



# Northamptonshire Archaeology

Archaeological geophysical survey at  
America Farm, Peterborough  
November 2012 – August 2013



## Northamptonshire Archaeology

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AMERICA FARM, PETERBOROUGH

**OASIS REPORT FORM**

**OASIS No 159296**

PROJECT DETAILS		
Project name	Archaeological geophysical survey at America Farm, Peterborough	
Short description	Northamptonshire Archaeology was commissioned to undertake an archaeological geophysical survey at America Farm, Peterborough. The survey covered approximately 40ha of former peat fen. The results were dominated by geological responses, largely relating to a network of creeks within the fen. A few anomalies of possible archaeological significance were detected, but none could be confidently interpreted.	
Project type	Geophysical survey	
Site status	None	
Previous work	Desk based assessment (AECOM 2012a)	
Current land use	Arable	
Future work	Trial trenching	
Monument type/ period	None	
Significant finds	None	
PROJECT LOCATION		
County	Peterborough	
Site address	America Farm, Oxney Road, Peterborough	
Study area	c 40 ha	
OS grid reference	TF 236 004	
Height OD	c 2m aOD	
PROJECT CREATORS		
Organisation	Northamptonshire Archaeology (NA)	
Project brief originator	AECOM Environment	
Project Design originator	AECOM Environment	
Director/Supervisor	Ian Fisher	
Project Manager	Mark Holmes	
Sponsor or funding body	AECOM Environment	
PROJECT DATE		
Start date	12 November 2012	
End date	19 September 2013	
ARCHIVES		
	Location	Content
Physical	N/A	
Paper	NA	Site survey records
Digital	NA	Geophysical survey & GIS data
BIBLIOGRAPHY		
	Journal/monograph, published or forthcoming, or unpublished client report	
Title	Archaeological geophysical survey at America Farm, Peterborough, November 2012 – August 2013	
Serial title & volume	Northamptonshire Archaeology Reports 13/174	
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# ARCHAEOLOGICAL GEOPHYSICAL SURVEY AT AMERICA FARM, PETERBOROUGH NOVEMBER 2012 - AUGUST 2013

## ABSTRACT

*Northamptonshire Archaeology was commissioned to undertake an archaeological geophysical survey at America Farm, Peterborough. The survey covered approximately 40ha of former peat fen. The results were dominated by geological responses, largely relating to a network of creeks within the fen. A few anomalies of possible archaeological significance were detected, but none could be confidently interpreted.*

## 1 INTRODUCTION

Northamptonshire Archaeology was commissioned by AECOM Environment to conduct an archaeological geophysical survey at America Farm, Peterborough (NGR TF 236 004; Fig 1). This survey contributed towards an evaluation of the archaeological impact of a proposed development scheme.

Fieldwork commenced on 12 November 2012, but was suspended later that month due to flooding and poor ground conditions. Further work was undertaken in April and May 2013. A third phase of work was undertaken on 30 August 2013, covering a field that had been previously inaccessible due to an oilseed rape crop. In total, an area of c 40ha was surveyed. This report covers all three phases of work, and supersedes the earlier report on the first and second phases (Walford & Fisher 2013).

## 2 TOPOGRAPHY AND GEOLOGY

The proposed development area consists of a compact block of six arable fields lying immediately south of America Farm on the eastern side of Peterborough. The fields have a combined extent of approximately 40ha, and are bounded to the north by Oxney Road and to the east and south by Cat's Water and Willow Hall Lane.

The proposed development area lies within the Flag Fen basin at an elevation of c 2m aOD. It is underlain by a succession of late Holocene alluvial sediments, the uppermost of which is mapped as Nordelph peat (BGS 2012). In the far north of the site, immediately around America Farm, the peat appears to thin out onto the flank of a gravel island (pers obs). The solid geology of the area is mapped as Oxford Clay (BGS 2012).

## 3 ARCHAEOLOGICAL BACKGROUND

The deep alluvium and peat deposits of the Fens constitute a potentially rich source of archaeological information. Previous work in the Peterborough area, notably at Flag Fen and Must Farm, has shown that significant Prehistoric remains survive both within and beneath these deposits, but are largely beyond the reach of conventional archaeological prospection techniques. More abundant and readily obtained evidence is available from the adjacent fen-edge and gravel islands, where

cropmarks, chance finds, and excavations have demonstrated extensive and persistent activity from the Neolithic period onwards.

The Flag Fen site, which lies approximately 1.5km to the south-west of the proposed development area, incorporates a Bronze Age timber platform and post alignment, together with the remains of a Roman road, the Fen Causeway. On the gravels to the east and west of Flag Fen, at Northey and Fengate, there are substantial complexes of archaeological remains, representing field systems, settlements and monumental structures of Neolithic to Roman date. Further archaeological remains, including a group of Bronze Age barrows, a possible Roman temple, and a medieval monastic grange, are located to the north and north-west of the proposed development site, on the gravel island of Oxney.

