

**Further archaeological geophysical survey at
the 'Northern Gateway' development site
Wolvercote, Oxford
June 2014**

Report No. 14/137

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Illustrator: John Walford



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Quality control and sign off:

Issue No.	Date approved:	Checked by:	Verified by:	Approved by:	Reason for Issue:
1	09/07/2014	Pat Chapman	Mark Holmes	Andy Chapman	Draft for client review

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OASIS REPORT FORM

PROJECT DETAILS		molanort1-183936	
Project name	Further archaeological geophysical survey at the 'Northern Gateway' development site, Wolvercote, Oxford		
Short description	MOLA was commissioned to undertake an earth resistance survey of five sample areas within the proposed 'Northern Gateway' development site, between the Peartree and Wolvercote roundabouts in north Oxford. The survey detected medieval or post-medieval ridge and furrow, a possible outcrop of terrace gravel, and some small rectilinear anomalies which could possibly represent buildings.		
Project type	Geophysical survey [earth resistance]		
Site status	None		
Previous work	Desk-based assessment (Featherby 2014) Geophysical survey [magnetometer] (Meadows and Walford 2014)		
Current Land use	Pasture		
Future work	Trial trenching		
Monument type/ period	Medieval ridge and furrow		
Significant finds	None		
PROJECT LOCATION			
County	Oxfordshire		
Site address	Woodstock Road, Wolvercote, Oxford		
Study area	c1.7ha		
OS Easting & Northing	SP 494 104		
Height OD	c 67 m aOD		
PROJECT CREATORS			
Organisation	MOLA		
Project brief originator	Oxfordshire County Council		
Project Design originator	MOLA		
Director/Supervisor	Adam Meadows		
Project Manager	Mark Holmes		
Sponsor or funding body	Kier Property		
PROJECT DATE			
Start date	16 June 2014		
End date	20 June 2014		
ARCHIVES	Location	Content	
Physical	N/A		
Paper	MOLA Northampton	Site survey records	
Digital		Geophysical survey & GIS data	
BIBLIOGRAPHY	Journal/monograph, published or forthcoming, or unpublished client report		
Title	Further archaeological geophysical survey at the 'Northern Gateway' development site, Wolvercote, Oxford, June 2014		
Serial title & volume	MOLA Northampton Reports 14/137		
Author(s)	John Walford		
Page numbers	5		
Date	9 July 2014		

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**FURTHER ARCHAEOLOGICAL GEOPHYSICAL SURVEY AT
THE 'NORTHERN GATEWAY' DEVELOPMENT SITE
WOLVERCOTE, OXFORDSHIRE
JUNE 2014**

ABSTRACT

MOLA was commissioned to undertake an earth resistance survey of five sample areas within the proposed 'Northern Gateway' development site, between the Peartree and Wolvercote roundabouts in north Oxford. The survey detected medieval or post-medieval ridge and furrow, a possible outcrop of terrace gravel, and some small rectilinear anomalies which could possibly represent buildings.

1 INTRODUCTION

MOLA was commissioned by Kier Property to undertake an earth resistance survey of five sample areas within the proposed 'Northern Gateway' development site, lying between the Peartree and Wolvercote roundabouts in north Oxford (NGR SP 494 104; Fig 1). This work had been requested by David Radford, the Oxford City Archaeologist, to complement a magnetometer survey conducted in February 2014 (Meadows and Walford 2014). The earth resistance survey was undertaken on 16-20 June 2014, and covered a total area of c 1.5ha.

2 TOPOGRAPHY AND GEOLOGY

The proposed 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 proposed development site has a general tilt down to the south-west with its highest peak at the eastern edge at an approximate height of 70m aOD. This gradual slope levels out at around 67m aOD in between the A40 and A44. Then the trend resumes with a sharper decline down towards the River Thames floodplain on the south western side of the A40, reaching a minimum height of c 58m aOD.

The proposed development site mostly lies upon the Oxford Clay formation, though the south-western edge lies partly on alluvium deposited by the nearby River Thames. Towards the south-eastern part of the area the Oxford Clay is overlain by a deposit of Wolvercote Terrace Gravel (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 (Fig 2). The present survey was requested to follow on from this work, to test the reliability of the magnetometer results and to aid the interpretation of a few specific magnetic anomalies.

