soils has produced good results. The underlying geology and soils are therefore considered acceptable 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 are factors associated with the formation of localised fields. Additional details are set out below and within Appendix A.

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).

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 20 Hz. 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 range of recording data between ±0.1nT and ±10,000nT. They are linked to a Leica GS10 RTK GPS 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 is manifest 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 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 ±10000nT and clipped for display at ±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 is considered by the manufacturer to be data that is 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 very high density of data collection.

2.3.6 The raster images are combined with base mapping using ProgeCAD Professional 2016, creating DWG (2010) 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 GPS, resection method, etc.

2.3.7 An abstraction and interpretation is also 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.

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 the survey area.

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 1ha in a single pasture field.

3.1.2 Magnetic anomalies located can be generally classified as positive and negative anomalies of an uncertain origin, anomalies associated with land management, linear anomalies of an agricultural origin, areas of magnetic debris and disturbance and strong discrete dipolar anomalies relating to ferrous objects. Anomalies located within each survey area have been numbered and are described in 3.4 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 demonstrate useful magnetic contrast within numerous magnetic anomalies. The soil across the site is, therefore, capable of supporting enhanced magnetic susceptibility associated with anthropogenic activity. This is consistent with similar geological and pedological conditions in the vicinity of the site where previous magnetic survey has been used successfully.

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 basic explanation of the characteristics of the magnetic anomalies is set out for each category in order to justify interpretation, a basic key is indicated to allow cross referencing to the abstraction and interpretation plot. CAD layer names are included to aid reference to associated digital files (.dwg/.dxf). Sub-headings are then used to group anomalies with similar characteristics within the survey area.

Report sub-heading CAD layer names and plot colour	Description and origin of anomalies
Anomalies with an uncertain origin AS-ABST MAG POS LINEAR UNCERTAIN AS-ABST MAG NEG LINEAR UNCERTAIN AS-ABST MAG POS DISCRETE UNCERTAIN	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. 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 AS-ABST MAG BOUNDARY AS-ABST MAG LAND DRAIN	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. Land drains can appear in a classic herringbone pattern of interconnected multiple dipolar linear anomalies, or as parallel linear anomalies. The multiple dipolar response indicates a ceramic land drain.
Anomalies with an agricultural origin AS-ABST MAG AGRICULTURAL	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.
Anomalies associated with magnetic debris AS-ABST MAG DEBRIS AS-ABST MAG STRONG DIPOLAR	Magnetic debris often appears as areas containing many small dipolar anomalies that may range from weak to very strong in magnitude. It often occurs where there has been dumping or ground make-up and is 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, or hearths 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.

Table 1: List and description of interpretation categories

3.4 List of anomalies

Area centred on OS NGR 417540 189090, see Figs 03 & 04.

Anomalies with an uncertain origin

(1) - Situated at the north western end of the survey area are a number of discrete positive responses, several of which have a linear arrangement. Whilst the origin of the anomalies is uncertain, the proximity to archaeological features located within the grounds of the Kingsdown Crematorium, immediately west of the site, may indicate that these relate to pits with archaeological potential.

(2) - A number of positive linear and rectilinear anomalies are located within the site. They do not have a regular pattern, although several are parallel with agricultural anomalies (8) and a ceramic land drain extending along the north of the site (7). It is, therefore, possible that they relate to further land drainage features, but their rectilinear appearance, especially at the north western end of the field, is unusual and it is not possible to provide a fully confident interpretation.

(3) - Positive linear anomalies that are not generally parallel with any of the agricultural anomalies, although they may be associated.

(4) – Two negative linear anomalies extend across the eastern part of the site. They appear in part to have truncated anomalies (2), and it is possible that they relate to buried services/pipes or they may be agricultural in origin with a similar orientation to anomalies (10).

Anomalies associated with land management

(5 & 6) – The site contains two formerly mapped field boundaries.

(7) – A weakly multiple dipolar linear anomaly extends along the northern part of the site and relates to a ceramic land drain.

Anomalies with an agricultural origin

(8, 9 & 10) – The survey area contains several series of parallel linear anomalies. Anomalies (8) may be associated with land drainage and are parallel with some of anomalies (2). Anomalies (9) are orthogonal to (8) and contained by former field boundaries (5 & 6). A small number of very weak anomalies (10) can also be seen.

Anomalies associated with magnetic debris

(11) – A number of strong, discrete, dipolar responses, with a linear group associated with former field boundary (6) relate to ferrous objects within the topsoil.