An archaeological desk-based assessment of the proposed development area has been undertaken as part of the present evaluation programme (AECOM Environment 2012a). The report provides a comprehensive summary of the local archaeological background and notes that, although there are no certain archaeological remains known within the proposed development area, it was once crossed by a gravel ridge which may have provided a route between Oxney and Northey. This ridge is no longer apparent, having been ploughed away in the 1970s (AECOM Environment 2012a, 8-9).

#### **4 METHODOLOGY**

The 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). All fieldwork methods complied with the guidelines issued by English Heritage and by the Institute for Archaeologists (EH 2008; IfA 2011), and with the written scheme of investigation for the project (AECOM Environment 2012b).

An independent system of 30m grids was established within each of the fields to be surveyed. The grids were established with a tape measure and optical square and were tied in to the Ordnance Survey National Grid by means of a Leica 1200 dGPS. 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.

A particular difficulty was encountered with regard to the daily calibration (zeroing) of the magnetometers. To be fully effective, this process must be undertaken in a magnetically 'quiet' area, where there are no external variations to bias the calibration measurements. On this site, unfortunately, the magnetic background was highly variable and no satisfactory 'zero points' could be found. Hence the sensor balance and directional stability of the instruments was slightly impaired, as is apparent from the raw data plots (Figs 7-8).

The survey data were 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 grey-tone plots, at a scale of +/- 4nT black/white. These plots have been

scaled, rotated and resampled (georectified) for display against the Ordnance Survey base mapping (Figs 2, 3 and 5). Interpretive diagrams (Figs 4 and 6) and plots of the unprocessed survey data (Figs 7 and 8) have also been produced.

## **5 SURVEY RESULTS**

### **5.1 Geological background**

The survey results are dominated by magnetic responses arising from the underlying peat and alluvium. A series of highly convoluted positive linear anomalies represents a former network of small creeks, and the intervening spaces are occupied by an incoherent mass of largely amorphous magnetic anomalies characteristic of gleyed alluvial sediment. The latter are not amenable to detailed interpretation but will relate, broadly speaking, to localised pockets of iron minerals deposited or modified by fluctuating levels of groundwater.

In the north of Field 1 there is a broad positive linear anomaly which is aligned roughly west to east and continues, less distinctly, into Field 2. To its north, the data is somewhat 'quieter' than elsewhere, lacking any well defined alluvial anomalies. It is thus probable that the linear anomaly is a magnetic 'edge effect', indicating the approximate point at which the peat thins out onto the flank of the gravel island on which America Farm stands.

### **5.2 Archaeology**

The data contains no anomalies of certain archaeological significance but there are a few, described below, for which an archaeological interpretation may be very tentatively suggested.

In Field 1 and the south-western corner of Field 2 there are a pair of sinuous linear anomalies which align with each other and perhaps represent parts of a single feature. They have smoother, less convoluted forms than the natural creeks, and it is possible that they represent a former drainage ditch or an artificially straightened channel. The interpretation is slightly strengthened by the way that the anomaly in Field 2 seems to interrupt the line of one of the natural creeks. Similar interpretations may be offered for a second curvilinear anomaly in Field 2, for a set of linear anomalies extending across Field 5 and into the north-western corner of Field 6, and for a short linear anomaly in the eastern end of Field 3. The latter perhaps represents a fairly modern feature, as it aligns closely with a dyke on the opposite side of Cat's Water

At the western end of Field 4 there are a broad, H-shaped negative anomaly and a thinner negative anomaly projecting to the south-east. The significance of these is obscure, but they are a little more regular than the typical geological anomalies and it is possible that they have an artificial origin. Being magnetically negative, they perhaps represent features composed of stone or gravel.

Close to the northern edge of Field 6 there is a sub-circular zone of decreased magnetic response, about 16m across, surrounding a broad central anomaly. This is particularly apparent in the unprocessed survey data (Fig 8). It is possible (though unlikely) that it represents a shallowing of the peat cover over a concealed mound (such as a prehistoric barrow) or some other deposit of weakly magnetic sediment.



In the north-west of Field 2, the south-east of Field 3, and around the margins of Field 5, there are dipolar anomalies of moderate intensity (in the range 20nT to 100nT). These could represent deeply buried ferrous objects or concentrations of burnt soil or ceramic debris (eg bonfire debris, brick rubble, etc). On dryland sites, they might be tentatively interpreted as kilns, but such an interpretation would be implausible in a fenland context such as this. A more elongated anomaly of similar intensity occurs at the western end of Field 5, and perhaps represents a spread of brick rubble or other magnetic hardcore associated with the adjacent farm track.

