



Archaeological geophysical survey of land east of Leicester Road, Earl Shilton Leicestershire May 2024

Report No. 24/051

Accession No. X.A52.2024

Author and illustrator: Sean Emery



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Project Manager: John Walford

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Kent House
30 Billing Road
Northampton
NN1 5DQ
01604 344355
www.mola.org.uk
business@mola.org.uk

*MOLA (Museum of London Archaeology) is a company limited by guarantee registered in England and Wales with company registration number 07751831 and charity registration number 1143574
Registered office: Mortimer Wheeler House, 46 Eagle Wharf Road, London N1 7ED*

STAFF

Project Manager: John Walford MSc

Fieldwork: Chris Manktelow BSc PCIfA
Sean Emery MA PCIfA

Text and illustrations: Sean Emery

Project: Leicester Road, Earl Shilton		OASIS No: molanort1-524636	
ACTIVITY TYPE			
Project/Activity type	Geophysical survey		
Reason for investigation	Planning: Pre application		
Development type	Residential - Housing		
PROJECT LOCATION			
National grid ref	SP 469 984		
Site name	Leicester Road, Earl Shilton		
REVIEWERS/ ADMIN			
HER for project	Leicestershire		
National organisation	Historic England		
WORK UNDERTAKEN			
Methodological summary	2024 - Magnetometer survey with a cart-mounted array of Bartington Grad-01-1000L fluxgate gradiometers.		
Previous work?	No	Future works?	Not known
Dates – Start date:	03/05/2024	End date:	03/05/2024
GEOPHYSICS			
Geology	Gunthorpe mudstone Wigston sand and gravel		
Land use (i.e. arable)	Pasture		
Survey type	Magnetometer survey		
Size of survey area	c1.5ha		
Instrumentation	Bartington Grad-01-1000L	Fluxgate – Multiple	
Configuration	Pushed cart survey (6-probe)		
Spatial resolution	Traverse spacing	0.8m	Reading interval 0.225m
Resolution (data values)	0.1nT		
BIBLIOGRAPHY			
Title	Archaeological geophysical survey of land east of Leicester Road, Earl Shilton, Leicestershire, May 2024		
Author(s)	Sean Emery		
Publisher / place / date	MOLA / Northampton / 2024		
Report number	24/051		
Report release delay?	Six months		
PEOPLE			
Organisation	MOLA		
Project manager	John Walford		
Project supervisor	Chris Manktelow		
Funding body	Manor Oak Homes		
KEYWORDS			
Monuments found/ date	Enclosure – Uncertain		
RESULTS			
Description of outcomes	The survey identified an undated feature of archaeological interest, comprising a sub-rectangular enclosure made up of three ditches. Two linear anomalies were also detected on the northern edge and in the centre of the survey area, with the former likely representing a ditch, and the latter signifying either a ditch or a medieval to post-medieval plough furrow.		
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Contents

1	INTRODUCTION	1
2	BACKGROUND	1
	2.1 Location, topography and geology.....	1
	2.2 Historical and archaeological background	2
3	METHODOLOGY	3
	3.1 Fieldwork.....	3
4	SURVEY RESULTS	4
5	CONCLUSION.....	4
6	BIBLIOGRAPHY	5

Figures

Front cover: Survey in progress

Fig 1: Site location 1:1250

Fig 2: Magnetometer survey data 1:1000

Fig 4: Magnetometer survey interpretation 1:1000

Fig 5: Unprocessed magnetometer data 1:1000

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ABSTRACT

MOLA was commissioned by Manor Oak Homes to undertake an archaeological geophysical survey (magnetometry) of c1.5ha of land on the north side of Earl Shilton, Leicestershire. The survey identified an undated feature of archaeological interest, comprising a sub-rectangular enclosure made up of three ditches. Two linear anomalies were also detected on the northern edge and in the centre of the survey area, with the former likely representing a ditch and the latter signifying either a ditch or a medieval to post-medieval plough furrow.

