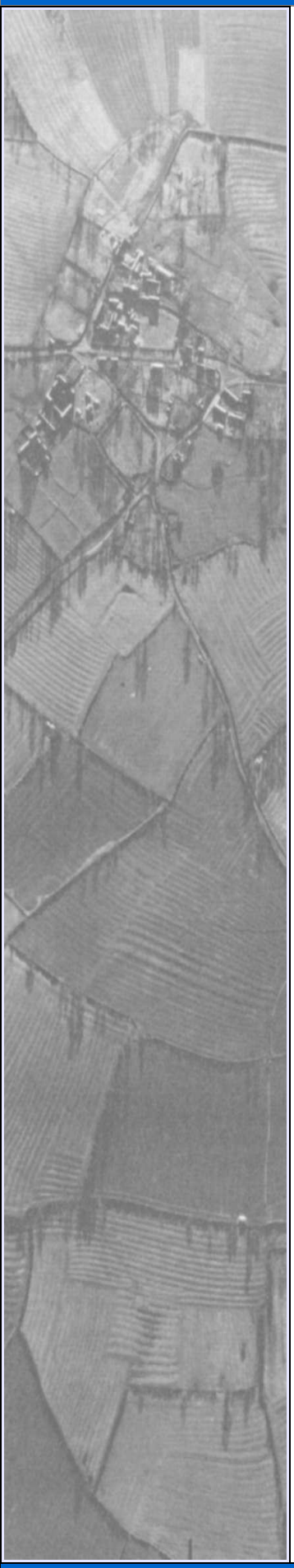

Wormslade Farm
Clipston Road
Kelmarsh
Northamptonshire

MAGNETOMETER SURVEY REPORT

for

Border Archaeology

Kerry Donaldson & David Sabin

January 2016

Ref. no. 643

Northamptonshire HER Event UID: ENN108208

OASIS ID: archaeol20-24941

ARCHAEOLOGICAL SURVEYS LTD

Wormslade Farm
Clipston Road
Kelmarsh
Northamptonshire

Magnetometer Survey Report

for

Border Archaeology

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

Survey date – 15th January 2016
Ordnance Survey Grid Reference – **SP 73510 81650**

Northamptonshire HER Event UID: ENN108208

OASIS ID: archaeol20-240941

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SUMMARY

A detailed magnetometer survey was undertaken by Archaeological Surveys Ltd at the request of Border Archaeology on the site of a proposed anerobic digestion biogass plant at Wormslade Farm near Clipston in Northamptonshire. The results of the survey show that the site contains a number of weakly positive linear anomalies, some with curvilinear or rectilinear elements. However, they are widespread, weak, short, fragmented and incoherent and their origin cannot be determined. A number of pit-like responses can also be seen, with a concentration in the south eastern corner of the site, but, as with the linear anomalies, it is not clear if they relate to naturally or anthropogenically formed features. Evidence for former ridge and furrow, a field boundary, possible land drains and an infilled pond has also been located.

1 INTRODUCTION

1.1 Survey background

1.1.1 Archaeological Surveys Ltd was commissioned by Border Archaeology to undertake a magnetometer survey of an area of land at Wormslade Farm, Clipston Road, near Clipston, but within the parish of Kelmarsh in Northamptonshire. The site has been outlined for a proposed development of an anaerobic digestion biogas facility, and the survey forms part of an archaeological assessment of the site which will include evaluation through trial trenching by Border Archaeology.

1.1.2 The geophysical survey was carried out in accordance with a Written Scheme of Investigation (WSI) produced by Border Archaeology (2015) and approved by Liz Mordue, Assistant Archaeological Advisor for Northamptonshire County Council.

1.2 Survey objectives and techniques

1.2.1 The objective of the survey was to use magnetometry to inform as far as possible on the presence or absence, character, extent and in some cases apparent relative phasing of buried archaeology in order to make an assessment of its merit in the appropriate context and to inform subsequent trench locations. 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 2km north east of the village of Clipston, but within the parish of Kelmarsh in Northamptonshire. It is centred on Ordnance Survey National Grid Reference (OS NGR) SP 73510 81650, see Figures 01 and 02.

