

# Archaeological geophysical survey at Hall Farm Grendon, Northamptonshire September 2017

Event number: ENN108823

Report No: 17/114

Authors: John Walford  
Graham Arkley

Illustrator: John Walford





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**OASIS REPORT**

PROJECT DETAILS		<b>Oasis No. molanort1-296346</b>	
Project name	Archaeological geophysical survey at Hall Farm, Grendon, Northamptonshire		
Short description	MOLA (Museum of London Archaeology) was commissioned to undertake an archaeological geophysical survey of c 8ha of land at Hall Farm, Grendon, Northamptonshire. The survey identified medieval to early post-medieval ridge and furrow cultivation extending across almost the entire site. No other definite archaeological remains were detected, although a few anomalies at the south-eastern corner of the site could possibly be interpreted as pits and a short length of ditch.		
Project type	Geophysical survey		
Site status	None		
Previous work	None known		
Current land use	Arable		
Future work	Not known		
Monument type/ period	Medieval ridge and furrow		
Significant finds	None		
PROJECT LOCATION			
County	Northamptonshire		
Site address	Hall Farm, Grendon		
Study area	c 8ha		
OS Easting & Northing	SP 875 613		
Height OD	c 49 - 52m aOD		
PROJECT CREATORS			
Organisation	MOLA		
Project brief originator	Statera Energy Ltd		
Project design originator	MOLA		
Director/Supervisor	Graham Arkley		
Project Manager	John Walford		
Sponsor or funding body	Statera Energy Ltd		
PROJECT DATE			
Start date	11th September 2017		
End date	12th September 2017		
ARCHIVES			
Physical	Location	Content	
Paper	MOLA Northampton	Site survey records	
Digital		Geophysical survey & GIS data	
BIBLIOGRAPHY			
Title	Journal/monograph, published or forthcoming, or unpublished client report		
Title	Archaeological geophysical survey at Hall Farm, Grendon, Northamptonshire, September 2017		
Serial title & volume	MOLA Northampton Reports 17/114		
Author(s)	John Walford and Graham Arkley		
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# Archaeological geophysical survey at Hall Farm, Grendon, Northamptonshire September 2017

## ABSTRACT

*MOLA (Museum of London Archaeology) was commissioned to undertake an archaeological geophysical survey of c 8ha of land at Hall Farm, Grendon, Northamptonshire. The survey identified medieval to early post-medieval ridge and furrow cultivation extending across almost the entire site. No other definite archaeological remains were detected, although a few anomalies at the south-eastern corner of the site could possibly be interpreted as pits and a short length of ditch.*

## 1 INTRODUCTION

MOLA (Museum of London Archaeology) was commissioned by Statera Energy Limited to undertake an archaeological geophysical survey on land at Hall Farm, Grendon, Northamptonshire (NGR SP 875 613; Fig 1). The purpose of the survey was to investigate whether the proposed development of two 49.99 MW Battery Storage Facilities would impact upon any features of archaeological interest.

The survey took place over the 11th and 12th September 2017 and was conducted in a manner which conformed to ClfA and Historic England guidelines for geophysical survey (ClfA 2014, EH 2008). The Northamptonshire Historic Environment Record was notified of the work and has recorded it under Event Number ENN108823.

## 2 BACKGROUND

### 2.1 Topography and geology

The survey area comprises a single arable field at Hall Farm, located c 500m due east of the existing Grendon electricity substation and 1km north-west of Grendon village centre. The western edge of the field is bounded by a small stream fed by Grendon Lakes to the north of site. The proposed storage facilities are planned to be constructed to the south end of the surveyed area, on high ground above the stream's potential floodplain.

The surface of the survey area rises from c 49m aOD along the stream edge to 52m aOD in the north-eastern corner. A curving but generally north-south break of slope bisects the site, with the eastern portion smoothly and gently sloping from north to south. To the west of this divide is an abrupt step down to the valley floor.

The British Geological Survey specifies the bedrock of the survey area to be of Jurassic era Whitby mudstone (formerly referred to as Upper Lias). In the west of the site the bedrock is overlain by alluvium from the adjacent stream, and in the east it is overlain by and Grendon member (Second terrace) river gravels (BGS 2017).

