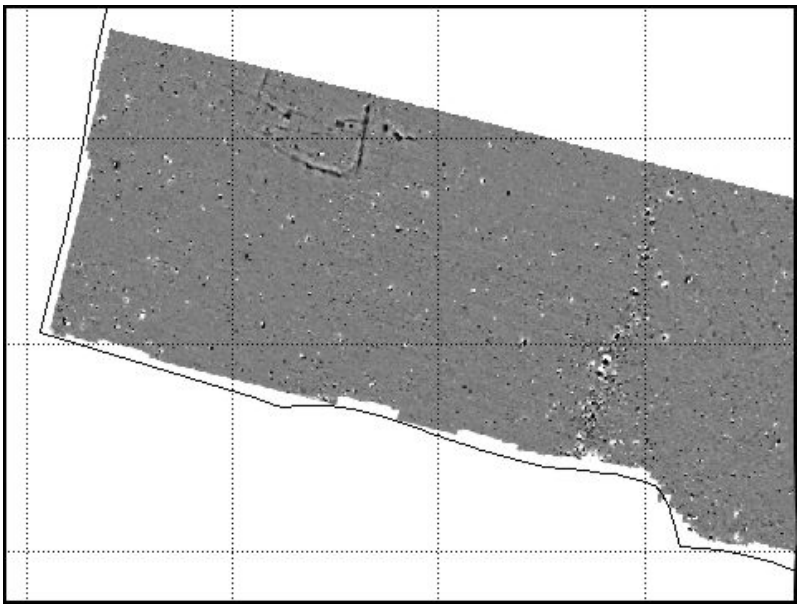

Archaeological geophysical survey of a proposed solar park at Grange Farm, Moreton Morrell Warwickshire
July 2014

Report No. 14/167

Author: John Walford

Illustrator: John Walford

Project Manager: John Walford
NGR: SP 322 570

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Quality control and sign off**:**

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2	02/09/14	Pat Chapman	Mark Holmes	Andy Chapman	Client approval

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OASIS REPORT

PROJECT DETAILS	Oasis No. molanort1-188863	
Project name	Archaeological geophysical survey of a proposed solar park at Grange Farm, Moreton Morrell, Warwickshire	
Short description	MOLA was commissioned to carry out a detailed magnetometer survey of the proposed site of a solar farm at Grange Farm, Moreton Morrell, Warwickshire. The survey identified part of a ditched enclosure of probable Iron Age or Roman date. Some linear features of uncertain nature were also detected.	
Project type	Geophysical survey	
Site status	None	
Previous work	Desk-based assessment (Smith 2014)	
Current Land use	Arable	
Future work	Unknown	
Monument type/ period	Iron Age or Roman enclosure, undated linear features	
Significant finds	None	
PROJECT LOCATION		
County	Warwickshire	
Site address	Grange Farm, Moreton Morrell	
Study area	*c* 38ha	
OS Easting & Northing	SP 322 570	
Height OD	*c* 60-85m aOD	
PROJECT CREATORS		
Organisation	MOLA Northampton	
Project brief originator	Anna Stocks, Warwickshire County Council	
Project design originator	MOLA Northampton	
Director/Supervisor	Ian Fisher	
Project Manager	John Walford	
Sponsor or funding body	CgMs Consulting	
PROJECT DATE		
Start date	24 July 2014	
End date	1 August 2014	
ARCHIVES	Location	Content
Physical	N/A	
Paper	MOLA Northampton	Site survey records
Digital		Geophysical survey & GIS data
BIBLIOGRAPHY	Journal/monograph, published or forthcoming, or unpublished client report	
Title	Archaeological geophysical survey of a proposed solar park at Grange Farm, Moreton Morrell, Warwickshire, July 2014	
Serial title & volume	MOLA Northampton Reports 14/167	
Author(s)	John Walford	
Page numbers	4	
Date	02 September 2014	

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ABSTRACT

MOLA was commissioned to carry out a detailed magnetometer survey of the proposed site of a solar farm at Grange Farm, Moreton Morrell, Warwickshire. The survey identified part of a ditched enclosure of probable Iron Age or Roman date. Some linear features of uncertain nature were also detected.

1 INTRODUCTION

MOLA was commissioned by CgMs Consulting to undertake a detailed magnetometer survey on *c*38ha of land to the north-east of Grange Farm, Moreton Morrell, Warwickshire (NGR SP 322 570; Fig 1). The purpose of the survey was to contribute towards an assessment of the archaeological impacts of a proposed solar park development. The fieldwork was undertaken from 24th July to 1st August 2014.

2 BACKGROUND

2.1 Location and geology

The proposed development area comprises two discrete blocks of arable land, the northern one *c* 29ha in extent and the southern *c* 9ha (Fig 1). They both lie to the north-east of Grange Farm and to the west of the B4455 Fosse Way. In between the two blocks is a strip of land *c*130m wide which does not form part of the proposed development area.

