

**Further archaeological geophysical survey at  
the 'Northern Gateway' development site  
Wolvercote, Oxford  
March 2015**

Report No. 15/52

Authors: Ian Fisher  
John Walford

Illustrators: Olly Dindol  
John Walford





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**OASIS REPORT FORM**

<b>PROJECT DETAILS</b>		molanort1-207625	
Project name	Further archaeological geophysical survey at the 'Northern Gateway' development site, Wolvercote, Oxford, March 2015		
Short description	MOLA was commissioned to undertake an earth resistance survey on land within the proposed 'Northern Gateway' development site, near the Wolvercote roundabout in north Oxford. The survey detected remnant furrows of medieval to post-medieval ridge and furrow cultivation, a possible minor trackway and some high resistance anomalies of unknown origin.		
Project type	Geophysical survey [earth resistance]		
Site status	None		
Previous work	Desk-based assessment (Featherby 2014) Geophysical survey [magnetometer] (Meadows and Walford 2014) Geophysical survey [earth resistance] (Walford 2014)		
Current Land use	Rough grassland		
Future work	Trial trenching		
Monument type/ period	Medieval ridge and furrow		
Significant finds	None		
<b>PROJECT LOCATION</b>			
County	Oxfordshire		
Site address	Woodstock Road, Wolvercote, Oxford		
Study area	0.75ha		
OS Easting & Northing	SP 4925 1025		
Height OD	c 65 m aOD		
<b>PROJECT CREATORS</b>			
Organisation	MOLA Northampton		
Project brief originator	David Radford, Oxford City Council		
Project Design originator	MOLA Northampton		
Director/Supervisor	John Walford		
Project Manager	John Walford		
Sponsor or funding body	Developer		
<b>PROJECT DATE</b>			
Start date	11 March 2015		
End date	12 March 2015		
<b>ARCHIVES</b>	Location	Content	
Physical	N/A		
Paper	MOLA Northampton	Site survey records	
Digital		Geophysical survey & GIS data	
<b>BIBLIOGRAPHY</b>	Journal/monograph, published or forthcoming, or unpublished client report		
Title	Further archaeological geophysical survey at the 'Northern Gateway' development site, Wolvercote, Oxford, March 2015		
Serial title & volume	MOLA Northampton Reports 15/52		
Author(s)	Ian Fisher and John Walford		
Page numbers	4		
Date	30 March 2015		

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# **Further archaeological geophysical survey at the 'Northern Gateway' development site Wolvercote, Oxford March 2015**

## **ABSTRACT**

*MOLA was commissioned to undertake an earth resistance survey on land within the proposed 'Northern Gateway' development site, near the Wolvercote roundabout in north Oxford. The survey detected remnant furrows of medieval to post-medieval ridge and furrow cultivation, a possible minor trackway and some high resistance anomalies of unknown origin.*

## **1 INTRODUCTION**

MOLA Northampton was commissioned to undertake an earth resistance survey of land within the proposed 'Northern Gateway' development site, close to the Wolvercote roundabout in north Oxford (NGR SP 4925 1025; Fig 1). This work had been requested by David Radford, the Oxford City Archaeologist, to complement magnetometer and earth resistance surveys previously conducted in February 2014 (Meadows and Walford 2014) and June 2014 (Walford 2014). The fieldwork was undertaken on 11 to 12 March 2015, and covered a 0.75ha field which had been inaccessible at the time of the earlier surveys.

## **2 TOPOGRAPHY AND GEOLOGY**

The proposed Northern Gateway development site consists of a block of pasture land which lies between the Peartree and Wolvercote roundabouts in north Oxford and is split into three sections by the A40 Northern Bypass and the A44 Woodstock Road (Fig 1). The land is bordered to the north-west by the embankment of the A34, to the north by the Peartree Park and Ride, to the east by a disused railway cutting and to the south by residential properties, a garage and hotel. The south-western boundary of the site lies close to the Oxford Canal, on the edge of the Thames floodplain.

