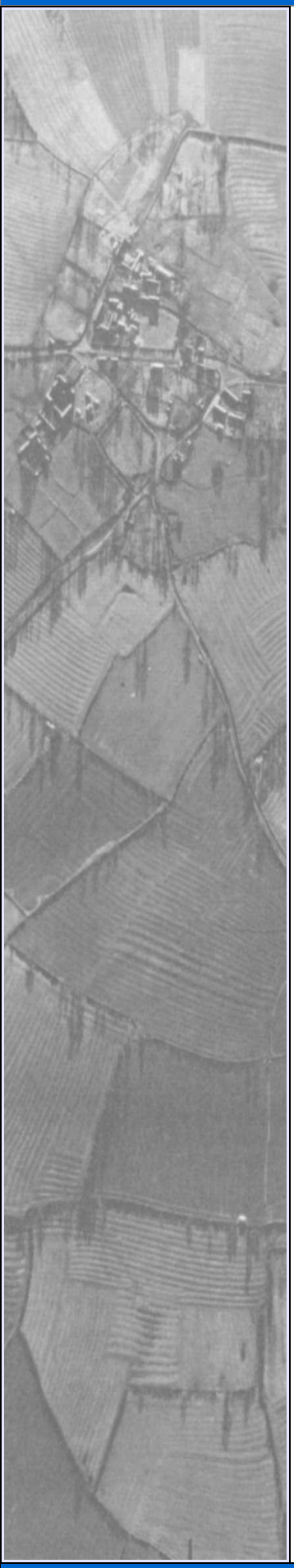

East End Farm
Wallingford Road
Cholsey
Oxfordshire

MAGNETOMETER SURVEY REPORT

for

Bellway Homes Ltd (Thames Valley)

Kerry Donaldson & David Sabin

September 2016

Ref. no. J685

OASIS ID: archaeol20-264275

ARCHAEOLOGICAL SURVEYS LTD

East End Farm
Wallingford Road
Cholsey
Oxfordshire

Magnetometer Survey Report

for

Bellway Homes Ltd (Thames Valley)

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 – 15th September 2016
Ordnance Survey Grid Reference – **SU 59250 86720**

OASIS ID: archaeol20-264275

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SUMMARY

Detailed magnetometry was carried out by Archaeological Surveys Ltd at East End Farm, Wallingford Road, Cholsey in Oxfordshire. The survey has located positive linear and discrete anomalies which may indicate cut features, such as linear ditches and pits; however, the responses are weak, fragmented and indistinct preventing confident interpretation. Low banks visible in the eastern part of the site appear to relate to a small section of boundaries and/or tracks that extend across the surrounding landscape and are visible in LiDAR data, but have no associated magnetic response. There does not appear to be any clear relationship between the banks and a group of linear and discrete positive anomalies located in the vicinity.

1 INTRODUCTION

1.1 Survey background

1.1.1 Archaeological Surveys Ltd was commissioned by Bellway Homes Ltd (Thames Valley) to undertake a magnetometer survey of an area of land at East End Farm, Wallingford Road, Cholsey in Oxfordshire. The site has been outlined for a proposed residential development comprising 71 dwellings (Application no. P16/S1739/PEJ). 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 (2016) and approved by Richard Oram, Planning Archaeologist for Oxfordshire County 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 results of the survey will be used by Foundations Heritage in order to inform the position of evaluation trenches across 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;* and 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 East End Farm to the east of Wallingford Road in Cholsey. It is centred on Ordnance Survey National Grid Reference (OS NGR) SU 59250 86720, see Figs 01 and 02. The site includes farm buildings, gardens, horse manège and areas containing dumped material and agricultural implements which were not suitable for survey.

1.3.2 The geophysical survey covers approximately 1.5ha within two land parcels within the central and eastern parts of the site. Area 1 is a small field of approximately 1ha located to the south east of the farm. Area 2 is a narrow field of approximately 0.5ha that is located to the south east of Area 1.

Plate 1: Survey Area 1 looking east

1.3.3 Both areas contained grass cover at the time of survey. Area 1 sloped down gently towards the north west while Area 2 was generally flat. Residential dwellings lie immediately south of the southern boundary of Area 1 with further agricultural land to the north. Allotments are located to the south of Area 2 with agricultural land to the north and east. Boundaries consisted mainly of wire fencing with some patches of hedgerow and trees.

1.3.4 The ground conditions across the site were generally considered to be favourable for the collection of magnetometry data. Weather conditions during the survey were very warm and humid but considered unlikely to influence the geophysical instrumentation.