The majority of the survey area lies on a very gentle west-facing slope between the 60m and 65m contours, but the north-eastern corner rises up more abruptly to an elevation of *c* 85m aOD. The underlying geology is mapped as Mercia Mudstone capped by a layer of river terrace gravels (BGS 2014). The earliest available map of the site, dating from 1767, depicts a stream meandering across the northern part of the area, and also depicts a small pond or pool (Smith 2014, fig 3). Neither of these features is now extant.

2.2 Historical and archaeological background

An archaeological desk-based assessment of the survey area (Smith 2014) identified no known archaeological remains within its boundaries, but noted that a Roman road, the Fosse Way, defines its eastern edge. No other remains of direct relevance were located in the near vicinity, and a study of historic mapping suggested that the site has been in arable use for at least the last three centuries.

3 METHODOLOGY

The magnetometer survey was conducted with Bartington Grad 601-2, twin sensor array, vertical component fluxgate gradiometers (Bartington and Chapman 2003). These are standard instruments for archaeological survey and can resolve magnetic variations as slight as 0.1 nanoTesla (nT).

An independent network of 30m grid squares was established within each of the fields to be surveyed. The grids were set out with a tape measure and optical square and were tied in to the Ordnance Survey National Grid by means of a Leica Viva RTK GPS. The gradiometers were carried at a brisk but steady pace through each grid square, collecting data along 1m spaced traverse lines. Measurements were automatically triggered every 0.25m along the traverses, giving a total of 3600 measurements per square. All fieldwork methods complied with the guidelines issued by English Heritage and by the Institute for Archaeologists and the generic brief for geophysical survey issued by the Warwickshire Planning Archaeologist (EH 2008; IfA 2011; WCC 2014) .

The survey data was largely processed using Geoplot 3.00v software. Most of the striping was removed using the 'Zero Mean Traverse' function but some areas had to be de-striped separately, using a spreadsheet based routine, in order to preserve linear anomalies lying parallel to the traverse direction. Destaggering of the data was performed where necessary. The processed data is presented in this report in the form of greyscale plots at a range of +4nT (black) to -4nT (white). These have been have been scaled, rotated and resampled (georectified) for display against the Ordnance Survey base mapping (Figs 2 and 4). Interpretive overlays are presented in Figures 3 and 5, and plots of the unprocessed survey data are presented in Figures 6 and 7.

4 SURVEY RESULTS

4.1 Archaeology

The survey has detected a set of linear and discrete positive anomalies in the southern survey area (Figs 4-5). These represent part of a ditched enclosure and an assortment of other ditches and pits, all of which are likely to date from the Iron Age or Roman period. The main enclosure is sub-rectangular in form and measures *c* 50m from east to west by at least 35m north to south, continuing northwards beyond the limit of the survey area. Its south-eastern corner has a slightly complex form, and may have been re-cut on at least one occasion. The other ditches are not clearly defined, but seem to form a rectilinear arrangement which intersects with the main enclosure and extends both east and west from it.

In the south-eastern corner of the southern area the survey has detected a positive linear anomaly which may represent a ditch of indeterminate date. Two similar anomalies in the northern area may also represent ditches. The northern area also contains a weakly negative linear anomaly which extends for *c* 160m across its south-eastern corner. The most likely interpretation is that this represents a stone-lined drain or culvert, although alternative interpretations, such as a modern service trench, cannot be completely excluded.

The survey has not detected any anomalies directly related to medieval ridge and furrow. However, some of the field drain anomalies in east of the southern area follow parallel, elongated S-curves. This suggests that the drains were laid along the bases of furrows which have been flattened by subsequent ploughing and have no intrinsic magnetic expression.

4.2 Field boundaries and drainage

The survey has detected some weakly positive linear anomalies in the northern survey area which correlate with parts of the arrangement of field boundaries depicted on the first edition Ordnance Survey map (1887) (Figs 2-3). Other parts of these former boundaries are indicated by broad linear bands of weak magnetic noise, representing accumulations scrap metal, ceramic hardcore and other magnetic debris around the field margins.

The weak linear anomalies with alternating magnetic polarity which occur in various places across both survey areas are highly diagnostic of field drains. Some in the southern area have a distinctive S-shaped pattern which may reflect an earlier pattern of ridge and furrow (see above). Others, at the southern end of the northern field, are restricted to a relatively narrow swathe of land which roughly coincides with the line of the former stream channel (Smith 2014, fig 3).

4.3 Ferrous anomalies

The survey has detected a large number of dipolar anomalies distributed randomly across the entire area. Most of these will relate to minor pieces of scrap metal within the ploughsoil, but a few of the larger examples in the northern field represent telegraph poles.

4.4 Geological anomalies

The data from the northern field contains a widespread cluster of discrete positive anomalies extending south from the stream that forms the northern field boundary. Individually, such anomalies could represent pits, but when clustered in this way they are usually diagnostic of gleyed alluvial soils.

5 CONCLUSION

The survey results indicate that a ditched enclosure of probable Iron Age or Roman date lies partially within the southern half of the proposed solar park site. The total extent of this enclosure and its associated remains appears to be around 0.5ha. Relatively little archaeology has been detected across the rest of the site, amounting to no more than a few disjointed sections of ditch, a possible drain or culvert and, arguably, an area of medieval ridge and furrow cultivation.

