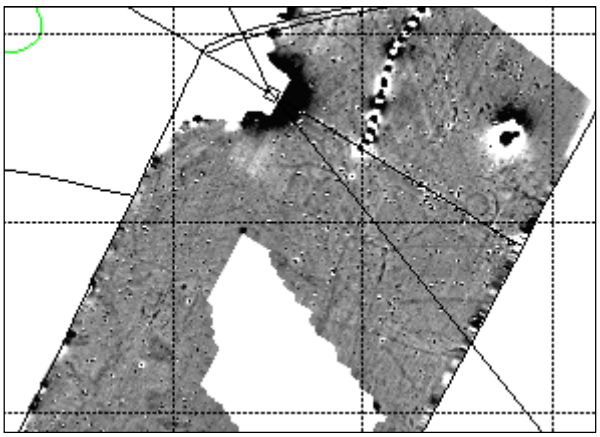

Archaeological geophysical survey of land east of Salop Leisure, Atcham Shrewsbury, Shropshire June 2016

Accession No. E.01014

Report No: 16/117

Authors: John Walford
Ian Fisher

Illustrator: John Walford

MOLA
MUSEUM OF LONDON ARCHAEOLOGY

REGISTERED ORGANISATION CIfA

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NGR: SJ 523 101

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Quality control and sign off**:**

Issue No.	Date approved:	Checked by:	Verified by:	Approved by:	Reason for Issue:
1	06/07/2016	-	Rob Atkins	Mark Holmes	Client approval
2	15/07/2016	-	-	-	Added postscript to conclusion

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OASIS REPORT

PROJECT DETAILS	**Oasis No. molanort1-256646**	
Project name	Archaeological geophysical survey of land east of Salop Leisure, Atcham, Shrewsbury, Shropshire	
Short description	MOLA were commissioned to undertake a magnetometer survey of *c* 8.5ha of pasture land to the east of Salop Leisure Ltd, Atcham, Shrewsbury. The survey detected anomalies relating to a probable prehistoric ring ditch, an Iron Age or Roman ditched enclosure, other ditches, medieval ridge and furrow cultivation and geological features.	
Project type	Geophysical survey	
Site status	None	
Previous work	None	
Current Land use	Pasture	
Future work	Trial trench evaluation	
Monument type/ period	Late Neolithic / early Bronze Age ring ditch Iron Age / Roman enclosure Medieval ridge & furrow Undated ditches	
Significant finds	None	
PROJECT LOCATION		
County	Shropshire	
Site address	Salop Leisure Ltd, Atcham, Shrewsbury	
Study area	*c* 8.5ha	
OS Easting & Northing	SJ 523 101	
Height OD	*c* 55m - 65m aOD	
PROJECT CREATORS		
Organisation	MOLA Northampton	
Project brief originator	Shropshire Council Historic Environment Archaeology Service	
Project design originator	MOLA Northampton	
Director/Supervisor	Graham Arkley	
Project Manager	John Walford	
Sponsor or funding body	EDP, on behalf of Salop Leisure Ltd.	
PROJECT DATE		
Start date	31 May 2016	
End date	03 June 2016	
ARCHIVES	Location	Content
Physical	N/A	
Paper	MOLA Northampton. E.01014	Site survey records
Digital		Geophysical survey & GIS data
BIBLIOGRAPHY	Journal/monograph, published or forthcoming, or unpublished client report	
Title	Archaeological geophysical survey of land east of Salop Leisure Ltd, Atcham, Shrewsbury, Shropshire, June 2016	
Serial title & volume	MOLA Northampton Reports 16/117	
Author(s)	John Walford and Ian Fisher	
Page numbers	4	
Date	06 July 2016	

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Archaeological geophysical survey of land east of Salop Leisure Ltd, Atcham, Shrewsbury, Shropshire June 2016

ABSTRACT

MOLA were commissioned to undertake a magnetometer survey of c 8.5ha of pasture land to the east of Salop Leisure Ltd, Atcham, Shrewsbury. The survey detected anomalies relating to a probable prehistoric ring ditch, an Iron Age or Roman ditched enclosure, other ditches, medieval ridge and furrow cultivation and geological features.

