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

Report No. 15/83

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OASIS REPORT FORM

PROJECT DETAILS	molanort1-252807	
Project name	Archaeological geophysical survey at the 'Northern Gateway' development site, Wolvercote, Oxford	
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 and some high resistance anomalies that may represent recent structural footings.	
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) Geophysical survey [earth resistance] (Fisher and Walford 2015)	
Current Land use	Pasture	
Future work	Trial trenching	
Monument type/ period	Medieval ridge and furrow, modern structure	
Significant finds	None	
PROJECT LOCATION		
County	Oxfordshire	
Site address	Wolvercote, Oxford	
Study area	*c* 1.6ha	
OS Easting & Northing	SP 4934 1009	
Height OD	*c* 60 m aOD	
PROJECT CREATORS		
Organisation	MOLA Northampton	
Project brief originator	David Radford, Oxford City Council	
Project Design originator	MOLA Northampton	
Director/Supervisor	Olly Dindol & John Walford	
Project Manager	John Walford	
Sponsor or funding body	Developer	
PROJECT DATE		
Start date	14 April 2015	
End date	17 April 2015	
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BIBLIOGRAPHY	Journal/monograph, published or forthcoming, or unpublished client report	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, April 2015	
Serial title & volume	MOLA Northampton Reports 15/83	
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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 and some high resistance anomalies that may represent recent structural footings.

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 4934 1009; 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), June 2014 (Walford 2014), and March 2015 (Fisher and Walford 2015). The fieldwork was undertaken on 14 to 17 April 2015, and covered *c* 1.6ha of pasture fields 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 *c* 1.6ha field of sub-rectangular form located in the western section of the proposed development site. It lies immediately west of Godstow Road and north of the Oxford Canal. At the time of the survey it was split into paddocks for horse grazing. Two areas of scrub and one area of wet ground and rushes were present within the area and could not be covered by the survey.

The topography of the current survey area comprises a slight south-west facing slope overlooking the floodplain of the River Thames. This slope straddles the 60m contour line and stands near to the same level as the floodplain. The underlying geology comprises Oxford Clay with no superficial drift (BGS 2015).

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. A further resistance survey was carried out on one field that was previously unsurveyable. This detected medieval ridge and furrow and a possible trackway (Fisher and Walford 2015)

4 METHODOLOGY

The earth resistance survey was undertaken in April 2015, in fine and dry weather. The ground was in a suitable condition, being generally moist, although the upper surface did become increasingly dry over the course of the survey.

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 (Ω). 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 11Ω (white) to 25Ω (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 within a range of 11 - 25 Ω. Such low values would be consistent with the moderately soft and moist clay substrate that is indicated by the geological mapping. However, the survey data also includes a few isolated high resistance readings ('data spikes') where the resistance probes made poor electrical contact with the dry upper surface of the field.

A series of very weak and indistinct parallel linear anomalies pass from north-east to south-west throughout the 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; Fisher and Walford 2015).

In the north-western corner of the southern field there is a near rectangular high resistance anomaly. This appears to be in the same location as some structures that feature in a 1945 aerial photograph (Google Earth). A rectangular patch of dead grass and/or exposed earth can also been seen in this area on later photos (Google Earth coverage dated 2007 and 2009). This suggests that the remains of these structures, which could consist of gravels, rubble, hardcore or even brick/concrete foundations, are still present within the soil.

In the southern corner of the survey area there is a square zone of marginally high resistance, *c* 45m across, in which no ridge and furrow anomalies can be discerned. The cause of this anomaly is uncertain but it possibly represents the extent of a former field in which the ridge and furrow has been masked or destroyed by later activity. Moreover, the current tenant reports that spoil from the cutting of the A40 Northern Bypass was spread on the lower part of the survey area (pers com), and a thin layer of made ground burying an earlier land surface could plausibly give rise to the observed effects.

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; Fisher and Walford 2015). The survey has also identified one anomaly which possibly relates to an unknown structure present during the Second World War.