1 INTRODUCTION

MOLA was commissioned by Manor Oak Homes to undertake an archaeological geophysical survey of c1.5ha of land east of Leicester Road, on the north side of Earl Shilton, Leicestershire (NGR SP 469 984) (Fig 1). The aim of the survey was to identify and map any archaeological remains which may be affected by future development plans.

The survey methodology was set out in a Written Scheme of Investigation (MOLA 2024) and was guided by the national standards and guidance laid down by the European Archaeological Council and the Chartered Institute for Archaeologists (Schmidt *et al* 2015; ClfA 2020), together with all appropriate local planning authority requirements.

The Leicestershire County Council Museums Service and Historic Environment Team were both informed of the intended work, and the former has recorded the project under accession number X.A52.2024.

2 BACKGROUND

2.1 Location, topography and geology

The survey area comprised one pasture field split into several smaller paddocks on the northern edge of Earl Shilton (Fig 1). It was bounded by Spring Gardens bridleway to the east, Leicester Road to the west, and houses off Clear View Crescent to the south, with an unnamed lane boarding the survey area to the north.

The survey area lies on a north facing slope between c112m and c98m above Ordnance Datum.

The solid geology of the survey area is recorded as Gunthorpe Member mudstone. This is overlain in the south-west of the survey area by a deposit of Wigston Member sand and gravel (BGS 2024).

2.2 Historical and archaeological background

A full historic and archaeological background for the site is available in a recent Desk Based Assessment by MOLA (Crothers 2024). A condensed summary is given here, with the historic buildings or monuments being referenced by their Leicestershire HER number.

No historic buildings or monuments are recorded within the survey area, however ridge and furrow earthworks were noted when conducting the survey.

An archaeological trial trench evaluation, undertaken c270m to the west of the survey area, uncovered a large shallow pit containing a possible metal surface and prehistoric pottery (MLE26781). The same evaluation also recorded various layers and cut features, including a possible surface and structure of medieval date, c300m south-west of the survey area (MLE26782; Danielsson 2021).

Other archaeological investigations c1km south-east of the survey area, which took place in advance of the construction of the Earl Shilton bypass, recovered a total of 66 flints, mostly Bronze Age in date (MLE 17759). The same investigations uncovered two ring ditches which were interpreted as Bronze Age barrows (MLE9771). These were separated by two sections of an Iron Age pit alignment (MLE17758), as well as several gullies and postholes (MLE16734) (Coward 2003; Wayne 2009).

Archaeological investigations which occurred c950m south-east of the survey area uncovered an Iron Age droveway, field system and enclosure (MLE17958), as well as medieval windmill mound (Morris 2010; Huxley 2020).

Geophysical survey (Walford 2012) and trial trench evaluations (Newman 2013; Reid 2022) completed c1km south-east of the survey area between Earl Shilton and the bypass, uncovered a Bronze Age cremation and associated ditches and gullies (MLE22071), as well as a possible trackway (MLE20593) and a ditch of possible Roman date (MLE20592).

Three Roman coins (MLE10245 and MLE9381) and a hammered penny of Henry III (MLE10246) have been found during metal detecting in the fields to the north-west of the survey area. A penny of Edward I and a coin of Charles I were also found in the field c190m north-east of the survey area (MLE10248).

The scheduled monument of Earl Shilton Motte and Bailey Castle lies c170m south-east of the survey area (MLE2849, Scheduled Monument Number: 1010302). The castle was constructed soon after the Norman invasion and was demolished in the late 12th century. The earthworks comprise a large motte, c50m in diameter, with an encircling ditch. The full extent of the bailey is unknown, but it is thought that the churchyard boundary may delineate the extent of the boundary in the east.

The Grade II* listed church of St Simon and St Jude lies c230m south-east of the survey area. It was listed in a document of AD 1220 and may have developed from the castle chapel. The church was rebuilt in AD 1855, except for its 15th-century tower (MLE12985).