1 INTRODUCTION

MOLA (Museum of London Archaeology) was commissioned by EDP, on behalf of Salop Leisure Ltd, to conduct a magnetometer survey on a proposed development site east of Salop Leisure Ltd, Atcham, Shrewsbury, Shropshire (NGR SJ 523 101; Fig 1). The purpose of the survey was to investigate the presence, layout and extent of any archaeological features which may be affected by the proposed development. The survey was undertaken between the 31st May and 3rd June 2016 and has been recorded with Shropshire Council Historic Environment Archaeology Service under accession number E.01014.

2 BACKGROUND

2.1 Topography and geology

The proposed development area comprises a single pasture field located on the south-eastern edge of Shrewsbury close to the hamlet of Emstrey. It is bounded to the north by the B4380, to the north-west by Salop Leisure Ltd and by farmland on all other sides. Approximately 8.5ha of the field was surveyed, excluding an area to the north and a smaller central area which are proposed to remain as undeveloped open space within the development (Fig 1).

The surface of the field slopes north-eastwards towards the River Severn, dropping from *c* 65m to *c* 55m aOD. The slope is not an even one, and there is a distinct plateau at the southern end of the field, with an initial steep slope down then a more gradual slope further to the north.

The solid geology of the survey area is mapped as Bridgenorth Sandstone and Salop formation Mudstone. These rocks are capped by deposits of glacial till and river terrace gravel (BGS 2016).

2.2 Historical and archaeological background

The archaeological background to the project has been briefly summarised as follows by Andy Wigley of the Shropshire Council Historic Environment Archaeology Service.

"A series of cropmarks immediately north of the proposed development site (HER PRN 02495) were evaluated in 2009 prior to the extension of the Salop Leisure site. In the event, these were determined to be either non-archaeological or of recent agricultural origin. There are, however, a number of other cropmark features within the wider vicinity of the site which are thought to represent archaeological features. These include a cropmark ring-ditch (HER PRN 04483) of likely Early Bronze Age date *c* 250m to the west, and a rectilinear cropmark enclosure of likely Iron Age to Roman date *c* 290m to the south. Given the extent of the proposed development site, it is therefore possible that currently unknown archaeological features and deposits of prehistoric or Roman date may be present on it. It is therefore considered to have moderate-high archaeological potential".

3 METHODOLOGY

The survey was undertaken with the MOLA magnetometer cart. This is a two-wheeled, lightweight structure designed to be pushed by hand. It incorporates a bank of six vertically-mounted Bartington Grad601 magnetic sensor tubes, spaced at half-meter intervals along a bar aligned crossways to the direction of travel, and also incorporates a Leica Geosystems Viva GPS antenna mounted on the central axis, 0.5m astern of the sensors. The magnetic sensors each output data at a rate of six readings per second and the GPS antenna outputs NMEA format data (GGA messages) at a rate of one position every second. These various data streams are fed into a laptop computer where they are compiled into a single raw data file by MultiGrad601 logging software specifically designed for that purpose.

The cart was pushed along straight and parallel traverses across the survey area, with data logging being manually toggled on and off at the start and end of each traverse to avoid the collection of spurious data whilst turning. Traverse ends were marked with ranging poles to aid even coverage, and the evenness of coverage was further checked by monitoring the positional trace plotted in real time by the MultiGrad601 logging software. The average speed of coverage was *c* 1.5m/s and the effective data resolution thus approximated to 0.25m x 0.50m.

The raw survey data was initially processed with MLGrad601 software, which calculated an actual UTM co-ordinate for each data point by interpolating the GPS readings and applying offset corrections based on the array geometry and calculated heading direction. This produced an output file in XYZ format which could be imported into TerraSurveyor software for data visualisation and further processing.

The raw XYZ data exhibited striping caused by slight mis-matches in the calibration of the individual magnetic sensors. This was removed in TerraSurveyor by applying the median destripe function to runs of data from each sensor. The data thus de-striped was interpolated to produce a greyscale raster image (range +/-5nT) and this was output with an associated world file for geo-rectification.

The processed data is presented in this report as a greyscale plot (range +5nT to -5nT / black to white), rotated and scaled for display against the Ordnance Survey base mapping (Fig 2). An interpretative plot is provided as Figure 3 and a plot of the unprocessed data as Figure 4.

4 SURVEY RESULTS

The survey has detected a variety of archaeological features including a probable prehistoric ring ditch, a probable Iron Age or Roman enclosure and various other ditches and possible enclosures widely dispersed across the survey area. Some anomalies of natural and modern origin have also been detected.

