LODGE FARM, KERSEY ROAD, LINDSEY, SUFFOLK

DETAILED MAGNETOMETER SURVEY

Report Number: 1141

SEPTEMBER 2016

LODGE FARM, KERSEY ROAD, LINDSEY, SUFFOLK

DETAILED MAGNETOMETER SURVEY

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September 2016

Site Code	LSY013	**NGR**	TL 9781 4444
Event Number	ESF24638		
Planning Ref.	B/16/0055/FUL	**OASIS**	dennispa1-261731
Approved By:	Dan McConnell	**Date**	September 2016

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ABSTRACT

In September 2016 Britannia Archaeology Ltd (BA) undertook a detailed magnetometer survey on Lodge Farm, Kersey Road, Lindsey, Suffolk, (NGR TL 978 444) for Archaeoserv. The survey was conducted over the footprint for a proposed eco house on an area of 0.73 ha.

The site is in an area of high archaeological potential, to the north of scheduled monuments St James' Chapel (LSY002) and the manorial bank. The geophysical survey identified several high amplitude magnetic responses. Though these responses most likely represent buried ferrous objects, it is possible that anomalies ***1000*** *and* ***1001*** *could represent the remains of buried fired clay structures, possibly showing peripheral activity outside of the manorial bank.*

1.0 INTRODUCTION

In September 2016 Britannia Archaeology Ltd (BA) undertook a detailed magnetometer survey on Lodge Farm, Kersey Road, Lindsey, Suffolk, (NGR TL 978 444) for Archaeoserv. The survey was conducted over the footprint for a proposed eco house on an area of 0.73 ha.

2.0 SITE DESCRIPTION

The site is located in one agricultural field to the north of Kersey Road in Lindsey, Suffolk. It is bound to the south by Kersey Road, to the north and east by agricultural fields and to the west by farm buildings.

The bedrock geology is London Clay Formation, which is a sedimentary bedrock formed approximately 34 – 56 million years ago in the Palaeogene period when the local environment was previously dominated by deep seas.

Superficial deposits are described as Lowestoft Formation – Diamicton. These superficial deposits were formed up to 2 million years ago in the Quaternary Period. When the local environment was previously dominated by ice age conditions.

3.0 PLANNING POLICIES

The archaeological investigation is to be carried out on the recommendation of the local planning authority, 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 the *Mid Suffolk Local Plan; (1998)*.

4.0 ARCHAEOLOGICAL BACKGROUND

Twelve records are held by the Suffolk County Council Historic Environment Records within a 500m search radius of the site. The immediate monuments of St James' Chapel (LSY002), Manorial Banks and a medieval Motte and Bailey (LSY001). The site lies immediately adjacent to the area enclosed by the partially upstanding manorial banks. The two lengths of manorial bank running south and east of St James' Chapel imply an enclosure to the south around the chapel and castle. Therefore there is a high potential for peripheral activity relating to the manorial complex (SCCAS/CT 2016).

5.0 PROJECT AIMS

A non-intrusive geophysical survey is required of the development; this is likely to lead to a programme of trial trenching to enable the archaeological resource, both in quality and extent, to be accurately quantified. However, any decision about the need for, and extent of, trial trenching will be taken following the geophysical survey.

6.0 METHODOLOGY

The survey grid was be set out to the Ordnance Survey OSGB36 datum to an accuracy of ±0.01m using a Leica Viva Glonnass Smart Rover GS08.

A Bartington Dual Grad 601-2 fluxgate gradiometer was used to undertake the survey, because of its high sensitivity and rapid ground coverage. The soils and underlying geology are receptive to magnetometer survey, but good results are heavily dependent on the contrast between the fills of a feature (with humic and charcoal rich deposits providing the best results) and the relative weakness of the local magnetic background field.

Only minimal processing of the datasets has been undertaken, data processing allows for the correction of errors introduced during the survey and instrument errors. The survey data has been produced using TerraSurveyor software V 3.0.29.3, where the following data processes were applied:

> Destripe: Removes striping effects from the raw data caused by discrepancies between different sensors and walking directions caused by alternate zig-zag traverses.
>
> Clip: The range of data can be set to specified maximum and minimum values in order to improve the contrast of weaker anomalies within the data.
>
> Grad. Shade: The overall appearance of the data was improved.