1.3.2 The geophysical survey covers approximately 4.2ha within the south western part of a single arable field which contained an emerging arable crop at the time of survey. The land is mainly flat and several barns and an agricultural track are located immediately to the south west and west respectively.

Plate 1: Survey area looking north east

1.3.3 The ground conditions across the site were variable as the saturated soil was initially frozen but on thawing the land was very difficult to traverse. Weather conditions during the survey were fine.

1.4 Site history and archaeological potential

1.4.1 The site does not contain any designated or undesignated heritage assets; however, immediately to the south of the survey area are a number of cropmark enclosures and linear ditches and also scatters of Roman pottery. Within the field to the south an archaeological evaluation was carried out by Headland Archaeology (Woodley, 2012) which identified the remains of ditches, although only one sherd of either Iron Age or early medieval pottery

was located.

1.4.2 The location of linear ditches and possible enclosures immediately to the south of the site may indicate that there is potential for the survey area to contain further archaeological features.

1.5 Geology and soils

1.5.1 The underlying geology is from the Whitby Mudstone Formation (Upper Lias) with overlying River Terrace deposits mapped (BGS, 2016).

1.5.2 The overlying soil across the site is from the Wickham 2 association and is a typical stagnogley soil. It consists of a slowly permeable, seasonally waterlogged, fine loamy over clayey soil (Soil Survey of England and Wales, 1983).

1.5.3 The underlying geology and soils are frequently associated with low magnetic contrast and low levels of magnetic susceptibility. However, cut features of archaeological potential may be located where human activity has altered the magnetic characteristics of the soil sufficiently. 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 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.

2.3.2 The data are collected between limits of ±10000nT and clipped for display at ±3nT. Data are interpolated to a resolution of effectively 0.5m between tracks and 0.15m along each survey track. 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. 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 the 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 4.2ha within the south western part of a single arable field.

3.1.2 Magnetic anomalies located can be generally classified as positive anomalies of an uncertain origin, anomalies associated with land management, linear anomalies of an agricultural origin, areas of magnetic debris and strong discrete dipolar anomalies. Anomalies located within the survey area have been numbered and are described in 3.4 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. Magnetic debris is widespread adjacent to the agricultural buildings in the south western part of the site. The material is likely to be of modern origin and has the potential to obscure weak magnetic features.

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 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 RIDGE AND FURROW 	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 SP 73510 81650, see Figs 03 & 04.

Anomalies with an uncertain origin

(1) - The survey area contains a number of weakly positive linear anomalies. Some have a curvilinear or rectilinear form; however, they are weak (1-2nT), short and do not have a coherent morphology or pattern. It is possible that they are natural in origin.

(2) - There are a number of discrete positive responses throughout the survey area, with a concentration of them in the south east corner. It is possible that they relate to pit-like responses with a natural origin.

Anomalies associated with land management

(3) - A positive linear anomaly is parallel with anomalies (5) and appears to relate to a former field boundary.

(4) - The northern part of the survey area contains a number of weak, multiple dipolar linear anomalies. These appear to be responses to short sections of ceramic land drains.

Anomalies with an agricultural origin

(5 & 6) - Two series of parallel linear anomalies relate to former ridge and furrow.

Anomalies associated with magnetic debris

(7) - An area of magnetic debris is located in the central southern part of the survey area. This relates to ferrous and other magnetically thermoremnant material that has been used to infill a former pond.

(8) - A zone of magnetic debris is located in the south western part of the survey area. It is likely to relate to a spread of dumped or demolished magnetically thermoremant material, such as brick/tile.

(9) - The survey area contains a number of strong, discrete, dipolar anomalies which relate to ferrous and other magnetically thermoremnant objects within the topsoil.