### **5.3 Modern features**

A series of linear and curvilinear anomalies occur around the margins of the survey area, mirroring the shape of the modern field boundaries. The majority of these seem to indicate the edges of the modern plough headlands, although that along the northern edge of Field 2 is particularly broad and intense, and conceivably represents a modern ditch. In Field 3, there are also three sets of close-spaced negative linear anomalies which probably relate to recent episodes of ploughing.

There are short linear anomalies which continue the lines of the dykes between Fields 2 and 3 and Fields 3 and 4. These probably indicate where sections of the dykes have been infilled to provide access between the fields.

In Field 1, in the north-west of the survey area, there is a pair of large and magnetically intense dipolar anomalies of ferrous origin. These probably represent the footings of a former electricity pylon which is depicted on the 1978 edition of the Ordnance Survey 1:10,000 map. To the east, there is a large negative magnetic halo around an extant pylon. Smaller ferrous anomalies occur elsewhere across the proposed development area. They do not relate to any known features, and the majority probably represent fairly minor pieces of buried debris.

## **6 CONCLUSION**

The survey results are dominated by geological responses, many of which relate to former creeks within the underlying peat. No indisputable archaeological remains have been detected, although there are a few anomalies of possible archaeological significance which perhaps merit further investigation.

The absence of clear archaeological anomalies is not surprising, given the particular difficulties of archaeological prospection in lowland peat environments (Armstrong 2010). Early prehistoric remains are likely to be buried beyond the range of magnetic detection, and waterlogged timber structures, such as those found at the Flag Fen site, usually lack a discernable magnetic signature. For these reasons, the results presented in this report should not be regarded as providing a full impression of the archaeological potential of the proposed development area.