4 METHODOLOGY

The earth resistance survey was undertaken in June 2014, in fine and dry weather. The ground conditions were favourable, with dry grass and ground that was moist but not saturated.

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. Measurements of earth resistance were recorded to a precision of 0.1 Ohms (Ω). This instrument configuration is standard for archaeological survey and its use accords with the guidelines issued by English Heritage and by the Institute for Archaeologists (EH 2008; IfA 2011).

The survey was intended to cover five sample blocks, but one of these proved to be too overgrown to survey. The remaining four blocks were each divided into 20m grids, and data was collected at a spatial resolution of 1m x 1m within each grid square. The grids 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.

The survey data were downloaded, meshed and processed with Geoplot 3.00u software. Three of the datasets required no processing other than grid balancing, to correct the slight variations in background levels arising from relocation of the remote probes. The fourth (Area C) required some simple arithmetic manipulation to equalise variations in contrast between certain grids.

The processed data are presented in this report in the form of greyscale plots, each at a particular range appropriate to the specific dataset. These plots have been scaled, rotated and resampled (georectified) for display against the Ordnance Survey base mapping (Fig 3) and are also presented with an interpretative overlay (Fig 4). Plots of the unprocessed survey data are presented in Figure 5.

5 SURVEY RESULTS

5.1 Area A

The earth resistance data from this area (Fig 3) closely correspond to the results from the earlier magnetometer survey (Fig 2). The surviving ridge and furrow earthworks are represented by gently curving parallel linear anomalies which cross the area from east to west, and a modern pipe trench is represented by an indistinct low resistance linear anomaly which runs parallel with the field boundary. The data also exhibits a broad scale variation in background resistance, which arises from slight variations in soil moisture on different parts of the slope.

5.2 Area B

The data from this area contain a series of parallel linear anomalies, aligned east-west, representing ridge and furrow. These are most distinct in the north of the area but can also be discerned elsewhere. There is also a group of three small rectilinear high resistance anomalies in the northernmost part of the area. It is possible that these represent stone building footings, but the evidence is too slight to support any firm conclusion.

The whole eastern half of the Area B has a very low background resistance with some subtle but intricately convoluted patterning similar to that mapped by the magnetometer survey (Fig 2). It is probable that this patterning represents periglacial disruption of the Oxford Clay geology. The chain of three small high resistance anomalies that appears to be associated with the patterning is of unknown significance.

An interrupted band of moderately high resistance extends almost centrally across the area from south-west to north-east. It is unclear whether it represents an archaeological or a geological feature but the latter seems more likely. At one point this band is straddled by a faint, H-shaped low resistance anomaly which correlates with a similar H-shaped negative anomaly in the magnetic data (Fig 2). The combination of low resistance and negative magnetism suggests that the feature is probably natural, as cut features such as ditches would typically produce positive, low resistance anomalies, and wall footings would typically produce negative, high resistance ones.

The area of high resistance at the northern end of Area B probably indicates an abrupt change in the nature of the substrate. The most likely explanation would be that it represents a small and unmapped pocket of terrace gravel capping the Oxford Clay. The alternative possibility is that it represents a spread of hardcore associated with the recent works on the adjacent viaduct. However, the latter suggestion seems less

plausible as the high resistance does not correspond with the extent of modern disturbance mapped by the magnetometer survey (Fig 2), nor does it mask the response from the ridge and furrow anomalies as a superficial layer of debris might do. Similar arguments can be applied to the area of moderately high resistance in the west of the survey area, which may also represent an outcrop of gravel.

5.3 Area C

The data from this area have a very limited range, with almost all the readings being between 5Ω and 7.5Ω. There are no coherent anomalies, and the slight variations that occur between the readings amount to no more than random background noise.

5.4 Area D

The data from this area contain a series of poorly defined parallel anomalies which represent ridge and furrow. They are aligned from north-east to south-west, down the long axis of the field, and correspond with some very slight residual earthworks.

