

**Archaeological geophysical survey
at Stanton Cross (Plot 43)
Wellingborough
Northamptonshire
August 2021**

Event No. ENN110394

Report No. 21/084

Author: John Walford

Illustrator: John Walford



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Project Manager: Mo Muldowney

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Author: John Walford

Illustrator: John Walford

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Kent House
30 Billing Road
Northampton
NN1 5DQ
01604 809 800
www.mola.org.uk
business@mola.org.uk

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with company registration number 8727508 and charity registration number 1155198.
Registered office: Mortimer Wheeler House, 46 Eagle Wharf Road, London N1 7ED.*

STAFF

Project Manager: Mo Muldowney BA ACIfA

Supervisor: Graham Arkley MSc PCIfA

Assistant: Lucie Collett BA

Text: John Walford

Illustrations: John Walford

Project: Wellingborough Stanton Cross, Plot 43		OASIS No: molanort1- 502368	
ACTIVITY TYPE			
Project/Activity type	Geophysical survey		
Reason for investigation	Planning: Post determination		
Development type	Residential development		
Planning reference ID	-		
PROJECT LOCATION			
National grid ref	SP 920 684		
Site name	Stanton Cross, Plot 43		
REVIEWERS/ ADMIN			
HER for project	Northamptonshire		
National organisation	-		
WORK UNDERTAKEN			
Methodological summary	Magnetometer survey with a cart-mounted array of Bartington Grad-01-100L fluxgate gradiometers.		
Previous work?	None	Future works?	Unknown
Dates - Start date:	24-08-21	End date:	24-08-21
GEOPHYSICS			
Geology	Whitby Mudstone Formation. Ecton Formation river terrace deposits.		
Land use (i.e. arable)	Arable		
Survey type	Magnetometer survey		
Size of survey area	c3ha		
Instrumentation	Bartington Grad-01-1000L	Fluxgate – Multiple sensor	
Configuration	Pushed cart survey (8-probe)		
Spatial resolution	Traverse spacing	0.5m	Reading interval
Resolution (data values)	0.1nT		
BIBLIOGRAPHY			
Title	Archaeological geophysical survey at Stanton Cross (Plot 43), Wellingborough, Northamptonshire, September 2021		
Author(s)	John Walford		
Publisher / place / date	MOLA Northampton / Northampton / 2021		
Report number	21/084		
Report release delay?	Six months		
PEOPLE			
Organisation	MOLA		
Project manager	Mo Muldowney		
Project supervisor	Graham Arkley		
Funding body	RPS Group		
KEYWORDS			
Monuments found/ date	Ditch - undated		
RESULTS			
Description of outcomes	The survey identified only one credible archaeological feature, a north-south aligned ditch of uncertain date		
ARCHIVES			
Accession ID	Event No. ENN110394		
Finds archive repository	None	Expected date of submission:	-
Paper archive repository	None	Expected date of submission:	-
Digital archive repository	ADS	Expected date of submission:	TBC

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Archaeological geophysical survey at Stanton Cross (Plot 43), Wellingborough Northamptonshire August 2021

ABSTRACT

MOLA (Museum of London Archaeology) was commissioned by RPS Group to conduct an archaeological geophysical survey on Plot 43 of the Stanton Cross development site east of Wellingborough, Northamptonshire. The survey identified only one credible archaeological feature, a north-south aligned ditch of uncertain date.

1 INTRODUCTION

MOLA (Museum of London Archaeology) was commissioned by RPS Group to conduct an archaeological geophysical survey on Plot 43 of the Stanton Cross development site east of Wellingborough, Northamptonshire. (NGR SP 920 684). The aim of the survey was to determine the location and extent of any archaeological remains on the site.

The survey took place on 24th August 2021. It comprised a magnetometer survey and was conducted in accordance with a generic methodology (Walford 2019a) previously agreed with the Northamptonshire Archaeological Advisor, the late Lesley Ann Mather. The survey was also conducted in accordance with Chartered Institute for Archaeologists and European Archaeological Council guidelines (CIfA 2014 and Schmidt *et al* 2015). The work has been recorded by the Northamptonshire Historic Environment Record under event number ENN110394.