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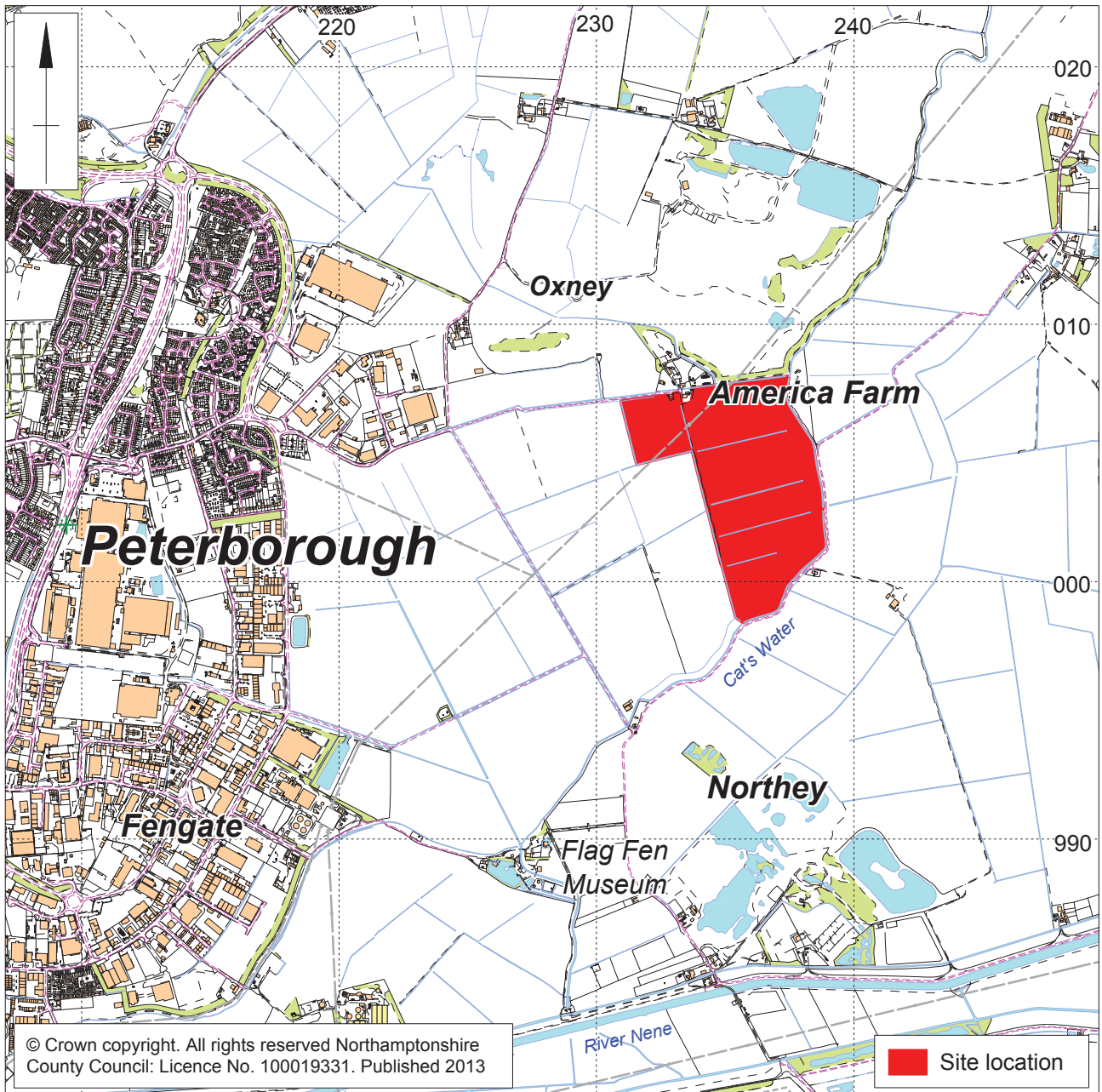
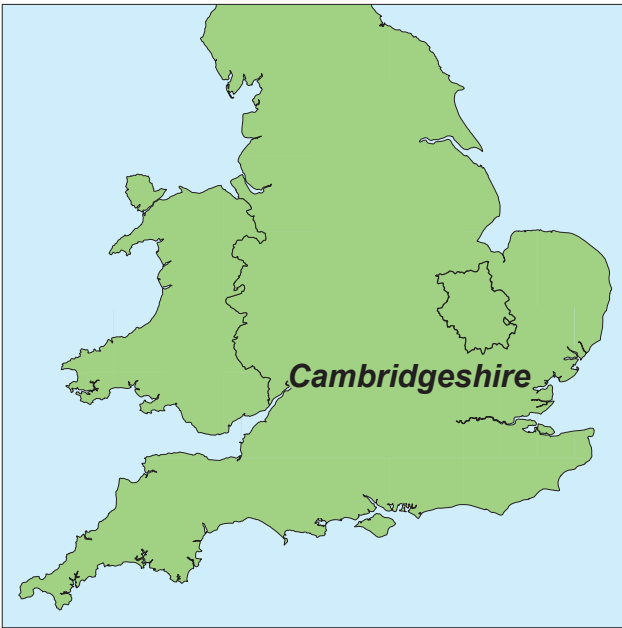