The current survey area comprises a 0.75ha field of sub-rectangular form located in the western section of the proposed development site. It lies immediately west of the A40, midway between the Wolvercote roundabout and the A34 Wolvercote viaduct. At the time of the survey it was split into two halves by a barbed wire fence and had lain ungrazed and uncultivated for an extended period of time.

The topography of the current survey area comprises a short but moderately pronounced south-west facing slope overlooking the floodplain to the River Thames. This slope straddles the 65m contour line and stands c 5m above the floodplain itself. The underlying geology comprises Oxford Clay with no superficial drift (BGS 2014).

### 3 ARCHAEOLOGICAL BACKGROUND

The Northern Gateway development site is located within the historic parish of Wolvercote and, prior to the completion of a recent desk-based assessment (Featherby 2014), had not been the subject of any archaeological research. However, there are records of various archaeological discoveries having been made in the surrounding area.

The Wolvercote Terrace Gravels which underlie a small part of the development site are known to be a source of Palaeolithic worked flints. The Wolvercote brick pit, c 140m to the east, contained pointed handaxes and waste debitage (Beckley *et al* 2012), and other handaxes have been found in another pit c 270m to the north (Featherby 2014, 8-9).

Late Iron Age and Roman settlement remains have been discovered very close to the development site, on the opposite side of the A34, during works to replace the Wolvercote Viaduct. Other Iron Age and Roman remains are known from the wider vicinity, and there appears to have been a moderate scatter of low status rural settlements across the Oxford area. There is a possible Roman road c 1km east of the site, and there is evidence for a substantial Roman pottery industry with foci in south-east Oxford and at Yarnton, 2.5km to the north-west (Featherby 2014, 11-12).

In the medieval period the development site was under arable cultivation. This is demonstrated by the presence of ridge and furrow earthworks, which survive most prominently in the eastern field. The land has continued in largely agricultural use until the present day, although increasingly affected by road developments and suburban encroachment. One recent structure of note is a Second World War pillbox which stands alongside the A40, towards the centre of the site.

A magnetometer survey was conducted across all accessible parts of the proposed development site in February 2014 (Meadows and Walford 2014). This detected ridge and furrow, areas of recently disturbed ground and a few minor anomalies of uncertain significance. An earth resistance survey was subsequently undertaken on four small sample areas to test the reliability of the magnetometer results and to aid the interpretation of a few specific magnetic anomalies (Walford 2014). This also detected ridge and furrow, as well as a possible outcrop of terrace gravel and some small rectilinear anomalies which could conceivably represent buildings.

### 4 METHODOLOGY

The earth resistance survey was undertaken in March 2015, in fine and dry weather. The ground was in a suitable condition, having been recently mown and cleared of blackthorn scrub.

The instrument used for the survey was a Geoscan Research RM15 resistance meter. It was deployed in twin probe configuration with mobile probe spacing of 0.5m and the remote probes spaced a similar distance apart. This instrument configuration is standard for archaeological survey and its use accords with the guidelines issued by English Heritage and by the Chartered Institute for Archaeologists (EH 2008; CIfA 2014).

The survey area was divided into 20m grid squares which were established manually with a tape measure and optical square and were tied in to the Ordnance Survey National Grid by measurement with a Leica Viva RTK GPS. Measurements of earth resistance were collected at a spatial resolution of 1m x 1m within each of these grid



squares and were recorded to a precision of 0.1 Ohms ( $\Omega$ ). These measurements were downloaded, combined and processed with Geoplot 3.00u software. The only processing required was grid edge matching, which compensated for the minor offsets caused by the occasional relocations of the remote probes.

A plot of the processed data is presented in this report in the form of a greyscale image at a range of 5 $\Omega$  (white) to 10 $\Omega$  (black). This has been scaled, rotated and resampled (georectified) for display against the Ordnance Survey base mapping in Figure 2 and is presented with an interpretative overlay in Figure 3. An image of the unprocessed survey data is presented in Figure 4.