2 BACKGROUND

2.1 Location, geology and topography

Plot 43 lies towards the eastern edge of the Stanton Cross development area, approximately 2km east of Wellingborough. It is located north of the River Nene, south of the B571 Irthlingborough Road and south-east of Irthlingborough Grange, encompassing parts of two arable fields and an adjacent piece of waste ground. Only the eastern arable field was surveyed on this occasion as the western field had been fully surveyed in 2018 (Walford 2018) and the waste ground, lying to the south, was heavily overgrown.

The survey area lies at around 43m above Ordnance Datum, on a very gentle slope that leads southwards to the floodplain of the River Nene.

The geology of the survey area comprises sediments of the Whitby Mudstone Formation (Upper Lias) buried, in the south, by more recent river terrace deposits which are attributed to the Ecton Formation (BGS 2021).

2.2 Historical and archaeological background

Much of the Stanton Cross development area has been the subject of previous geophysical surveys, as indicated schematically on Figure 1. This work has revealed widespread archaeological remains, many of which have been confirmed by excavation.

One survey took place to the south-west of the present survey area in 2016, on Flood Relief Zone 3 (Fig 1, Walford 2016). It detected Iron Age and Roman enclosures, part of a Roman road, field boundary ditches and the footings of a small Roman building. Excavation by MOLA in 2017 corroborated the results of the survey but, unexpectedly, also revealed a Neolithic causewayed enclosure (Preece 2020). This enclosure had not been detected by the survey, probably due to the low magnetism of the Neolithic soils relative to the later Iron Age and Roman ones.

The greater part of the Stanton Cross site, amounting to c70ha, was surveyed in 2018 (Arkley and Walford 2018). This survey traced a northward continuation of the Roman road and identified various other foci of late prehistoric and Roman remains. The detected features included two pit alignments which, by analogy with similar sites, are likely to date from the late Bronze Age or early Iron Age. Whilst the extent of this survey was designed to avoid areas of known 19th-20th century ironstone quarrying (for the history of which, see Tonks 1990), the remains of some tramways between the quarries were detected. A subsequent survey, on Plot 17 in 2020, produced similar results, detecting a further length of the Roman road and a few enclosures and boundary ditches (Arkley and Walford 2020).

To the south of Stanton Cross, the Roman road is known to continue across the Nene floodplain (Lawrence 2000) towards the nearby Roman town at Irchester, on the south side of the river (Northamptonshire Historic Environment Record no. 1641).

Another recent geophysical survey identified Iron Age and Roman settlement remains to the south of the River Nene, on Flood Relief Zone 5 (Fig 1, Walford 2019b). Excavation of this site has recently been completed by MOLA, though no report is yet available.

3 METHODOLOGY

The magnetometer survey was undertaken with a Bartington magnetometer cart. This is a two-wheeled, lightweight sensor platform designed to be pushed by hand. It incorporates a bank of eight vertically-mounted Bartington Grad-01-1000L magnetic sensor tubes, spaced at half-metre intervals along a bar aligned crossways to the direction of travel.

The cart 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 eight readings per second and the GPS antenna outputs NMEA format data (GGA messages) at a rate of one position per second. These data streams are compiled into a single raw data file by MultiGrad601 logging software specifically designed for that purpose.

The cart was propelled 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 c1.8m/s, with an effective data resolution thus approximated to better than 0.225m 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 minor 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 processed survey data is presented in this report as greyscale raster images which have been rotated and scaled to fit against Ordnance Survey base-mapping. The processed results are presented at a scale of $\pm 3\text{nT}$ (Fig 2), with interpretive overlays for the data plots presented over the results at the same scale (Fig 3). Minimally processed data plots are presented at a scale of $\pm 10\text{nT}$ (Fig 4) as a comparison to the final destriped results (Fig 2).

4 SURVEY RESULTS

The survey results reveal only one probable archaeological feature. This is a slightly curving, north to south aligned section of ditch lying near the eastern side of the survey area. There may be a parallel ditch 55m to the west, and an elongated pit near the western boundary of the survey area but both of these putative features are represented by rather irregular magnetic anomalies which could just as reasonably be attributed to a geological cause.