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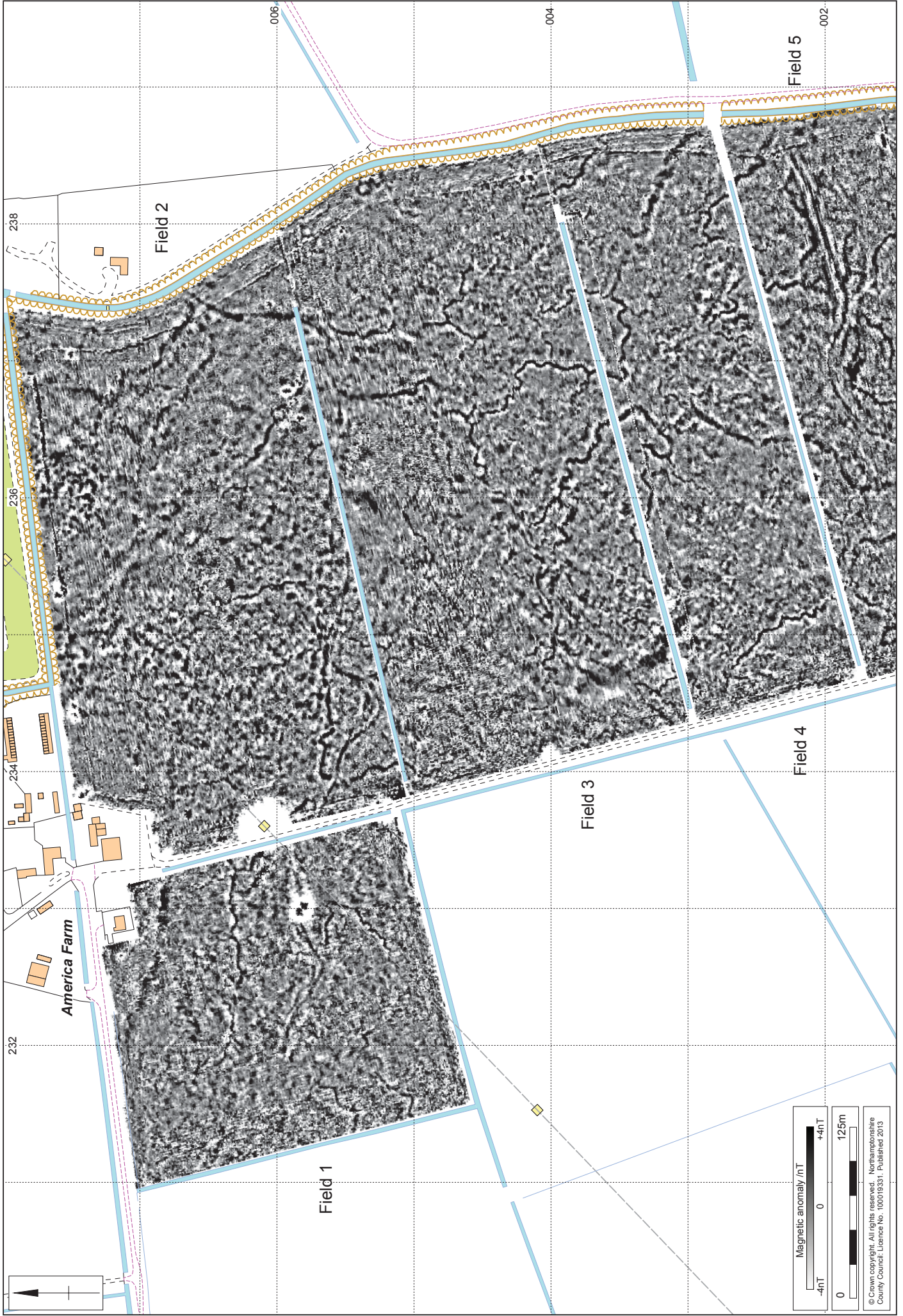
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Scale 1:25,000