4 CONCLUSION

4.1.1 The detailed magnetometer survey located a number of weakly positive linear anomalies throughout the survey area. They are widespread, short, weak, indistinct and lack a coherent morphology preventing confident interpretation. A group of pit-like responses are located in the south eastern corner of the survey area, but it is not possible to determine if they have an anthropogenic or natural origin.

4.1.2 The survey area also contains two series of former ridge and furrow, divided by a former field boundary and also evidence for land drainage and an infilled pond.

5 REFERENCES

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

Border Archaeology, 2015. *Written Scheme of Investigation, Raw Energy Ltd, Wormslade Farm, Clipston Road, Clipston, Northamptonshire.* Unpublished typescript document.

British Geological Survey, 2016. *Geology of Britain viewer, 1:50 000 scale [online]* available from http://mapapps.bgs.ac.uk/geologyofbritain/home.html [accessed 15/1/2016].

Chartered Institute for Archaeologists, 2014. *Standard and Guidance for archaeological geophysical survey*. IfA, University of Reading.

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.

Soil Survey of England and Wales, 1983. *Soils of England and Wales, Sheet 3 Midland & Western England.*

Standards Working Party of Northamptonshire Archaeological Archives Working Group, 2014. *Northamptonshire Archaeological Archives Standard.*

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

```
COMPOSITE
Filename:               J643-mag-proc.xcp
Description:            Imported as Composite from: J643-mag.asc
Instrument Type:        Sensys DLMGPS
Units:                  nT
UTM Zone:               30U
Survey corner coordinates (X/Y): OSGB36
Northwest corner:       473386.155634809, 281756.904484483 m
Southeast corner:       473629.905634809, 281527.704484483 m
Collection Method:      Randomised
Sensors:                5
Dummy Value:            32702

Source GPS Points:      1284300

Dimensions
Composite Size (readings):  1625 x 1528
Survey Size (meters):       244 m x 229 m
Grid Size:              244 m x 229 m
X Interval:             0.15 m
Y Interval:             0.15 m

Stats
Max:                    3.32
Min:                    -3.30
Std Dev:                0.97
Mean:                   0.01
Median:                 0.00
Composite Area:         5.5868 ha
Surveyed Area:          4.1416 ha

PROGRAM
Name:                   TerraSurveyor
Version:                3.0.23.0

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 -5.00 to 5.00 nT
  5   Clip from -3.00 to 3.00 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.