The ring ditch is represented by a positive magnetic anomaly of penannular form located in the north-eastern part of the survey area. This is *c* 11m in diameter and appears to possess a south-facing entrance gap. A curvilinear anomaly of similar magnetic character lies concentrically around the eastern side and may represent part of an outer ditch circuit. Possible interpretations of this feature might include a ceremonial / funerary monument such as a small henge or round barrow or, less probably, a roundhouse.

A network of positive linear anomalies, representing ditches, occurs south and west of the ring ditch. Four of these define a sub-rectangular enclosure measuring *c* 45m by 20m, from which other ditches radiate eastwards. Further ditches lie to the north-west. Small rectangular enclosures can sometimes be Neolithic in date, but in this case the pattern of associated linear ditches would be more suggestive of a late prehistoric or Roman field system.

Midway down the western side of the survey area there is a set of rectilinear anomalies which are somewhat disjointed but perhaps indicate elements of another enclosure. A small positive anomaly in the same area may represent a pit.

In the south-western corner of the survey area a set of positive linear anomalies define an irregular enclosure *c* 35m across. The northern half of the enclosure is clearly defined and almost rectangular in form, whereas the southern side is defined by a very weak, slightly curving anomaly. An indented entrance gap occurs in the western side of the enclosure ditch and there may be another gap in the south-eastern corner. The overall size and form of the enclosure would be consistent with an Iron Age or Roman date.

A number of small anomalies within the enclosure may indicate the presence of pits and other internal features, but could also be attributed to a geological cause (see below).

Various linear anomalies in the southern half of the survey area probably represent elements of a field system, perhaps of late prehistoric or Roman date. They show a coherent organisation, with parallel and right-angled elements apparent.

Very subtle, evenly spaced parallel linear trends in the north-west of the survey area appear to represent the former furrows of medieval to early post-medieval ridge and furrow cultivation. Two directions can be discerned, one aligned north-north-west to south-south-east and the other west-south-west to east-north-east. Similar trends further to the south are aligned parallel to the direction of survey traverse and it is thought that these are merely residual data artefacts that were not completely removed by the de-striping process.

A recently removed field boundary (indicated on the OS base-mapping) ran across the northern end of the survey area. The line of this is marked by a linear scatter of small magnetic dipoles arising from pieces of fencing wire or other ferrous scrap that accumulated along its length.

Two types of geological anomaly have been detected. There are some large amorphous positive anomalies, often with diffuse negative halos, and there is also an expanse of small, densely clustered, amorphous positive anomalies at the southern end of the site.

The latter resemble the typical magnetic response from pits, but their quantity and extent makes it far more likely that they represent small-scale mineralogical variations in the natural gravel.

Two modern pipelines have been detected. One is represented by an intense positive linear anomaly with a negative halo which crosses the centre of the survey area from west to east. The other is represented by an intense linear anomaly of alternating polarity which runs southwards through the northern part of the survey area and terminates against the former field boundary.

Towards the north-eastern corner of the survey area there is a massive dipolar anomaly representing very substantial piece of buried iron. Other dipoles at the southern end of the area represent a concentration of ferrous debris, perhaps incorporated in an area of made ground. The smaller dipoles randomly distributed elsewhere across the survey area probably represent insignificant pieces of ferrous debris within the topsoil.

A large positive magnetic halo surrounds the electricity pylon at the north-western edge of the site, and will have masked any more subtle anomalies that may be present in this area. Much smaller halos occur around the edges of the survey area, arising from the adjacent fences.

5 CONCLUSION

The survey has detected various features of archaeological interest including a probable prehistoric ring ditch, ditched enclosures and field systems of possible prehistoric or Roman date and medieval ridge and furrow cultivation. These are represented by anomalies that are generally distinct, although weak in places, and which can be interpreted with a moderately high degree of confidence.

Postscript (15 July 2016)

It should be noted that a subsequent trial trench evaluation of the survey area, undertaken by MOLA in July 2016, could not locate any of the archaeological features indicated by this geophysical survey despite careful examination. The reasons for this puzzling conflict between the clear results of the geophysics and the equally emphatic conclusions of the trial trenching have yet to be established.