## 2.2 Historical and archaeological background

Whilst no archaeological finds or features have been previously recorded within the survey area, there is abundant evidence for prehistoric, Roman, Saxon and medieval activity throughout the surrounding landscape. Many features, including ring ditches, enclosures and pit alignments, have been identified from cropmarks and a number of excavations have been conducted to investigate these remains prior to their destruction by gravel quarrying.

Approximately 200m north-west of the survey area there were extensive archaeological remains in the area now occupied by Grendon Lakes. These included a Neolithic mortuary enclosure, Bronze Age round barrows, Iron Age enclosures, a Roman trackway and Roman kilns (Gibson & McCormick 1985, Jackson 1995). Another complex of remains lay c 800m to the north of the survey area: this similarly contained ring ditches and enclosures of broadly prehistoric to Roman date, but also contained Iron Age pit alignments, a system of Roman 'lazy bed' cultivation trenches and an area of Saxon settlement with sunken-floored buildings (Jackson 1995). Further cropmarks, also indicating prehistoric to Roman remains, occur c 500m north-east of the survey area (RCHME 1979, fig 53).

The site of an abandoned medieval hamlet, Cotton, is thought to lie almost immediately south-east of the survey area. There is some documentary evidence for the site, but the main evidence comprises a set of earthworks (now levelled by ploughing) and a surface scatter of medieval pottery and possible building rubble (RCHME 1979, 55).

Historic Ordnance Survey maps of the survey area show that it has changed little since the First Edition map was published in 1885. One field boundary that divided off the south-western part of the area was removed prior to 1900, and the stream along the western edge of the area was canalised sometime between 1900 and 1952.

## 3 METHODOLOGY

This survey was conducted with a Bartington Instruments magnetometer cart, which 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-metre 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, 1.02m 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 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 mismatches in the calibration of the individual magnetic sensors. This was removed in TerraSurveyor by applying the median de-stripe function to runs of data from each sensor. Once processed the magnetometer data collected during the survey was displayed as a greyscale raster plot (range +5nT to -5nT / black to white) which has been rotated and scaled for display against Ordnance Survey Master Map base mapping (Fig 2). An interpretative overlay is presented in Figure 3 and a plot of the unprocessed survey data is presented in Figure 4.

## **4 SURVEY RESULTS**

The only definite archaeological features detected by the survey are remnants of medieval to early post-medieval ridge and furrow cultivation, represented by a series of parallel linear anomalies aligned from south-east to north-west across almost the entire survey area. Apart from these there is a small group of positive anomalies in the south-eastern corner of the area which could have either an archaeological or natural origin.

The southern anomalies comprise one short positive linear anomaly aligned perpendicular to the ridge and furrow, with two weaker linear anomalies to its west and a scatter of small positive anomalies to its east. Whilst it would be plausible to interpret these as representing pits and sections of ditch, possibly associated with the adjacent medieval site of Cotton, the evidence is too slight and tenuous for this to be a firm conclusion. Furthermore, anomalies of this general form and appearance can sometimes be the result of minor geological features, such as pockets of magnetically enhanced iron minerals.

The western edge of the survey data has a smooth, magnetically subdued appearance which is characteristic of alluvial soils. In this same area there is a large and irregular positive anomaly, c 15m across, which probably indicates part of an abandoned and silted meander of the adjacent stream channel. A much larger geological anomaly which occurs in the south-west of the survey area cannot be attributed to any specific cause.

Small but intense magnetic anomalies, typically dipolar in nature, are abundant throughout the dataset, giving it a very 'noisy' appearance. Such widespread magnetic noise is characteristic of fields that have been manured with 'green waste' (modern composted refuse that is often contaminated with small pieces of ferrous debris). In extreme cases the sheer number of anomalies arising from the ferrous debris can render a magnetic dataset unintelligible, but in this case the effect is quite mild and has not hindered the interpretation of the data in any significant way.

At the eastern edge of the survey area there is a large positive magnetic halo, caused by and extending out from an electricity pylon. A smaller magnetic halo, also of modern origin, is present in the north-eastern corner of the field.