Small dipolar anomalies are abundant throughout the dataset, giving it a very noisy appearance. Such anomalies are typically caused by small, insignificant pieces of metal debris within the plough soil. Where they occur as abundantly as they do here, they can sometimes be an indication that a field has been manured with 'green waste', a type of compost which is commonly contaminated with fragments of modern metallic rubbish.

A broad positive anomaly lying along the northern edge of the survey area and flanked to the south by a weak negative halo, can be attributed to a geological cause. It is a continuation of a feature that was identified in the field to the west in 2018. Elsewhere in the data there are various weak, nebulous positive anomalies which are likewise geological in origin.

5 CONCLUSION

The survey has detected very little of note, the only reasonably definite archaeological feature being a linear ditch. This situation contrasts with the much more abundant remains detected by previous surveys elsewhere on the Stanton Cross site and suggests that the present survey area may be relatively devoid of interest. However, the survey results do not completely preclude the presence of small or ephemeral archaeological features which may be too slight to detect by geophysical means.

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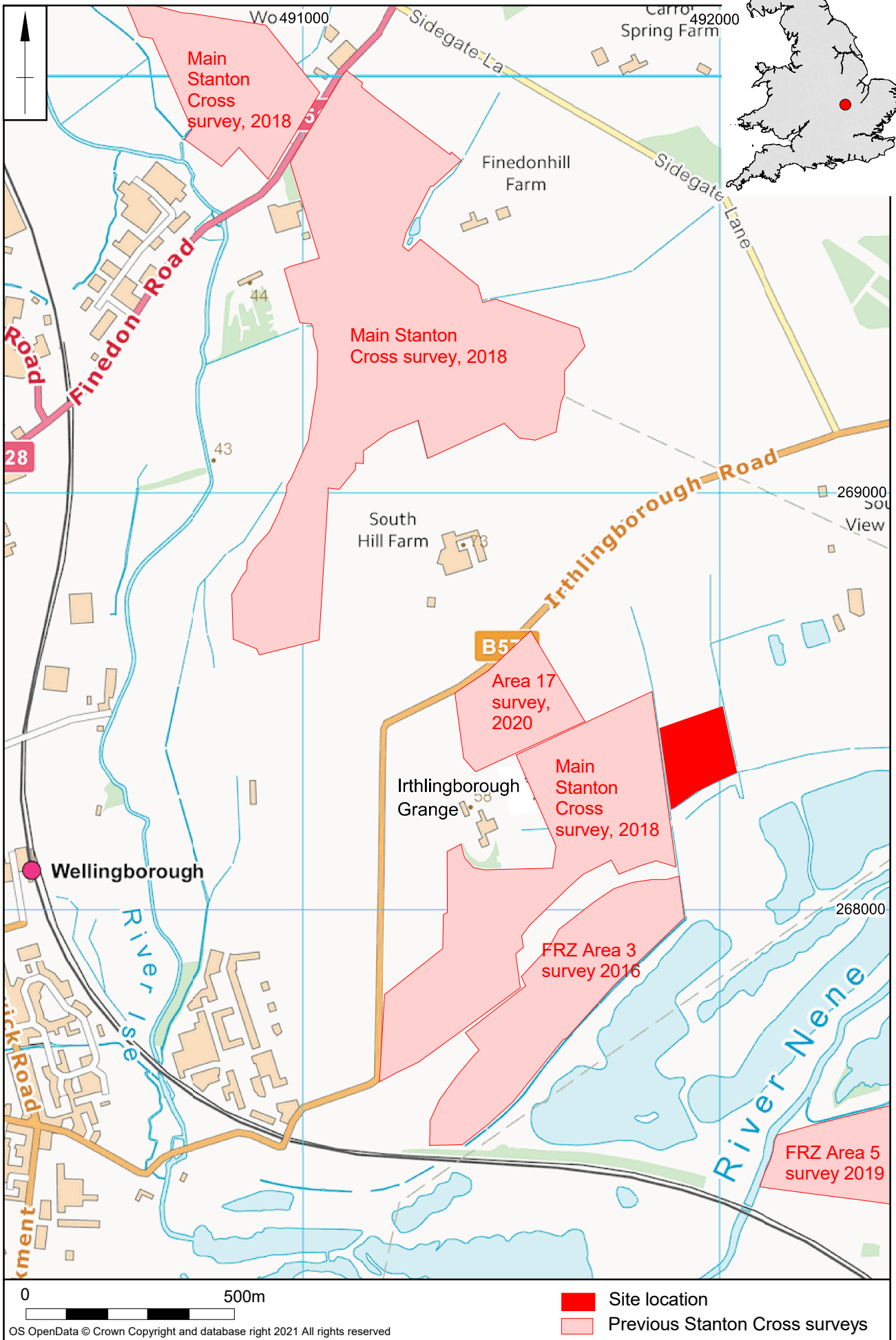