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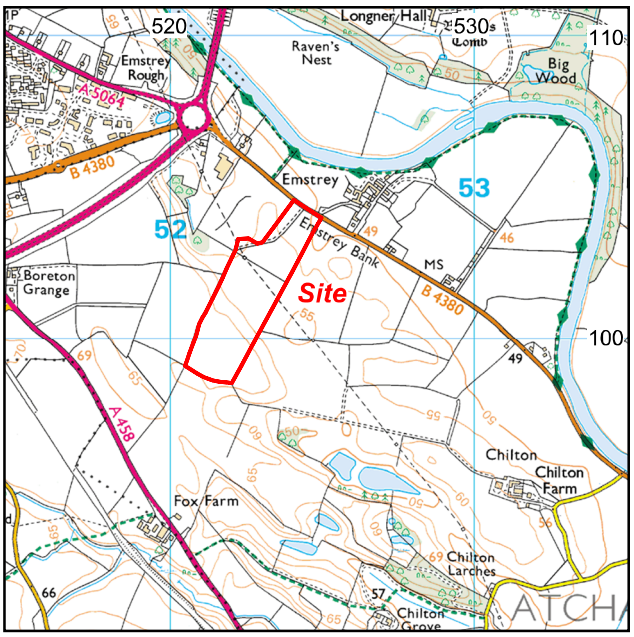
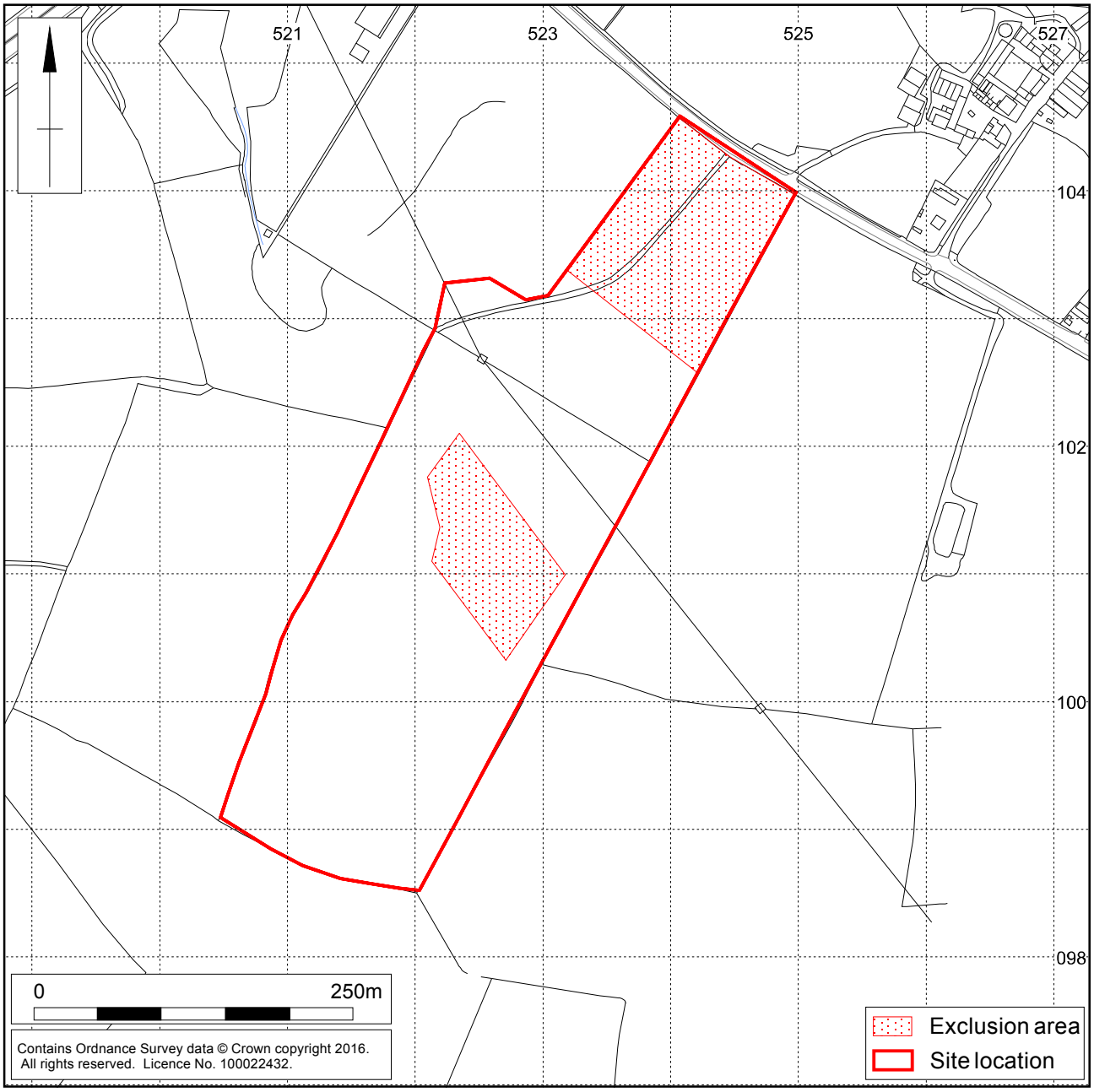
MOLA
06 July 2016