1.4 Site history and archaeological potential

1.4.1 The site lies within an area of dense archaeological activity. This includes ring ditch cropmarks indicating three Bronze Age barrows, 500m to the east (MOX23815/HER no.26387, MOX23816/HER no.26388, MOX8179/HER no.2687). The Roman road from Silchester to Dorchester lies 380m to the west (MOX7328/HER no.8924) and a Roman building in a farm or villa complex is located 660m to the south (MOX26890/HER no.28559), with further associated Roman and possible prehistoric field boundaries and enclosures extending northwards towards the site (MOX26888/HER no.28557). There is widespread evidence for medieval and post-medieval activity including ditches, pits and pottery (eg. MOX8280/HER no.15941, 300m west and MOX4580/HER no.16158, 350m south west).

1.4.2 LiDAR (Light Detection And Ranging) data (Fig 06) demonstrate that the site is part of a wider landscape containing a possible Iron Age/Roman field system. It appears that three linear banks converge at the northern edge and at the eastern end of the site, and another bank lies at the boundary of the two survey areas. The linear banks are more sinuous than those of the field system, with unusually acute angles where they join, but there does appear to be a relationship between them. The easternmost bank extends southwards towards the site of the Roman villa or building and it is possible that they are associated with Roman trackways.

1.4.3 Although the surface conditions within the site were not suitable for the observation of cultural material during the course of the survey, the converging banks noted above in 1.4.2 were just visible as broad, low undulations.

1.5 Geology and soils

1.5.1 The underlying solid geology across the site is the West Melbury Marly Chalk Formation with overlying deposits of the upper facet of the Northmoor Sand and Gravel Member, with the Summertown Radley Sand and Gravel Member at the far eastern end (BGS, 2016).

1.5.2 The overlying soil across the survey area is from the Sutton 2 association and is a typical argillic brown earth. It consists of well drained, fine and coarse soil over gravel (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. The soils can be associated with patterning formed in periglacial conditions and on occasion these may form geophysical anomalies.

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 spaced 0.5m apart with readings recorded at 20Hz. The gradiometers have a range of recording data between 0.1nT and 10,000nT. The sensors are not zeroed in the field, as the vertical axis alignment is fixed using a tension band system. In order to produce visible, useful greyscale images a zero median traverse process is undertaken in TerraSurveyor. The system is linked to a Leica GS10 RTK GPS with data recorded by SENSYS MAGNETO®MXPDA software on a rugged computer.

2.2.2 Data are collected along a series of parallel survey tracks wherever possible. The length of each track is variable and relates to the size of the survey area and other factors including ground conditions. A visual display aids accurate placing of tracks and their separation.

2.2.3 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).

2.3 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. Survey tracks are analysed and georeferenced raw data (UTM Z30N) are then exported in ASCII format for further analysis and display using TerraSurveyor. A greyscale image of the raw data for each survey area has also been displayed without any clipping or compensation, between the limits of the recorded values +980nT and -1193nT for Area 1 +497nT and -361nT for Area 2 (Fig 03).

2.3.2 The data are collected between limits of ±10000nT and clipped for display at ±5nT (Fig 04). Data are interpolated to a resolution of effectively 0.5m between tracks and 0.15m along each survey track. A zero median traverse function is required in order to remove fixed offset values present within the sensors which do not undergo a zeroing procedure in the field. The approach ensures that the gradiometer sensors are very accurately aligned and fixed to the vertical magnetic field and are not influenced by localised magnetic fields or disturbed by vibration. 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 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 any processes, such as clipping, carried out on the data.

2.3.4 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.

2.3.5 The raster images are combined with base mapping using ProgeCAD Professional 2014, 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.

2.3.6 An abstraction and interpretation is also drawn and plotted for all geophysical anomalies located by the survey (Fig 05). Anomalies are abstracted using colour coded points, lines and polygons. All plots are scaled to landscape A3 for paper printing.

2.3.7 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.

2.3.8 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 1.5ha.

3.1.2 Magnetic anomalies located can be generally classified as positive and negative anomalies of an uncertain 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 and 3.5 below.

3.2 Statement of data quality

3.2.1 Data are considered representative of the magnetic anomalies present within the site. There are no significant defects within the dataset. Localised magnetic disturbance has been caused by ferrous fencing and other modern objects around the periphery of the survey area. Widespread magnetic debris is related to magnetic material, such as small fragments of iron, tile and brick, spread across the site with manure or other soil conditioning material. It is not sufficiently strong to obscure anomalies of archaeological potential.