In order to meet the requirements of the Northamptonshire Archaeological Archives Standard (Standards Working Party of Northamptonshire Archaeological Archives Working Group, 2014), the Northamptonshire HER Event UID ENN108208 will prefix all files. A PDF copy of the report will be sent to Northamptonshire County Council Assistant Archaeological Advisor and once approved it will be uploaded to Online AccesS to the Index of archaeological investigationS (OASIS) and the raw data archived with the Archaeology Data Service (ADS), see below. A hard copy of the report will be sent to the Northamptonshire HER.

Archive contents:

Geophysical data - path: ENN108208_J643_Wormslade_Farm_geophysical_survey\ENN108208_J643_Geophysics				
Path and Filename	**Software**	**Description**	**Date**	**Creator**
ENN108208_J643_mag.csv	Sensys DLMGPS	ASCII CSV (tab) file representing survey area in eastings, northings (UTM Z30N), magnetic measurement, traverse file and sensor number.	15/01/15	K.T.Donaldson
Graphic data - path: ENN108208_J643_Wormslade_Farm_geophysical_survey\ENN108208_J643_GIS				
ENN108208_J643_mag_proc.tif	TerraSurveyor 3.0.23.0	TIF file showing a minimally processed greyscale plot clipped to ±3nT.	25/01/15	K.T.Donaldson
ENN108208_J643_mag_proc.tfw	TerraSurveyor 3.0.23.0	World file for georeferencing TIF to OSGB36.	25/01/15	K.T.Donaldson
CAD data - path: ENN108208_J643_Wormslade_Farm_geophysical_survey\ENN108208_J643_CAD				