4 CONCLUSION

4.1.1 The results of the magnetometer survey reveal a number of discrete positive responses at the north western end of the site that may relate to cut, pit-like features. Although they could indicate naturally formed features, such as tree throw pits, or have an association with ground disturbance through land drainage measures or agricultural practices, a small number of them are arranged in a linear formation. The site lies just east of an area known to contain archaeological features and findspots from the prehistoric to post medieval periods at Kingsdown Crematorium, and the close proximity of these may infer that the pit-like features have some archaeological potential.

4.1.2 The site also contains a number of positive linear and rectilinear anomalies. Several are parallel with agricultural anomalies and a land drain and they may be associated. However, some of the responses, especially at the north western end of the site, have an irregular appearance and former ditch-like features should be considered. The majority of the other anomalies relate to agricultural activity and two formerly mapped field boundaries.

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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 field. The difference between the two sensors will relate to the strength 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. It has been found that clipping data to ranges between ±5nT and ±3nT often improves the appearance of features associated with archaeology. Different ranges are applied to data in order to determine the most suitable for anomaly abstraction and display.

Zero (destripe) Median/Mean Traverse

The median (or mean) of 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 baseline value of gradiometer sensors.

High Pass Filtering

A mathematical process used to remove low frequency anomalies relating to survey tracks, modern agricultural features and other large magnetic bodies within or adjacent to survey areas.

Low Pass Filtering

A mathematical process used to remove high frequency anomalies relating to uneven ground, vibration, etc.

Appendix C – survey and data information

Filename: J717-mag-proc.xcp
Description: Imported as Composite from: J717-mag.asc
Instrument Type: Sensys DLMGPS
Units: nT
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Survey corner coordinates (X/Y):OSGB36
Northwest corner: 417468.56830476, 189187.400645287 m
Southeast corner: 417627.41830476, 189004.250645287 m
Collection Method: Randomised
Sensors: 5
Dummy Value: 32702

Source GPS Points: 316200

Dimensions
Composite Size (readings): 1059 x 1221
Survey Size (meters): 159 m x 183 m
Grid Size: 159 m x 183 m
X Interval: 0.15 m
Y Interval: 0.15 m

Stats
Max: 11.05
Min: -11.00
Std Dev: 3.05
Mean: 0.15
Median: 0.03
Composite Area: 2.9093 ha
Surveyed Area: 1.0356 ha

PROGRAM
Name: TerraSurveyor
Version: 3.0.23.0

Processes: 1
1 Base Layer

GPS based Proce4
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:
4 Clip from -10.00 to 10.00 nT

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 printed copy of the report and a PDF copy will be supplied to the Wiltshire Historic Environment Record. The report will also be uploaded to the Online AccesS to the Index of archaeological investigationS (OASIS).

Archive contents:

Geophysical data - path: J717 Catsbrain Farm\Data				
Path and Filename	**Software**	**Description**	**Date**	**Creator**
catsb1\MX\ .prm .dgb .disp	Sensys MXPDA	Proprietary data formats representing magnetometer survey traverses logged to a PDA.	24/05/17	D.J.Sabin
catsb1\MX\J717-mag.asc	Sensys DLMGPS	ASCII CSV (tab) file representing survey area in eastings, northings (UTM Z30N), magnetic measurement, traverse file and sensor number.	25/05/17	D.J.Sabin
Mag\comps\J717-mag.xcp	TerraSurveyor 3.0.23.0	Composite data file derived from ASCII CSV.	25/05/17	K.T.Donaldson
Mag\comps\J717-mag-proc.xcp	TerraSurveyor 3.0.23.0	Processed composite data file (zmt and clipping to ±10nT).	25/05/17	K.T.Donaldson
Graphic data - path: J717 Catsbrain Farm\Data				
Mag\graphics\ J717-mag-proc.tif	TerraSurveyor 3.0.23.0	TIF file showing a minimally processed greyscale plot clipped to ±10nT.	25/05/17	K.T.Donaldson
Mag\graphics\ J717-mag-proc.tfw	TerraSurveyor 3.0.23.0	World file for georeferencing TIF to OSGB36.	25/05/17	K.T.Donaldson
CAD data - path: J717 Catsbrain Farm\CAD				
J717 version 1.dwg	ProgeCAD 2016	CAD file for creating plots of greyscales, abstraction, interpretation and mapping. Grid coordinates as OSGB. AutoCAD 2010 format.	09/06/17	K.T.Donaldson
Text data - path: J717 Catsbrain Farm\Documentation				
J717 report.odt	OpenOffice.org 3.0.1 Writer	Report text as an Open Office document.	15/06/17	K.T.Donaldson