The raw and processed greyscale plots have been produced for comparison. An XY trace plot consisting of the processed data will be used in combination with raw and processed greyscale data. An interpretation plan characterising the anomalies has been produced based on the evidence collated from the greyscale and XY trace plots.

7.0 RESULTS (Figs. 3-6)

The data displayed five discrete high amplitude magnetic anomalies (**1000 – 1004**), the anomalies are concentrated within the centre of the survey area. The following numbered anomalies refer to the numerical labels of the interpretation plot (FIG 7).

7.1 Gradiometer Results

Two of the high amplitude anomalies (**1000** and **1001**), consist of a high amplitude positive anomaly with a negative response and no separation between the polarities. Due to their high magnetic response these anomalies most likely represent buried ferrous objects. However, such responses can be produced by fired clay structures such as the remains of hearths and kilns. These features may therefore be of archaeological significance.

The remaining high amplitude anomalies **1002**, **1003** and **1004**, are discrete high amplitude bipolar anomalies. These discrete anomalies consist of a positive response with associated negative response, and most likely represent the presence of ferrous debris in the ploughsoil.

Modern disturbance
The data displayed several strong magnetic responses which are described below. Located on the southern boundary for the site, running E-W for *c.*71m is an area of increased magnetic noise **1005**. This area of magnetic noise consists of a spread of high amplitude positive and negative responses, represents an area of disturbed ground. This is probably related to successive recutting for the drainage ditch along the southern boundary of the site.

Along the westernmost edge of the survey area, the data has shown a particularly large bipolar response **1006**, which is visible running from the northwest corner of the survey towards the southwestern corner of the survey. This has most likely been generated by a modern pipe for a septic tank located in the southwest of the survey area.

Another strong bipolar response **1007** is visible in the south-eastern corner of the survey. This response has been created from a water pipe on the eastern boundary of the site. The 'halo' effect produced by these modern disturbances may mask the visibility of archaeological anomalies in this area.

Two bonfire piles within the survey area, though they have not generated any magnetic response, have created a physical obstruction to data collection.

8.0 CONCLUSION

The geophysical survey has identified several high amplitude magnetic responses **1000 – 1004**. Though these responses most likely represent buried ferrous objects, it could be

possible that **1000** and **1001** could represent the remains of buried fired clay structures, possibly showing peripheral activity outside of the manorial bank.

No cut archaeological features have been identified within the survey area. This could be because of the reduced natural magnetic enhancement of topsoils developing over London clay formation, leading in turn to reduced feature contrasts. It is also possible that ploughing and removal of trees from the orchard previously on site has decreased the overall magnetic response. Therefore it is likely that weak magnetic anomalies have not been recognised in the geophysical data.

9.0 PROJECT ARCHIVE AND DEPOSITION

A full archive will be prepared for all the work undertaken in accordance with 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 Dennis Payne of Archaeoserv for commissioning the work and thanks to Mr S. Stroud for funding the survey.

The survey was undertaken by Matthew Baker and Adam Leigh.

