PROPOSED BIO-DIGESTER, IRETON'S WAY, CHATTERIS, CAMBRIDGESHIRE

DETAILED MAGNETOMETER SURVEY

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Detailed Magnetometer Survey

Prepared for:
Alison Dickens
Cambridge Archaeology Unit
Department of Archaeology
University of Cambridge
Downing Street
Cambridge
CB2 3DZ

By:
Timothy Schofield HND BSc PIfA

Britannia Archaeology Ltd
115 Osprey Drive,
Stowmarket, Suffolk,
IP14 5UX
T: 01449 763034
info@britannia-archaeology.com
www.britannia-archaeology.com
Registered in England and Wales: 7874460

Site Code	ECB4027	**NGR**	541810 283280
Planning Ref.	TBA	**OASIS**	britanni1-165437
Approved By	Matthew Adams	**DATE**	November 2013

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ABSTRACT

A Detailed fluxgate gradiometer survey undertaken by Britannia Archaeology Ltd on land at Ireton's Way, Chatteris, Cambridgeshire was successful in identifying a range of anomalies that are of potential archaeological origin. The survey in the north-eastern field (Phase 1) recorded a series of discrete, parallel and perpendicular anomalies interpreted as pits, banks and ditches, however a geological origin cannot be ruled out.

In the adjoining field to the south-west (Phase 2) eight widely spaced discrete features of possible archaeological origin and four linear trends, two of which may relate to the former Chatteris Parish Boundary, were further recorded. Broad diffuse weak negative and positive anomalies were present in this dataset that are likely to be of geological origin.

1.0 INTRODUCTION

On the 27th – 30th August and the 6th – 11th November 2013 Britannia Archaeology Ltd (BA) undertook detailed magnetometer survey on behalf of Alison Dickens, Archaeological Manager at Cambridge Archaeological Unit, in response to a request by Andy Thomas of Cambridgeshire County Council Historic Environment Team. The survey was undertaken in advance of the construction of a bio-digester and reservoir on land at Ireton's Way, Chatteris, Cambridgeshire (NGR 541810 283280) over 15.44 hectares. This survey forms part of a programme of works that began with a desk-based assessment and will be followed by a subsequent phase of trial trenching.

The aim of the geophysical survey was to locate anomalies of potential archaeological origin that are likely to be damaged by the proposed works, and then to further investigate them by trial trench evaluation.

The survey was located in two adjoining fields separated by hedgerows. A maize crop on the south-western field (Phase 2) prevented the survey from being undertaken in one phase. Phase 1 was surveyed in August when the weather was clear and sunny, Phase 2 was undertaken in November when the conditions were overcast and wet.

2.0 SITE DESCRIPTION

The site covers two fields located around 3.5km to the south-east of Chatteris, adjacent to the Mepal Outdoor Centre and the A142 which lie respectfully to the east and north of the site. Agricultural fields dominate the immediate area and both fields are currently used for this purpose. The field boundaries comprise a mixture of water-filled ditches and agricultural tracks marked as fen drove way, the site lies at *c*0.00m AOD.

The bedrock is described as Ampthill Clay Formation mudstone which is a sedimentary rock formed during the Jurassic Period when the local environment was dominated by shallow seas (BGS, 2013).

The superficial deposits are a mixture of River Terrace Deposits of sand and gravel and areas of peat. Both deposits were formed around the same time (up to 2 million years ago) when the local environment was dominated by rivers and marshes (BGS, 2013).

2.1 Site Visit 20.08.13

A site visit was undertaken by a member of the BA team on Tuesday 20th August, the north-eastern field (Phase 1, Figure 2) outlined for the proposed construction of the bio-digester was found suitable for survey (DP1). The south-western field of the proposed reservoir contained an 8 foot high crop that was found to be unsuitable on the 20th August (DP2), therefore this field was surveyed later in November (Phase 2, Figure 2).

DP1

Northern field, cropped stubble suitable for survey, looking north-west.

DP2

Southern field, 8ft high crop, unsuitable for geophysical survey (as of 20.08.13), looking south-west.

3.0 PLANNING POLICIES

This archaeological investigation was undertaken on the recommendation of the local planning authority, in consultation with Cambridgeshire County Council Historic Environment Team (CCCHET), following guidance laid down by the *National Planning and Policy Framework* (NPPF, DCLD 2012) which replaces *Planning Policy Statement 5: Planning for the Historic Environment* (PPS5, DCLG 2010). The relevant local planning policy is, Fenland Council's *Fenland Local Plan (1993; 2005 Edition)*.

3.1 National Planning Policy Framework (NPPF, DCLG March 2012)

The NPPF recognises that 'heritage assets' are an irreplaceable resource and planning authorities should conserve them in a manner appropriate to their significance when considering development. It requires developers to record and advance understanding of the significance of any heritage assets to be lost (wholly or in part) in a manner proportionate to their importance and the impact, and to make this evidence (and any archive generated) publicly accessible. The key areas for consideration are:

- The significance of the heritage asset and its setting in relation to the proposed development;
- The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance;
- Significance (of the heritage asset) can be harmed or lost through alteration or destruction, or development within its setting. As heritage assets are irreplaceable, any harm or loss should require clear and convincing justification;
- Local planning authorities should not permit loss of the whole or part of a heritage asset without taking all reasonable steps to ensure the new development will proceed after the loss has occurred;
- Non-designated heritage assets of archaeological interest that are demonstrably of equivalent significance to scheduled monuments, should be considered subject to the policies for designated heritage assets.

3.2 Fenland Local Plan (1993; 2005 Edition)

Fenland Council are currently producing a new local plan to replace the existing 1993 Local Plan. The draft *Fenland Communities Development Plan (draft Core Strategy)* was consulted upon in July-September 2011 and the document is being amended to reflect the comments and bring it into line with the NPPF.

The Fenland Local Plan states that it is important to protect the rich archaeological heritage where necessary to do so, and elsewhere to permit investigation before development takes place. Development which would result in the loss of important archaeological sites will be resisted and where development can be permitted conditions will be imposed on planning permissions to allow for the proper recording of sites before the development takes place.

The relevant sections on Archaeology and Planning state the following:

E6 – Planning permission will not normally be granted for a development which would adversely affect the preservation or setting of an ancient monument or other important archaeological site. The local planning authority will normally require all planning applications for development on sites of recognised or suspected archaeological importance to be accompanied by an archaeological evaluation.

E7 – Where there is no over-riding case for the preservation of an archaeological site and planning permission is granted for its development, that development will be conditional

upon the developer making satisfactory provision for the excavation and recording of remains. Such excavation and recording will be carried out before development commences in accordance with a project brief prepared by the local planning authority with advice from County Archaeologists. Where appropriate provision shall be made for the sealing and preservation of archaeologically significant layers prior to construction.

4.0 ARCHAEOLOGICAL BACKGROUND

Detailed magnetometer survey was undertaken over *c.*15.44 hectares of land located on agricultural fields. There is a high potential for archaeological deposits to be disturbed by the development, the proposed works could cause significant ground disturbance that could damage existing archaeological deposits.

This site lies in an area of archaeological interest, recorded in the Cambridgeshire Historic Environment Record (CHER). It is located within an historic landscape, with notable scheduled Neolithic and prehistoric monuments located to the south-west and west of the site and funerary monuments dating from the Bronze Age situated to the north and east. Aerial photographs from the Cambridgeshire Fenland Survey undertaken by David Hall between 1976 and 1990 show the possible remains of an extensive Bronze Age field system across the area and some fragments of this may survive in the survey area (Appleby, G. 2013).

Cartographic sources reveal that the fields have both been used for agricultural purposes since at least the mid-19th century AD.

5.0 PROJECT AIMS

A geophysical survey is required of the development area to enable the archaeological resource, both in quality and extent, to be accurately quantified.

6.0 METHODOLOGY

6.1 Instrument Type Justification

Britannia Archaeology Ltd employed a Bartington Dual Grad 601-2 fluxgate gradiometer to undertake the survey, because of its high sensitivity and rapid ground coverage. The surveyors noted that that both fields had a moderately low magnetic background susceptibility, allowing a suitable zero point to be located with relative ease.

6.2 Instrument Calibration

One hour was allowed in the morning for the magnetometers sensors to settle before the start of the first grid. The instrument was zeroed after every three grids to minimise the effect of sensor drift. An area with a relatively low magnetic reading was chosen to calibrate the instrument, this same point was used to zero the sensors throughout the

survey providing a common zero point. Sensor drift was noted throughout the day during outbreaks of sunshine in Phase 1, overcast conditions prevailed during Phase 2 causing the sensors to drift less.

6.3 Sampling Interval and Grid Size

The sampling interval was set at 0.25m along 1m traverse intervals, providing 4 readings a metre, the magnetometer survey was undertaken on 20 x 20m grids.