Site location Fig 1





Magnetometer survey results (north) Fig 3

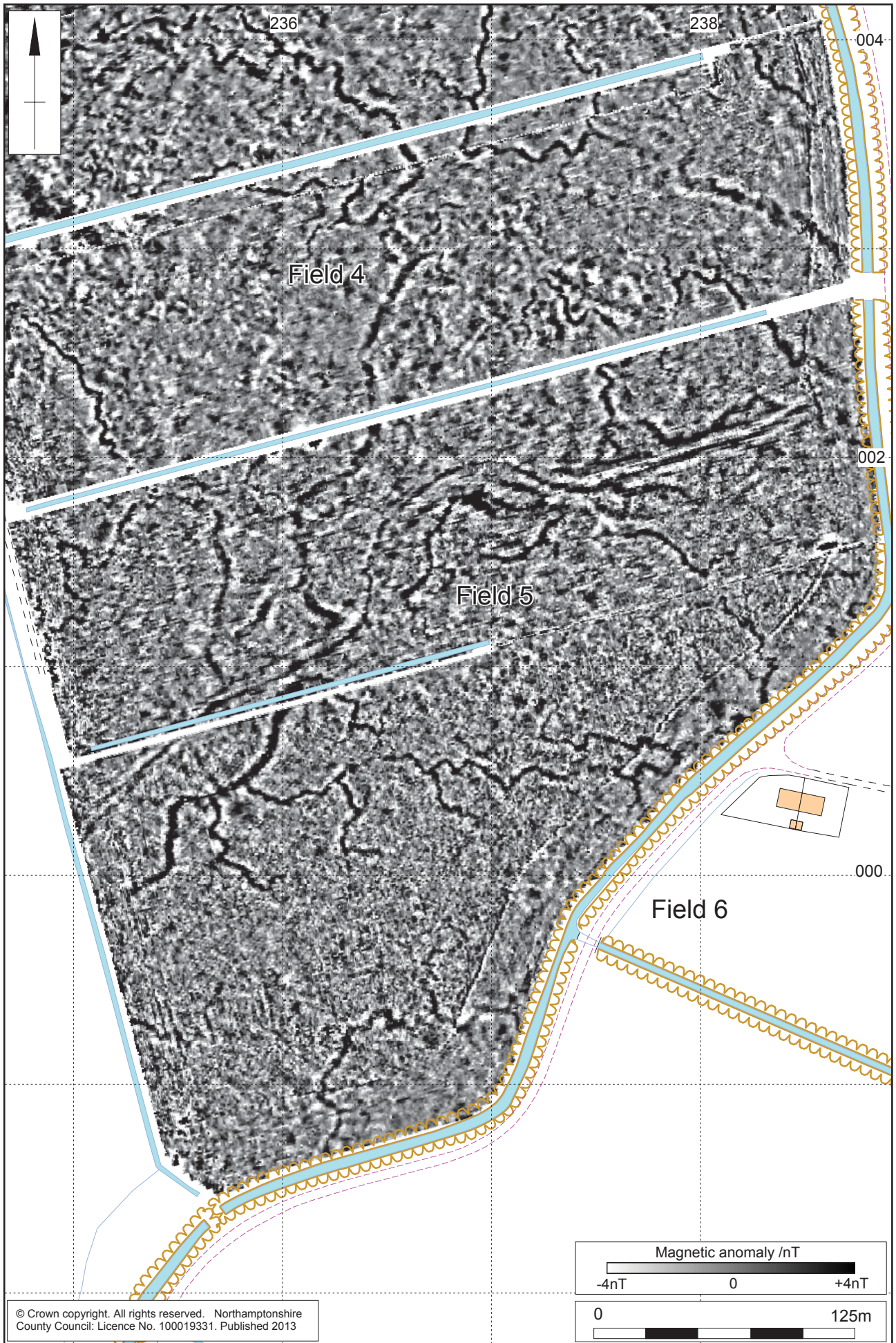
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Magnetometer survey interpretation (north) Fig 4