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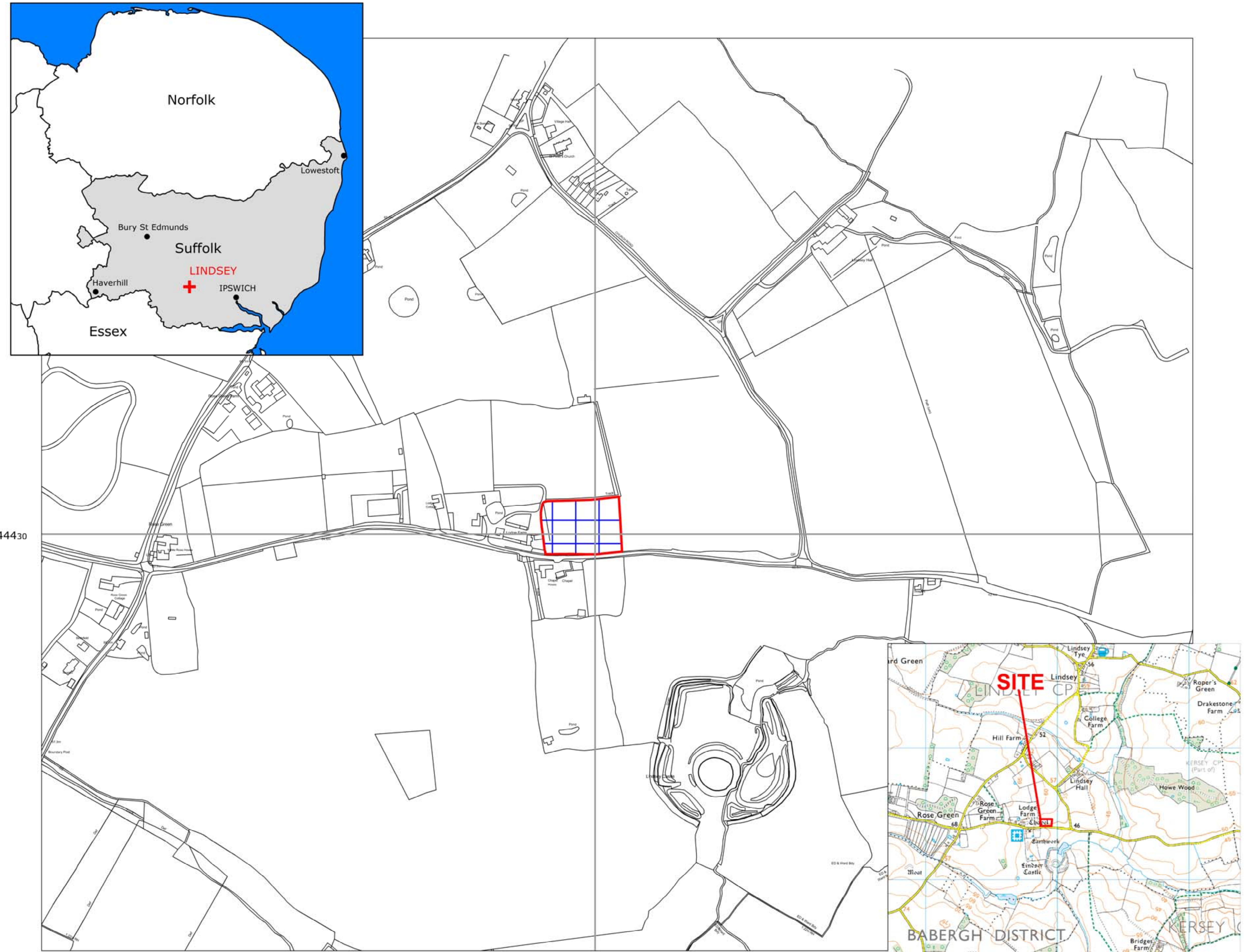

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597830

N

Site Boundary

NGR: 597830 244430	REF: P1159
PROJECT: LODGE FARM, KERSEY ROAD, LINDSEY	
DESCRIPTION: GENERAL LOCATION PLAN	
CLIENT: ARCHAEOSERV	