6.4 Survey Grid Location

The survey grid was set out to the Ordnance Survey OSGB36 datum to an accuracy of ±0.1m employing a Leica Viva Glonnass Smart Rover GS08 differential global positioning system (DGPS). Data were then converted to the National Grid Transformation OSTN02 and the instrument was regularly tested using stations with known ETRS89 coordinates. The grids were positioned parallel with the long axis of both fields for ease of survey, aligned north-east to south-west (Figure 2).

6.5 Data Capture

Instrument readings were recorded on an internal data logger that were downloaded to a laptop at lunchtime and then also at the end of the day. The grid order was recorded on a BA pro-forma to aid in the creation of the data composites. Data were filed in job specific folders. These data composites were checked for quality on site by BA, allowing grids to be re-surveyed if necessary. The data were backed up onto an external storage device in the office and finally a remote server at the end of the day. A five metre exclusion zone was left between the boundaries and the survey area to reduce the amount of magnetic disturbance.

6.6 Data Presentation and Processing

Data are presented in both raw and processed data plots in greyscale format (Figures 3, 5, 7, and 9). Two XY trace plots of the processed data have also been included (Figures 4 and 8). Raw data are presented with no processing, and were clipped to produce a uniform greyscale plot, the processed data schedule is also displayed below.

Raw Data:
Data Clipping: 1 standard deviation.
Data Display: Clip to -3/+3 standard deviation.

Processed Data:
De-spike: X diameter = 3, Y diameter = 3, Threshold = 1, centre value=mean, replace with = mean;
De-stripe: Traverse, Median, X (Horizontal).
De-stagger: Grids: All Mode: Both By: -2 intervals
Data Clipping: 1 standard deviation;
Data Display: Clip to -3/+3 standard deviation.

Interpretation plots characterising the anomalies recorded can be found at Figures 6 and 10, they draw together the evidence collated from both greyscale and XY trace plots (Figures 3, 4, 5, 7, 8 and 9). All figures are tied into the National Grid and printed at an appropriate scale. Metadata Sheets for raw and processed plots can be found at Appendix 1.

6.7 Software

Raw data were downloaded using Bartington software Grad601 and will be stored in this format as raw data. The software used to process the data and produce the composites was DW Consulting's Archeosurveyor v2.0. Datasets were exported into AutoCAD and placed onto the local survey grid. An interpretation plot was then produced using AutoCAD.

6.8 Grid Restoration

Britannia Archaeology Ltd did not position any reference stations in the fields due to planned future ploughing. The grid can be relocated using the geo-referenced stations present on Figure 2, which can also be used to accurately target the location of the geophysical anomalies.

7.0 RESULTS & DISCUSSION

The results and discussion are presented in phase order under the separate headings below, Phase 1 was undertaken from 27th – 30th August when the weather was clear and sunny, and Phase 2 from 6th – 11th November when the conditions were wet and overcast.

A plethora of 'iron spike' responses (yellow dots) were recorded within both datasets (Figures 6 & 10) that may have been caused by archaeological artefacts. These responses were most numerous of all the anomalies present and are fairly evenly distributed throughout both fields with no apparent concentration. It is most likely that they represent ferrous debris being randomly introduced into the topsoil during episodes of manuring.

7.1 Phase 1 (Figures 3, 4, 5 & 6)

The surveyors noted that the fields overall magnetic background was relatively low, causing little difficulty in locating a suitable zero station to set-up the instruments sensors. Sensor drift from zero was noted during outbreaks of sunshine, causing the characteristic 'striping' present in the raw dataset (Figure 3).

In close proximity to the north-eastern boundary is a weak negative linear trend (light blue line) that is aligned north-west to south-east and interpreted as a modern land drain or service run. The negative readings are likely to have been caused by the backfilling of superficial geology in the top of the service trench, which has a lower magnetic susceptibility than that of the surrounding topsoil.

A fairly regular series of very straight positive parallel linear trends (light green lines) on a north-west to south-east alignment, are indicative of an earlier agricultural field system that respects the current field boundary arrangement. These responses are usually caused by cut features containing a humic backfill, for example agricultural furrows or beds. They are very straight which suggests they are fairly modern in date and probably machine rather than hand cut, they also almost overlap which infers that a proportion of them were excavated during a separate event. On the same alignment are two parallel positive linear trends (dark blue lines) that are believed to be the backfilled ditches of a previous, probably modern, field boundary sub-division.

A sequence of discontinuous weak moderately broad negative (hatched light blue) and positive (hatched orange) linear anomalies are the most intriguing of those recorded in the dataset. They are located in the southern half of the field and are orientated north to south and east to west. It is possible that they are indicative of a series of potential enclosure bank (negative) and ditch (positive) type anomalies of a previous settlement, however their weak and moderately broad nature also suggests a geological origin.

A series of weak positive discrete anomalies have also been recorded in the dataset (orange hatching) within close proximity to the discontinuous weak moderately broad negative and positive linear anomalies. They are commonly interpreted as archaeological rubbish pits, however in this case their weak nature may indicate that they are of geological origin.

7.2 Phase 2 (Figures 7, 8, 9 & 10)

The south-western field had a quieter background magnetic susceptibility reading than that of Phase 1, which again caused little difficulty in locating a suitable zero station. Sensor drift has been recorded in the dataset but was less prevalent due to the overcast weather conditions (Figure 7).

One large area of magnetic disturbance (yellow hatching) in the north-eastern corner of the field demarcates the location of a probable modern rubbish pit (landowner pers. comm.). This anomaly artificially raises the average background magnetic susceptibility reading than that recorded in Phase 1 (see scale bars Figure 11).

Three positive linear trends (green lines) that run perpendicular to the field boundary (north-west to south-east) through the centre of the plot have been and interpreted as possible previous field boundary sub-divisions or agricultural furrows (Figure 10).

A series of weak broad diffuse negative and positive anomalies are present throughout the dataset (magenta and cyan hatching). They are similar in strength but broader than those located in Phase 1 and therefore have been interpreted as naturally occurring geological variations (Figures 5 & 9).

Eight positive discrete anomalies are scattered throughout the dataset (orange hatching) and are indicative of rubbish pits. They have a higher magnetic susceptibility than the broad diffuse weak positive linear anomalies, and therefore are more likely to be of archaeological origin (Figure 9).

Four weak positive linear trends (orange lines) have been recorded in Phase 2 that are also of possible archaeological origin. Two of these trends (dot-dash orange lines) are present in a similar location to the Chatteris Parish Boundary (Ordnance Survey MasterMap, 2013) that comprise a discontinuous ditch cut into the landscape. The two segmented linear trends running parallel (north-south) with the south-eastern boundary may record the presence of a former field boundary, however it is also possible that all four linears form an enclosure.

8.0 CONCLUSION

This detailed geophysical survey was successful in identifying a wide range of anomalies, some of which have been interpreted as being of potential archaeological origin. It would be beneficial to undertake further archaeological investigations to test the interpretations given in this report.

Phase 1 overall has a higher archaeological potential then Phase 2, with a series of anomalies that may represent discrete, parallel and perpendicular archaeological features interpreted as pits, banks and ditches. However their moderately broad and weak nature means that a geological origin cannot be ruled out. It would be prudent to further investigate these anomalies in the subsequent trial trench evaluation.

Phase 2 has less potential, eight discrete features of possible archaeological origin were recorded that are widely spaced and show no apparent clustering. Four linear trends, two of which may relate to the former Chatteris Parish Boundary are also worthy of further archaeological investigation. The broader, more diffuse weak negative and positive anomalies present within Phase 2 are likely to be of geological origin, however they warrant additional archaeological investigation to test this hypothesis.

9.0 PROJECT ARCHIVE AND DEPOSITION

A full archive will be prepared for all work undertaken in accordance with guidance from the *Selection, Retention and Dispersion of Archaeological Collections,* Archaeological Society for Museum Archaeologists, 1993. Arrangements will be made for the archive to be deposited with the relevant museum/HER Office.

10.0 ACKNOWLEDGEMENTS

Britannia Archaeology Ltd would like to thank Alison Dickens of Cambridge Archaeological Unit for funding the project and arranging access. Our thanks also to Andy Thomas, of Cambridge County Council Historic Environment Team for his input throughout the project.