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 for each survey area.

3.3.2 Analysis of the geophysical anomalies is supported by LiDAR data in order to compare and contrast the location and morphology of anomalies. A shaded relief image of the LiDAR digital terrain model, derived from Environment Agency LiDAR data and created using Surfer 10, is shown in Fig 06.

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 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.
Anomalies with a modern origin AS-ABST MAG DISTURBANCE 	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 such 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 and with hysteresis adjacent to strong magnetic sources.

Table 1: List and description of interpretation categories

3.4 List of anomalies - Area 1

Area centred on OS NGR 459190 186745, see Figs 04 & 05.

Anomalies with an uncertain origin

(1) - A positive linear anomaly is located at the western edge of the survey area. It may be a continuation of anomaly (2), but also appears to extend towards a gateway. It is, therefore, not possible to determine if it relates to a cut, ditch-like feature with archaeological potential, or if it is related to the modern use of the site.

(2) - Positive linear anomalies appear to correspond to a very low bank in the field. They lie between anomaly (1) and a line of bushes on the low bank and may relate to a former field boundary.

(3) - A small number of short, weakly positive linear, curvilinear and discrete anomalies are located within the survey area. They are too weak and indistinct for

interpretation.

Anomalies associated with magnetic debris

(4) - A mound in the field contains strong magnetic debris which relates to modern dumped material.

(5) - The entire survey area contains widespread and numerous strong, discrete, dipolar responses which relate to ferrous and other magnetically thermoremnant objects which have been spread within the topsoil.

Anomalies with a modern origin

(6) - Magnetic disturbance is a response to ferrous material using in adjacent fencing and troughs at the edge of the site.

3.5 List of anomalies - Area 2

Area centred on OS NGR 459340 186675, see Figs 04 & 05.

Anomalies with an uncertain origin

(7) - In the central part of the survey area are a number of positive linear, possible curvilinear and discrete responses. They appear fragmented and lack a coherent morphology preventing confident interpretation. However, cut features with archaeological potential should be considered.

(8) - Positive linear anomalies appear to be a continuation of anomalies (7); however, their location corresponds with where a broad linear bank extends across the survey area with a north east to south west orientation. Their origin, date, function and association with the linear bank is not clear.

(9) - In the western part of the survey area is a weakly positive curvilinear anomaly with other linear and discrete anomalies nearby. They again lack clarity although may relate to former cut features.

(10) - A positive linear anomaly is located in the eastern part of the survey area. It is similar in form, response and orientation to others seen to the west; however, it does appear to lead towards a gateway and is parallel with extant field boundaries to the north east and south west.

4 CONCLUSION

4.1.1 The detailed magnetometer survey located a number of positive linear, curvilinear and discrete responses within the site. It is possible that they relate to cut features, such as ditches and pits; however, they are weak, fragmented and lack a coherent morphology preventing confident interpretation.

4.1.2 Broad, low banks crossing the eastern part of the site (Area 2) do not appear to contain material of contrasting magnetic susceptibility and consequently are not apparent within the magnetic data. LiDAR data indicate that they relate to a network of low banks crossing the surrounding landscape over several km^2 and almost certainly relate to early field boundaries and tracks. They do not show any clear relationship with magnetic anomalies located in the vicinity and are likely to be too low to determine any superimposition.

5 REFERENCES

Archaeological Surveys, 2016. *East End Farm, Cholsey, Oxfordshire, Geophysical Survey Written Scheme of Investigation.* Unpublished typescript document.

Aspinall, A., Gaffney, C. and Schmidt, A. 2009. *Magnetometry for Archaeologists*. Lanham (US), AltaMira Press.

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English Heritage, 2008. *Geophysical survey in archaeological field evaluation. Research and Professional Service Guideline No.1.* 2nd ed. Swindon: English Heritage.

Institute for Archaeologists, 2002. *The use of Geophysical Techniques in Archaeological Evaluations*. IfA Paper No. 6. IfA, University of Reading.

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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 and modern agricultural features.

