Archaeological geophysical survey at Jack's Green, King's Cliffe Northamptonshire

April 2018

Event number: ENN109101

Report No: 18/59

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Illustrator: John Walford

Project Manager: Liz Muldowney
Event number: ENN109101
NGR: TL 038 974

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OASIS REPORT

PROJECT DETAILS	**Oasis No. molanort1-317028**	
Project name	Archaeological geophysical survey at Jack's Green, King's Cliffe, Northamptonshire	
Short description	MOLA (Museum of London Archaeology) was commissioned to undertake an archaeological geophysical survey of *c*6ha of land at Jack's Green, King's Cliffe, Northamptonshire. The survey detected an area of possible industrial activity and a large number of ditches defining enclosures, a trackway and boundaries. Although the ditches are most likely to date from the Iron Age or Roman periods, some could relate to medieval or post0-medieval forestry activity. Other features detected by the survey included a possible former stream channel and some remains probably associated with the Second World War King's Cliffe Airfield.	
Project type	Geophysical survey	
Site status	None	
Previous work	None known	
Current land use	Pasture	
Future work	Not known	
Monument type/ period	Undated enclosures, trackway, ditches and pits Medieval woodland Modern airfield	
Significant finds	None	
PROJECT LOCATION		
County	Northamptonshire	
Site address	Jack's Green, Nassington	
Study area	*c* 6ha	
OS Easting & Northing	TL 038 974	
Height OD	*c* 66 - 72m aOD	
PROJECT CREATORS		
Organisation	MOLA	
Project brief originator	Northamptonshire County Council	
Project design originator	MOLA	
Director/Supervisor	Graham Arkley	
Project Manager	Liz Muldowney	
Sponsor or funding body	CgMs Heritage	
PROJECT DATE		
Start date	30th April 2018	
End date	1st May 2018	
ARCHIVES	Location	Content
Physical	N/A	
Paper	MOLA Northampton ENN109101	Site survey records
Digital		Geophysical survey & GIS data
BIBLIOGRAPHY	Journal/monograph, published or forthcoming, or unpublished client report	
Title	Archaeological geophysical survey at Jack's Green, King's Cliffe, Northamptonshire, April 2018	
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ABSTRACT

MOLA (Museum of London Archaeology) was commissioned to undertake an archaeological geophysical survey of c6ha of land at Jack's Green, King's Cliffe, Northamptonshire. The survey detected an area of possible industrial activity and a large number of ditches defining enclosures, a trackway and boundaries. Although the ditches are most likely to date from the Iron Age or Roman periods, some could relate to medieval or post-medieval forestry activity. Other features detected by the survey included a former stream channel and some remains probably associated with the Second World War King's Cliffe Airfield.

1 INTRODUCTION

MOLA (Museum of London Archaeology) was commissioned by CgMs Heritage to undertake an archaeological geophysical survey on land at Jack's Green, King's Cliffe, Northamptonshire (NGR TL 038 974; Fig 1). The purpose of the survey was to investigate whether a proposed development scheme would impact upon any features of archaeological interest.

The survey took place on 30th April and 1st May 2018, following a generic methodology approved by the Northamptonshire County Council Archaeological Advisor, Lesley-Ann Mather (Walford 2016). The fieldwork also conformed to CIfA and Historic England guidelines for geophysical survey (CIfA 2014, EH 2008). The Northamptonshire Historic Environment Record was notified of the work and has recorded it under Event Number ENN109101.

2 BACKGROUND

2.1 Topography and geology

The proposed development area occupies an isolated location, midway between King's Cliffe and Nassington on the south-eastern edge of the former King's Cliffe airfield (Fig 1). It lies in a grassland clearing between two areas of ancient woodland, Great Byard's Sale and Great Moreton Sale. In addition to this area, the survey covered part of the route of a proposed access track leading from the nearest public road, Kingscliffe Road, *c*1km to the north.

The development area lies on a gentle south to south-east facing slope between the 65m and 70m contours. The access track to the north lies at a similar elevation on a north-easterly slope, at one point running across the head of a small dry valley.