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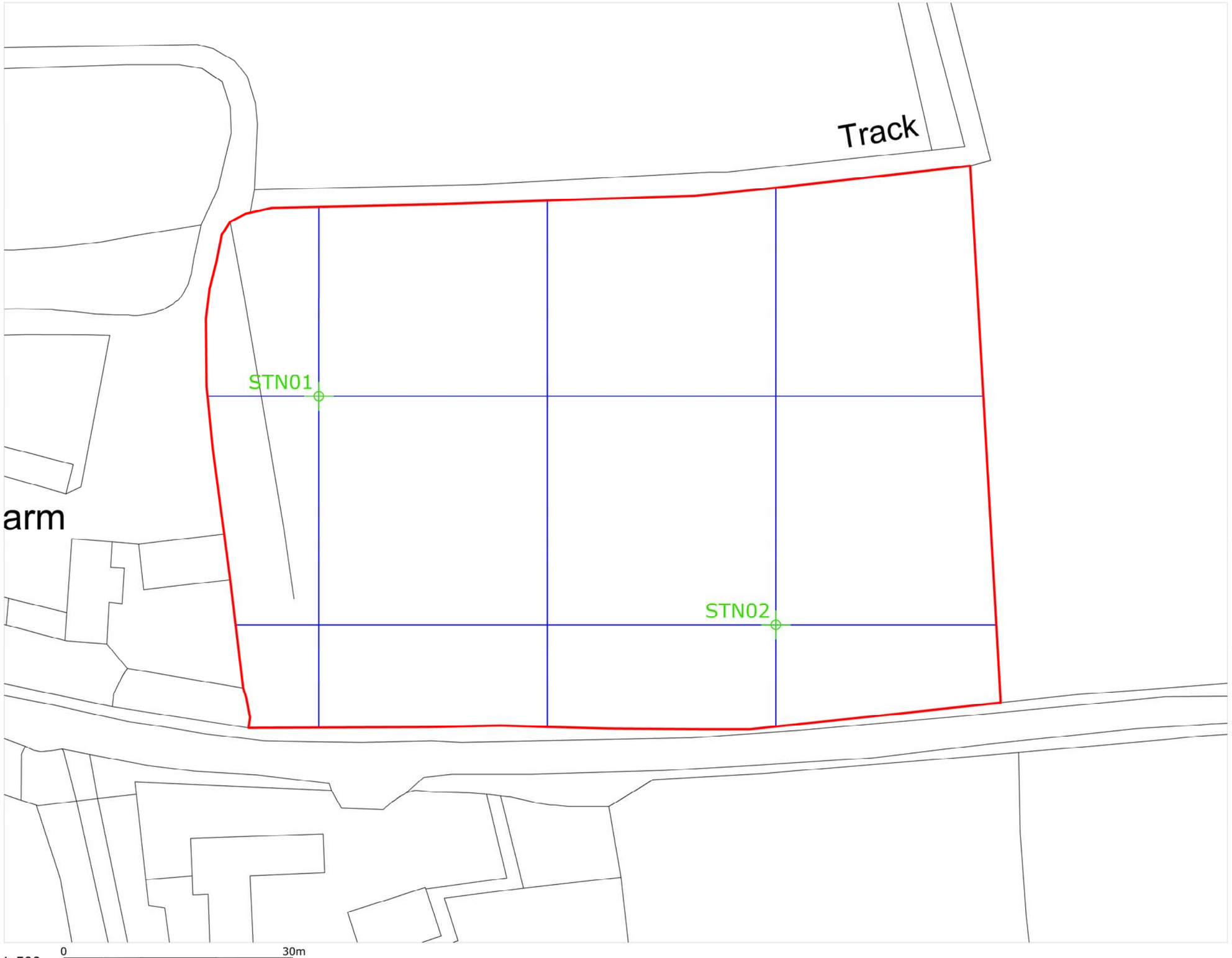
DATE: SEP 2016	PLOT: A3	VERSION: 1
AUTHOR: MJB	FIGURE: 1	
APPROVED: DPM		