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Cartographic Sources

Ordnance Survey MasterMap, 2013

APPENDIX 1 METADATA SHEETS

PHASE 1

Raw Data

Filename:	Mepal 1 Raw.xcp
Instrument Type:	Grad 601 (Gradiometer)
Units:	nT
Surveyed by:	MCA/MB on 8/30/2013
Assembled by:	TPS on 11/26/2013
Direction of 1st Traverse:	45 deg
Collection Method:	ZigZag
Sensors:	2 @ 1.00 m spacing.
Dummy Value:	32702.00
Dimensions	
Composite Size (readings):	1680 x 180
Survey Size (meters):	420.00m x 180.00 m
Grid Size:	20.00 m x 20.00 m
X Interval:	0.25 m
Y Interval:	1.00 m
Stats	
Max:	6.30
Min:	-4.57
Std Dev:	2.72
Mean:	0.75
Median:	0.58
Composite Area:	7.56 ha
Surveyed Area:	6.83 ha
Program	
Name:	ArcheoSurveyor
Version:	2.5.16.0

Processed Data

Filename:	Mepal 1 Pro.xcp
Instrument Type:	Grad 601 (Gradiometer)
Units:	nT
Surveyed by:	MCA/MB on 8/30/2013
Assembled by:	TPS on 11/26/2013
Direction of 1st Traverse:	45 deg
Collection Method:	ZigZag
Sensors:	2 @ 1.00 m spacing.
Dummy Value:	32702.00
Dimensions	
Composite Size (readings):	1680 x 180
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Grid Size:	20.00 m x 20.00 m
X Interval:	0.25 m
Y Interval:	1.00 m
Stats	
Max:	3.27
Min:	-2.66
Std Dev:	1.58
Mean:	0.16
Median:	0.00
Composite Area:	7.56 ha
Surveyed Area:	6.83 ha
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Version	2.5.16.0

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PHASE 2

Raw Data

Filename:	Mepal 10 Raw.xcp
Instrument Type:	Grad 601 (Gradiometer)
Units:	nT
Surveyed by:	MCA/MB on 11/11/2013
Assembled by:	TPS on 11/12/2013
Direction of 1st Traverse:	90 deg
Collection Method:	ZigZag
Sensors:	2 @ 1.00 m spacing.
Dummy Value:	32702.00
Dimensions	
Composite Size (readings):	1360 x 240
Survey Size (meters):	340.00m x 240.00 m
Grid Size:	20.00 m x 20.00 m
X Interval:	0.25 m
Y Interval:	1.00 m
Stats	
Max:	11.18
Min:	-12.49
Std Dev:	2.94
Mean:	-0.35
Median:	-0.32
Composite Area:	8.16 ha
Surveyed Area:	6.92 ha
Program	
Name:	ArcheoSurveyor
Version:	2.5.16.0

Processed Data

Filename:	MEP16P.xcp
Instrument Type:	Grad 601 (Gradiometer)
Units:	nT
Surveyed by:	MCA/MB on 11/11/2013
Assembled by:	TPS on 11/12/2013
Direction of 1st Traverse:	90 deg
Collection Method:	ZigZag
Sensors:	2 @ 1.00 m spacing.
Dummy Value:	32702.00
Dimensions	
Composite Size (readings):	1360 x 240
Survey Size (meters):	340.00m x 240.00 m
Grid Size:	20.00 m x 20.00 m
X Interval:	0.25 m
Y Interval:	1.00 m
Stats	
Max:	10.66
Min:	-10.31
Std Dev:	2.03
Mean:	0.03
Median:	0.00
Composite Area:	8.16 ha
Surveyed Area:	6.92 ha
Program	
Name:	ArcheoSurveyor
Version:	2.5.16.0

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APPENDIX 2 TECHNICAL DETAILS

Magnetometer Survey

The magnetometer differs from the 'active' magnetic susceptibility meter by being a 'passive' instrument. Rather than injecting a signal into the ground it detects slight variations in the Earth's magnetic field caused by cultural and natural disturbance (Clark).

Thermoremanent magnetism is produced when a material containing iron oxides is strongly heated. Clay for example has a high iron oxide content that in a natural state is weakly magnetic, when heated these weakly magnetic compounds become highly magnetic oxides that a magnetometer can detect.

The demagnetisation of iron oxides occurs above a temperature known as the Curie point; for example haematite has a Curie point of 675 Celsius and magnetite 565C. At the time of cooling the iron oxides become permanently re-magnetised with their magnetic properties re-aligned in the direction of the Earth's magnetic field (Gaffney and Gater). The direction of the Earth's magnetic field shifts over time and these subtle alignment differences can be recorded. Kilns, hearths, baked clay and ovens can reach Curie point temperatures, and are the strongest responses apart from large iron objects that can be detected. Other cultural anomalies that can be prospected include occupation areas, pits, ditches, furnaces, sunken feature buildings, ridge and furrow field systems and ritual activity (David, 2011). Commonly recorded anomalies include modern ferrous service pipes, field drainage pipes, removed field boundaries, perimeter fences and field boundaries.

Fluxgate Gradiometers

Fluxgate gradiometers are sensitive instruments that utilise two sensors placed in a vertical plane, spaced 1 metre apart. The sensor above reads the Earth's magnetic (background) response while the sensor below records the local magnetic field. Both sensors are carefully adjusted to read zero before survey commences at a 'zeroing' point, selected for its relatively 'quiet' magnetic background reading. When differences in the magnetic field strength occur between the two sensors a positive or negative reading is logged. Positive anomalies have a positive magnetic value and conversely negative anomalies have a negative magnetic value relative to the site's magnetic background. Examples of positive magnetic anomalies include hearths, kilns, baked clay, areas of burning, ferrous material, ditches, sunken feature buildings, furrows, ferrous service pipes, perimeter fences and field boundaries. Negative magnetic anomalies include earthwork embankments, plastic water pipes and geological features.

The instruments are usually held approximately 0.30m to 0.50m above the ground surface and can detect to a depth of between 1-2metres. Best practice dictates that the optimal direction of traverse in Britain is east to west.

Magnetic Anomalies

Linear trends

Linear trends can be both positive and negative magnetic responses. If they are broad, relatively weak or negative in nature they may be of agricultural or geological origin, for example periglacial channels, land drains or ploughing furrows. If the responses are strong positive trends they are more likely to be of archaeological origin. Archaeological settlement ditches tend to be rich in highly magnetic iron oxides that accumulate in them via anthropogenic activity and humic backfills. Conversely surviving banks will be negative in nature, the material is derived from subsoil deposits that is less likely to be positively magnetic. Curvilinear trends can also be recorded and are indicative of archaeological structures such as drip-gullies.

Discrete anomalies

Discrete anomalies appear as increased positive responses present within a localised area. They are caused by a general increase in the amount of magnetic iron oxides present within the humic back-fill of for example a rubbish pit.

'Iron spike' anomalies

These strong isolated dipolar responses are usually caused by ferrous material present in the topsoil horizon. They can have an archaeological origin but are usually introduced into the topsoil during manuring.

Areas of magnetic disturbance

An area of magnetic disturbance is usually associated with material that has been fired. For example areas of burning, demolition (brick) rubble or slag waste spreads. They can also be caused by ferrous material, e.g. close proximity to barbwire or metal fences and field boundaries, buried services, pylons and modern rubbish deposits.

APPENDIX 3 OASIS FORM

OASIS ID: britanni1-165437

Project details

Project name	Proposed Bio-Digester, Ireton's Way, Chatteris, Cambridgeshire Short description of the project A Detailed fluxgate gradiometer survey undertaken by Britannia Archaeology Ltd on land at Ireton's Way, Chatteris, Cambridgeshire was successful in identifying a range of anomalies that are of potential archaeological origin. The survey in the north-eastern field (Phase 1) recorded a series of discrete, parallel and perpendicular anomalies interpreted as pits, banks and ditches, however a geological origin cannot be ruled out. In the adjoining field to the south-west (Phase 2) eight widely spaced discrete features of possible archaeological origin and four linear trends, two of which may relate to the former Chatteris Parish Boundary, were further recorded. Broad diffuse weak negative and positive anomalies were present in this dataset that are likely to be of geological origin.
Project dates	**Start:** 27-08-2013 **End:** 11-11-2013
Previous/future work	Yes / Yes
Any associated project reference codes	P1040 - Contracting Unit No. ECB4027 – Sitecode
Type of project	Field evaluation
Site status	None
Current Land use	Cultivated Land 3 - Operations to a depth more than 0.25m
Monument type	NONE None
Significant Finds	NONE None
Methods & techniques	"Geophysical Survey"
Development type	Farm infrastructure (e.g. barns, grain stores, equipment stores, etc.)
Prompt	Direction from Local Planning Authority – PPS
Position in the planning process	Pre-application
Solid geology	AMPTHILL AND KIMMERIDGE CLAY
Drift geology	(other) River Terrace and Peat Deposits
Techniques	Magnetometry

Project location

Country	England
Site location	CAMBRIDGESHIRE FENLAND CHATTERIS Ireton's Way, Chatteris, Cambridgeshire
Study area	15.44 Hectares
Site coordinates	TL 41810 83280 52.4286860199 0.0859806239758 52 25 43 N 000 05 09 E Point
Height OD / Depth	Min: 0m Max: 0m