Appendix C – survey and data information

Area 1 raw data

Filename: J685-mag-Area1.xcp
Description: Imported as Composite from: J685-mag-Area1.asc
Instrument Type: Sensys DLMGPS
Units: nT
UTM Zone: 30U
Survey corner coordinates (X/Y):OSGB36
Northwest corner: 459107.37700237, 186798.128610497 m
Southeast corner: 459273.57700237, 186686.978610497 m
Collection Method: Randomised
Sensors: 5
Dummy Value: 32702

Source GPS Points: 271000

Dimensions
Composite Size (readings): 1108 x 741
Survey Size (meters): 166 m x 111 m
Grid Size: 166 m x 111 m
X Interval: 0.15 m
Y Interval: 0.15 m

Stats
Max: 980.46
Min: -1193.47
Std Dev: 19.57
Mean: -15.02
Median: -18.84
Composite Area: 1.8473 ha
Surveyed Area: 0.99882 ha

PROGRAM
Name: TerraSurveyor
Version: 3.0.23.0

Processes: 1
1 Base Layer

GPS based Proce2
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).

Area 1 minimally processed data

Filename: J685-mag-Area1-proc.xcp
Description: Imported as Composite from: J685-mag-Area1.asc
Instrument Type: Sensys DLMGPS
Units: nT
UTM Zone: 30U
Survey corner coordinates (X/Y):OSGB35
Northwest corner: 459107.37700237, 186798.128610497 m
Southeast corner: 459273.57700237, 186686.978610497 m
Collection Method: Randomised
Sensors: 5
Dummy Value: 32702

Source GPS Points: 271000

Dimensions
Composite Size (readings): 1108 x 741
Survey Size (meters): 166 m x 111 m
Grid Size: 166 m x 111 m
X Interval: 0.15 m
Y Interval: 0.15 m

Stats
Max: 5.53
Min: -5.50
Std Dev: 1.87
Mean: 0.03
Median: 0.03
Composite Area: 1.8473 ha
Surveyed Area: 0.99882 ha

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 -5.00 to 5.00 nT

Area 2 raw data

Filename: J685-mag-Area2.xcp
Description: Imported as Composite from: J685-mag-Area2.asc
Instrument Type: Sensys DLMGPS
Units: nT
UTM Zone: 30U
Survey corner coordinates (X/Y):OSGB36
Northwest corner: 459263.794905612, 186734.966529101 m
Southeast corner: 459417.844905612, 186613.616529101 m
Collection Method: Randomised
Sensors: 5
Dummy Value: 32702

Source GPS Points: 131000

Dimensions
Composite Size (readings): 1027 x 809
Survey Size (meters): 154 m x 121 m
Grid Size: 154 m x 121 m
X Interval: 0.15 m
Y Interval: 0.15 m

Stats
Max: 497.48
Min: -361.04
Std Dev: 16.63
Mean: -16.11
Median: -18.46
Composite Area: 1.8694 ha
Surveyed Area: 0.49118 ha

Processes: 1
1 Base Layer

GPS based Proce2
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).

Area 2 minimally processed data

Filename: J685-mag-Area2-proc.xcp
Description: Imported as Composite from: J685-mag-Area2.asc
Instrument Type: Sensys DLMGPS
Units: nT
UTM Zone: 30U
Survey corner coordinates (X/Y):OSGB36
Northwest corner: 459263.794905612, 186734.966529101 m
Southeast corner: 459417.934905612, 186613.586529101 m
Collection Method: Randomised
Sensors: 5
Dummy Value: 32702

Source GPS Points: 131000

Dimensions
Composite Size (readings): 1101 x 867
Survey Size (meters): 154 m x 121 m
Grid Size: 154 m x 121 m
X Interval: 0.14 m
Y Interval: 0.14 m

Stats
Max: 5.53
Min: -5.50
Std Dev: 2.06
Mean: 0.14
Median: 0.02
Composite Area: 1.871 ha
Surveyed Area: 0.48908 ha

Processes: 1
1 Base Layer

GPS based Proce5
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to OSGB36).
3 DeStripe Median Traverse:
4 Clip from -10.00 to 10.00 nT
5 Clip from -5.00 to 5.00 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 draft digital copy in PDF format will be supplied to the office of the County Archaeological Officer (CAO) for verification and assessment by the CAO or his representative. When the report has been agreed, a final digital copy will then be supplied to the County Historic Environment Record (HER) on the understanding that it will become a public document after an appropriate period of time (generally not exceeding six months. The report will also be uploaded to the Online AccesS to the Index of archaeological investigationS (OASIS).