## 5 SURVEY RESULTS

The earth resistance values measured across the site were generally very low and tightly grouped so that, once balanced by grid edge-matching, almost every value fell within a range of 5 - 10  $\Omega$ . Such low values would be consistent with the moderately soft and moist clay substrate that is indicated by the geological mapping.

A series of very weak and indistinct parallel linear anomalies pass from north-east to south-west through almost the entire survey area. These represent residual traces of medieval to early post-medieval ridge and furrow and conform to the arrangement of ridge and furrow previously detected in the adjacent fields (Meadows and Walford 2014; Walford 2014).

In the north-east corner of the field a broad band of high resistance has been recorded, aligned north-east to south-west. This coincides with a very shallow linear depression in the upper slope of the field (pers obs) and aligns on a smaller area of high resistance to the south-west. It is not known whether these features have a natural or a man-made cause, but if the latter then it could be that they represent a minor trackway along the edge of the field.

In the north-western corner of the field the survey has identified a cluster of small, irregular high resistance anomalies of unknown origin. Possible causes could include small patches of gravel, hardcore or compacted ground. High resistance anomalies can also be caused by tree-roots, but this is a less likely cause in this case as the anomalies are too tightly defined and too distant from the hedges where the greatest concentrations of roots would be expected to occur.

## 6 CONCLUSION

The survey has detected traces of medieval to early post-medieval ridge and furrow, the arrangement of which conforms to that previously identified in the adjacent fields (Meadows and Walford 2014; Walford 2014). The survey has also identified one anomaly which possibly relates to a minor trackway, and a small cluster of other anomalies which are of uncertain origin.