5.5 Area E

Area E was not surveyed, as it was covered with waist-high grass and other vegetation which would have tangled the survey cables and made reasonable progress impossible.

6 CONCLUSION

The survey results presented in this report generally correspond to the results of the earlier magnetometer survey (Meadows and Walford 2014), confirming the presence of ridge and furrow across various parts of the proposed development area. However, the survey of Area B has provided some useful extra information, indicating some possible (though uncertain) building remains, and a possible unmapped patch of terrace gravel.

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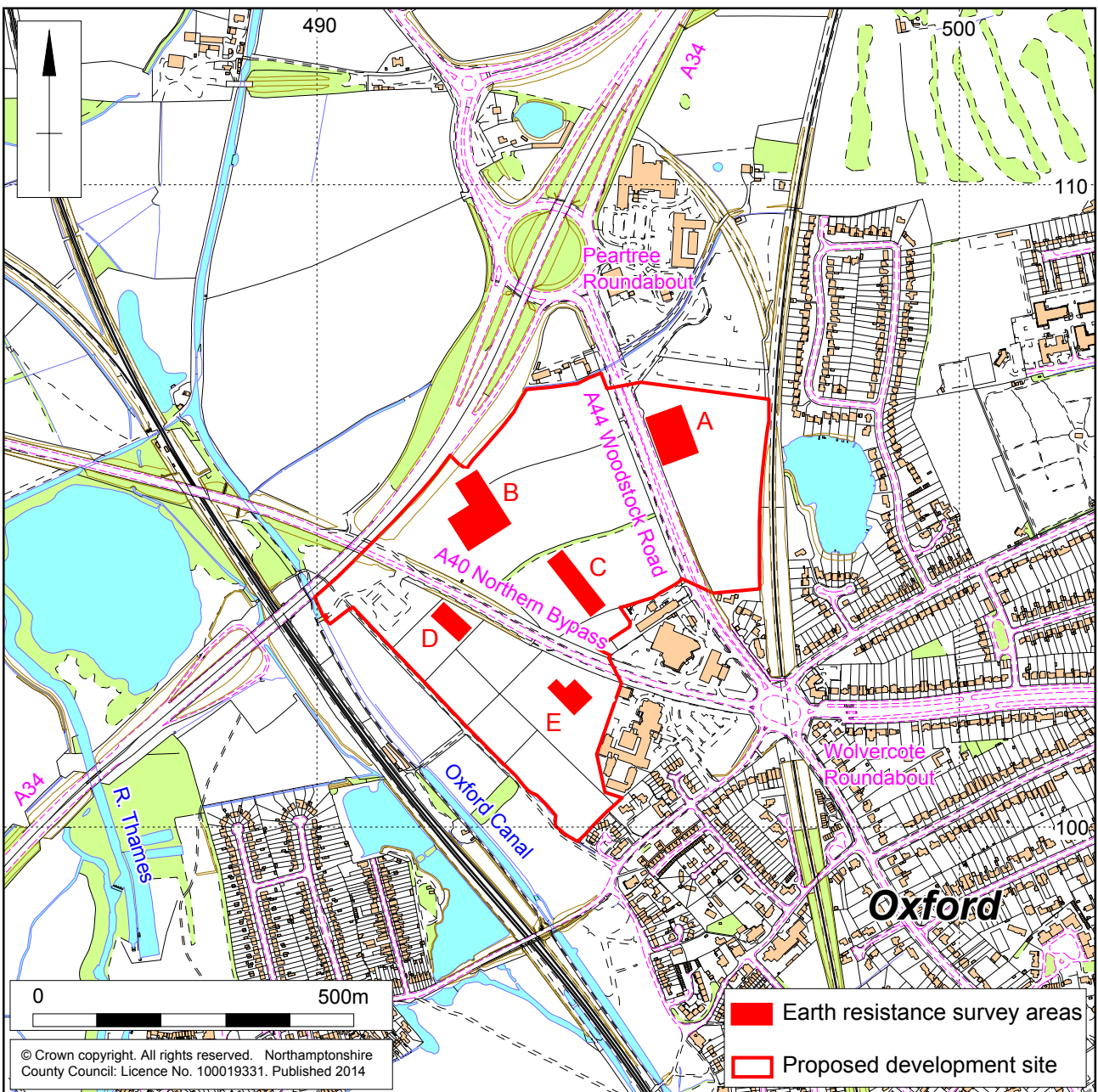
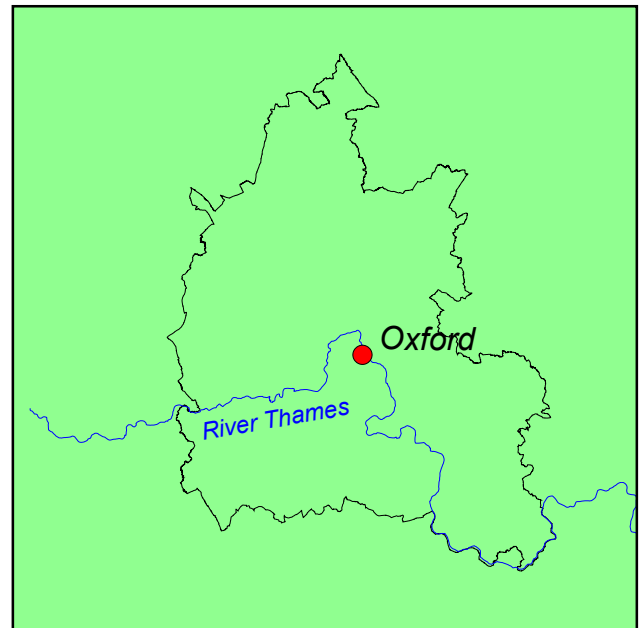
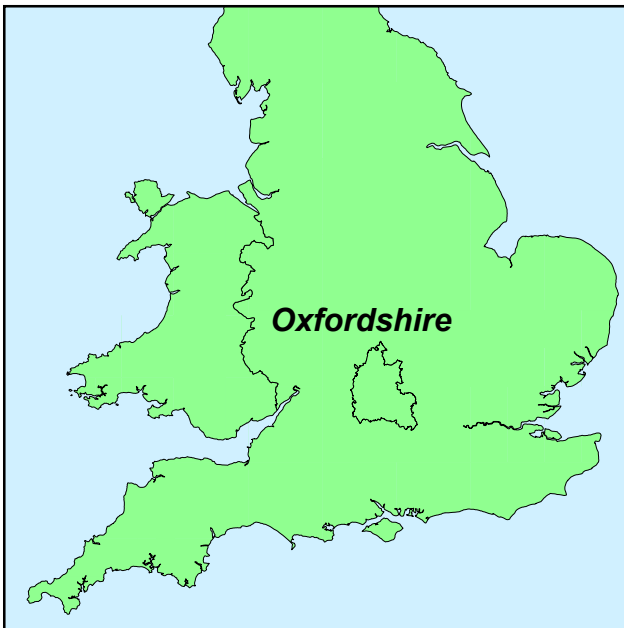