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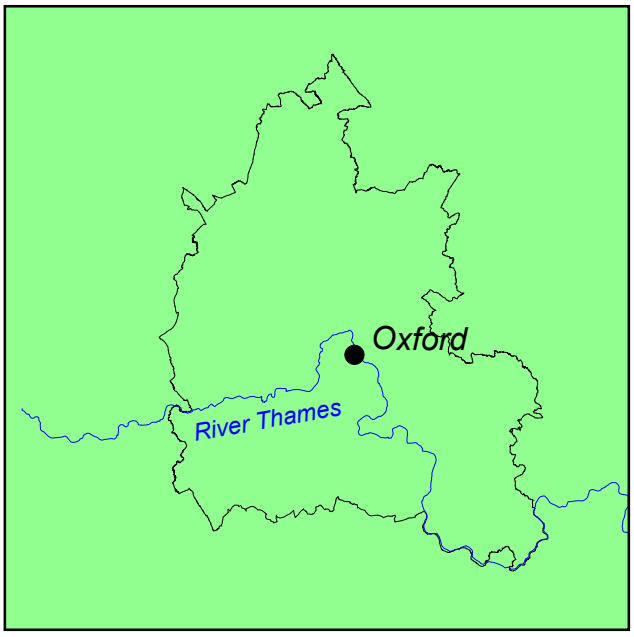