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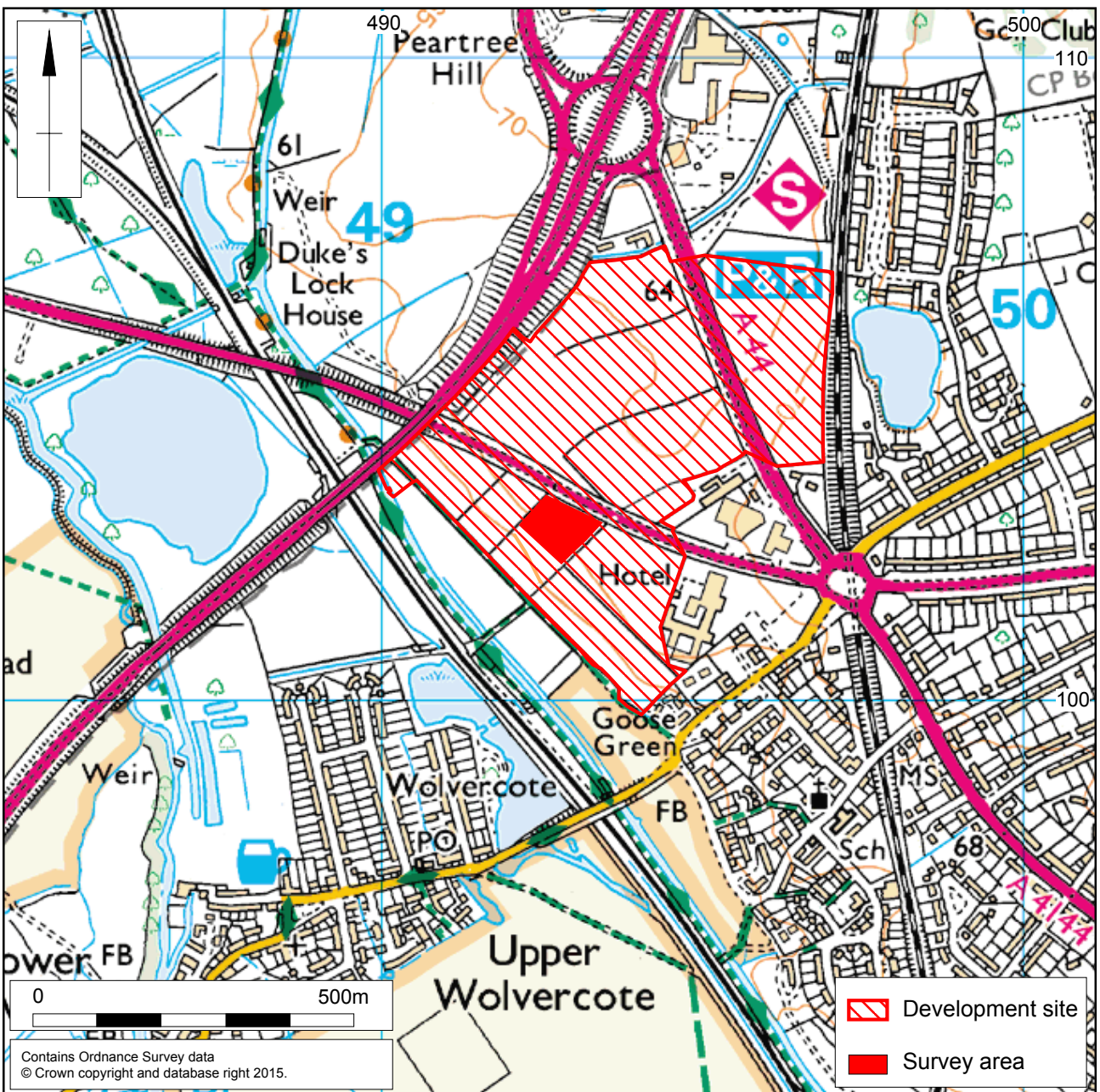
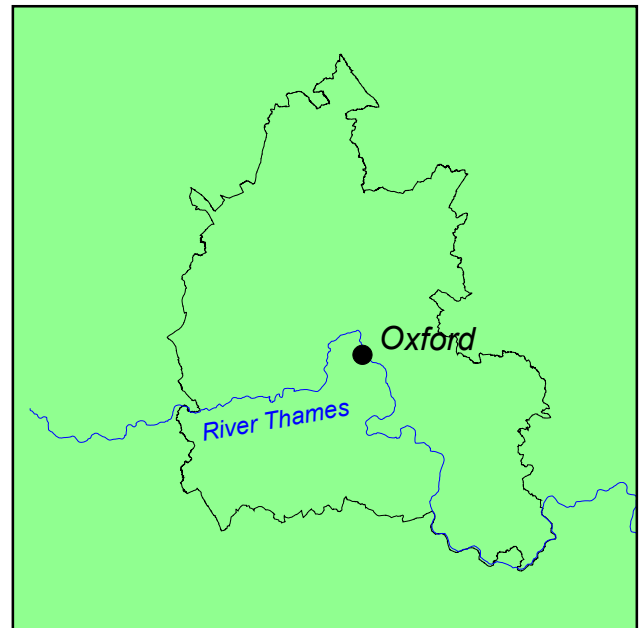