Project creators

Name of Organisation	Britannia Archaeology Ltd
Project brief originator	Local Planning Authority (with/without advice from County/District Archaeologist)
Project design originator	Timothy Schofield
Project director/manager	Timothy Schofield
Project supervisor	Matthew Adams
Type of sponsor/funding body	Landowner

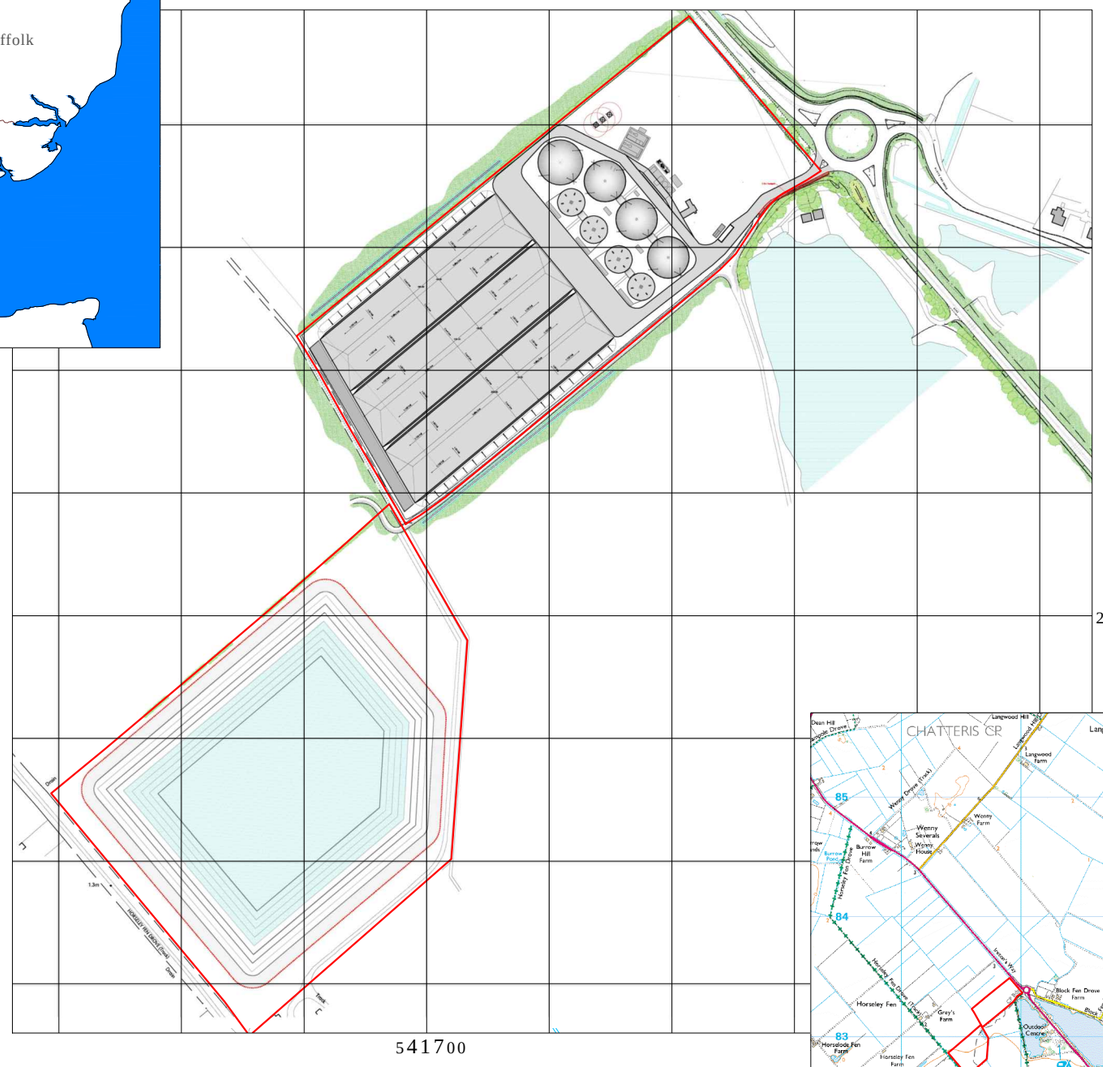
Project archives

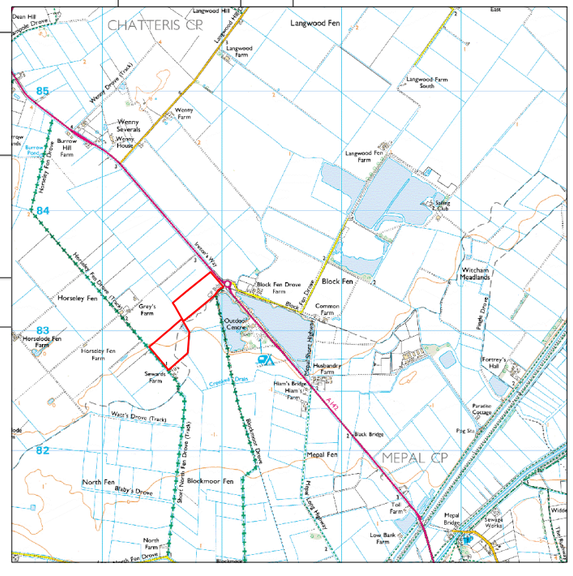
Physical Archive Exists?	No
Digital Archive recipient	Cambridgeshire HER
Digital Contents	"Survey"

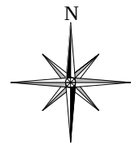
Digital Media available	"GIS", "Geophysics", "Images raster / digital photography", "Images vector", "Survey", "Text"
Paper Archive recipient	Cambridgeshire HER
Paper Contents	"Survey"
Paper Media available	"Microfilm", "Report", "Survey ","Unpublished Text"

Project bibliography 1

Publication type	Grey literature (unpublished document/manuscript)
Title	Proposed Bio-Digester, Ireton's Way, Chatteris, Cambridgeshire
Author(s)/Editor(s)	Schofield, T.P
Other bibliographic details	R1042
Date	2013
Issuer or publisher	Britannia Archaeology Ltd
Place of issue or publication	Stowmarket
Description	Bound A4 Report with A3 Fold-out Figures
URL	www.britannia-archaeology.com
Entered by	Tim Schofield (tim@britannia-archaeology.com)
Entered on	24 February 2014