Archive contents:

Geophysical data - path: J685 Cholsey\Data				
Path and Filename	**Software**	**Description**	**Date**	**Creator**
cholsey1\MX\ cholsey2\MX\ .prm .dgb .disp	Sensys MXPDA	Proprietary data formats representing magnetometer survey traverses logged to a PDA.	15/09/16	D.J.Sabin
cholsey1\MX\J685-mag-Area1.asc cholsey2\MX\J685-mag-Area2.asc	Sensys DLMGPS	ASCII CSV (tab) file representing survey Area 1 in eastings, northings (UTM Z30N), magnetic measurement, traverse file and sensor number.	15/09/16	D.J.Sabin
Area1\comps\J685-mag-Area1.xcp Area2\comps\J685-mag-Area2.xcp	TerraSurveyor 3.0.23.0	Composite data file derived from ASCII CSV.	15/09/16	D.J.Sabin
Area1\comps\J685-mag-Area1-proc.xcp Area2\comps\J685-mag-Area2-proc.xcp	TerraSurveyor 3.0.23.0	Processed composite data file (zmt and clipping to ±5nT).	15/09/16	D.J.Sabin
Graphic data - path: J685 Cholsey\Data				
Area1\graphics\ J685-mag-Area1-raw.tif	TerraSurveyor 3.0.23.0	TIF file showing a raw greyscale plot	20/09/16	K.T.Donaldson
Area1\graphics\ J685-mag-Area1-raw.tfw	TerraSurveyor 3.0.23.0	World file for georeferencing TIF to OSGB36.	20/09/16	K.T.Donaldson
Area1\graphics\ J685-mag-Area1-proc.tif	TerraSurveyor 3.0.23.0	TIF file showing a minimally processed greyscale plot clipped to ±5nT.	16/09/16	K.T.Donaldson
Area1\graphics\ J685-mag-area1-proc.tfw	TerraSurveyor 3.0.23.0	World file for georeferencing TIF to OSGB36.	16/09/16	K.T.Donaldson
Area1\graphics\ J685-mag-Area1-tracks.tif	TerraSurveyor 3.0.23.0	TIF file showing survey tracks	20/09/16	K.T.Donaldson
Area1\graphics\ J685-mag-Area1-tracks.tfw	TerraSurveyor 3.0.23.0	World file for georeferencing TIF to OSGB36.	20/09/16	K.T.Donaldson
Area2\graphics\ J685-mag-Area2-raw.tif	TerraSurveyor 3.0.23.0	TIF file showing a raw greyscale plot	20/09/16	K.T.Donaldson
Area2\graphics\ J685-mag-Area2-raw.tfw	TerraSurveyor 3.0.23.0	World file for georeferencing TIF to OSGB36.	16/09/16	K.T.Donaldson
Area2\graphics\ J685-mag-Area2-proc.tif	TerraSurveyor 3.0.23.0	TIF file showing a minimally processed greyscale plot clipped to ±5nT.	16/09/16	K.T.Donaldson
Area2\graphics\ J685-mag-Area2-proc.tfw	TerraSurveyor 3.0.23.0	World file for georeferencing TIF to OSGB36.	20/09/16	K.T.Donaldson
Area2\graphics\ J685-mag-Area2-tracks.tif	TerraSurveyor 3.0.23.0	TIF file showing survey tracks	20/09/16	K.T.Donaldson
Area2\graphics\ J685-mag-Area2-tracks.tfw	TerraSurveyor 3.0.23.0	World file for georeferencing TIF to OSGB36.	20/09/16	K.T.Donaldson
CAD data - path: J685 Cholsey\CAD				
J685 version 2.dwg	ProgeCAD 2016	CAD file for creating plots of greyscales, abstraction, interpretation and mapping. Grid coordinates as OSGB. AutoCAD 2010 format.	21/09/16	K.T.Donaldson
Text data - path: J685 Cholsey\Documentation				
J685 report.odt	OpenOffice.org 3.0.1 Writer	Report text as an Open Office document.	16/09/16	K.T.Donaldson

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Appendix F – OASIS data collection form