The British Geological Survey records the bedrock of the survey area to be Blisworth Limestone (formerly referred to as Great Oolite), capped in places by Blisworth Clay. On the highest part of the survey area these strata are concealed beneath glacial till (BGS 2018).

2.2 Historical and archaeological background

Whilst there are no recorded archaeological sites or findspots within the main part of the survey area, the proposed access track runs through an area where the Northamptonshire Historic Environment Record (NHER) records 'undated industrial activity' (NHER 6631; Dawson 2015, 15-16). Fragmentary cropmarks indicate a number of possible enclosures and a trackway of unknown date in the surrounding landscape (Dawson 2015, 9) and it is believed that Kingscliffe Road, to the north of the survey area, follows the line of a Roman road (RCHME 1975, 117).

The open ground lying to the north of the survey area and south of Kingscliffe Road was subject to two phases of archaeological evaluation in 1994 (Holmes 1994, Holmes and Blinkhorn 1994). A complex of cropmarks was investigated by trial trenching, exposing sections of the underlying ditches but not providing any finds by which they might be dated. Small sample areas of the site were also investigated by a low resolution (1m x 1m) magnetometer survey but the results were not clear enough to support any strong conclusions.

The clearing which forms the main part of the survey area is thought to have been partially extant by the 18th century (Foarde *et al* 2009, 98-9 & 126-7). It has the character of an 'assart'; a small irregular piece of former woodland, cleared in medieval or post-medieval times to permit agriculture or settlement. A building and yard is depicted at the northern edge of the clearing on the First Edition Ordnance Survey map (1886); this is presumably the house which still stands in the same location today.

King's Cliffe airfield was opened in 1941 and served as a USAF fighter base in the latter years of the Second World War. One of its hangers stood immediately south of the survey area and there were other structures along the track which connected this hanger to the main perimeter road. Details of these can be seen on a 1946 map and a 1947 aerial photograph reproduced by Gibson (1982, 264-5). The airfield has a historic association with the bandleader Glen Miller, and a monument to him stands on the site of the former hanger (Dawson 2015, 13-14).

3 METHODOLOGY

This survey was conducted with a Bartington Instruments magnetometer cart, which is a two-wheeled, lightweight structure designed to be pushed by hand. It incorporates a bank of six vertically-mounted Bartington Grad601 magnetic sensor tubes, spaced at half-metre intervals along a bar aligned crossways to the direction of travel, and also 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 six readings per second and the GPS antenna outputs NMEA format data (GGA messages) at a rate of one position every second. These data streams are fed into a laptop computer where they are compiled into a single raw data file by MultiGrad601 logging software specifically designed for that purpose.

The cart was pushed 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 *c*1.5m/s and the effective data resolution thus approximated to 0.25m 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 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. Once processed the magnetometer data collected during the survey was displayed as a greyscale raster plot (range +5nT to -5nT / black to white) which has been rotated and scaled for display against Ordnance Survey Master Map base mapping (Fig 2). An interpretative overlay is presented in Figure 3 and a plot of the unprocessed survey data is presented in Figure 4.

4 SURVEY RESULTS

4.1 The proposed development area (southern survey area)

Near to the centre of this area there are two sets of positive linear anomalies which probably represent enclosure ditches. One set of ditches, arranged in a sub rectangular pattern, defines part of an enclosure with a central partition (Fig 3, Enclosure 1). The remainder of this enclosure lies outside the survey area under Great Byard's Sale. The other set of ditches, *c*30m to the north-west, defines a small, irregularly shaped enclosure which partially encompasses a penannular ditch, 12m in diameter (Fig 3, Enclosure 2). The most likely dates for these enclosures would be Iron Age or Roman, although the possibility that they relate to medieval or post-medieval woodland activity cannot be ruled out.

In the east of the survey area, the data contains two parallel linear anomalies, spaced *c*6m apart and aligned roughly north-east to south-west. These probably represent the flanking ditches of a trackway, and may relate to similarly parallel linear features recorded in the woodland to the north and south (NHER 2253/1/2 & 2253/4/2; Dawson 2015, appendix 1). At their northern end they intersect with other ditches, possibly defining a partial rectangular enclosure (Fig 3, Enclosure 3).