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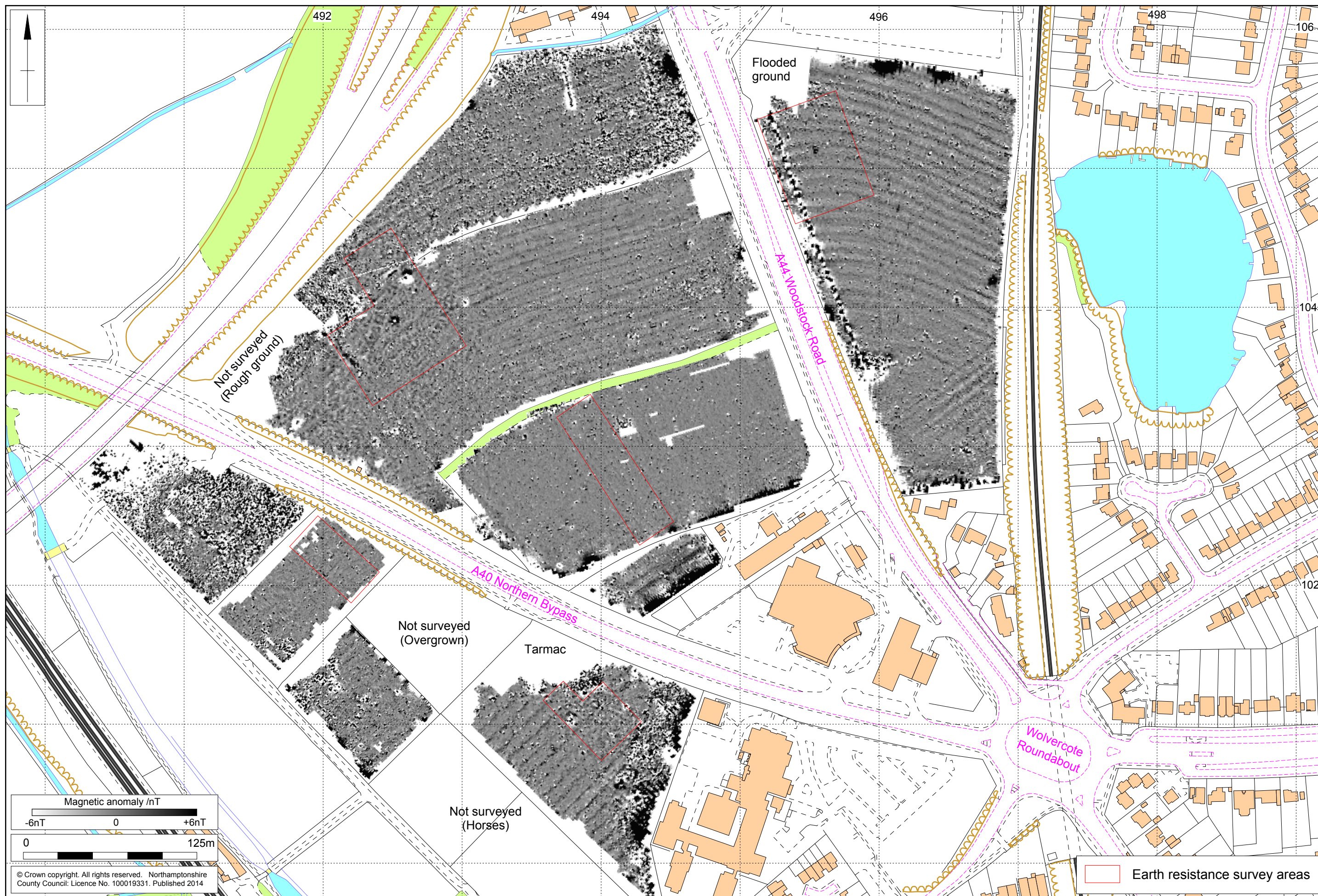
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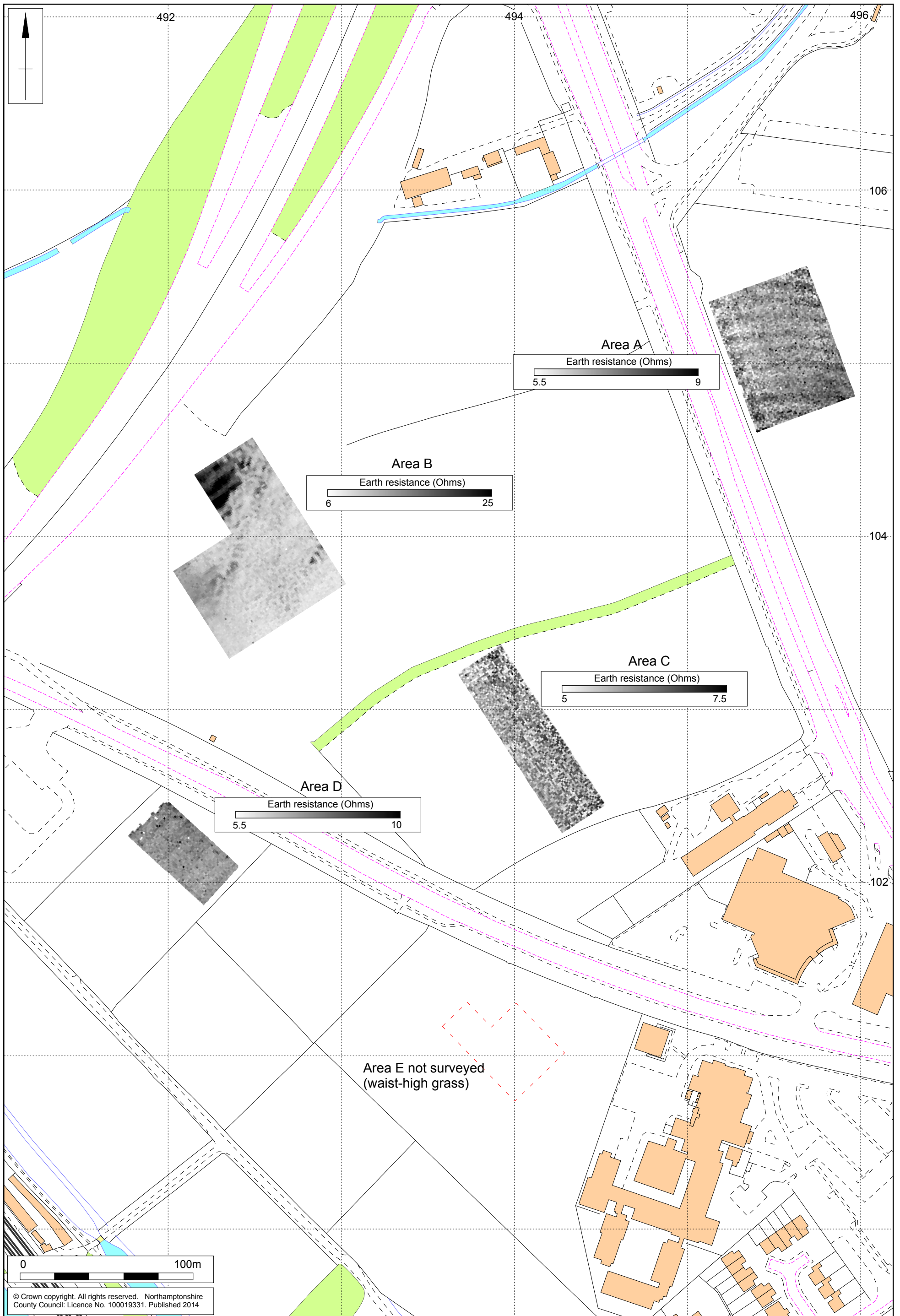
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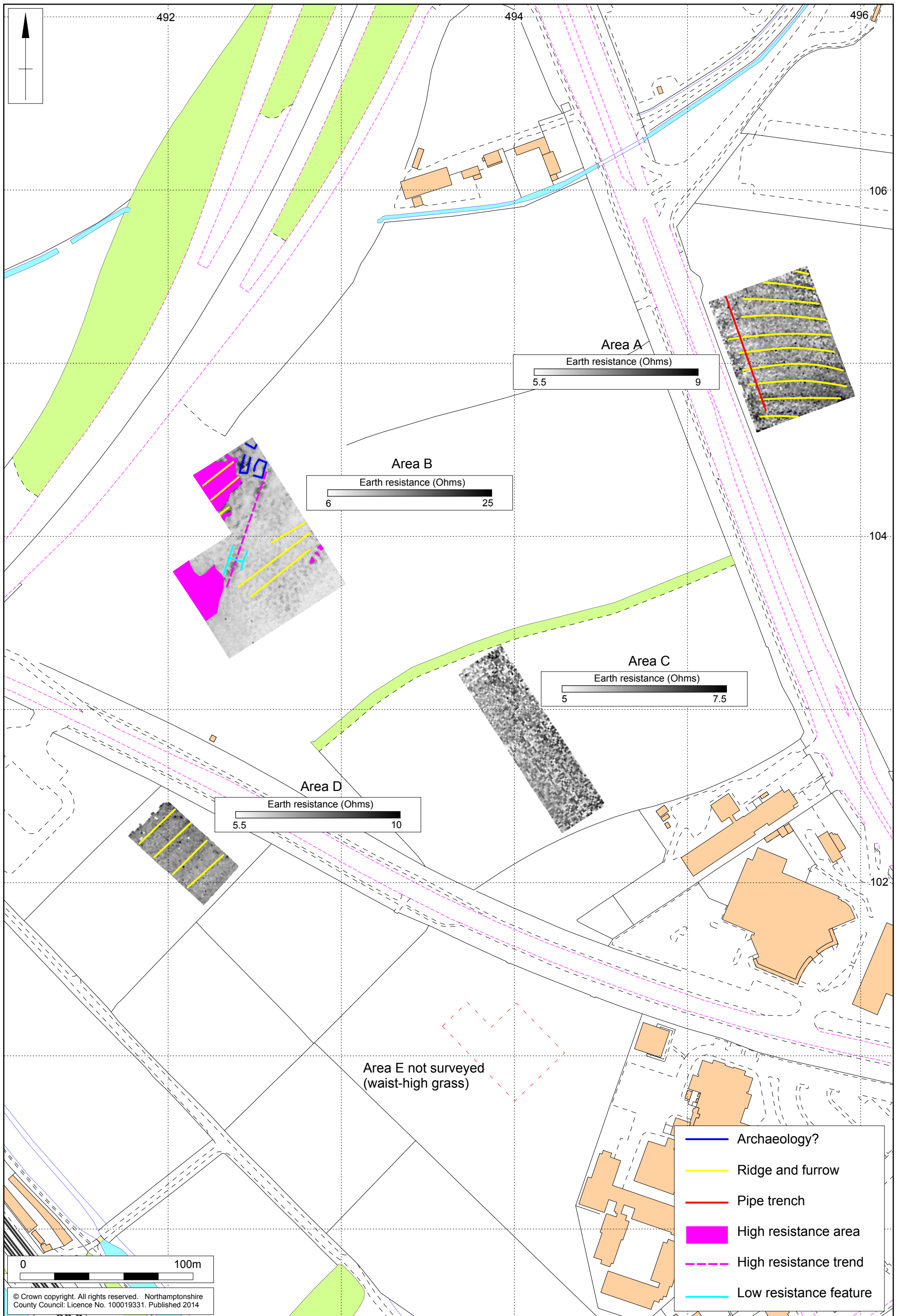