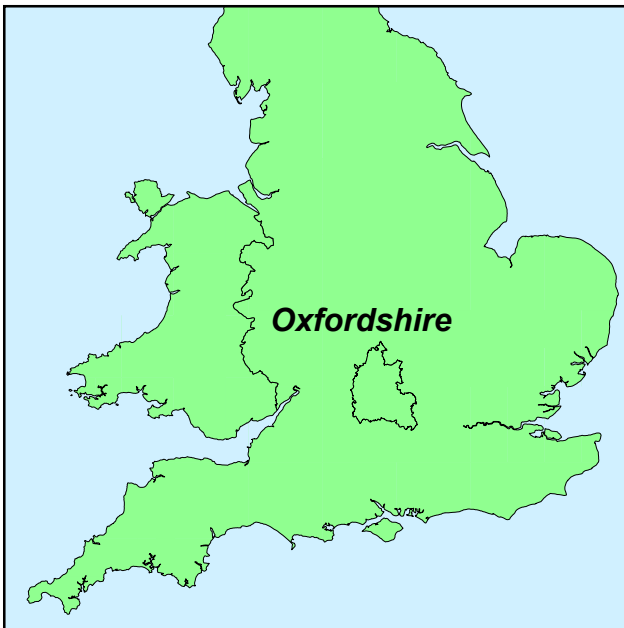
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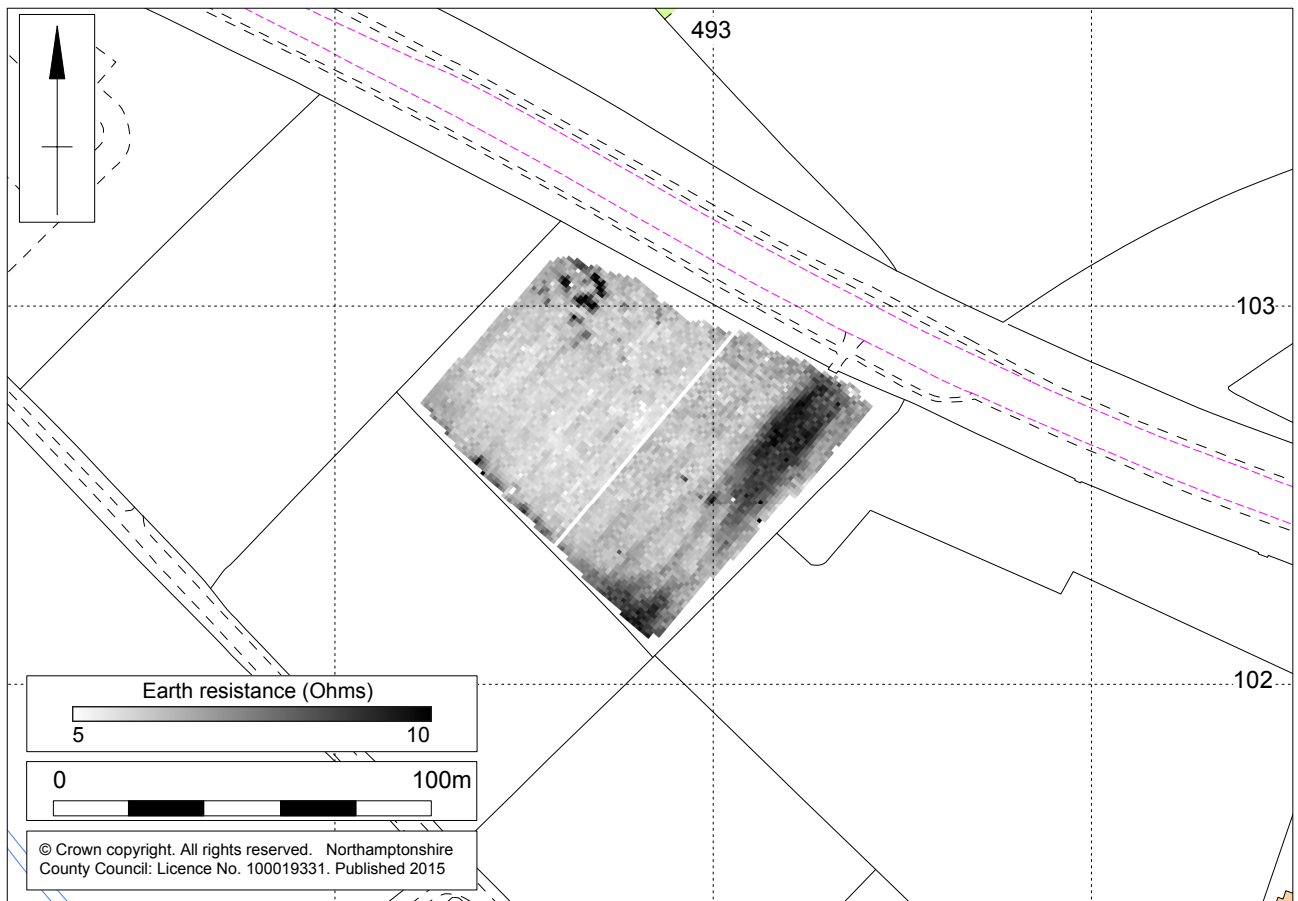