A linear anomaly runs for almost 400m through the south of the survey area. Its western half is erratic and slightly sinuous whereas its eastern half, which splits into two arms, is more straight and angular. It probably represents a medieval or post-medieval woodland boundary ditch, as its line roughly corresponds to the northern extent of Jack's Green in the 18th century (Dawson 2015, fig 3; Foarde et al 2009, 126). Other linear anomalies elsewhere in the survey area represent disjointed sections of ditch which cannot be dated or interpreted in detail.

An intense linear anomaly of alternating magnetic polarity follows a curving course through the western half of the survey data. This represents a buried pipe. A much more subtle linear anomaly in the north of the survey data, with several weak dipolar anomalies along its length, may represent another buried service. Both of these are aligned towards, and presumably serve, the house at the northern end of the clearing. One other short length of pipe has been detected near to the western end of the survey area.

Small dipolar anomalies of ferrous origin, representing buried pieces of iron or steel debris, are widespread through the dataset. They are most heavily concentrated along the lines of the existing tracks, where there is presumably a large amount of such debris mixed into the track hardcore. Other dense scatters of such debris may represent the

remains of former hardcore surfaces or other areas disturbed by airfield structures and activity.

At the time of the survey there were geological test pits open on the site, each covered for safety with a panel of Heras fencing. These appear as seven large dipolar halos surrounding small gaps in the survey data.

There are many small irregular positive anomalies in the eastern half of the dataset. Whilst any of these, considered individually, could be interpreted as a pit, their widespread presence and generally irregular or elongated forms means that they are more likely to be natural anomalies arising from small pockets of iron minerals in the underlying geology. A band of weak, uneven magnetic patterning at the northern edge of the area is also thought to be geological in origin.

4.2 The proposed access track (northern survey area)

Towards the centre of this area, where there is a previous record of 'undated industrial activity' (NHER 6631), a small zone of magnetically disturbed data has been detected. This includes two linear anomalies which probably represent ditches and an intense anomaly of bifurcated form which might arise from a fired clay structure or a concentration of slag or other industrial residue.

Just east of the possible industrial remains is a row of five small positive anomalies, suggestive of pits. It is possible that these could represent part of a prehistoric pit alignment, but certainty is impossible with so few anomalies in such a narrow strip of data. Two other possible pits lie a little further to the east and one other lies near the southern end of the area.

Three weak linear anomalies in the northern half of this survey area probably represent ditches. In the south of the area there is a broad, intense, L-shaped linear anomaly which could also represent a ditch but is more likely to represent part of a former stream channel.

There is a band of intense magnetic noise along the north-western edge of this survey area, corresponding to the hardcore of a modern farm track. Elsewhere there are a few small isolated dipoles of ferrous origin.

5 CONCLUSION

The survey has identified several sets of archaeological remains including two, or perhaps three, enclosures, a trackway, ditches, pits and possible industrial remains. None of these can be confidently dated; an Iron Age or Roman date is possible in most cases but some remains could alternatively relate to medieval and post-medieval forestry activities. Other features detected by the survey include tracks and ferrous debris probably associated with King's Cliffe airfield, a possible former stream channel and some modern pipes.