Appendix E – copyright and intellectual property

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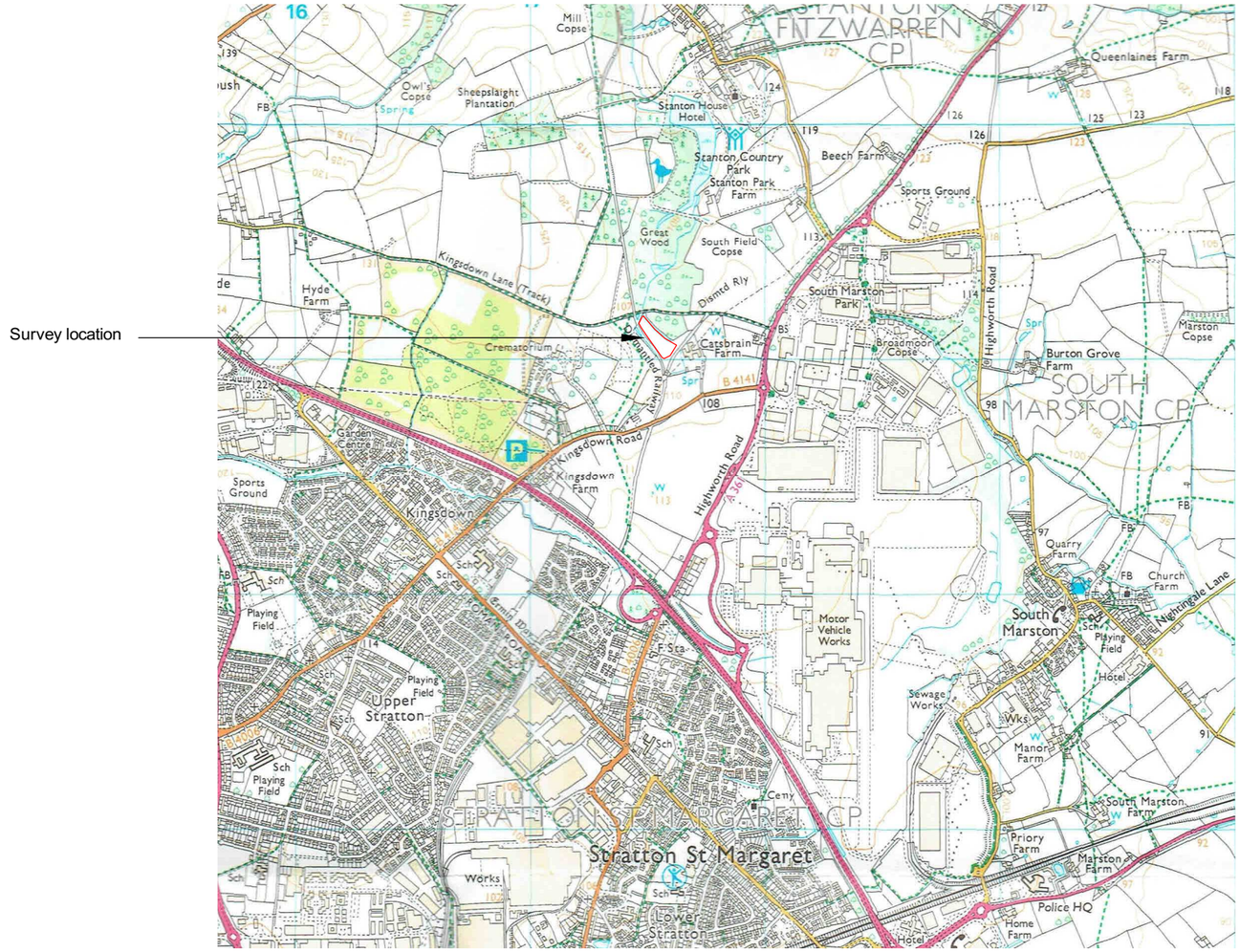
Archaeological Surveys Ltd

Geophysical Survey
Land at Catsbrain Farm
Kingsdown
Swindon

Map of survey area



● Survey location

Site centred on OS NGR
SU 17540 89090

SCALE 1:25 000

0m 500m 1000m

SCALE TRUE AT A3

FIG 01

Archaeological Surveys Ltd

Geophysical Survey
Land at Catsbrain Farm
Kingsdown
Swindon

Referencing information

Referencing grid to OSGB36 datum at 50m intervals

Data collected at 20Hz and georeferenced to ETRS89 zone 30 with conversion to OSGB36 using OSTN02