## **5 CONCLUSION**

The only definite archaeological remains mapped by the survey are traces of medieval to early medieval ridge and furrow cultivation. However some small and poorly-diagnostic magnetic anomalies at the south-eastern corner of the survey area possibly represent other archaeological features, perhaps associated with the nearby medieval hamlet of Cotton.

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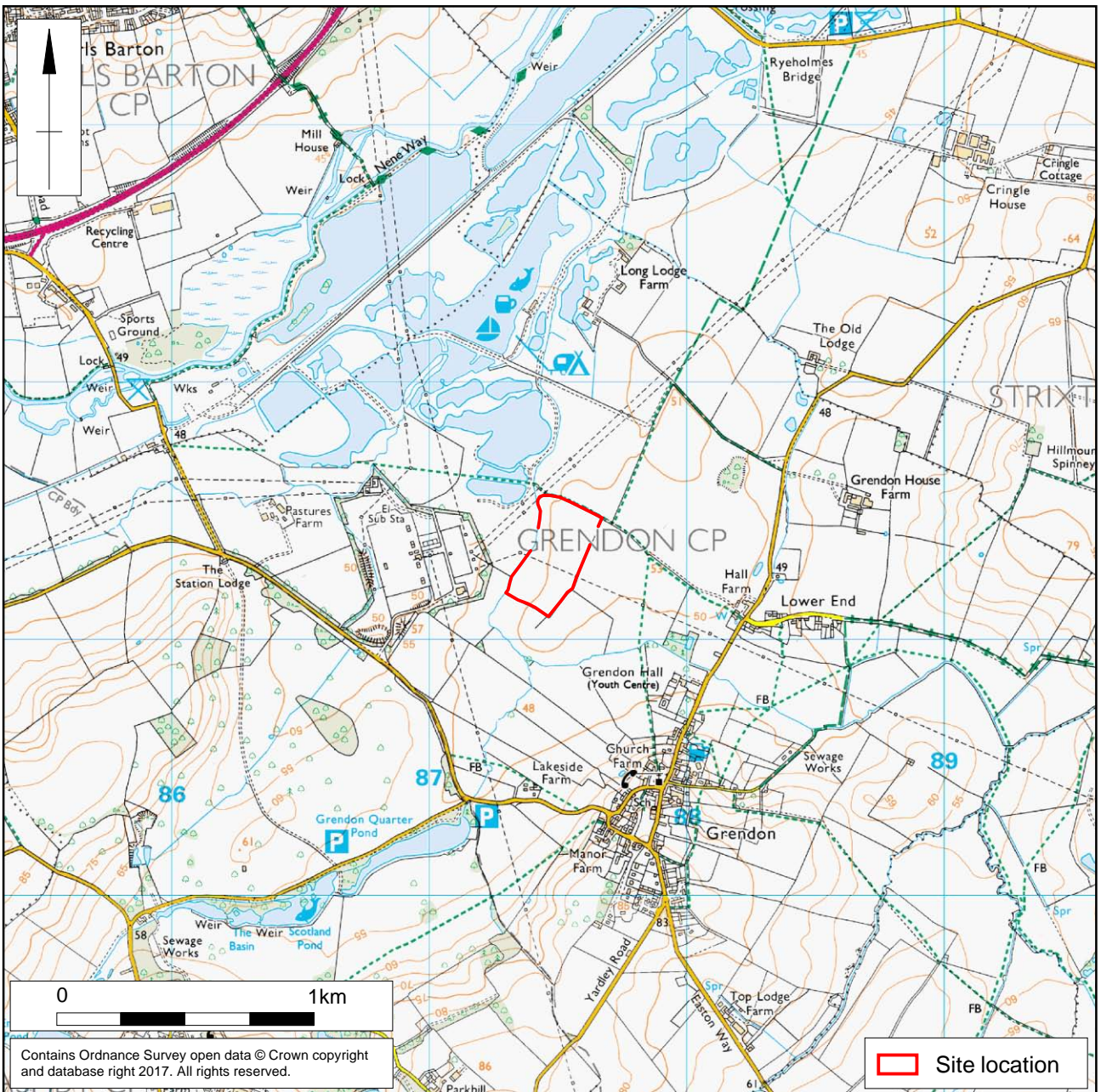
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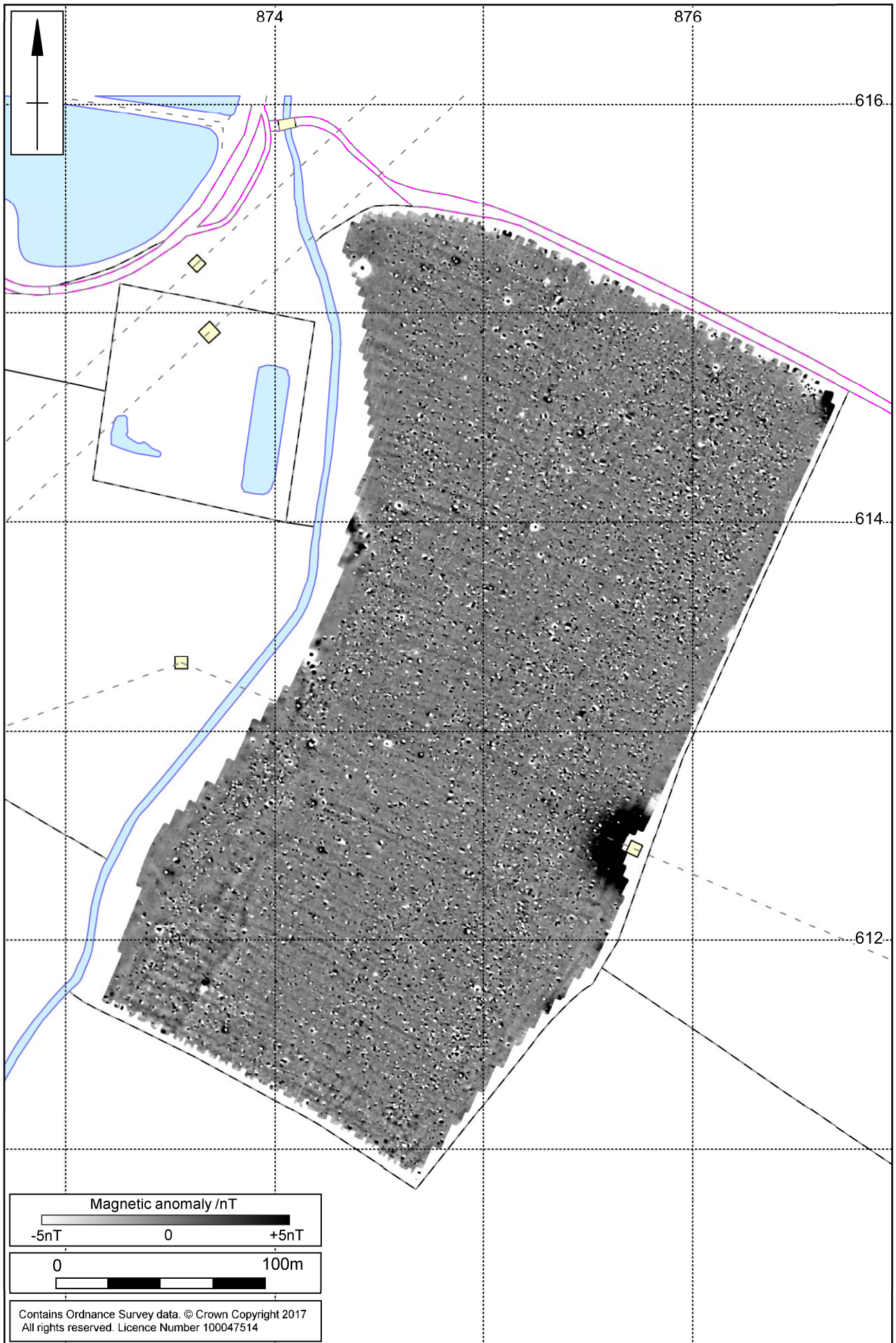
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Scale 1:25,000