Scale 1:2500

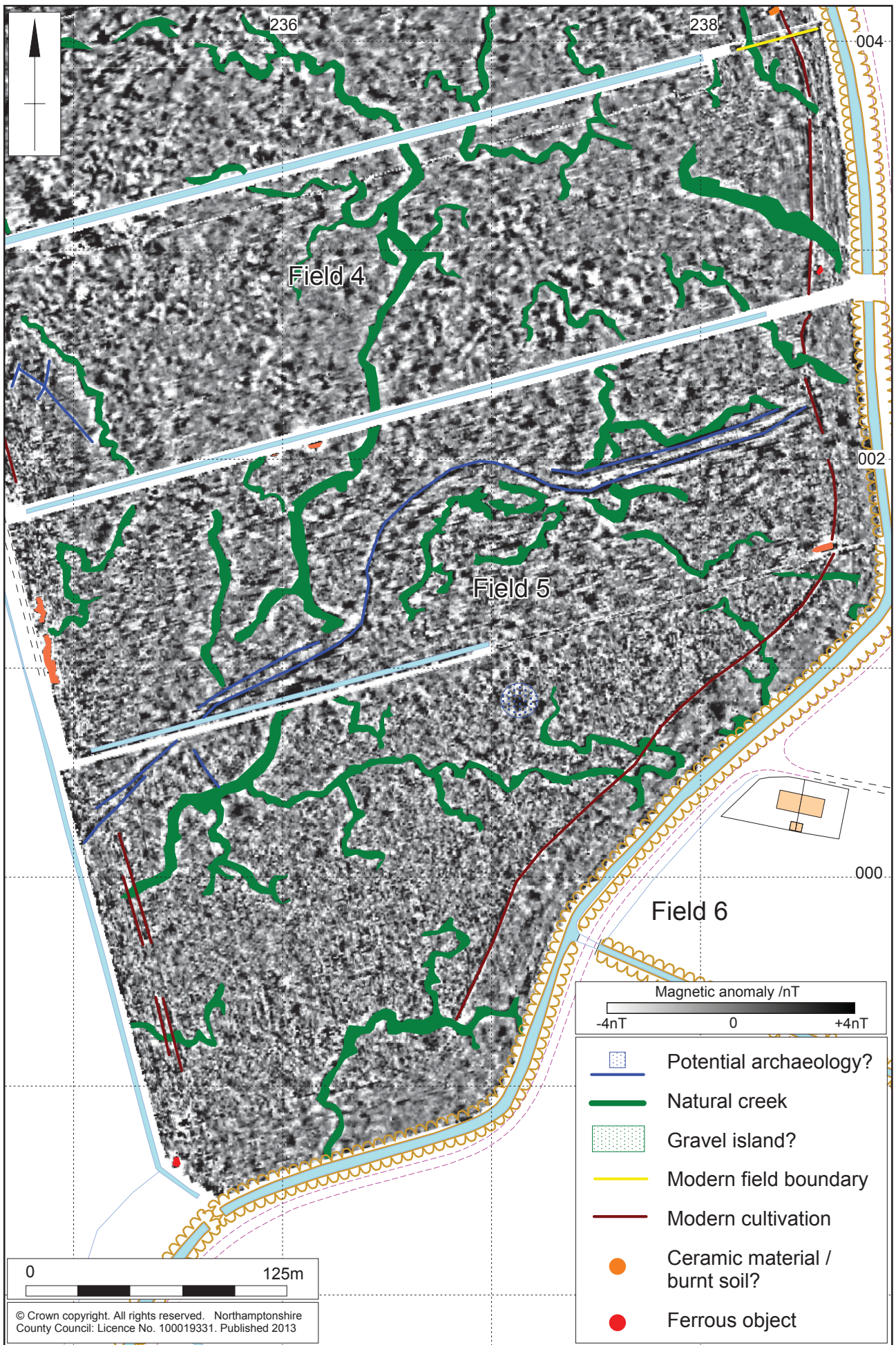
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Scale 1:2500