N

STATION	EASTING	NORTHING
01	597775.0978	244447.7921
01	597835.0978	244417.7921

Site Boundary

NGR: 597830 244430 | REF: P1159

PROJECT: LODGE FARM, KERSEY ROAD, LINDSEY, SUFFOLK

DESCRIPTION: SURVEY GRID AND SURVEY STATION PLAN

CLIENT: ARCHAEOSERV

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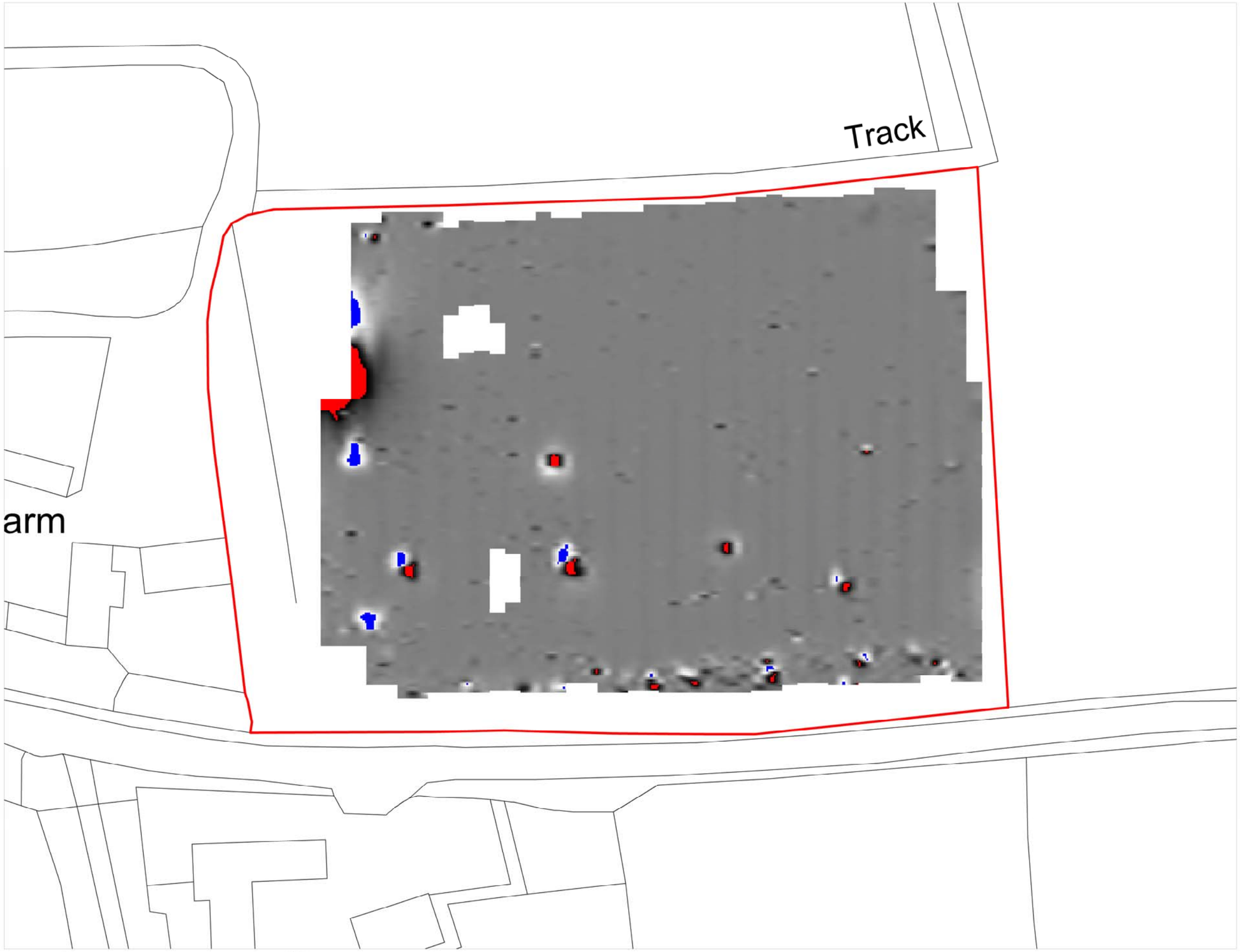
DATE: SEP 2016 | PLOT: A3 | VERSION: 1