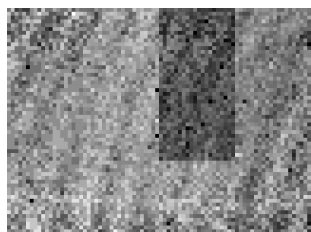
Scale 1:10,000

Site location Fig 1

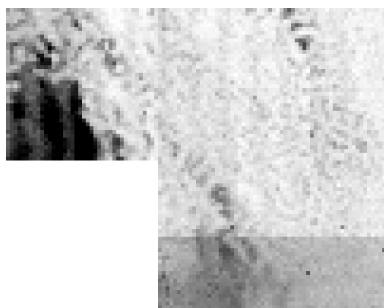
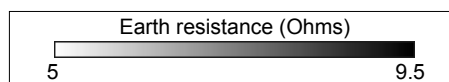




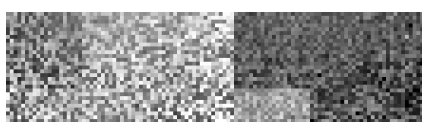
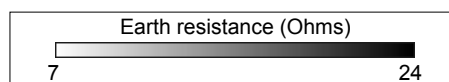




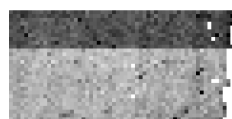
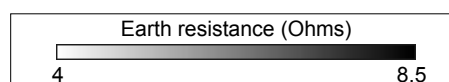
Area A



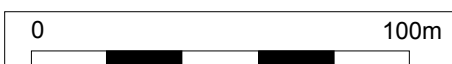
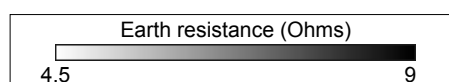
Area B



Area C



Area D



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