3 METHODOLOGY

3.1 Fieldwork

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 six vertically-mounted Bartington Grad-01-1000L magnetic sensor tubes, spaced at 0.8m intervals along a bar aligned crossways to the direction of travel. These sensors were calibrated ('zeroed') at the start of the day's survey to minimise heading errors and offsets in their zero values.

The cart also incorporates a Leica Geosystems Viva GNSS 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 GNSS 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 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 typical speed of coverage was under 1.8m/s, with an effective data resolution thus approximating to better than 0.225m x 0.80m.

3.2 Data processing and presentation

The raw survey data was initially processed with MLGrad601 software, which calculated a UTM co-ordinate for each data point by interpolating the GNSS 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.

The processed survey data is presented in this report as greyscale raster images, at a range of $\pm 3\text{nT}$, which have been rotated and scaled to fit against topographic base-mapping at a scale of 1:1000 (Fig 2). An interpretive drawing highlights notable anomalies for discussion (Fig 3). Minimally processed magnetometer data plots are presented at a range of $\pm 10\text{nT}$ (Fig 4).

4 SURVEY RESULTS

The survey detected one feature of archaeological interest, comprising a probable ditched enclosure in the north-eastern portion of the survey area. This enclosure is represented by three positive linear anomalies, the southern of which has a sharply angled dog-leg bend. These partially enclose a sub-rectangular area, which measures at least 50m in length. Whilst little certainty can be attributed to the dating of this feature it is perhaps most likely to belong to the earlier part of the medieval period. This is based, in part, on its location close to an area of medieval settlement, and in part on the dog-leg bend and the angularity of the corners, which would be unusual characteristics on a free-standing Iron Age or Roman enclosure. A later medieval or post-medieval dating can be largely ruled out, due to this feature being overlain by ridge and furrow earthworks.

A much weaker positive linear anomaly was detected on the northern edge of the survey area, and may represent another ditch, although the weakness of this response casts some doubt on this interpretation. In the centre of the survey area, another weak positive linear anomaly is present, again perhaps representing a ditch, though it aligns with the ridge and furrow earthworks and may alternatively relate to one of the furrows.

A short linear anomaly with a strong positive magnetic response was recorded in the southern portion of the survey area. The origins of this are uncertain, and it may merely represent a long piece of scrap metal buried in the topsoil, rather than a cut feature.

In the south of the survey area a weak intermittent positive linear anomaly has been identified and likely represents a field drain.

The small magnetic dipoles scattered throughout the survey area represent fragments of scrap metal or buried within the topsoil. The largest and strongest of these responses have been included on the interpretation figure (Fig 3). A dense area of these can be seen near the southern edge of the survey area and may indicate a pit or hollow backfilled with modern debris.

The magnetic halos that occur intermittently around the edge of the survey area were caused by fences and gates around the perimeter of the field. Similar halos also occur alongside the electric fences dividing the paddocks.