417500 189150

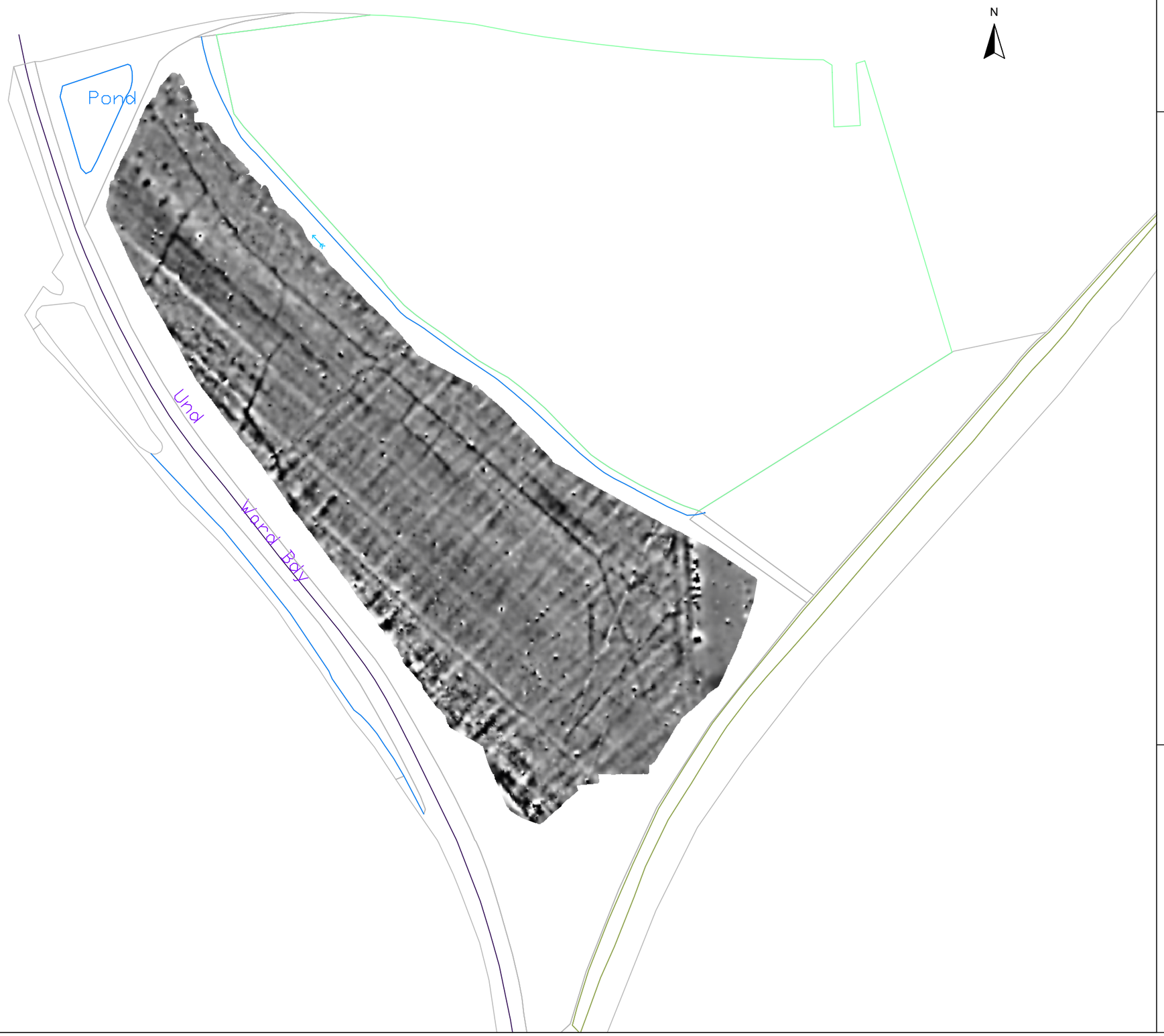
Development boundary

SCALE 1:1000

0m 10 20 30 40 50m

SCALE TRUE AT A3

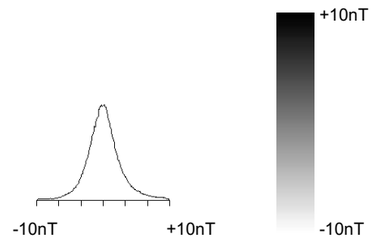
FIG 02



Archaeological Surveys Ltd

Geophysical Survey
Land at Catsbrain Farm
Kingsdown
Swindon

Greyscale plot of minimally processed magnetometer data



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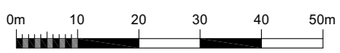

SCALE TRUE AT A3

FIG 03

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Land at Catsbrain Farm
Kingsdown
Swindon

Abstraction and interpretation of magnetic anomalies

- Positive linear anomaly - possible ditch-like feature
- Negative linear anomaly - material of low magnetic susceptibility
- Linear anomaly - of agricultural origin
- Positive linear anomaly - possible land drain
- Positive/negative linear anomaly - possible former field boundary
- Discrete positive response - possible pit-like feature
- Strong dipolar anomaly - ferrous object

SCALE 1:1000

0m 10 20 30 40 50m

SCALE TRUE AT A3

FIG 04