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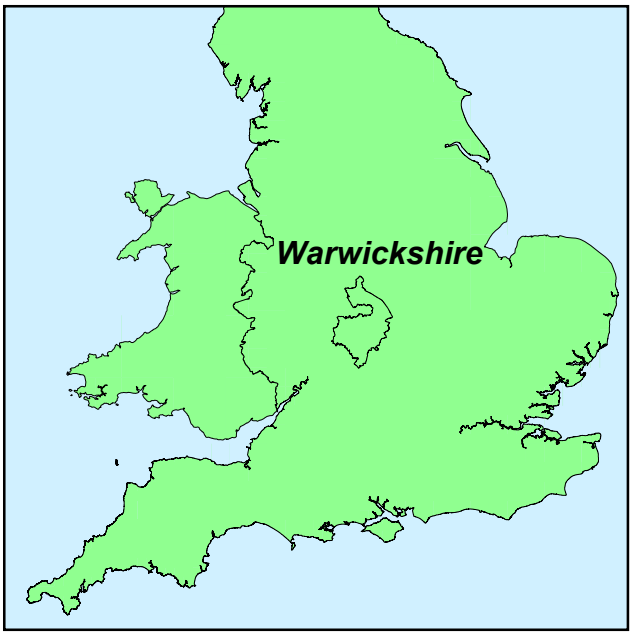
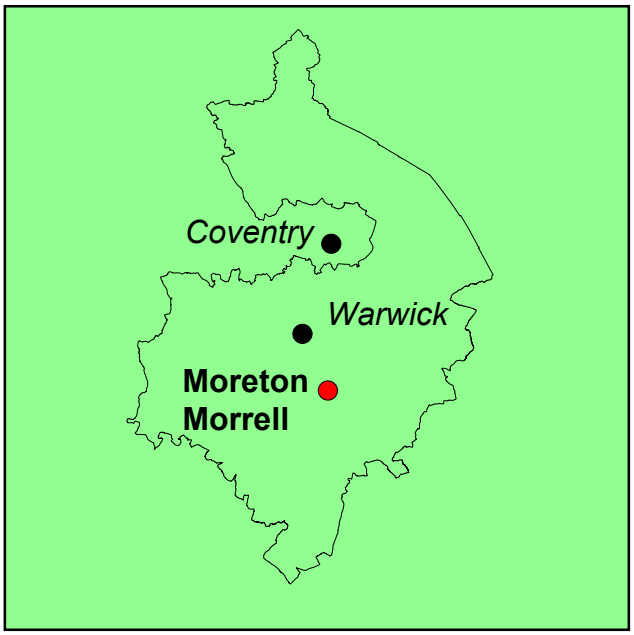
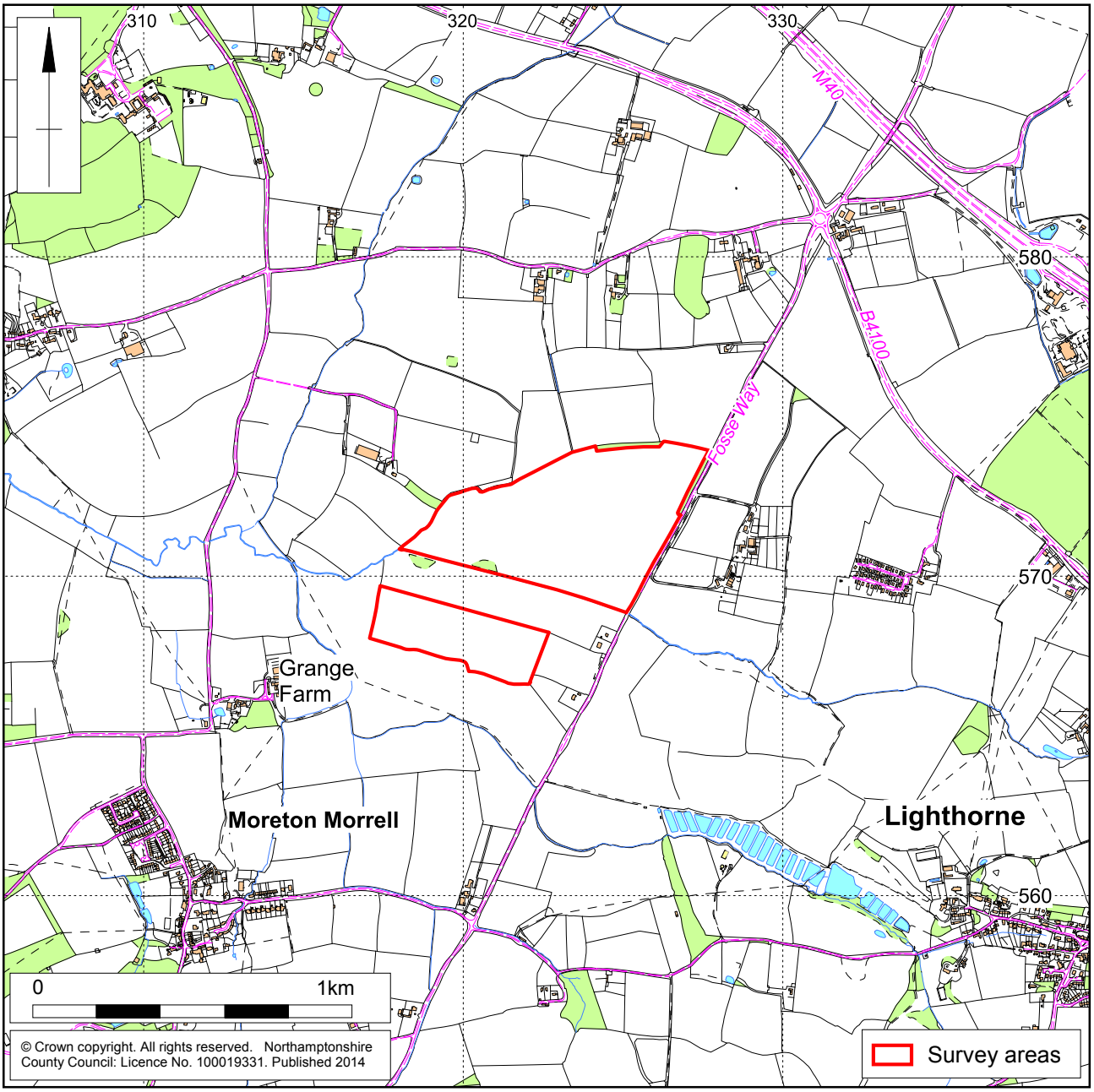
2 September 2014