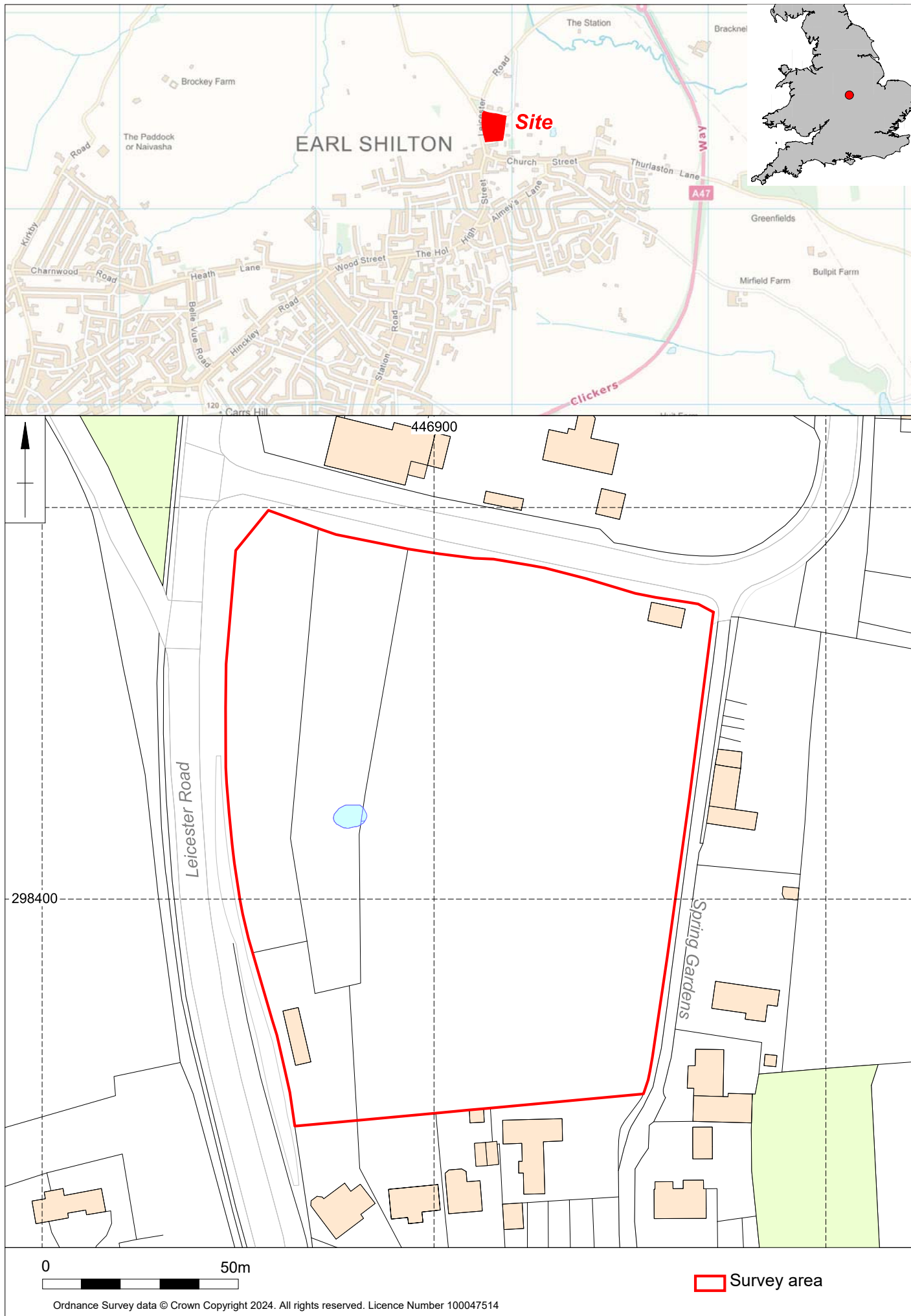
5 CONCLUSION

The survey successfully identified one area of archaeological interest, where there are three ditches which appear to define parts of an enclosure. While the date of this feature remains uncertain, it is perhaps of medieval origin. This dating is suggested due to the enclosure's sharply angled corners, which are more typical of medieval enclosures than of those of Iron Age or Roman date, and also due to the overlying ridge and furrow earthworks, formed during or prior to the post-medieval period, which the enclosure must pre-date. The suggested medieval dating is further supported by the fact the survey area lies on the edge of a settlement with medieval origins.