AUTHOR: MJB | APPROVED: DPM

FIGURE: 2



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N

+100nT

-100nT

Site Boundary

NGR: 597830 244430 | REF: P1159

PROJECT: LODGE FARM, KERSEY ROAD, LINDSEY, SUFFOLK

DESCRIPTION: NON-PROCESSED DATA

CLIENT: ARCHAEOSERV

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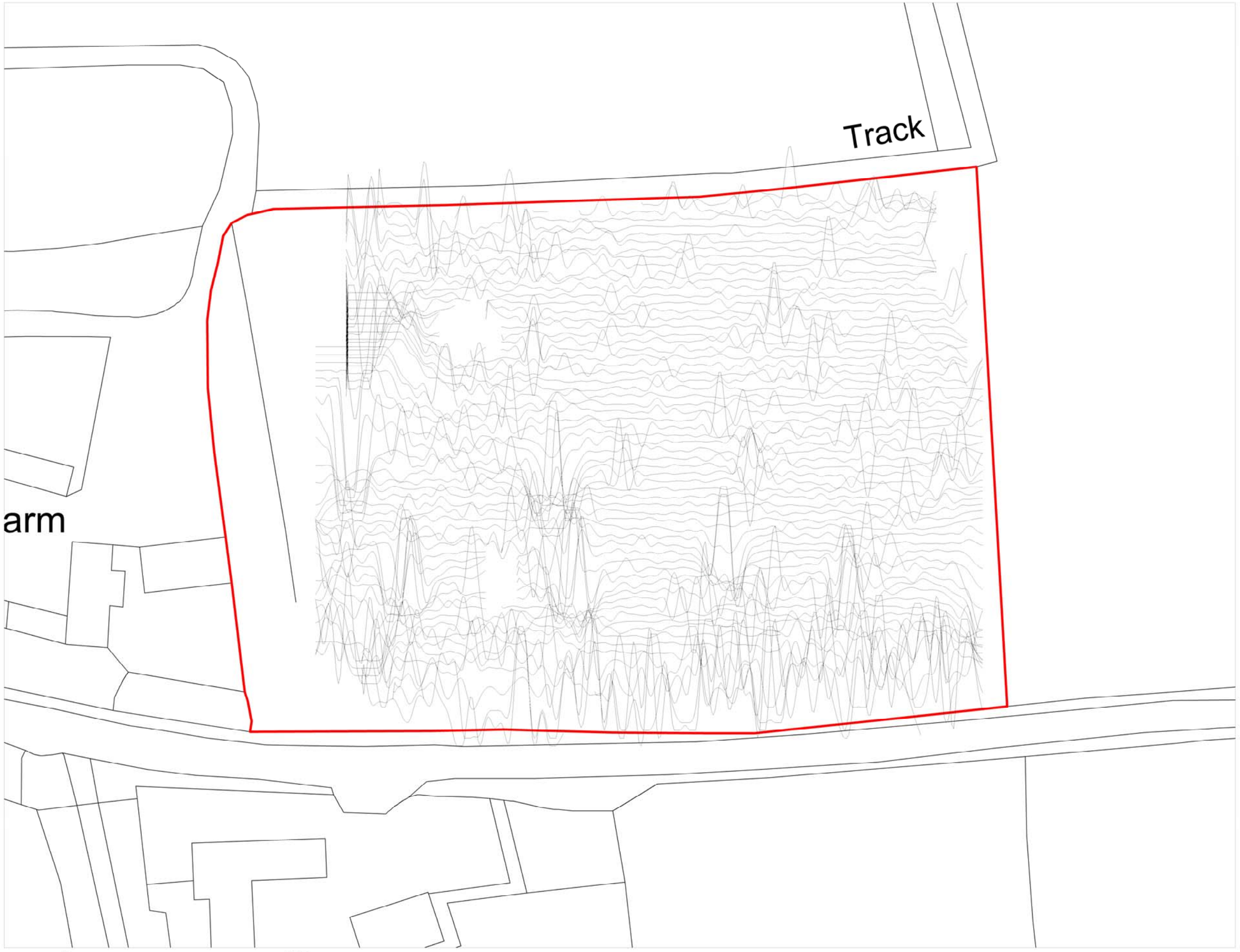
DATE: SEP 2016 | PLOT: A3 | VERSION: 1