Site Boundary

NGR: 541810 283280

REPORT NUMBER: 1042

PROJECT: BIO-DIGESTER, IRETON'S WAY, CHATTERIS, CAMBRIDGESHIRE

CLIENT: CAMBRIDGE ARCHAEOLOGICAL UNIT, UNIVERSITY OF CAMBRIDGE

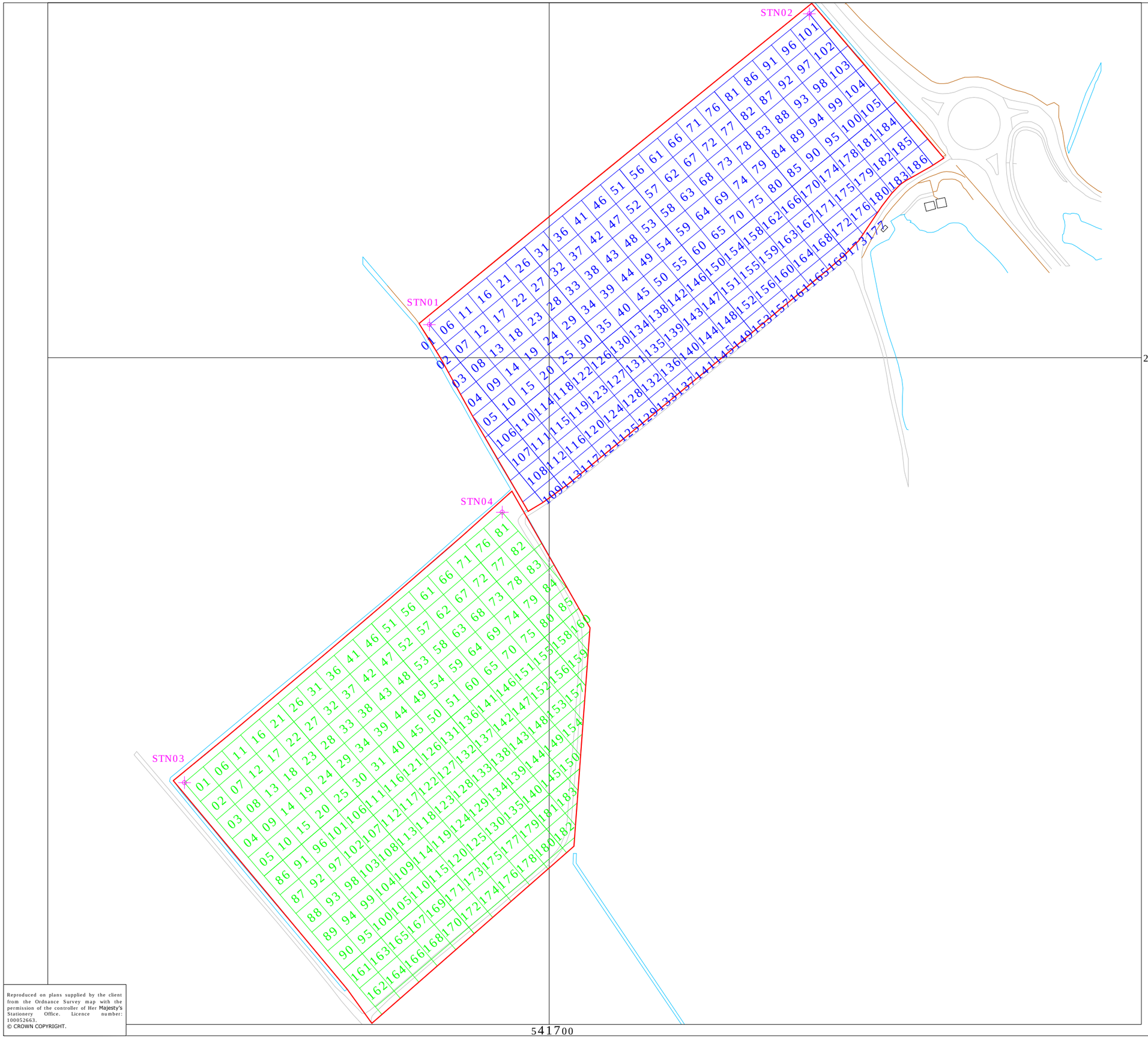
DESCRIPTION: SITE LOCATION & PROPOSED DEVELOPMENT PLAN

BRITANNIA ARCHAEOLOGY LTD

115 OSPREY DRIVE, STOWMARKET, SUFFOLK
IP14 5UX
T: 01449 763034
E: info@britannia-archaeology.com
W: www.britannia-archaeology.com

SCALE: 1:5000 (0 – 200m)

PLOT:	APPROVED:	VERSION:
A3	MCA	01
DATE: NOV 2013	AUTHOR: TPS	FIGURE: 01



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02	541911.98	283480.11
03	541402.83	282853.59
04	541661.75	283073.96

58 63 59 64	Phase 1, August 2013
34 39 31 40	Phase 2, November 2013
	Site Boundary

NGR: 541810 283280

REPORT NUMBER: 1042

PROJECT:
BIO-DIGESTER, IRETON'S WAY, CHATTERIS, CAMBRIDGESHIRE

CLIENT:
CAMBRIDGE ARCHAEOLOGICAL UNIT
UNIVERSITY OF CAMBRIDGE

DESCRIPTION:
SURVEY GRID AND REFERENCING INFORMATION

BRITANNIA ARCHAEOLOGY LTD
115 OSPREY DRIVE, STOWMARKET, SUFFOLK
IP14 5UX
T: 01449 763034
E: info@britannia-archaeology.com
W: www.britannia-archaeology.com

SCALE: 1:3000

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DATE:	AUTHOR:	FIGURE:
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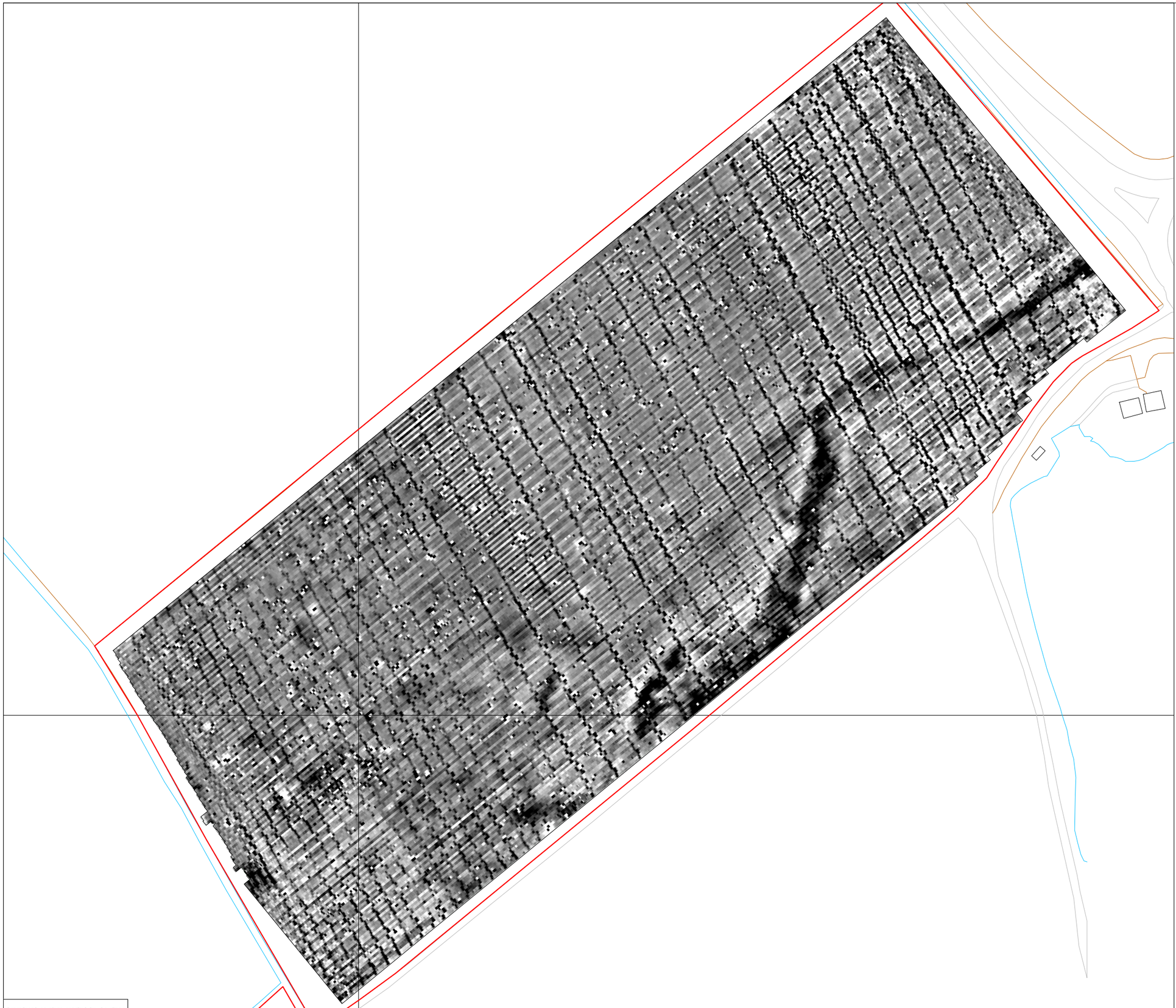

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Site Boundary

NGR: 541810 283280

REPORT NUMBER: 1042

PROJECT:
BIO-DIGESTER, IRETON'S WAY,
CHATTERIS, CAMBRIDGESHIRE

CLIENT:
CAMBRIDGE ARCHAEOLOGICAL UNIT
UNIVERSITY OF CAMBRIDGE

DESCRIPTION:
RAW MAGNETOMETER
GREYSCALE PLOT, PHASE 1

BRITANNIA ARCHAEOLOGY LTD

115 OSPREY DRIVE, STOWMARKET, SUFFOLK
IP14 5UX
T: 01449 763034
E: info@britannia-archaeology.com
W: www.britannia-archaeology.com