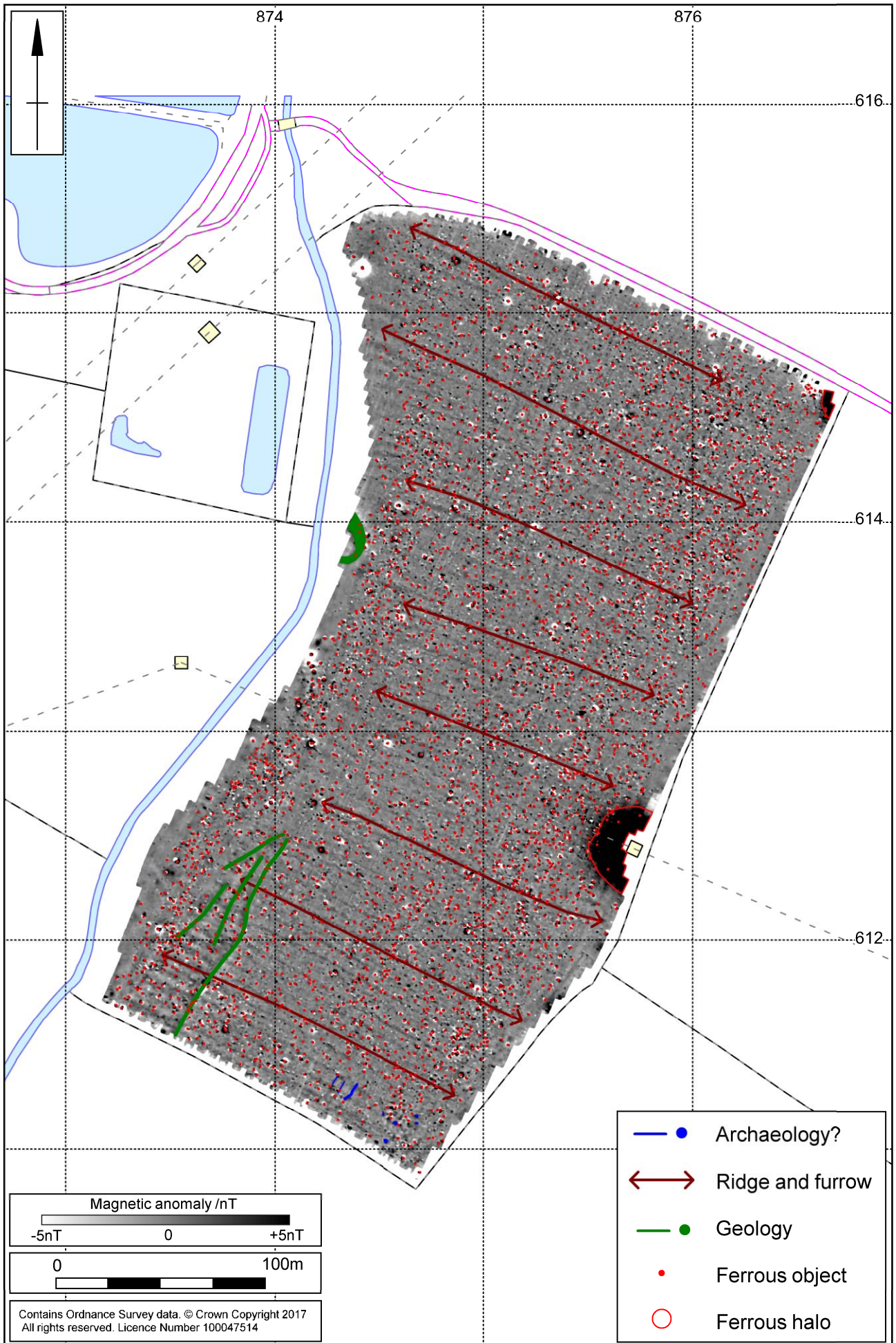
Site location Fig 1





1:2500

Magnetometer survey results Fig 2



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Magnetometer survey interpretation Fig 3





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Unprocessed magnetometer data Fig 4



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