AUTHOR: MJB

APPROVED: DPM

FIGURE: 3



1:500

0 1:500 30m

N

15.83 nT

0 nT

Site Boundary

10nT/cm	Scale Interval

NGR: 597830 244430 | REF: P1159

PROJECT: LODGE FARM, KERSEY ROAD, LINDSEY, SUFFOLK

DESCRIPTION: XY TRACE PLOT

CLIENT: ARCHAEOSERV

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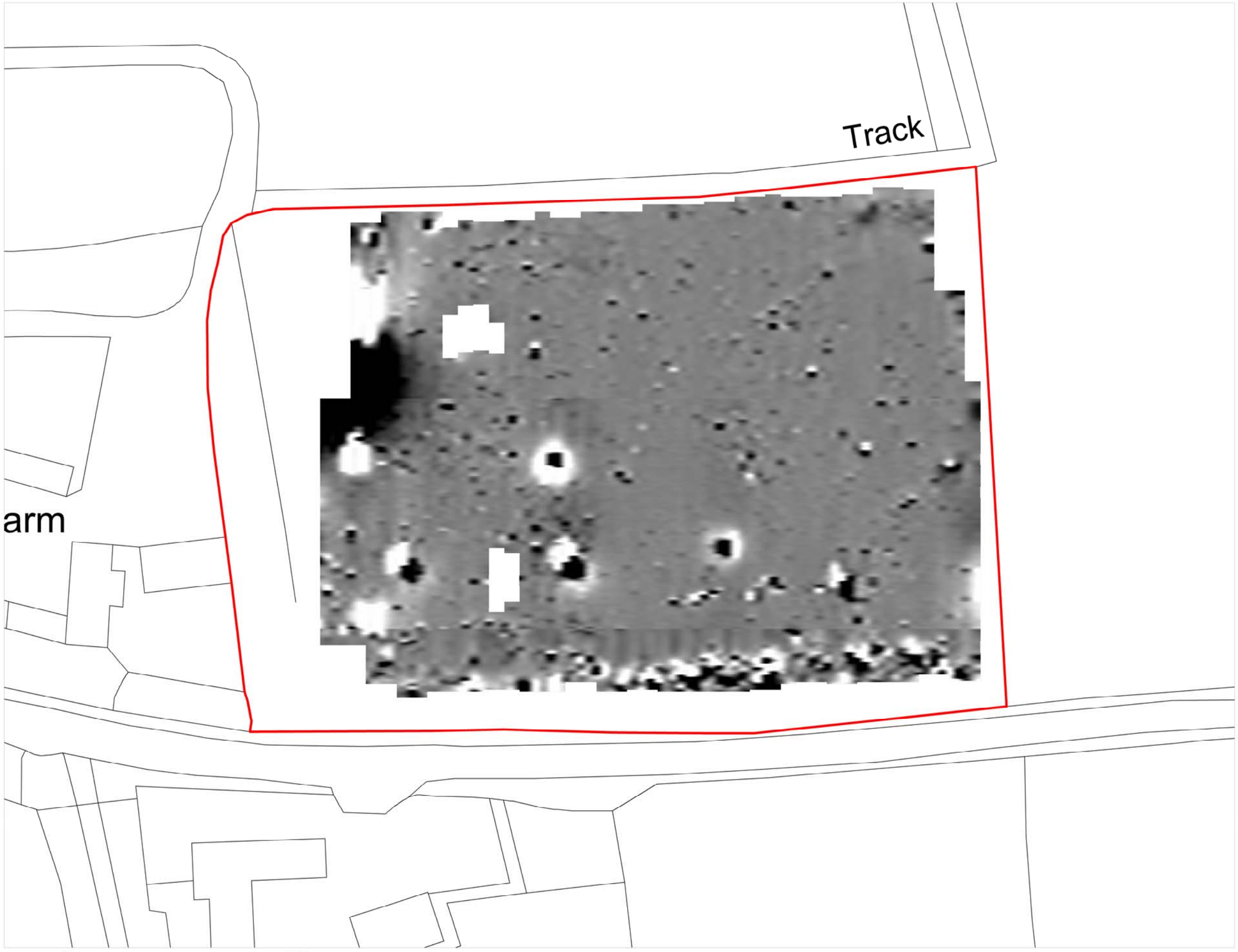
DATE:	PLOT:	VERSION:
SEP 2016	A3	1