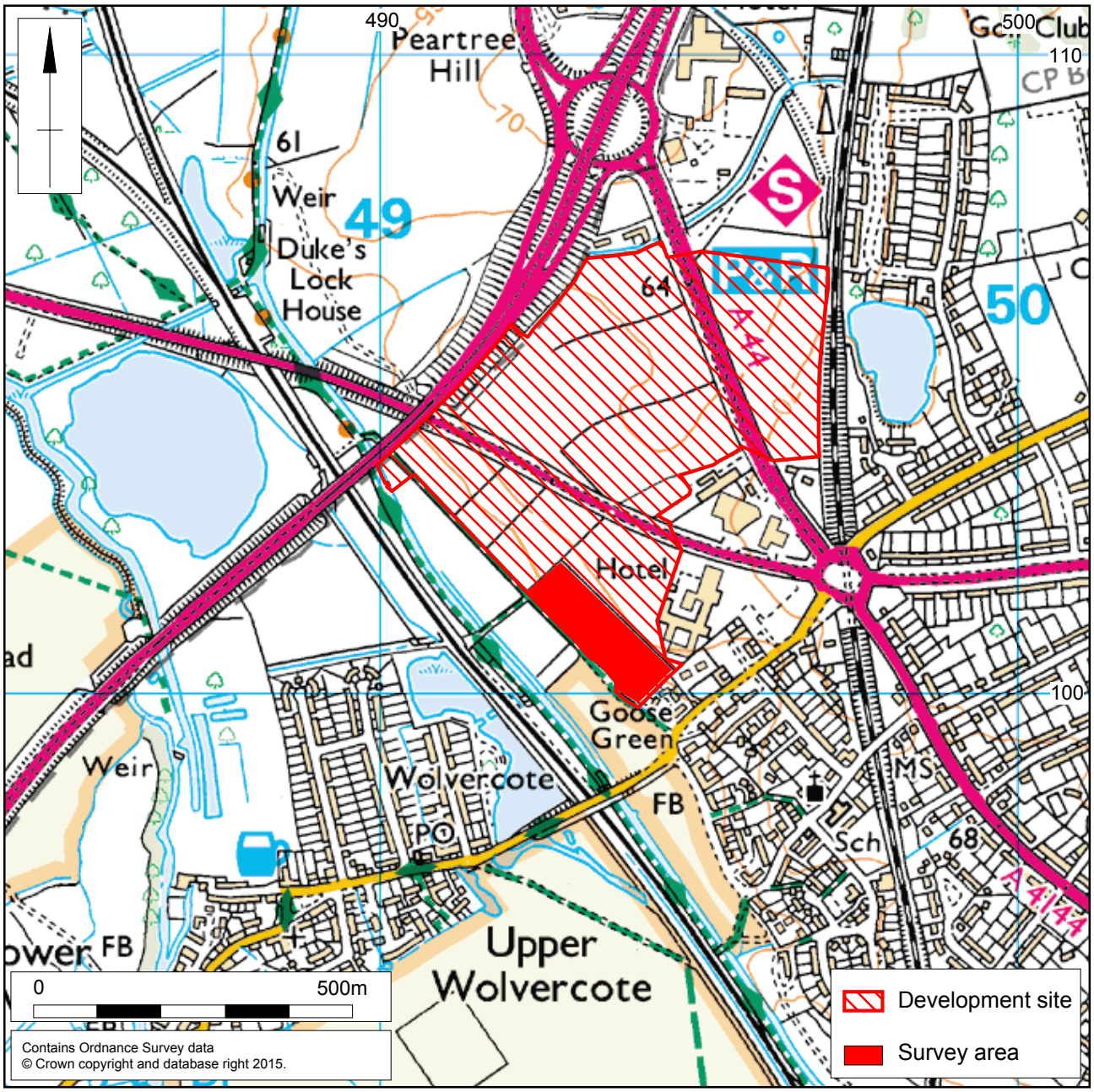
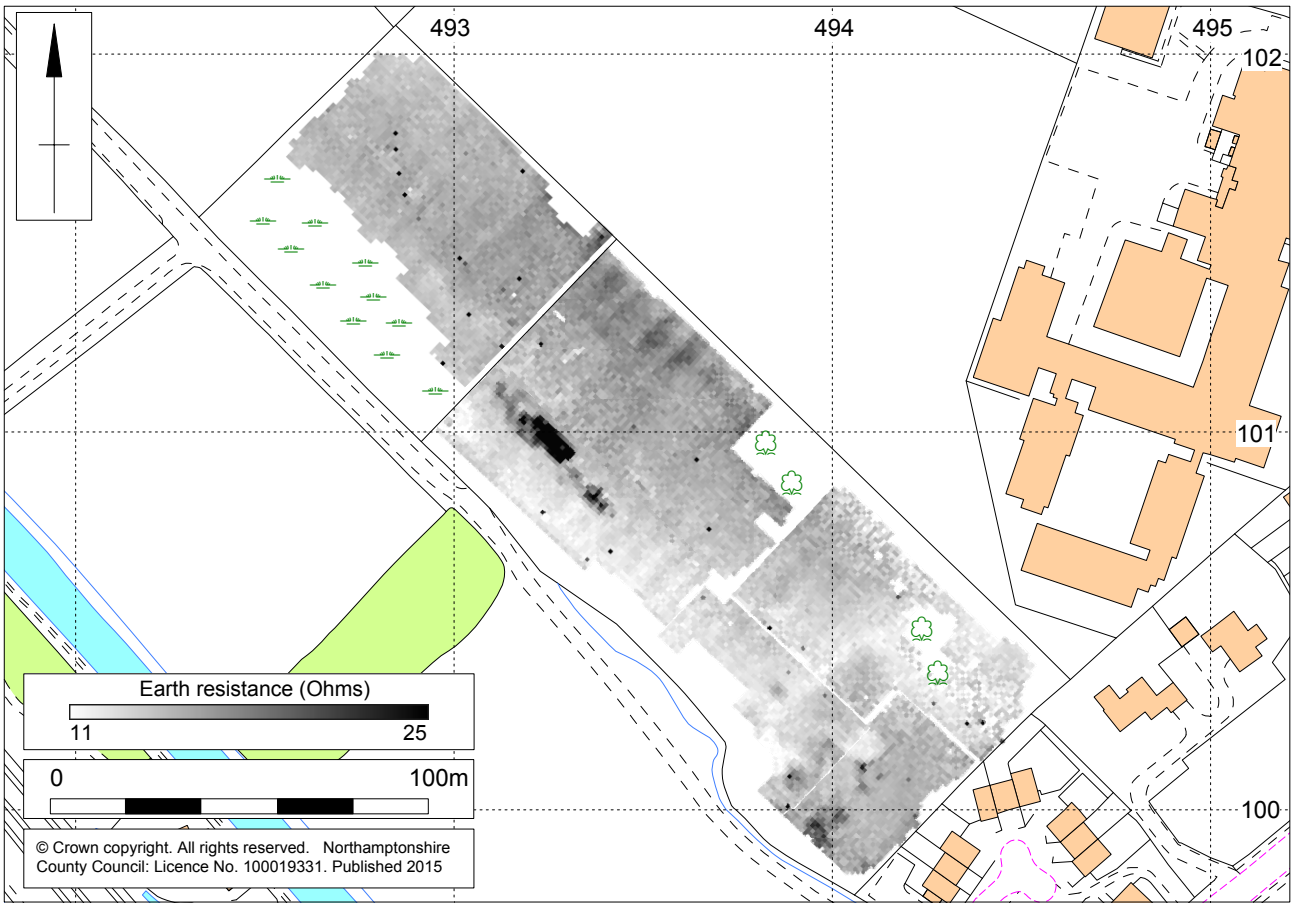