SCALE: 1:1500

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PLOT:	APPROVED:	VERSION:
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DATE:	AUTHOR:	FIGURE:
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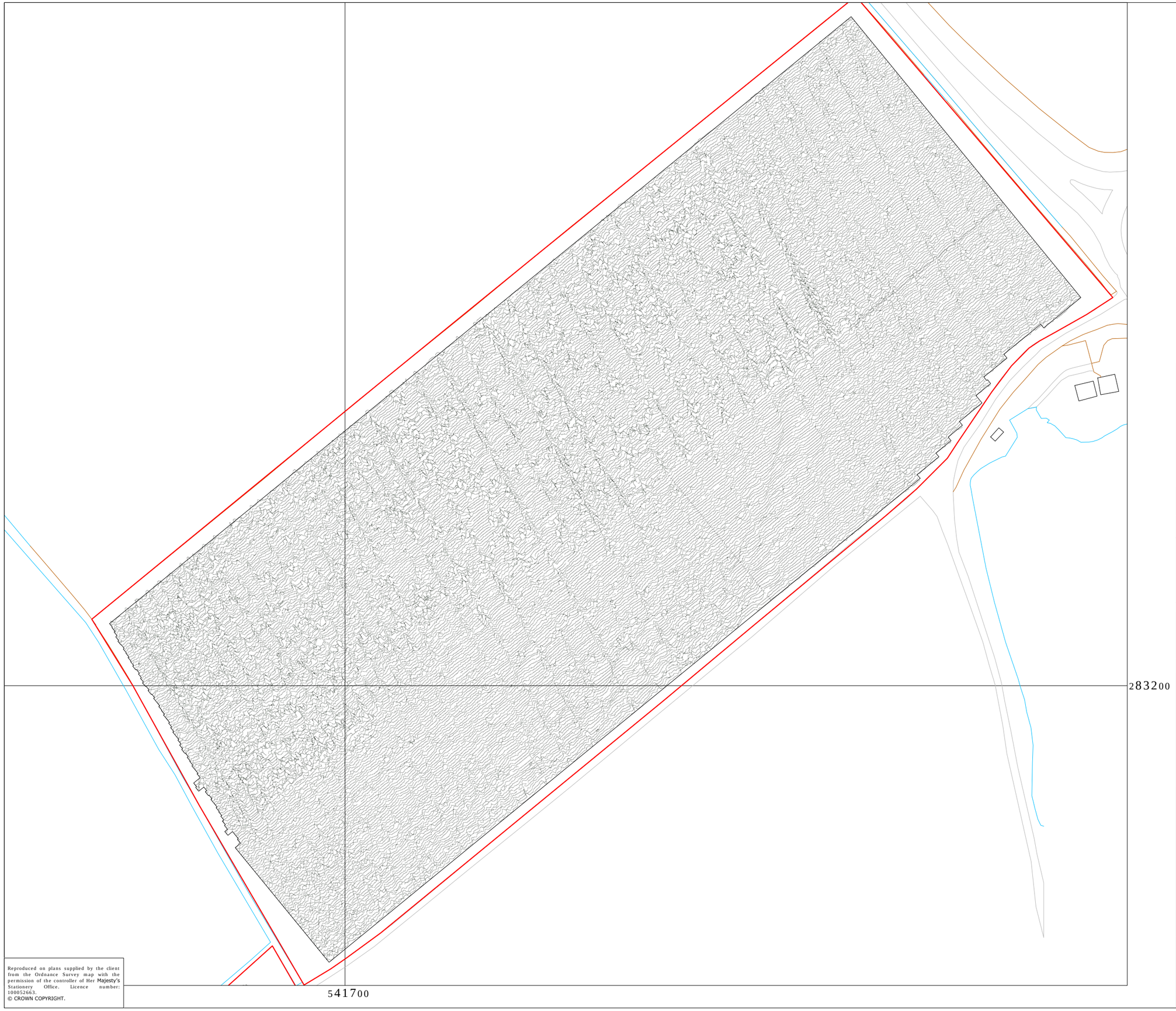

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35 nT/cm	Scale Interval
	Site Boundary

NGR: 541810 283280

REPORT NUMBER: 1042

PROJECT:

BIO-DIGESTER, IRETON'S WAY,
CHATTERIS, CAMBRIDGESHIRE

CLIENT:

CAMBRIDGE ARCHAEOLOGICAL UNIT
UNIVERSITY OF CAMBRIDGE

DESCRIPTION:

PROCESSED MAGNETOMETER
XY TRACE PLOT, PHASE 1

BRITANNIA ARCHAEOLOGY LTD

115 OSPREY DRIVE, STOWMARKET, SUFFOLK
IP14 5UX
T: 01449 763034
E: info@britannia-archaeology.com
W: www.britannia-archaeology.com

SCALE: 1:1500

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PLOT:	APPROVED:	VERSION:
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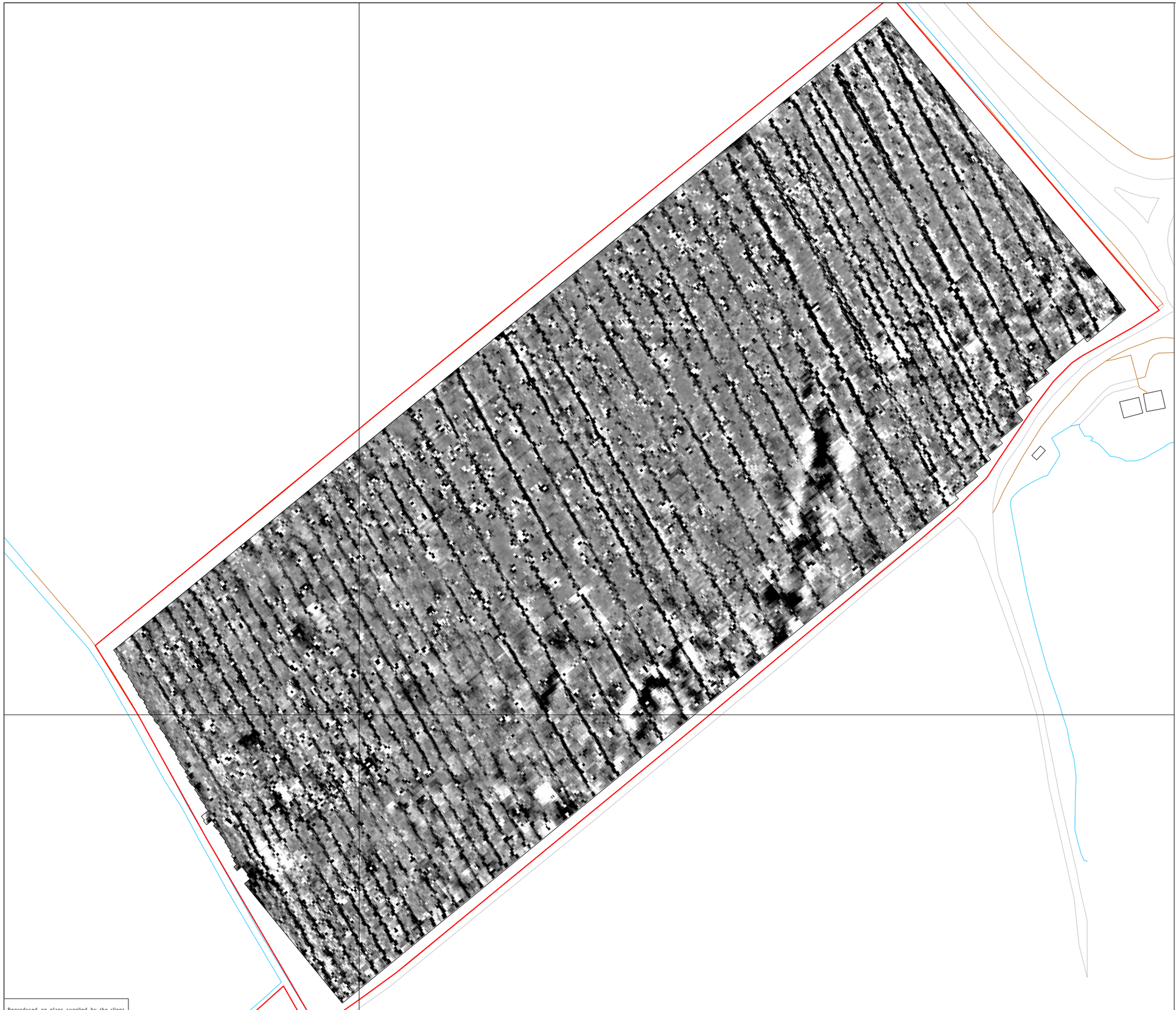
DATE: NOV 2013	AUTHOR: TPS	FIGURE: 04



Site Boundary

NGR: 541810 283280

REPORT NUMBER: 1042

PROJECT:
BIO-DIGESTER, IRETON'S WAY,
CHATTERIS, CAMBRIDGESHIRE

CLIENT:
CAMBRIDGE ARCHAEOLOGICAL UNIT
UNIVERSITY OF CAMBRIDGE

DESCRIPTION:
PROCESSED MAGNETOMETER
GREYSCALE PLOT, PHASE 1

BRITANNIA ARCHAEOLOGY LTD

115 OSPREY DRIVE, STOWMARKET, SUFFOLK
IP14 5UX
T: 01449 763034
E: info@britannia-archaeology.com
W: www.britannia-archaeology.com