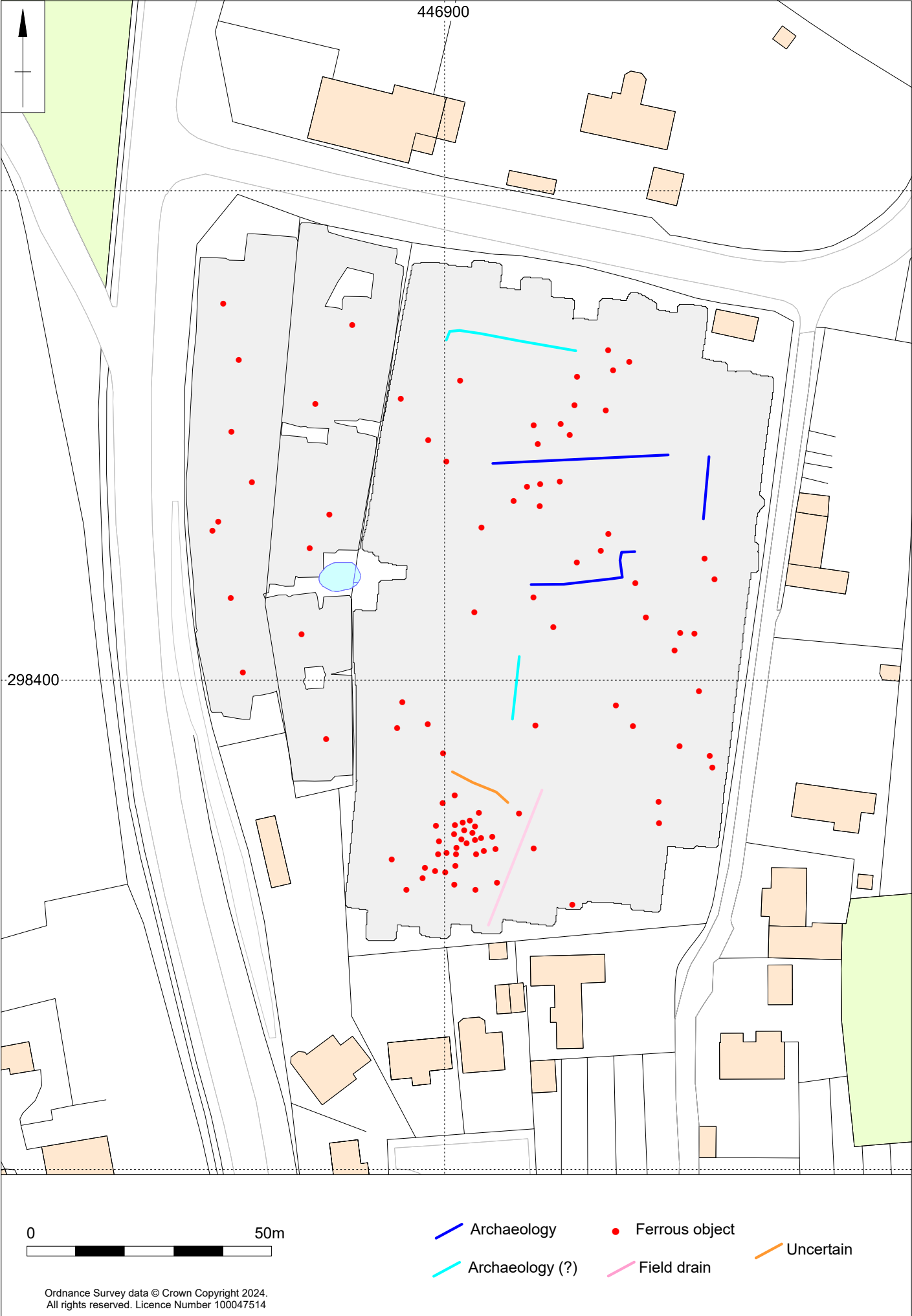
Two other linear features were also detected on the northern edge and in the centre of the survey area, with the more northern of these probably representing a ditch. The other is more difficult to interpret, and it is not clear whether it represents another ditch or a medieval plough furrow.

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Scale 1:1000 (A4)

Magnetometer survey interpretation Fig 3



Scale 1:1000 (A4)

Unprocessed magnetometer data Fig 4



MOLA
Kent House
30 Billing Road
Northampton
NN1 5DQ
01604 344355
www.mola.org.uk
business@mola.org.uk