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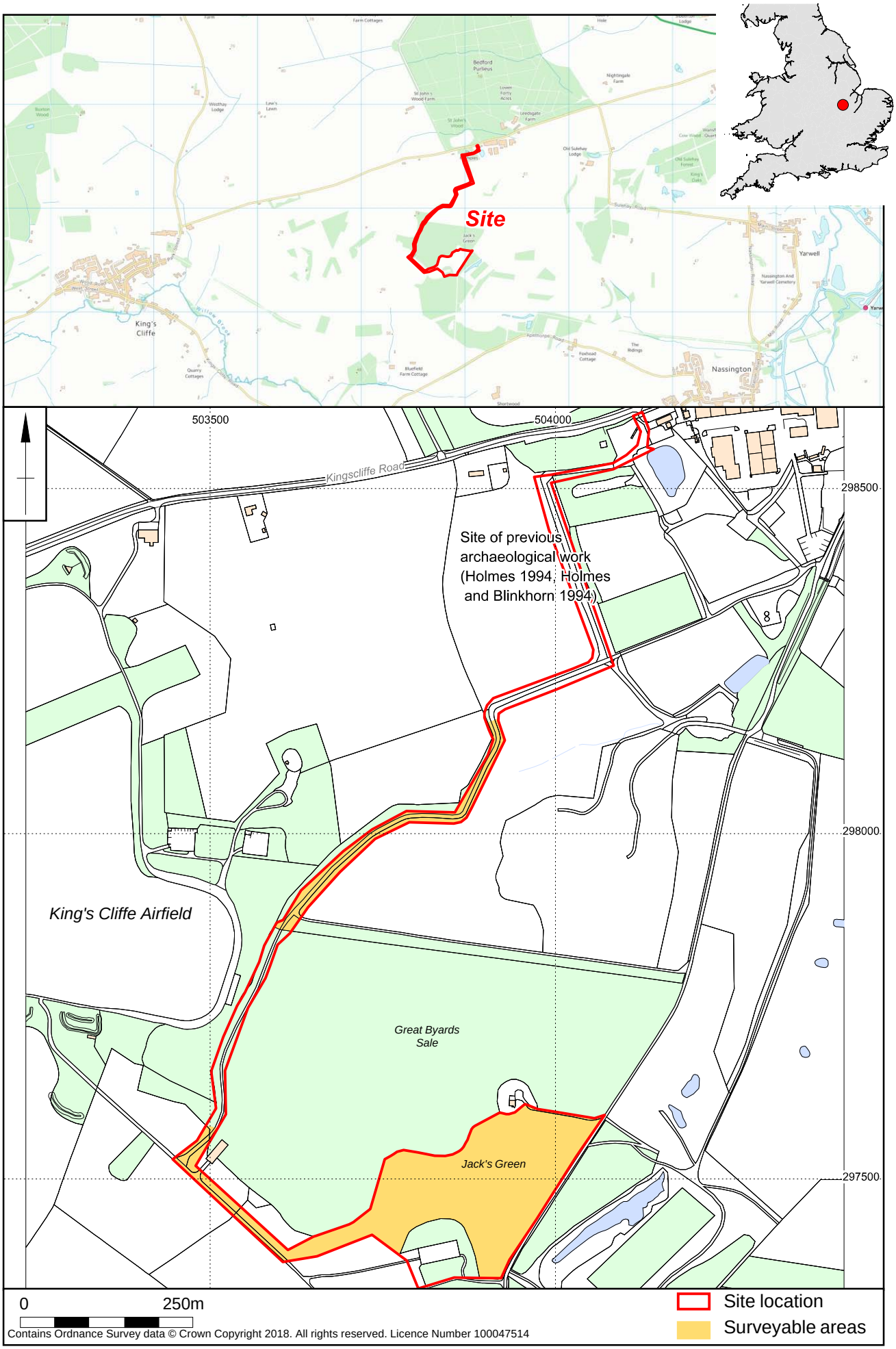
MOLA
11th May 2018



Scale 1:7500

Site location Fig 1

503500

504000

298000

297500

Great Byards Sale

Fair Oak

Workings

(dis)

0 1:2500 100m

Magnetic anomaly (nT)

-10nT 0 +10nT

Scale 1:2500

Magnetometer survey results Fig 2

503500

504000

298000

297500

Pits

Possible industrial remains (NHER 6631)

Stream channel

Enclosure 3 & Trackway

Enclosure 2

Enclosure 1

Great Byards Sale

0 1:2500 100m

Magnetic anomaly (nT)

-10nT 0 +10nT

Archaeology

Geology

Geological test pit

Pipeline / cable

Scatter of ferrous debris

Ferrous object

Scale 1:2500

Magnetometer survey interpretation Fig 3

503500

504000

298000

297500

Great Byards Sale

Fair Oak Sc

Workings
(dis)

0 1:2500 100m

Magnetic anomaly (nT)
-10nT 0 +10nT

Scale 1:2500

Unprocessed magnetometer data Fig 4

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