SCALE: 1:1500

0 50m

PLOT:	APPROVED:	VERSION:
A3	MCA	01
DATE: NOV 2013	AUTHOR: TPS	FIGURE: 05

N

	Weak Positive Linear Anomaly, Archaeology?
	Weak Positive Discrete Anomaly, Archaeology?
	Weak Negative Linear Anomaly, Archaeology?
	Positive Linear Trend, Agricultural Field System
	Positive Linear Trend, Field Boundary
	Negative Linear Trend, Modern/Agricultural Service
	Isolated Dipolar Response
	Site Boundary

NGR: 541810 283280

REPORT NUMBER: 1042

PROJECT:
BIO-DIGESTER, IRETON'S WAY, CHATTERIS, CAMBRIDGESHIRE

CLIENT:
CAMBRIDGE ARCHAEOLOGICAL UNIT
UNIVERSITY OF CAMBRIDGE

DESCRIPTION:
INTERPRETATION PLOT OF MAGNETOMETER ANOMALIES, PHASE 1

BRITANNIA ARCHAEOLOGY LTD

115 OSPREY DRIVE, STOWMARKET, SUFFOLK
IP14 5UX
T: 01449 763034
E: info@britannia-archaeology.com
W: www.britannia-archaeology.com

SCALE: 1:1500

0 50m

PLOT:	APPROVED:	VERSION:
A3	MCA	01
DATE: NOV 2013	AUTHOR: TPS	FIGURE: 06

N

+8.46nT

-9.16nT

Site Boundary

NGR: 541810 283280

REPORT NUMBER: 1042

PROJECT:
BIO-DIGESTER, IRETON'S WAY,
CHATTERIS, CAMBRIDGESHIRE

CLIENT:
CAMBRIDGE ARCHAEOLOGICAL UNIT
UNIVERSITY OF CAMBRIDGE

DESCRIPTION:
RAW MAGNETOMETER
GREYSCALE PLOT, PHASE 2

BRITANNIA ARCHAEOLOGY LTD

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IP14 5UX
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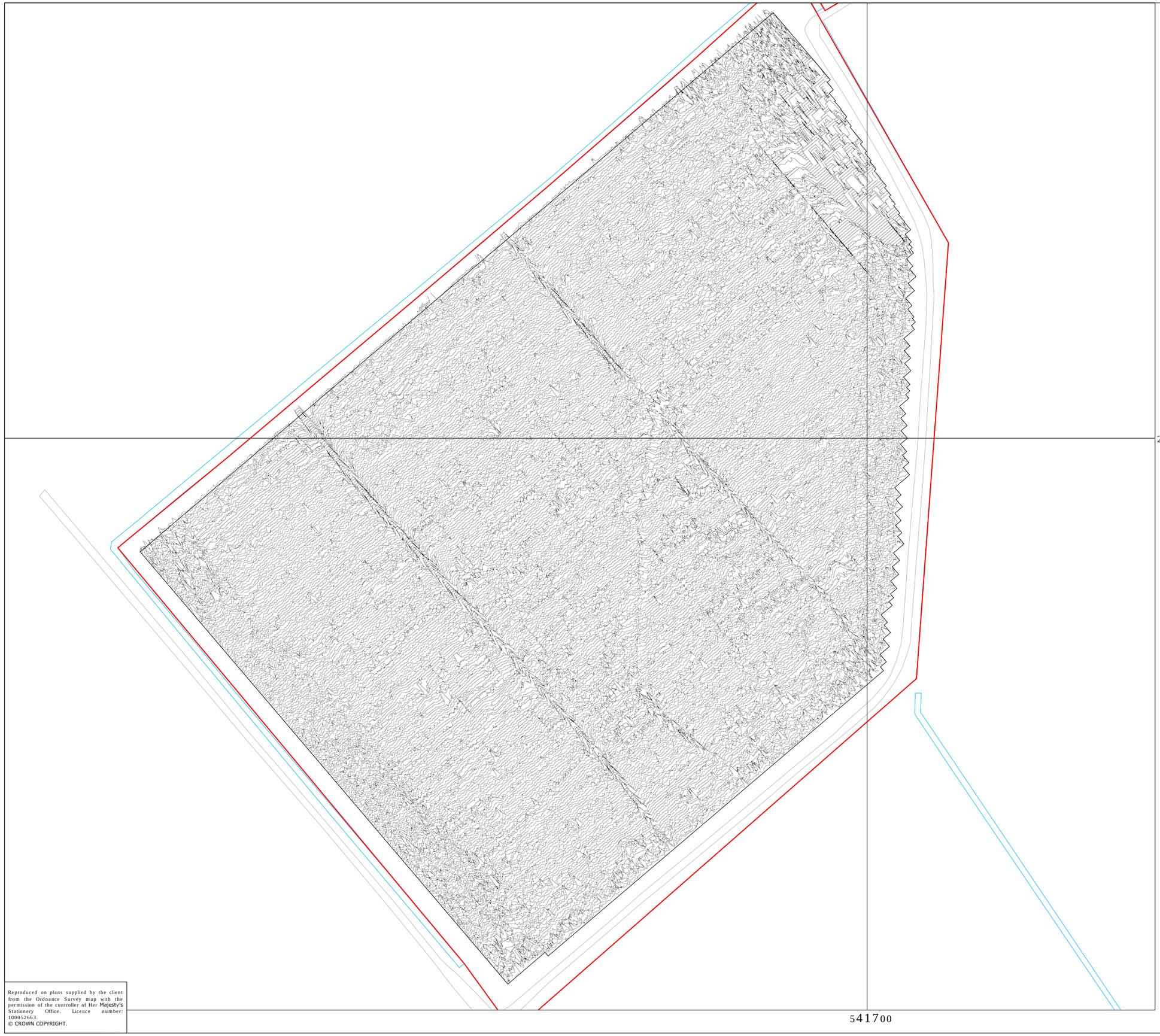
W: www.britannia-archaeology.com

SCALE: 1:1500

0 50m

PLOT:	APPROVED:	VERSION:
A3	MCA	01
DATE: NOV 2013	AUTHOR: TPS	FIGURE: 07



35 nT/cm	Scale Interval
	Site Boundary

NGR: 541810 283280

REPORT NUMBER: 1042

PROJECT:

BIO-DIGESTER, IRETON'S WAY, CHATTERIS, CAMBRIDGESHIRE

CLIENT:

CAMBRIDGE ARCHAEOLOGICAL UNIT
UNIVERSITY OF CAMBRIDGE

DESCRIPTION:

PROCESSED MAGNETOMETER XY TRACE PLOT, PHASE 2

BRITANNIA ARCHAEOLOGY LTD

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IP14 5UX
T: 01449 763034
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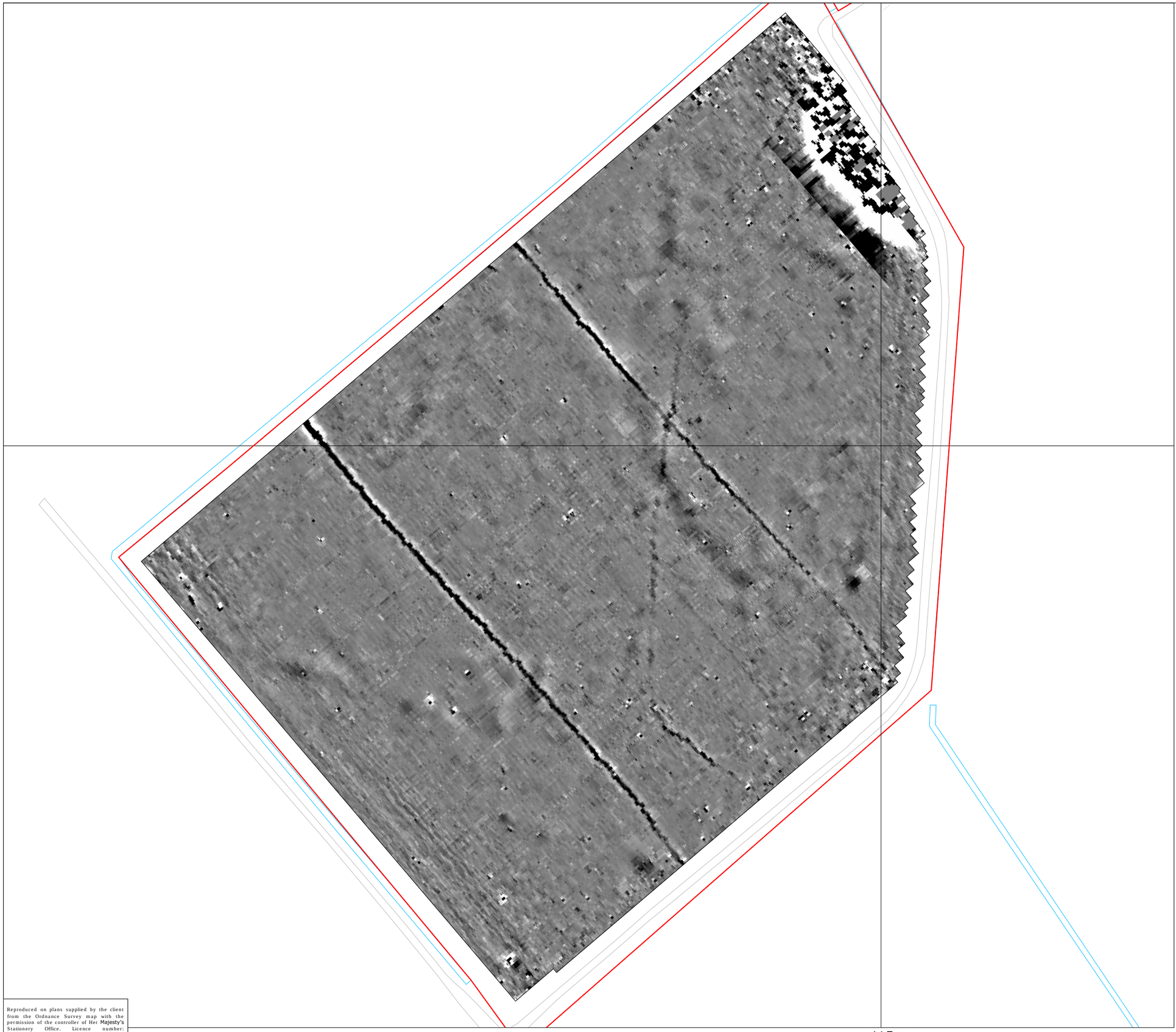
W: www.britannia-archaeology.com