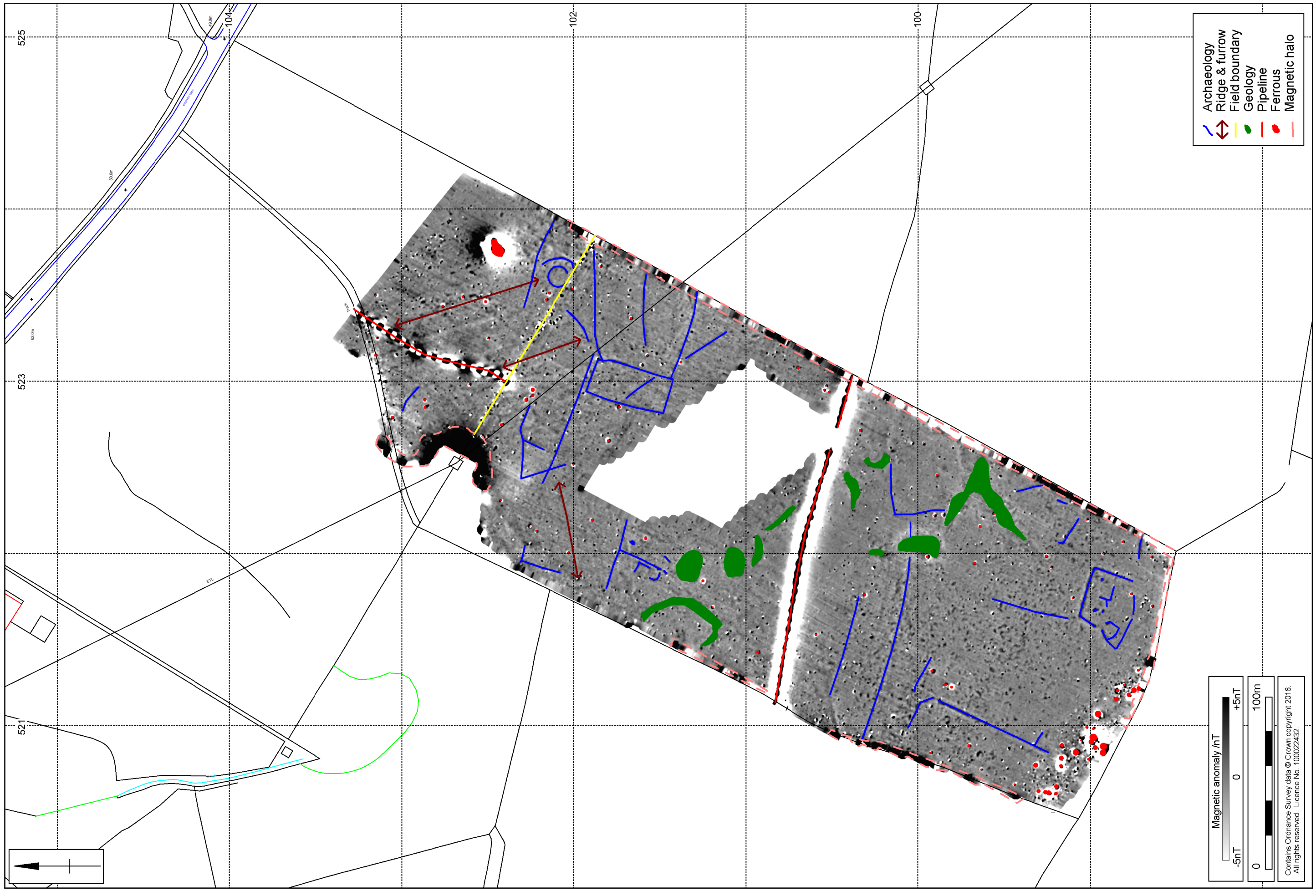
Scale 1:5000

Site location Fig 1

525
523
521
104
102
100
098
50.0m
52.0m
49.9m
Upper Farm
Track
ETL
Magnetic anomaly /nT
+5nT
0
-5nT
100m
0