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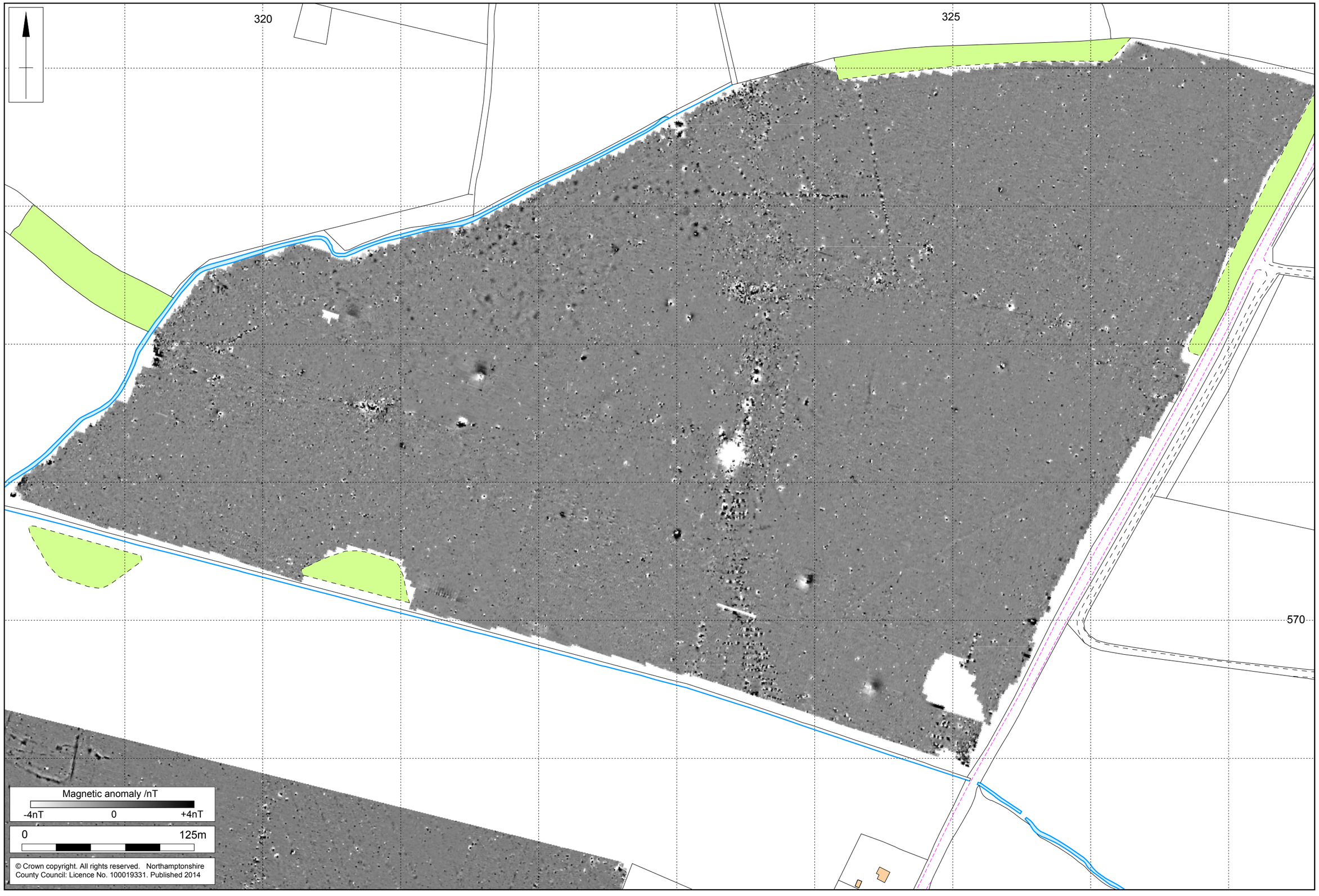
Site location Fig 1