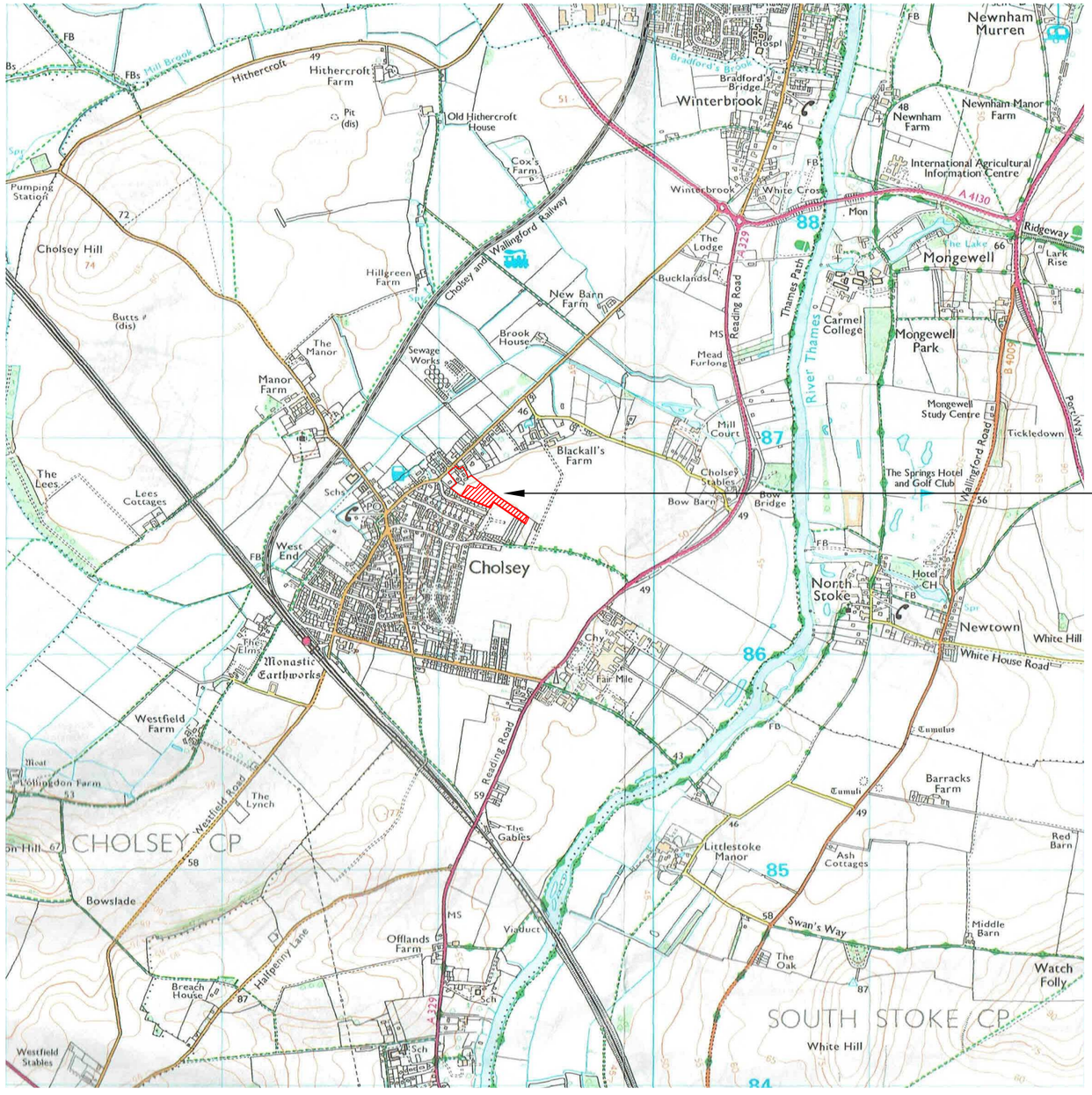
OASIS ID: archaeol20-264275

Project details	
Project name	East End Farm, Wallingford Road, Cholsey, Oxfordshire, Magnetometer Survey Report
Short description of the project	Detailed magnetometry was carried out by Archaeological Surveys Ltd at East End Farm, Wallingford Road, Cholsey in Oxfordshire. The survey has located positive linear and discrete anomalies which may indicate cut features, such as linear ditches and pits; however, the responses are weak, fragmented and indistinct preventing confident interpretation. Low banks visible in the eastern part of the site appear to relate to a small section of boundaries and/or tracks that extend across the surrounding landscape and are visible in LiDAR data, but have no associated magnetic response. There does not appear to be any clear relationship between the banks and a group of linear and discrete positive anomalies located in the vicinity.
Project dates	Start: 15-09-2016 End: 15-09-2016
Previous/future work	Not known / Yes
Any associated project reference codes	J685 - Contracting Unit No.
Type of project	Field evaluation
Monument type	NONE None
Significant Finds	NONE None
Methods & techniques	''Geophysical Survey''
Development type	Housing estate
Prompt	National Planning Policy Framework - NPPF
Position in the planning process	Pre-application
Solid geology	CHALK (INCLUDING RED CHALK)
Drift geology	RIVER TERRACE DEPOSITS
Techniques	Magnetometry
Project location	
Country	England
Site location	OXFORDSHIRE SOUTH OXFORDSHIRE CHOLSEY East End Farm, Wallingford Road, Cholsey, Oxfordshire
Study area	1.5 Hectares
Site coordinates	SU 59250 86720 51.57575262093 -1.144902753803 51 34 32 N 001 08 41 W Point
Project creators	
Name of Organisation	Archaeological Surveys Ltd
Project brief originator	Archaeologcial Surveys Ltd
Project design originator	Archaeological Surveys Ltd
Project director/manager	Archaeological Surveys Ltd
Project supervisor	Archaeological Surveys Ltd
Project archives	
Physical Archive Exists?	No
Digital Archive recipient	Archaeological Surveys Ltd
Digital Contents	''Survey''
Digital Media available	''Geophysics'',''Images raster / digital photography'',''Images vector'',''Text''
Paper Archive Exists?	No
Project bibliography 1	
Publication type	Grey literature (unpublished document/manuscript)
Title	East End Farm, Wallingford Road, Cholsey, Oxfordshire, Magnetometer Survey Report
Author(s)/Editor(s)	Donaldson, K. and Sabin, D.
Other bibliographic details	Report ref J685
Date	2016
Issuer or publisher	Archaeological Surveys Ltd
Place of issue or publication	Yatesbury
Entered by	Kerry Donaldson (kerry.donaldson@archaeological-surveys.co.uk)
Entered on	30 September 2016