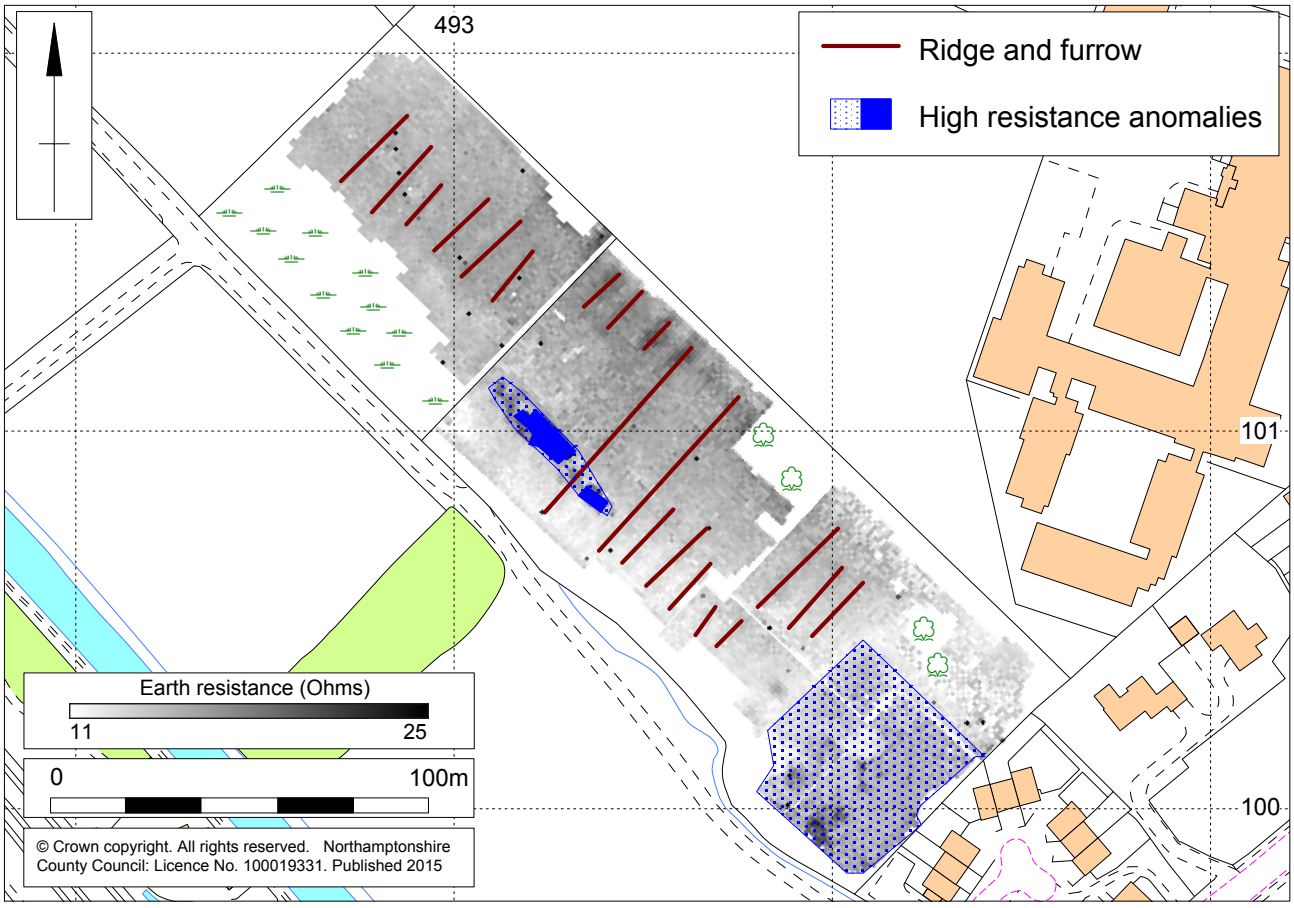


Scale 1:10,000

Site location Fig 1



1:2000 Earth resistance survey results Fig 2



1:2000 Earth resistance survey interpretation Fig 3

1:2000

Unprocessed earth resistance data Fig 4

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