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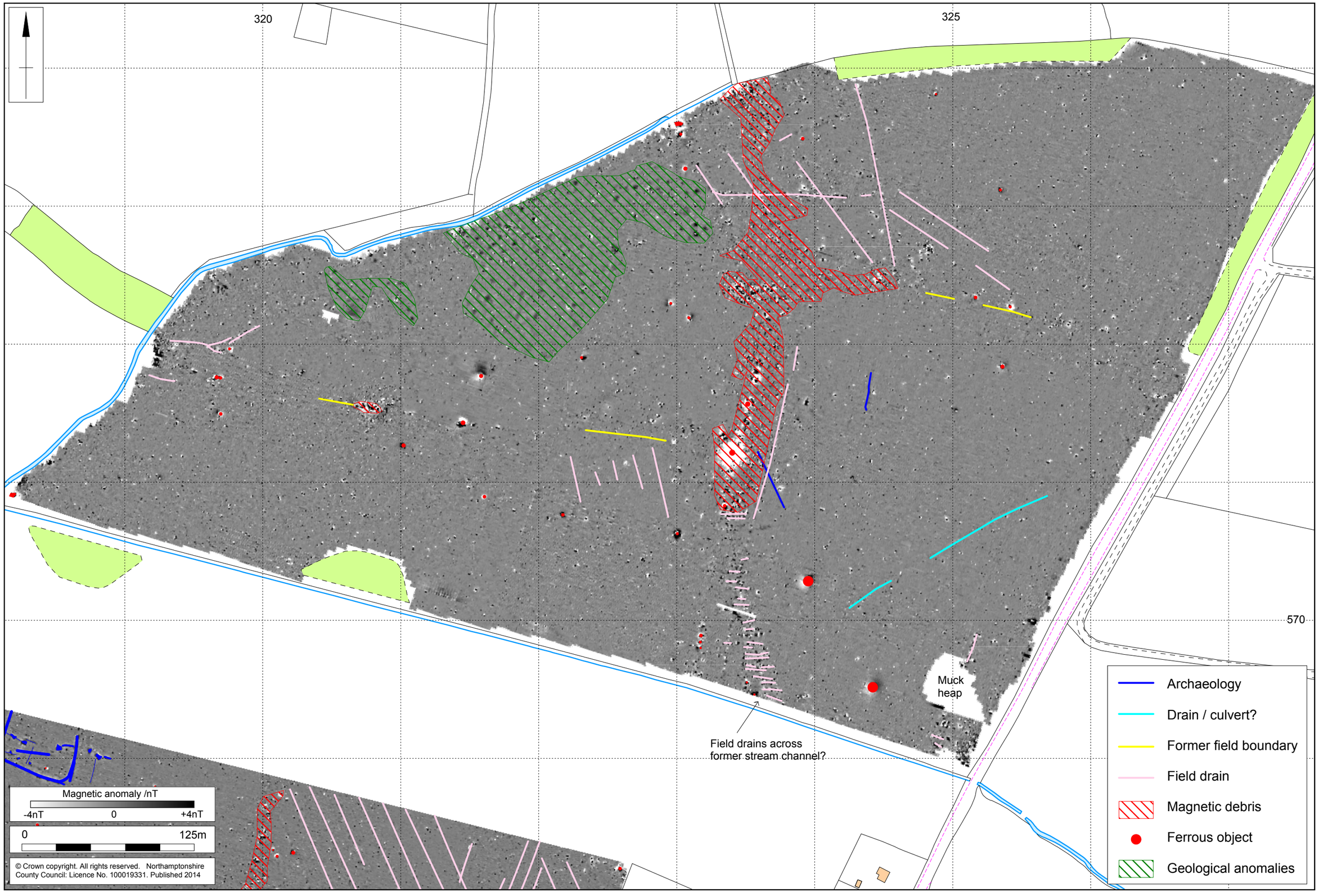
Magnetometer survey results (North) Fig 2