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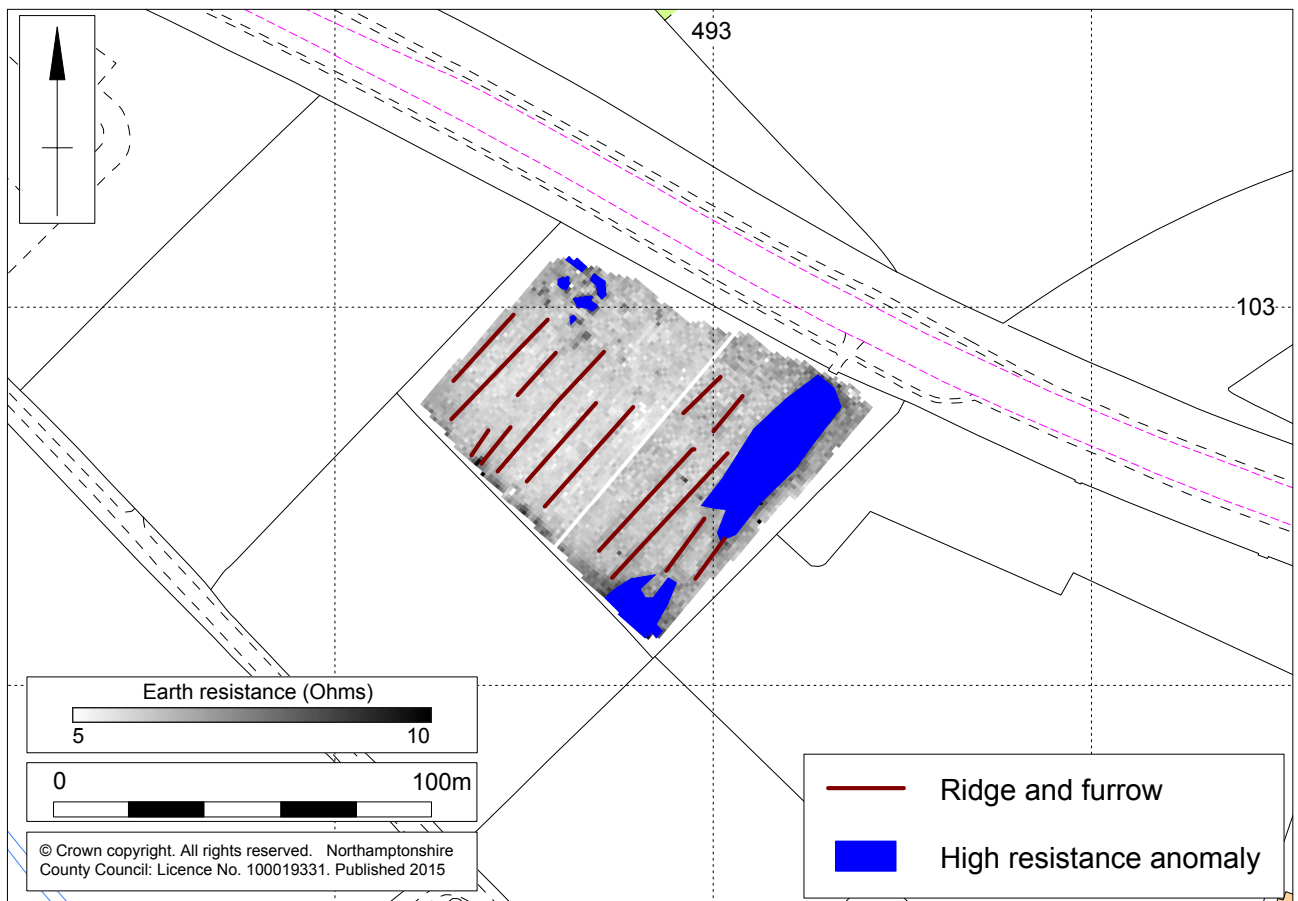
Scale 1:10,000