AUTHOR: MJB

APPROVED: DPM

FIGURE: 4



N

+15.83nT

-15.19nT

Site Boundary

NGR: 597830 244430

REF: P1159

PROJECT: LODGE FARM, KERSEY ROAD, LINDSEY, SUFFOLK

DESCRIPTION: MINIMALLY PROCESSED DATA

CLIENT: ARCHAEOSERV

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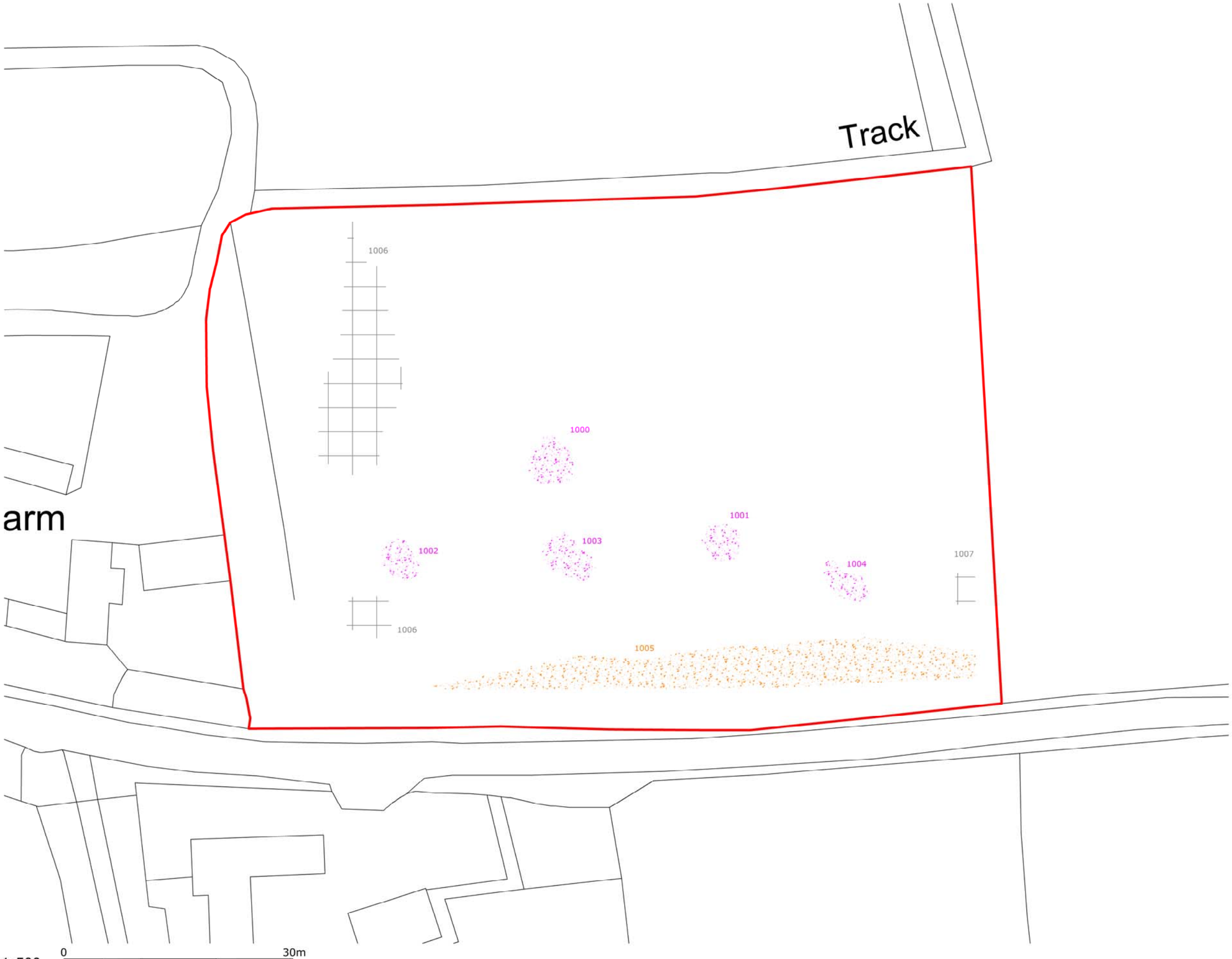
DATE: SEP 2016 | PLOT: A3 | VERSION: 1

AUTHOR: MJB

APPROVED: DPM

FIGURE: 5



N

Isolated Dipolar Responses

Negative & Positive Spread, Disturbed Ground

Magnetic disturbance

Site Boundary

NGR: 597830 244430

REF: P1159

PROJECT: LODGE FARM, KERSEY ROAD, LINDSEY, SUFFOLK

DESCRIPTION: INTERPRETATION PLOT

CLIENT: ARCHAEOSERV

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DATE: SEP 2016 | PLOT: A3 | VERSION: 1

AUTHOR: MJB

APPROVED: DPM

FIGURE: 6