Scale 1:2000 (A3)

Magnetometer survey results Fig 2



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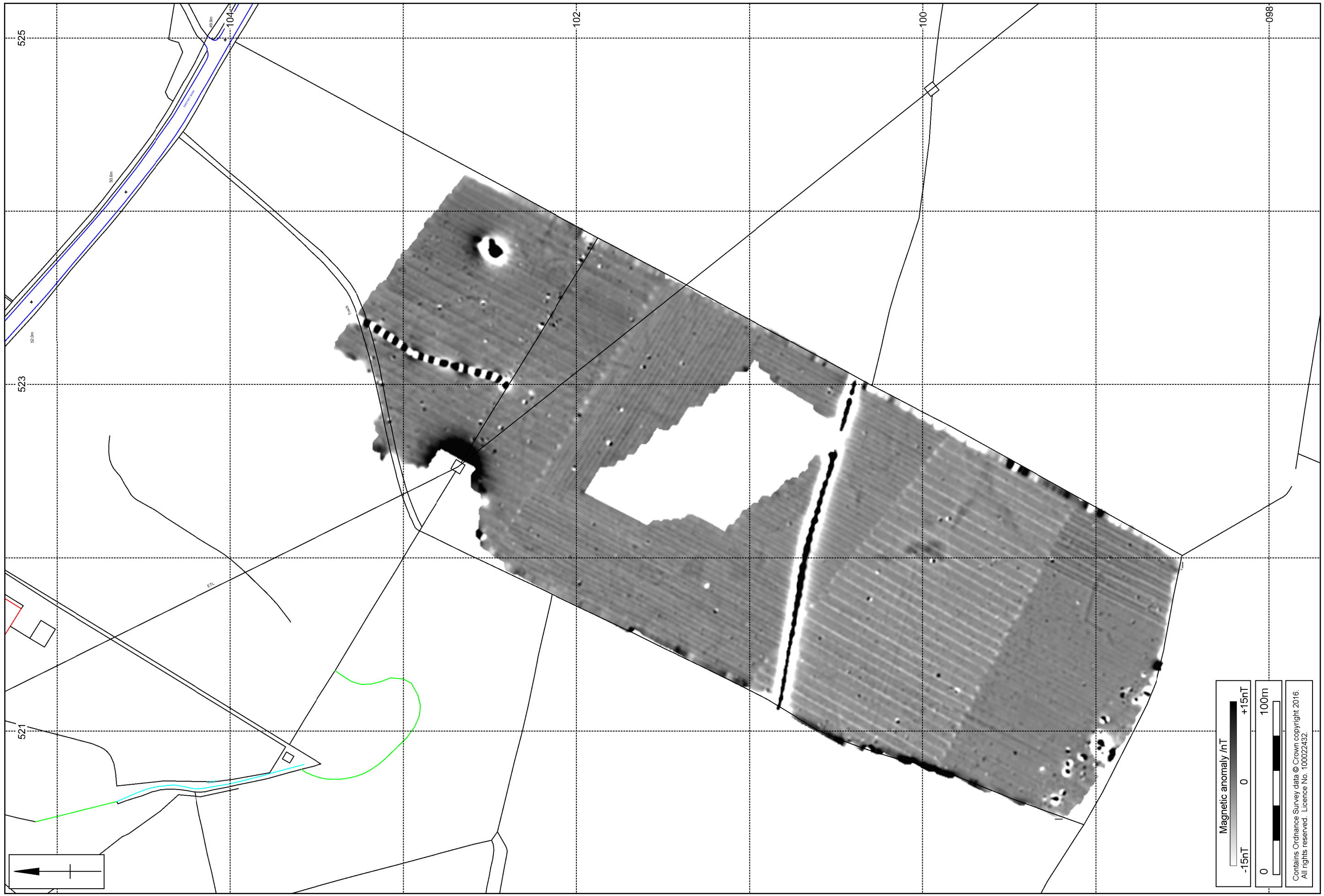
Magnetometer survey interpretation Fig 3



Scale 1:2000 (A3)

Unprocessed magnetometer data Fig 4

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