Site location Fig 1



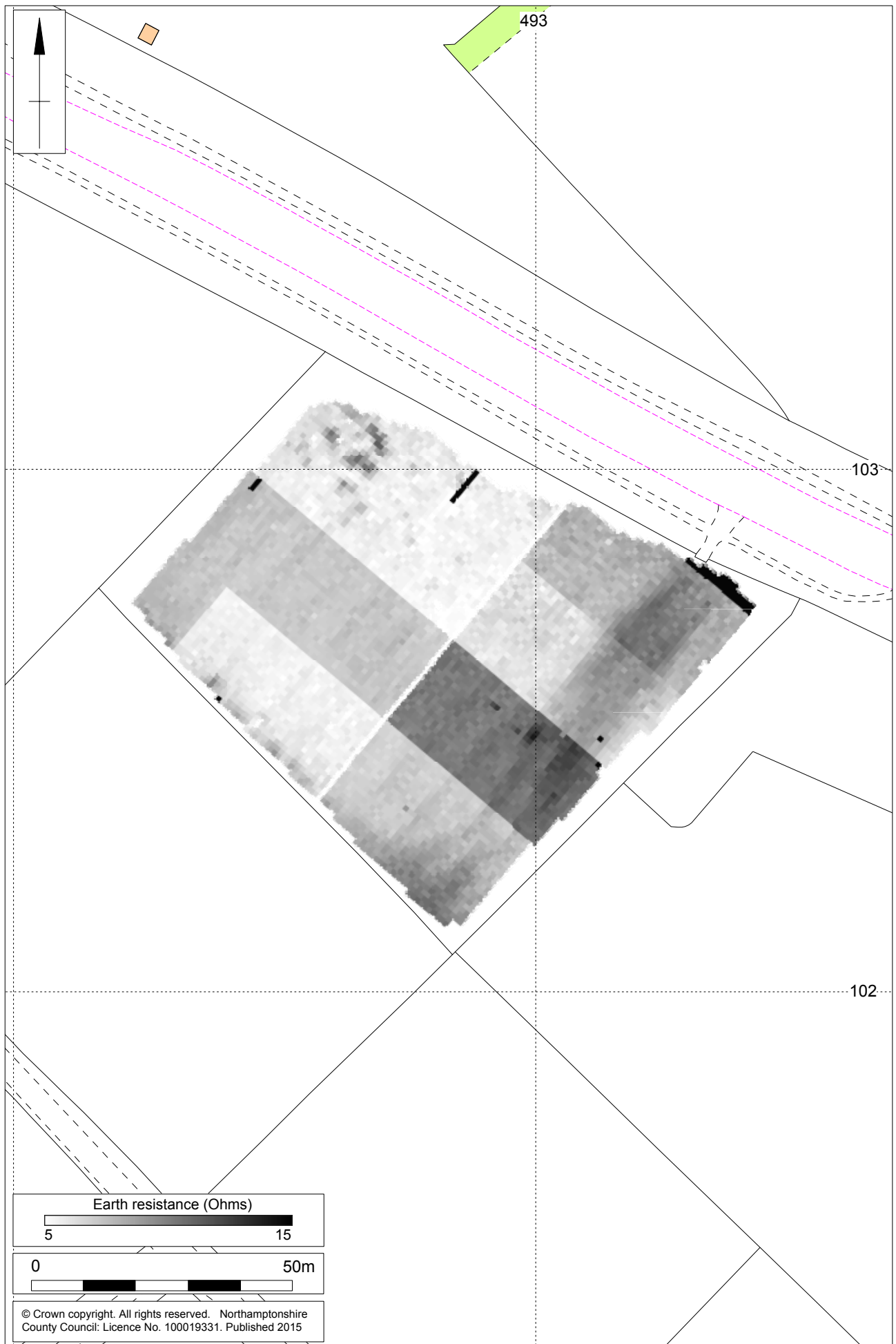
1:2000

Earth resistance survey results Fig 2



1:2000

Earth resistance survey interpretation Fig 3



1:1000

Unprocessed earth resistance data Fig 4

# MOLA



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