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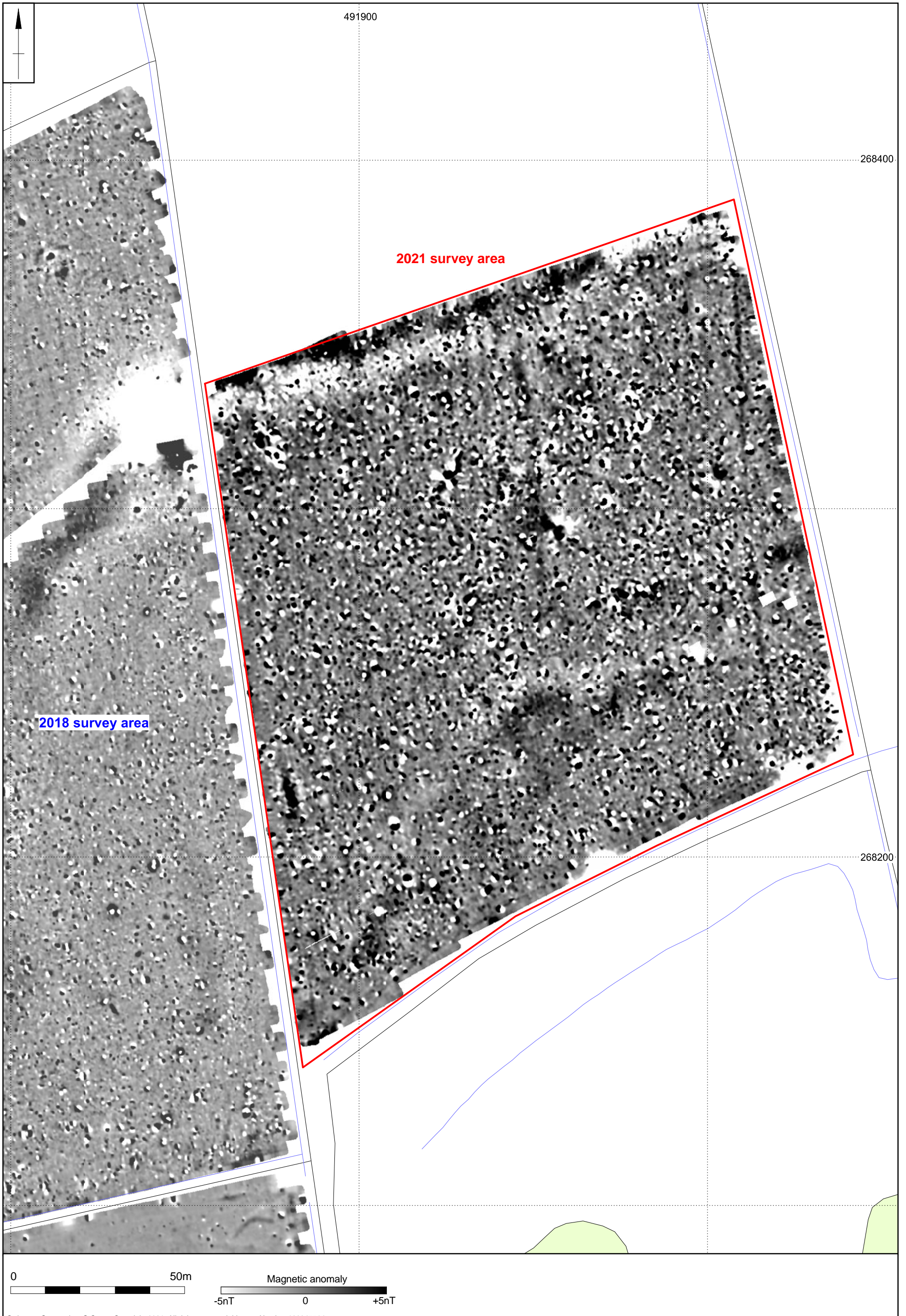
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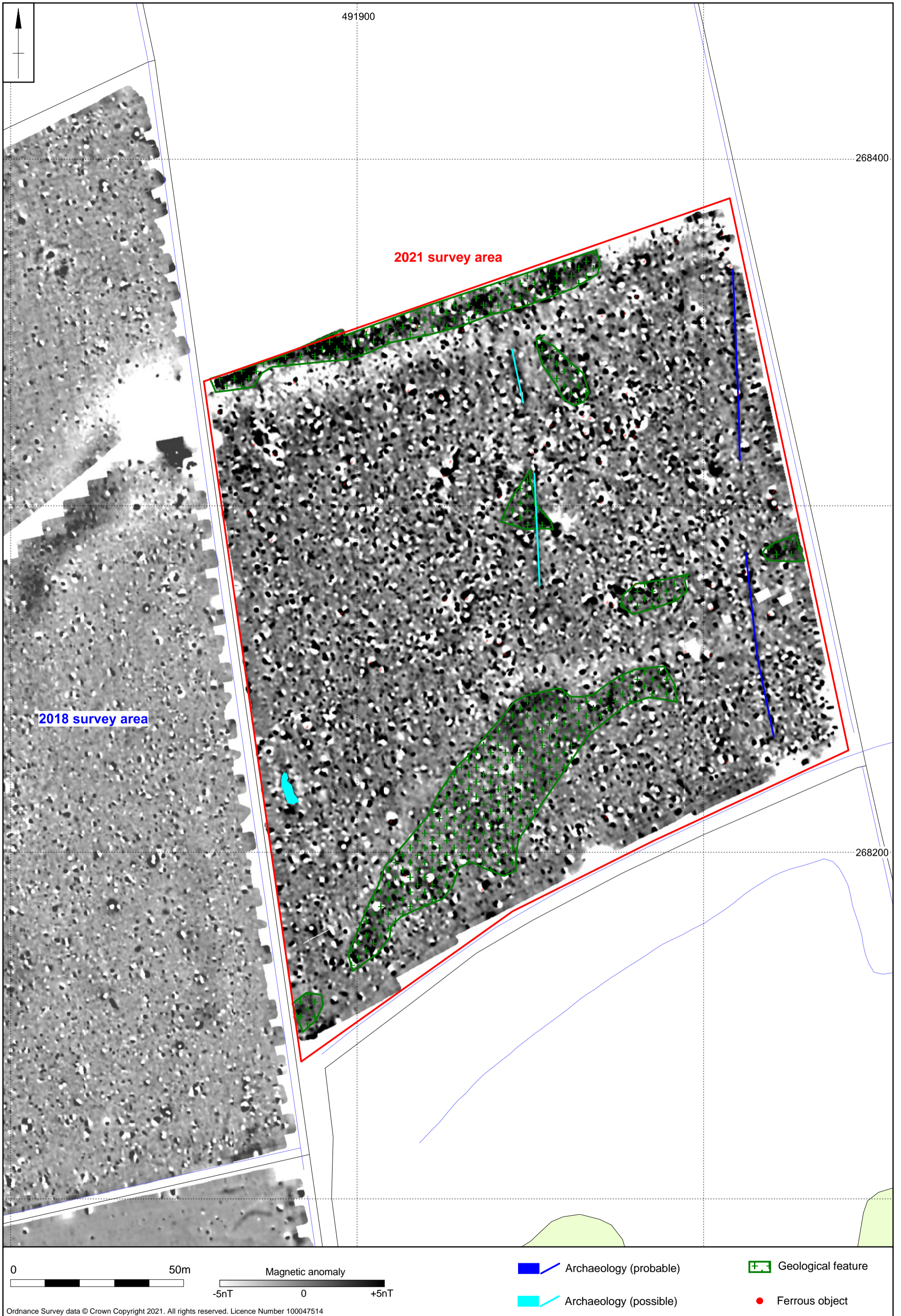
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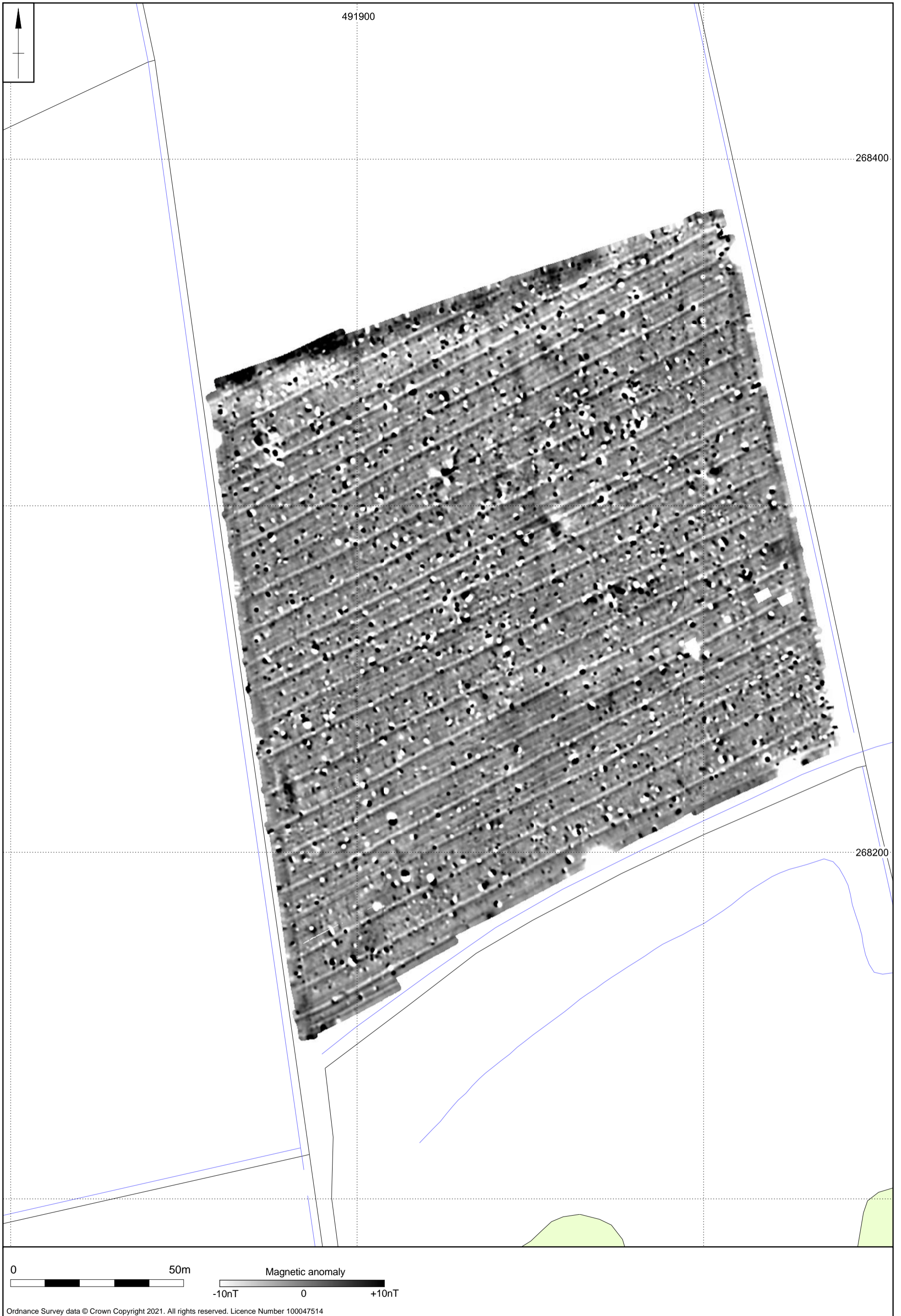
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Scale 1:1000 (A3)

Magnetometer survey interpretation Fig 3





MOLA
Kent House
30 Billing Road
Northampton
NN1 5DQ
01604 809800
www.mola.org.uk
business@mola.org.uk