ENN108208_J643_CAD.dwg	ProgeCAD 2016	CAD file for creating plots of greyscales, abstraction, interpretation and mapping. Grid coordinates as OSGB. AutoCAD 2010 format.	29/01/15	K.T.Donaldson

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OASIS DATA COLLECTION FORM: England

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Printable version

OASIS ID: archaeol20-240941

Project details

Project name	Wormslade Farm, Clipston Road, Kelmarsh, Magnetometer Survey Report
Short description of the project	fA detailed magnetometer survey was undertaken by Archaeological Surveys Ltd at the request of Border Archaeology on the site of a proposed anerobic digestion biogass plant at Wormslade Farm near Clipston in Northamptonshire. The results of the survey show that the site contains a number of weakly positive linear anomalies, some with curvilinear or rectilinear elements. However, they are widespread, weak, short, fragmented and incoherent and their origin cannot be determined. A number of pit-like responses can also be seen, with a concentration in the south eastern corner of the site, but, as with the linear anomalies, it is not clear if they relate to naturally or anthropogenically formed features. Evidence for former ridge and furrow, a field boundary, possible land drains and an infilled pond has also been located.
Project dates	Start: 15-01-2016 End: 15-01-2016
Previous/future work	Not known / Yes
Type of project	Field evaluation
Monument type	NONE None
Significant Finds	NONE None
Methods & techniques	"Geophysical Survey"
Development type	Biogas plant
Prompt	National Planning Policy Framework - NPPF
Position in the planning process	Not known / Not recorded
Solid geology	UPPER LIAS
Drift geology	RIVER TERRACE DEPOSITS
Techniques	Magnetometry

Project location

Country	England

Site location	NORTHAMPTONSHIRE DAVENTRY KELMARSH Wormslade Farm, Clipston Road, Kelmarsh
Study area	4.2 Hectares
Site coordinates	SP 73510 81650 52.427508591246 -0.918765242186 52 25 39 N 000 55 07 W Point

Project creators

Name of Organisation	Archaeological Surveys Ltd
Project brief originator	Archaeologcial Surveys Ltd
Project design originator	Border Archaeology
Project director/manager	Archaeological Surveys Ltd
Project supervisor	Archaeological Surveys Ltd

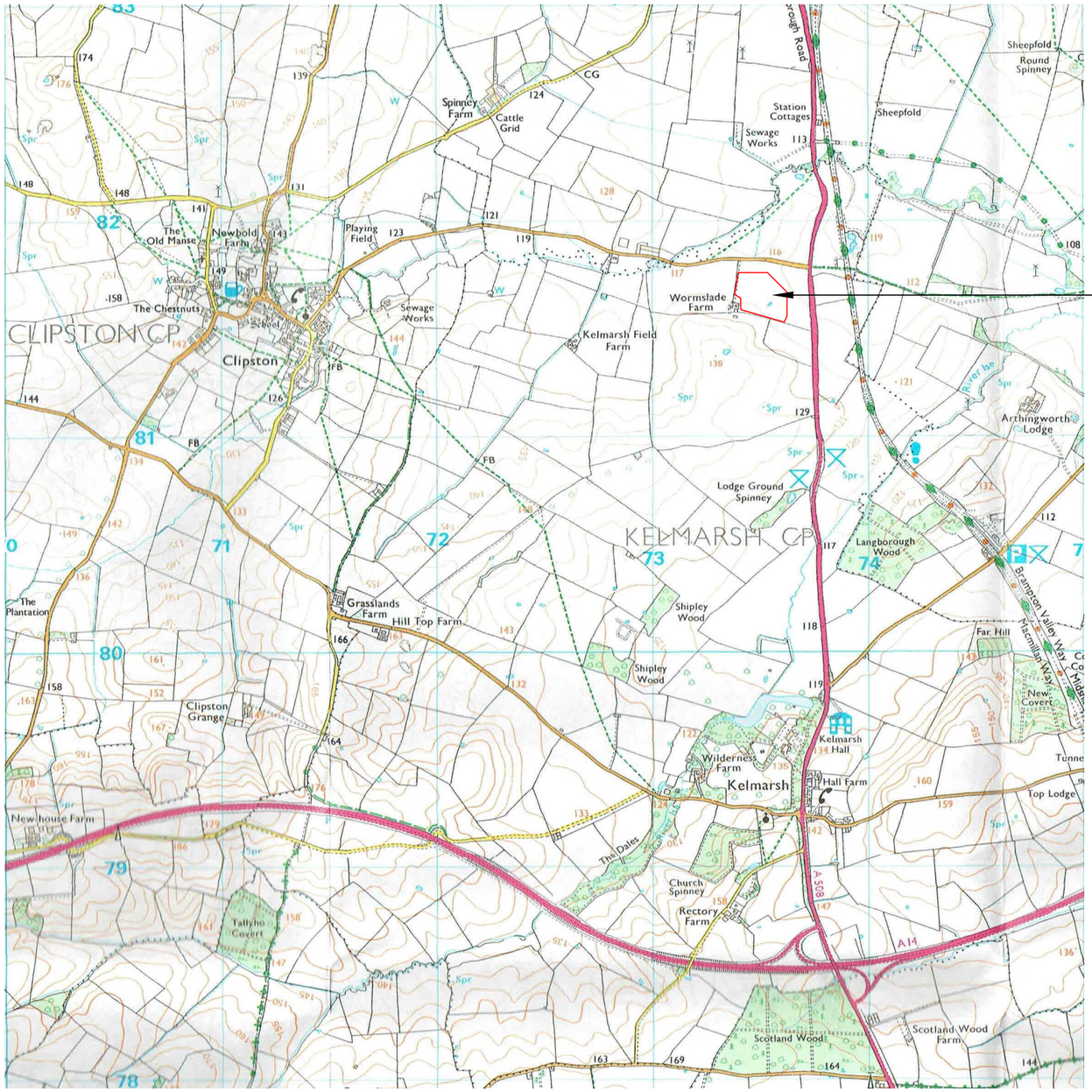
Project archives

Physical Archive Exists?	No
Digital Archive recipient	Archaeology Data Service
Digital Contents	"Survey"
Digital Media available	"Geophysics","Images raster / digital photography"
Paper Archive Exists?	No

Entered by	Kerry Donaldson (kerry.donaldson@archaeological-surveys.co.uk)
Entered on	29 January 2016

OASIS:

Please e-mail Historic England for OASIS help and advice



Archaeological Surveys Ltd

Geophysical Survey
Wormslade Farm
Clipston Road, Kelmarsh