Archaeological Surveys Ltd

Geophysical Survey
East End Farm
Wallingford Road
Cholsey
Oxfordshire

Map of survey area



Survey location

Site centred on OS NGR
SU 59250 86720

SCALE 1:25 000

0m 500m 1000m

SCALE TRUE AT A3

FIG 01

Archaeological Surveys Ltd

Geophysical Survey
East End Farm
Wallingford Road
Cholsey
Oxfordshire

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

459150 186750

Survey tracks

Survey track start

Survey track stop

Development boundary

SCALE 1:1500

0m 10 20 30 40 50m

SCALE TRUE AT A3

FIG 02

Unsurveyable

Area 1

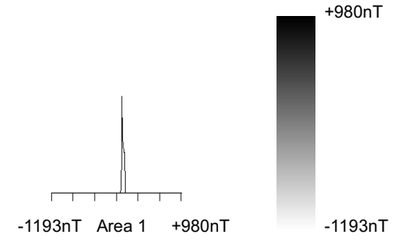
Area 2

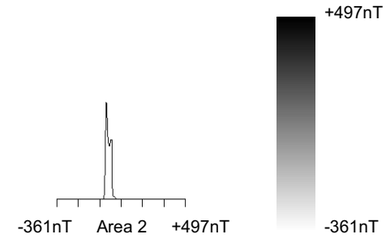
N

Archaeological Surveys Ltd

Geophysical Survey
East End Farm
Wallingford Road
Cholsey
Oxfordshire

Greyscale plot of raw magnetometer data





SCALE 1:1000

0m 10 20 30 40 50m

SCALE TRUE AT A3

FIG 03

Unsurveyable

Area 1

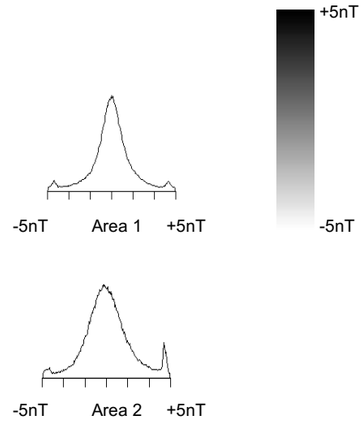
Area 2

N

Archaeological Surveys Ltd