Magnetometer survey results (south) Fig 5

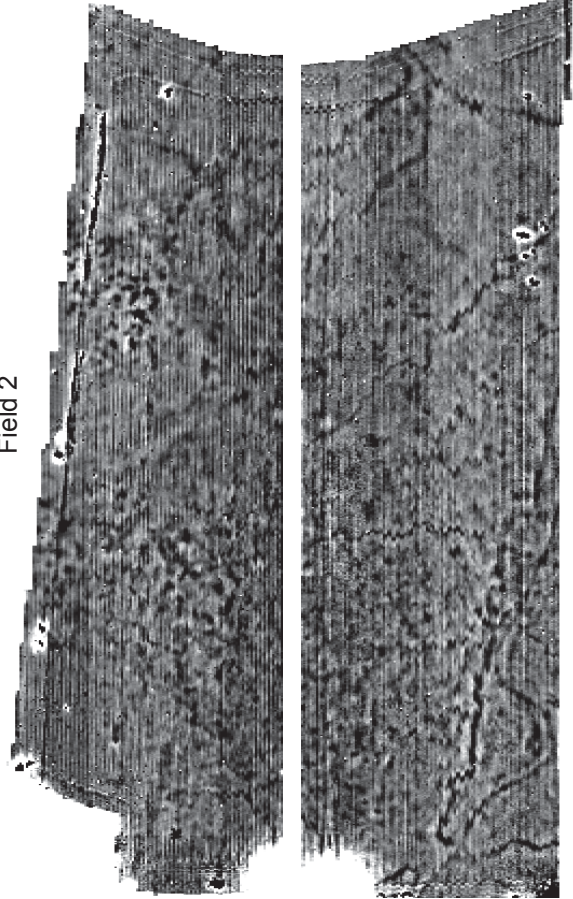


Scale 1:2500

Magnetometer survey interpretation (south) Fig 6



Field 2



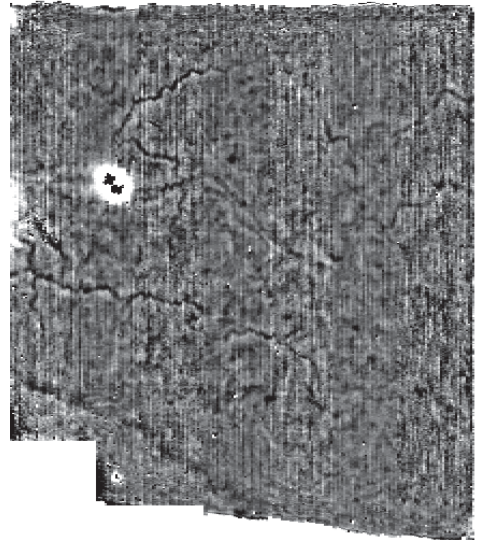
Field 2.1



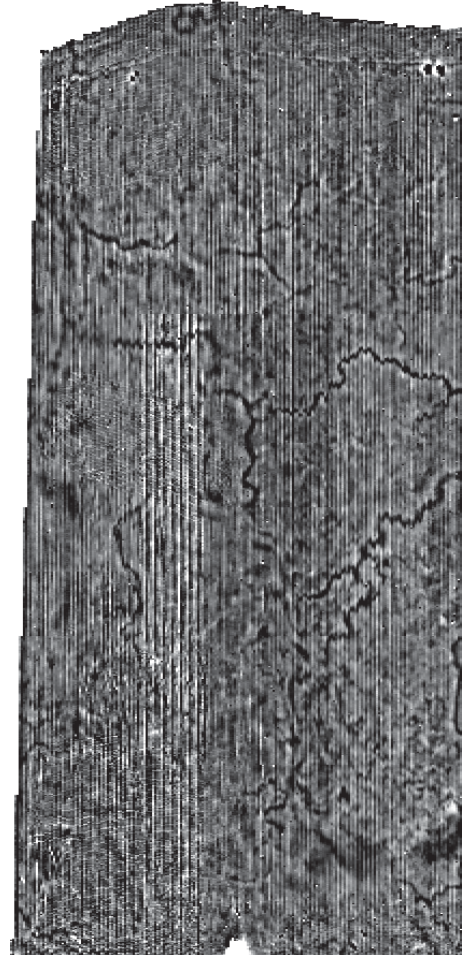
Field 4.1



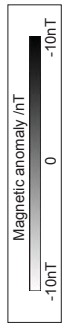
Field 4

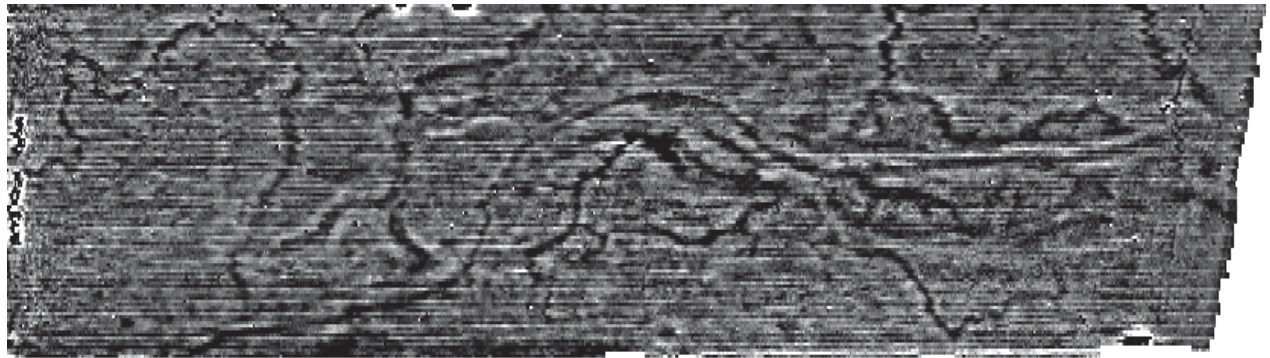


Field 1

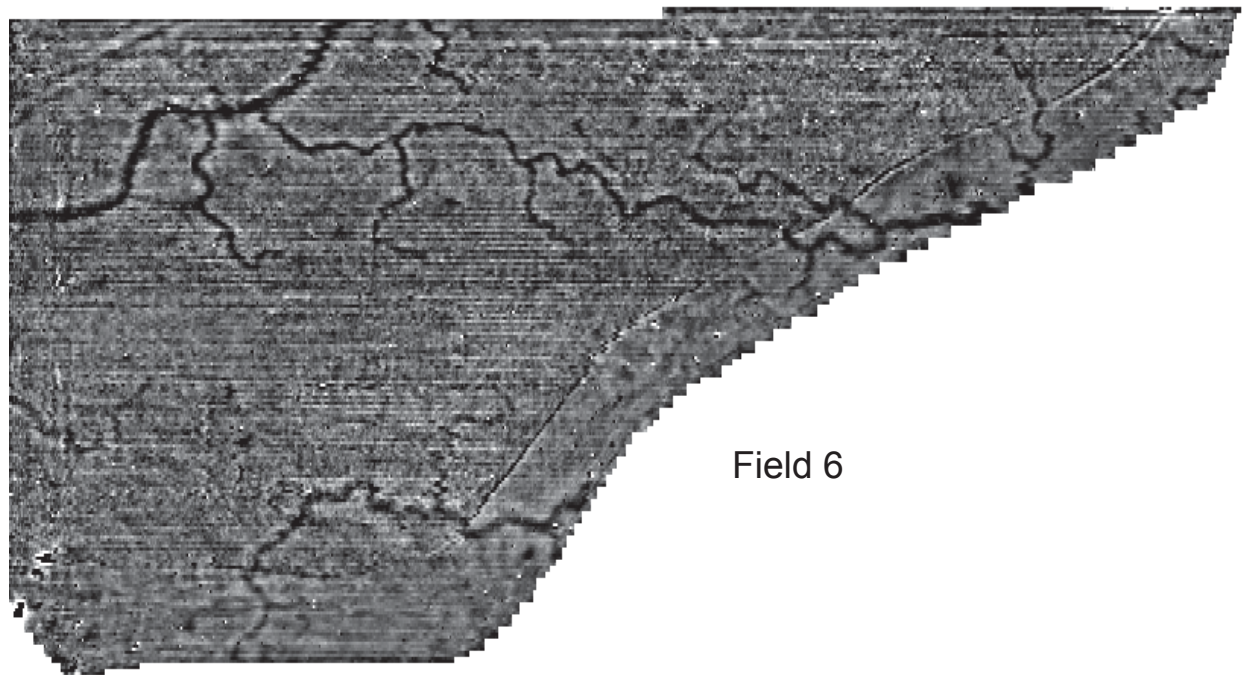


Field 3

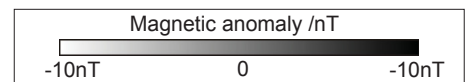
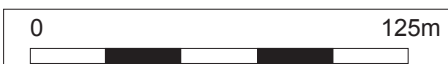




Field 5



Field 6





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