Northamptonshire

Map of survey area

● Survey location

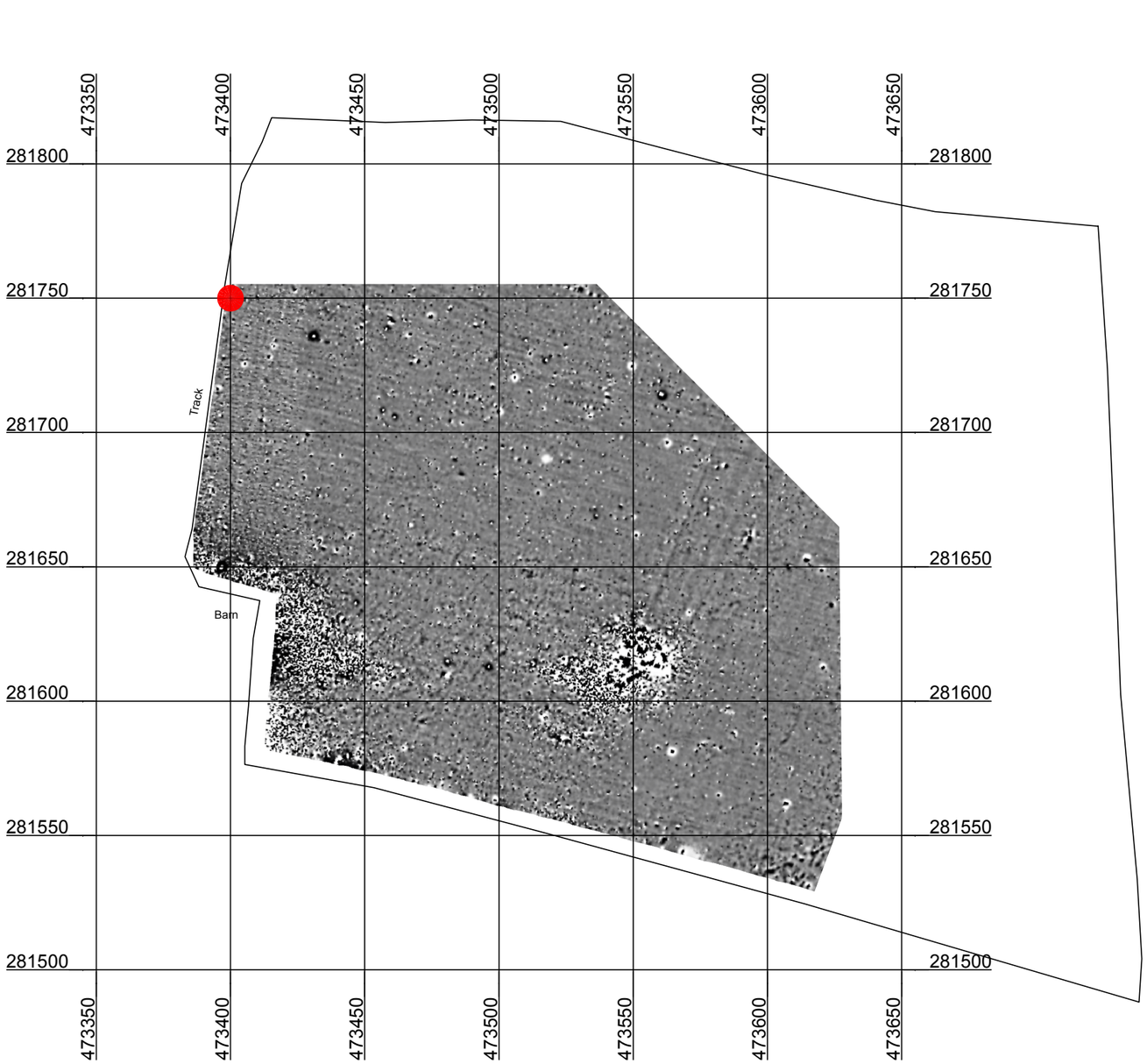
Site centred on OS NGR
SP 73510 81650

SCALE 1:25 000

0m 500m 1000m

SCALE TRUE AT A3

FIG 01



Archaeological Surveys Ltd

Geophysical Survey
Wormslade Farm
Clipston Road, Kelmarsh
Northamptonshire

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

● 473400 281750

SCALE 1:2000

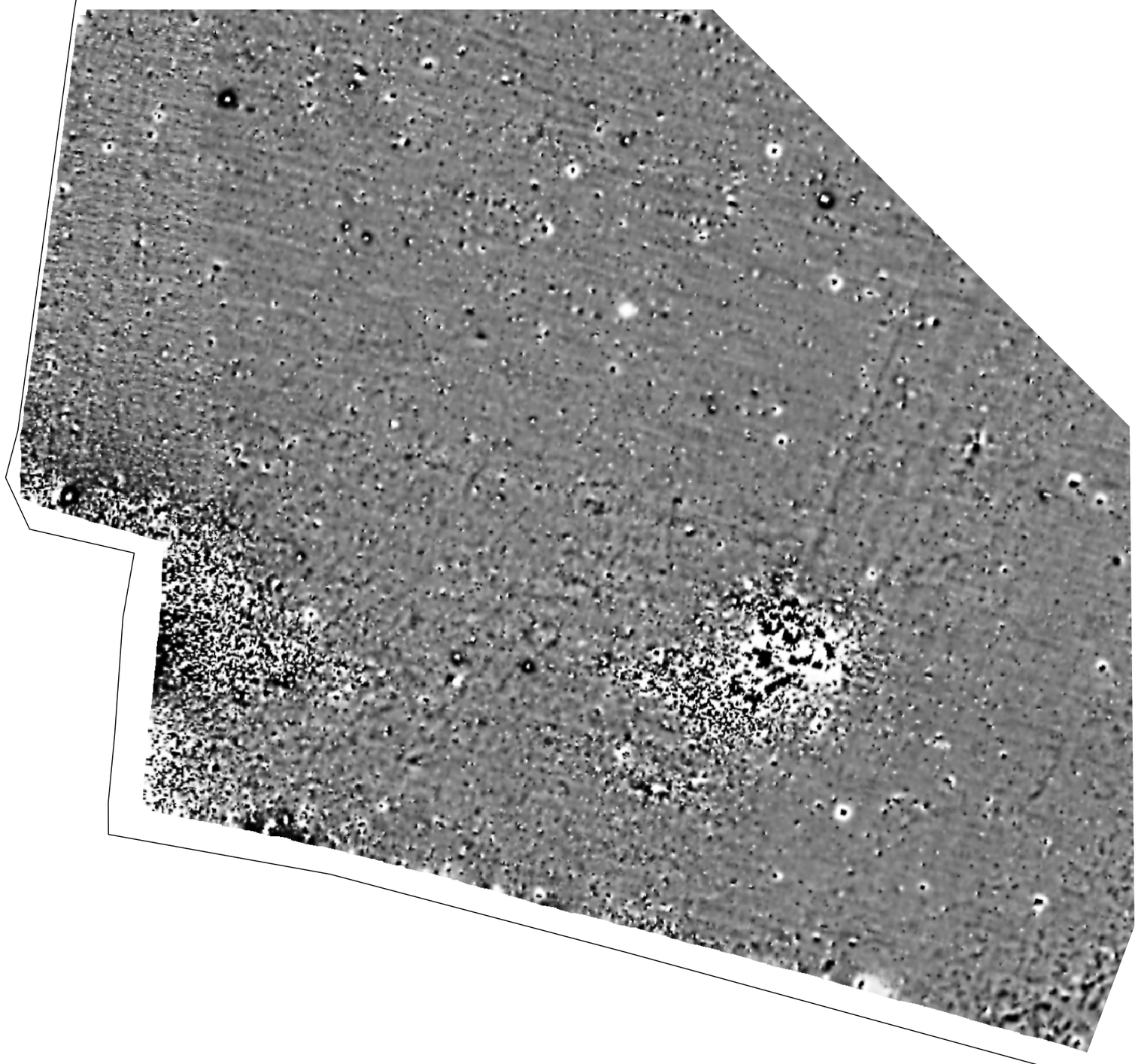
0m 20 40 60 80 100m

SCALE TRUE AT A3

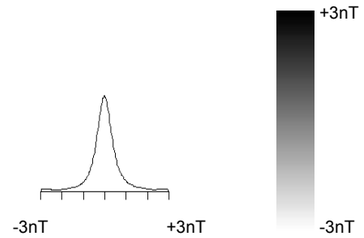
FIG 02

Archaeological Surveys Ltd

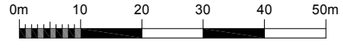
Geophysical Survey
Wormslade Farm
Clipston Road, Kelmarsh
Northamptonshire



Greyscale plot of minimally processed magnetometer data



SCALE 1:1000



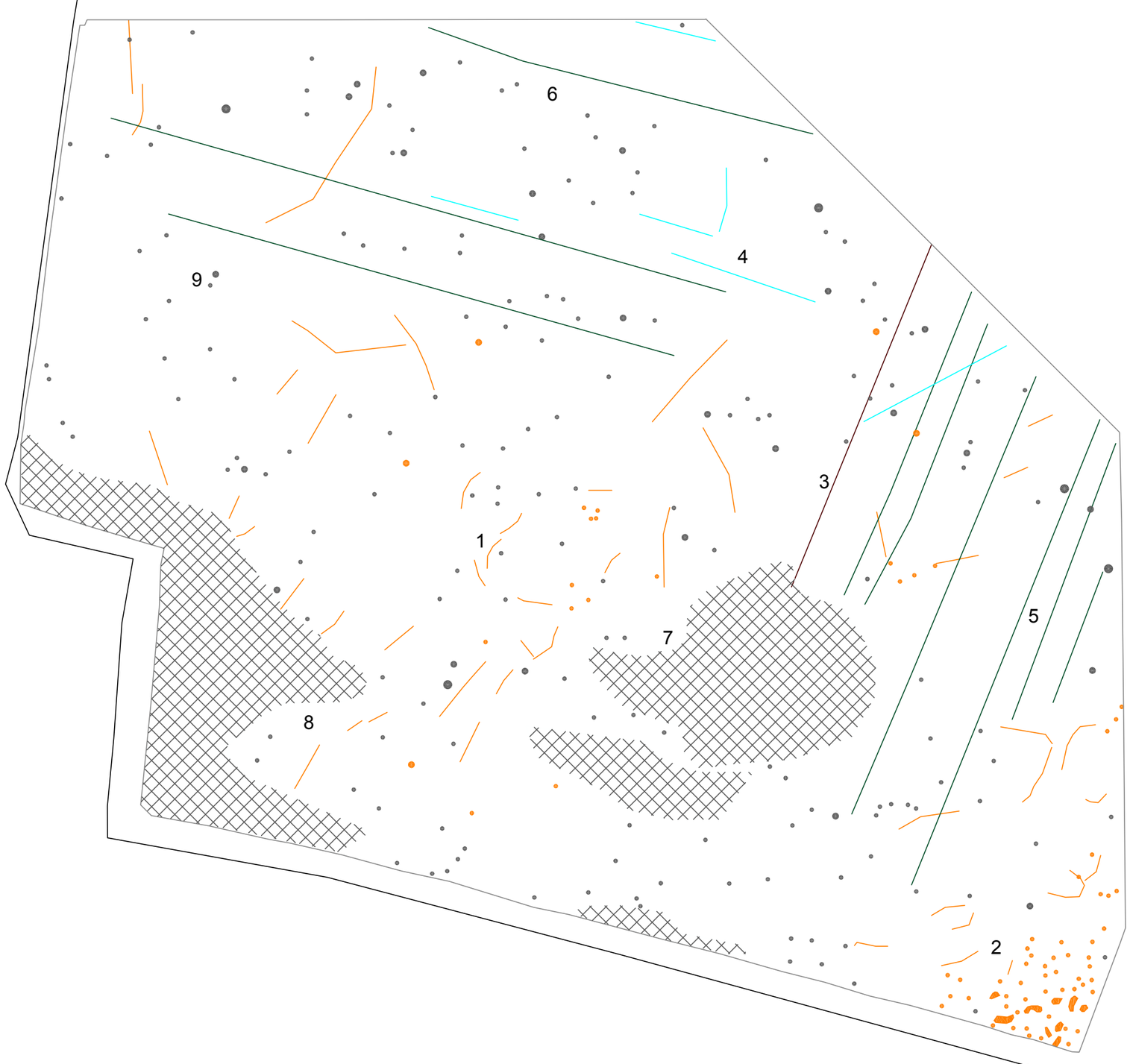
SCALE TRUE AT A3

FIG 03

Archaeological Surveys Ltd

Geophysical Survey
Wormslade Farm
Clipston Road, Kelmarsh
Northamptonshire

Abstraction and interpretation of magnetometer anomalies



- Positive linear anomaly - of uncertain origin
- Linear anomaly - ridge and furrow
- Positive linear anomaly - possible land drain
- Positive linear anomaly - possible former field boundary
- Discrete positive response - possible pit-like feature
- Magnetic debris - spread of magnetically thermoremnant/ferrous material
- Strong dipolar anomaly - ferrous object

SCALE 1:1000

0m 10 20 30 40 50m

SCALE TRUE AT A3

FIG 04