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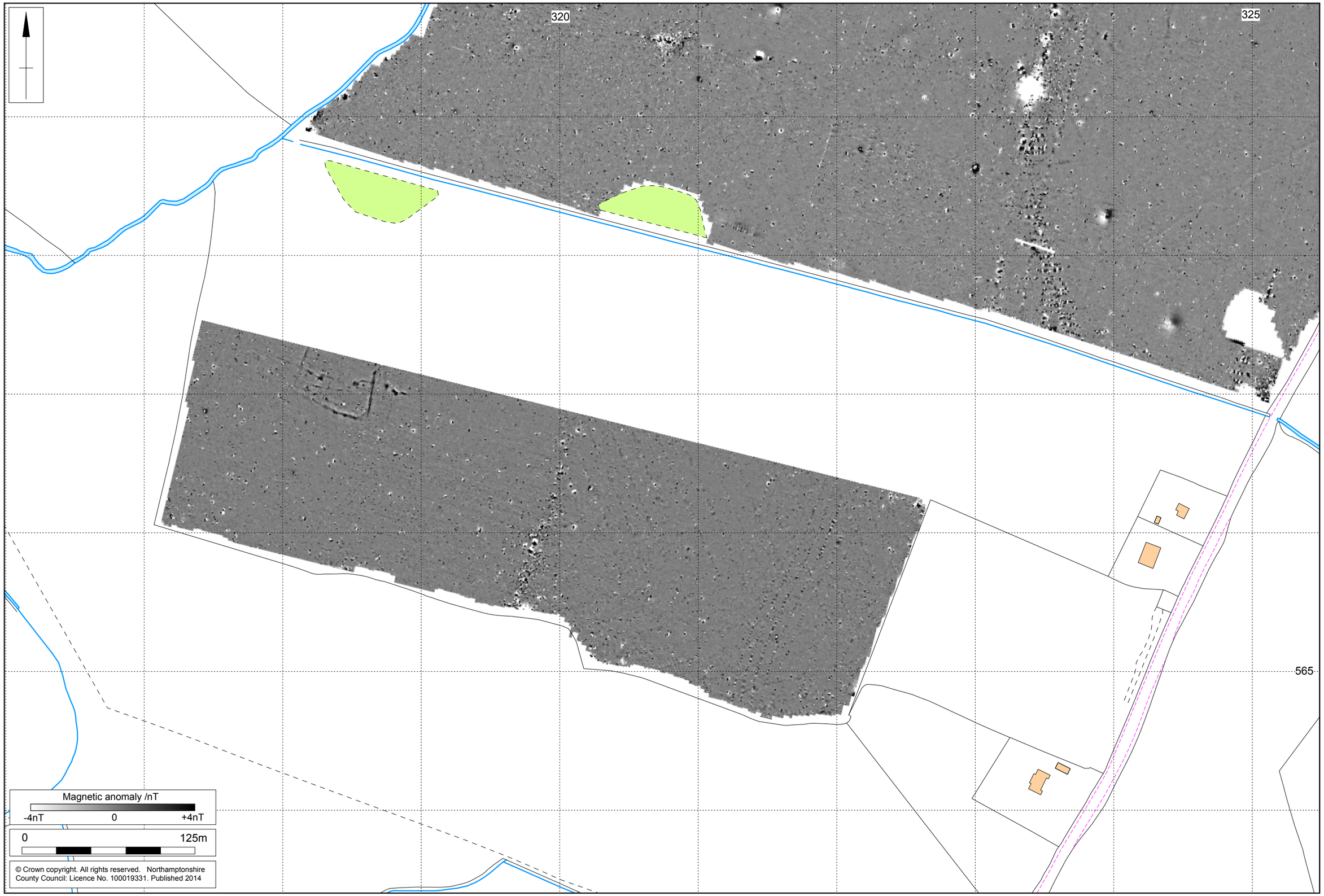
Magnetometer survey interpretation (North) Fig 3