SCALE: 1:1500

0 50m

PLOT:	APPROVED:	VERSION:
A3	MCA	01
DATE: NOV 2013	AUTHOR: TPS	FIGURE: 08



Site Boundary

NGR: 541810 283280

REPORT NUMBER: 1042

PROJECT:
BIO-DIGESTER, IRETON'S WAY, CHATTERIS, CAMBRIDGESHIRE

CLIENT:
CAMBRIDGE ARCHAEOLOGICAL UNIT
UNIVERSITY OF CAMBRIDGE

DESCRIPTION:
PROCESSED MAGNETOMETER GREYSCALE PLOT, PHASE 2

BRITANNIA ARCHAEOLOGY LTD
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IP14 5UX
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E: info@britannia-archaeology.com
W: www.britannia-archaeology.com

SCALE: 1:1500

0 50m

PLOT:	APPROVED:	VERSION:
A3	MCA	01
DATE: NOV 2013	AUTHOR: TPS	FIGURE: 09

N

	Weak Positive Linear Anomaly, Chatteris Parish Boundary?
	Weak Positive Linear Anomaly, Archaeology?
	Positive Discrete Anomaly, Archaeology?
	Weak Broad Diffuse Positive Anomaly, Geology?
	Weak Broad Diffuse Negative Anomaly, Geology?
	Positive Linear Trend, Agricultural Field System
	Area Of Magnetic Disturbance, Modern Quarry Pit?
	Isolated Dipolar Response
	Site Boundary

NGR: 541810 283280

REPORT NUMBER: 1042

PROJECT:
BIO-DIGESTER, IRETON'S WAY, CHATTERIS, CAMBRIDGESHIRE

CLIENT:
CAMBRIDGE ARCHAEOLOGICAL UNIT
UNIVERSITY OF CAMBRIDGE

DESCRIPTION:
INTERPRETATION PLOT OF MAGNETOMETER ANOMALIES, PHASE 2

BRITANNIA ARCHAEOLOGY LTD

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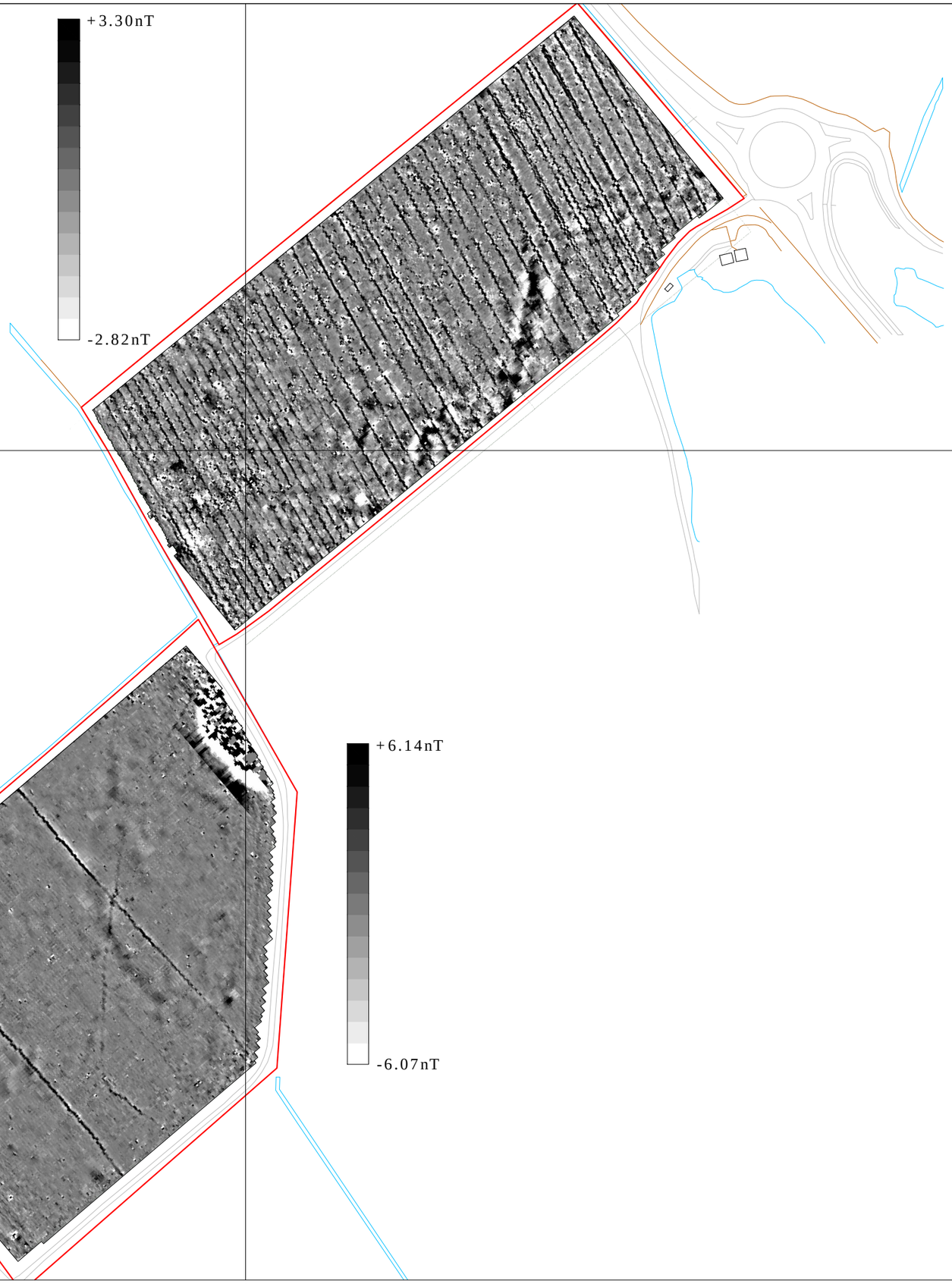
E: info@britannia-archaeology.com
W: www.britannia-archaeology.com

SCALE: 1:1500

0 50m

PLOT:	APPROVED:	VERSION:
A3	MCA	01
DATE:	AUTHOR:	FIGURE:
NOV 2013	TPS	10



N

Site Boundary

NGR: 541810 283280

REPORT NUMBER: 1042

PROJECT:
BIO-DIGESTER, IRETON'S WAY, CHATTERIS, CAMBRIDGESHIRE

CLIENT:
CAMBRIDGE ARCHAEOLOGICAL UNIT
UNIVERSITY OF CAMBRIDGE

DESCRIPTION:
PROCESSED MAGNETOMETER GREYSCALE PLOTS, PHASES 1 & 2

BRITANNIA ARCHAEOLOGY LTD
115 OSPREY DRIVE, STOWMARKET, SUFFOLK
IP14 5UX
T: 01449 763034
E: info@britannia-archaeology.com
W: www.britannia-archaeology.com

SCALE: 1:3000

0 100m

PLOT:	APPROVED:	VERSION:
A3	MCA	01
DATE: NOV 2013	AUTHOR: TPS	FIGURE: 11