Geophysical Survey
East End Farm
Wallingford Road
Cholsey
Oxfordshire

Greyscale plot of minimally processed magnetometer data



SCALE 1:1000

0m 10 20 30 40 50m

SCALE TRUE AT A3

FIG 04

Archaeological Surveys Ltd

Geophysical Survey
East End Farm
Wallingford Road
Cholsey
Oxfordshire

Abstraction and interpretation of magnetometer anomalies

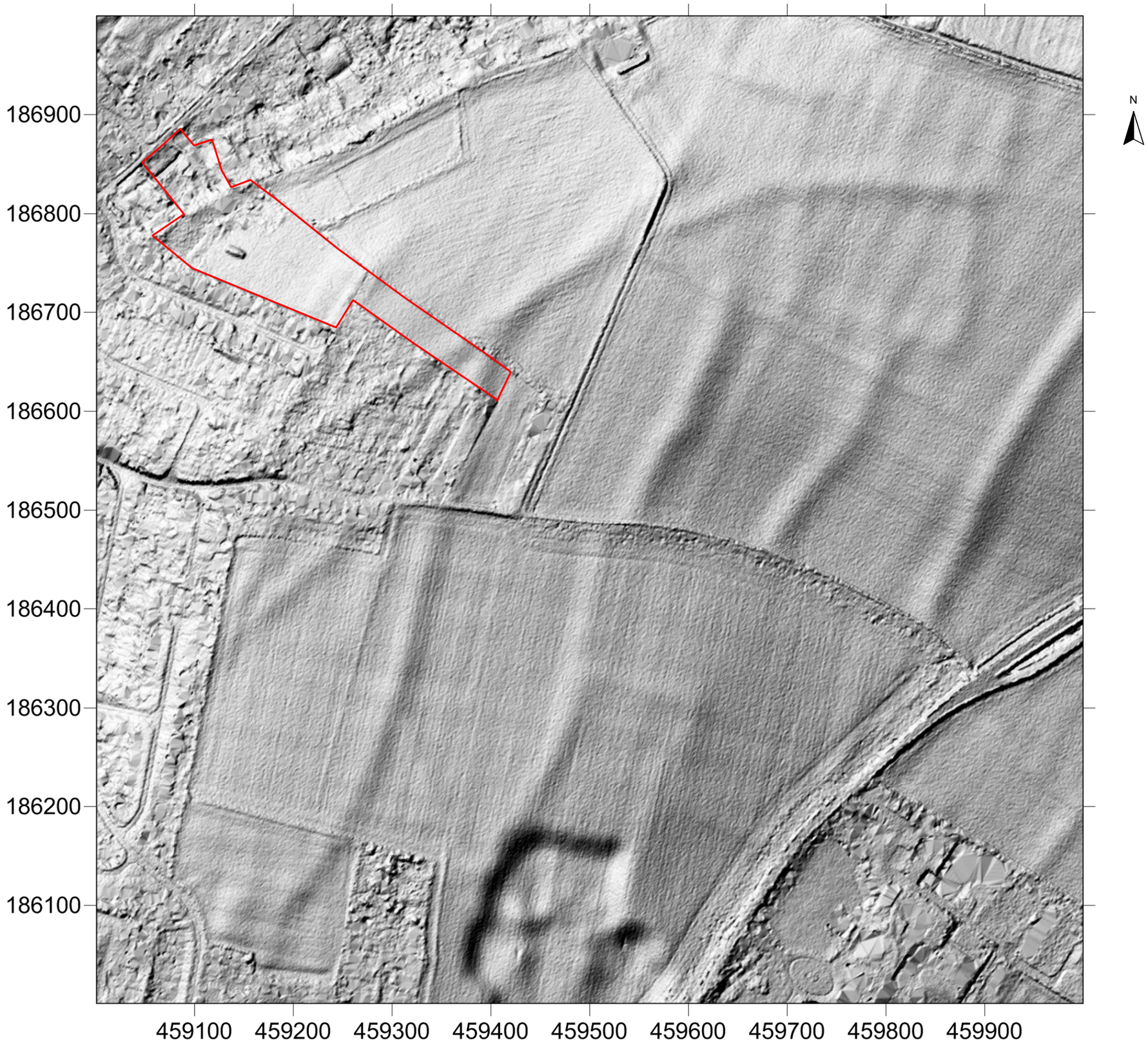
- Positive linear anomaly - possible ditch-like feature
- Discrete positive response - possible pit-like feature
- Magnetic debris - spread of magnetically thermoremnant/ferrous material
- Magnetic disturbance from ferrous material
- Strong dipolar anomaly - ferrous object

SCALE 1:1000

0m 10 20 30 40 50m

SCALE TRUE AT A3

FIG 05



Archaeological Surveys Ltd

Geophysical Survey
East End Farm
Wallingford Road
Cholsey
Oxfordshire

Digital Terrain Model

Derived from Environment Agency's LiDAR data 1m resolution

SCALE 1:4000

0m 40 80 120 160 200m

SCALE TRUE AT A3

FIG 06