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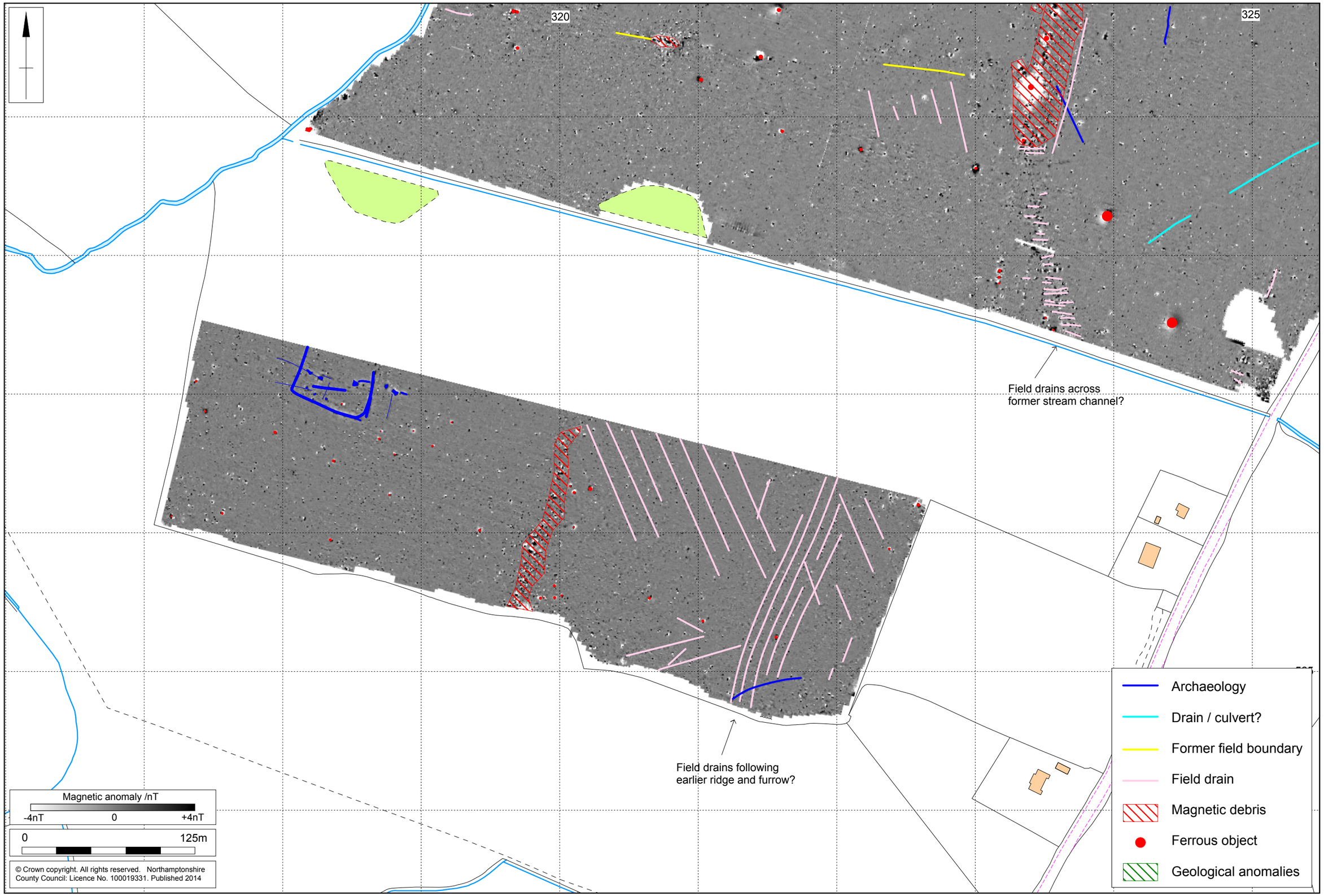
Magnetometer survey results (South) Fig 4



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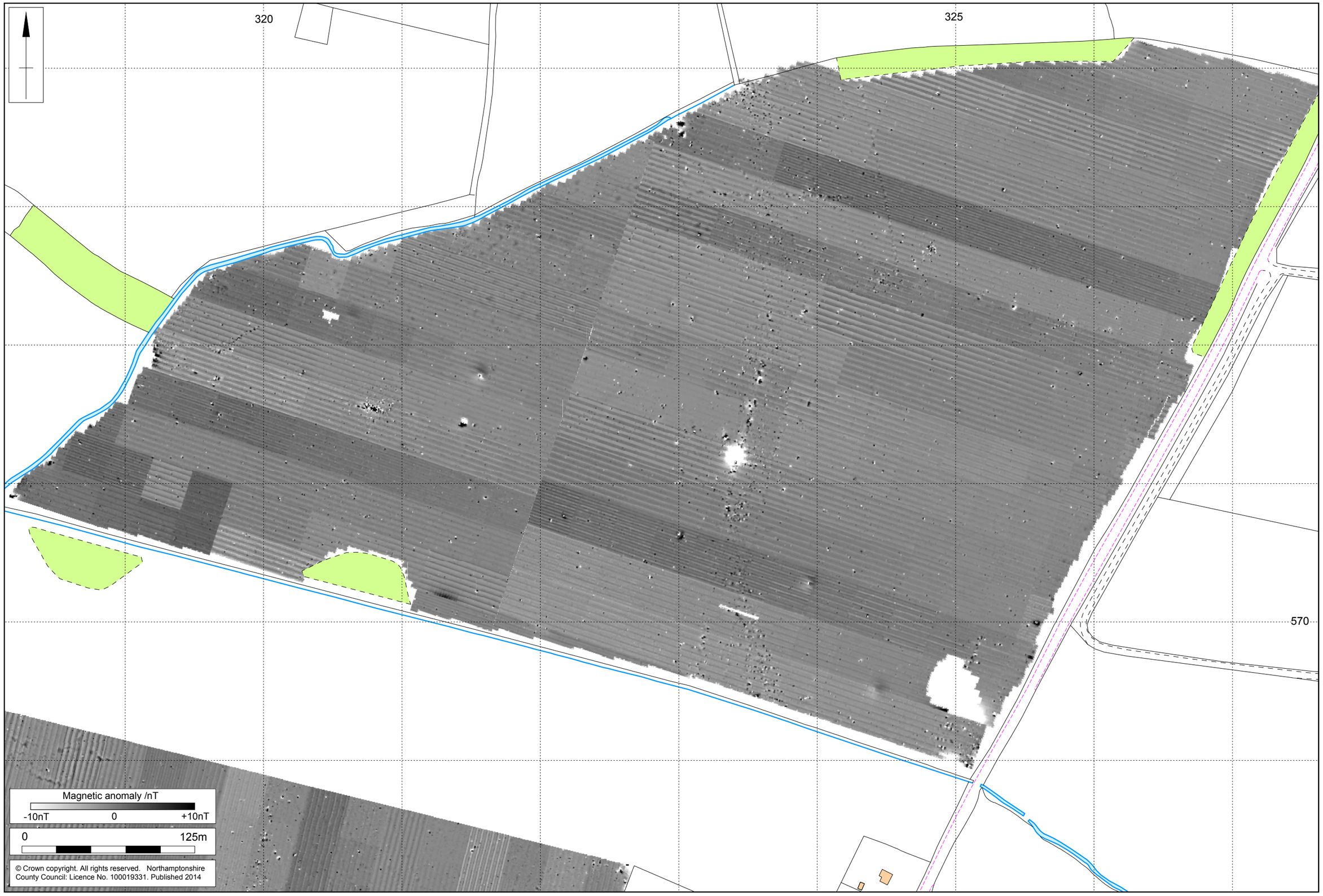

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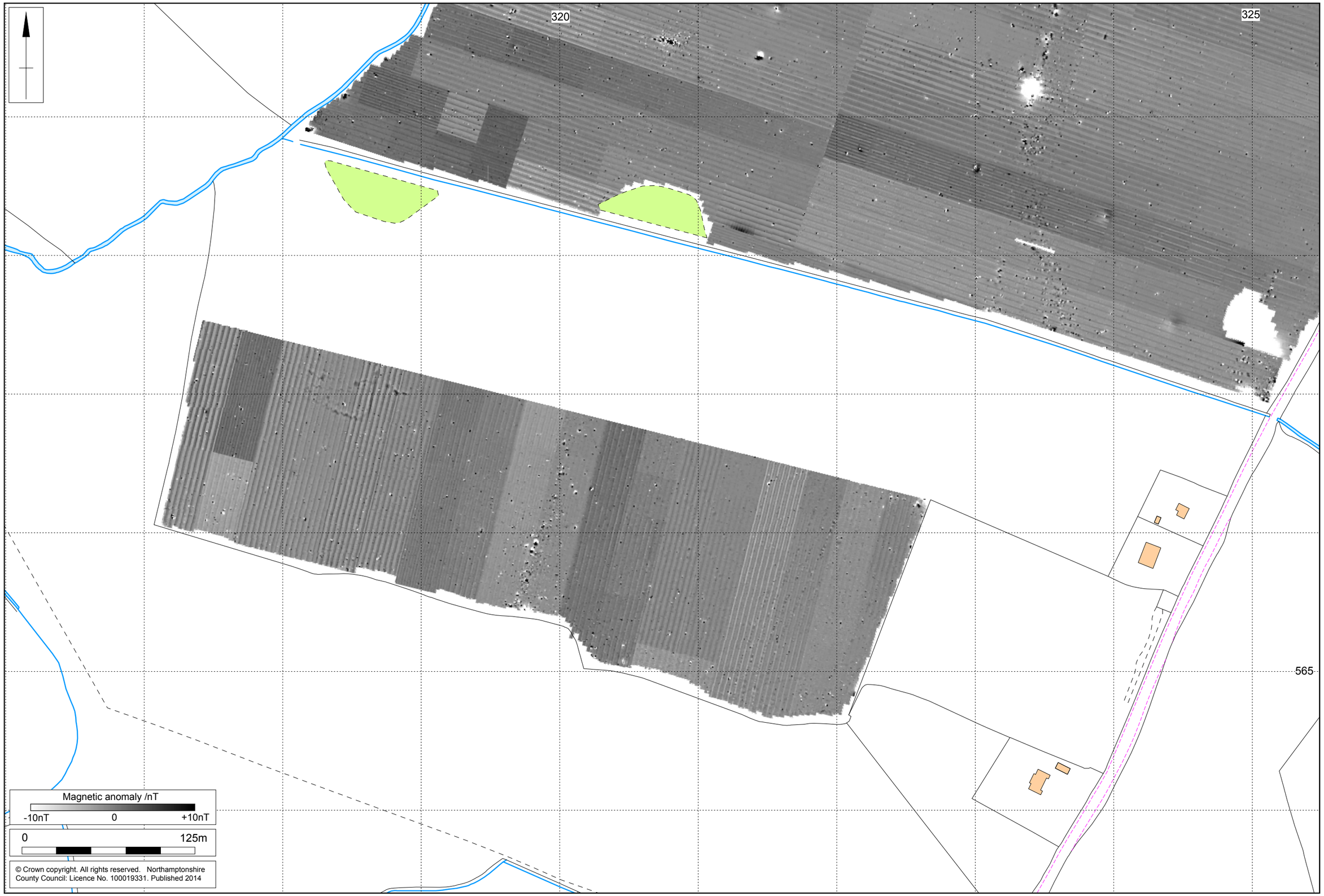
Unprocessed magnetometer survey data (North) Fig 6



Scale 1:2500

Unprocessed magnetometer survey data (South) Fig 7

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