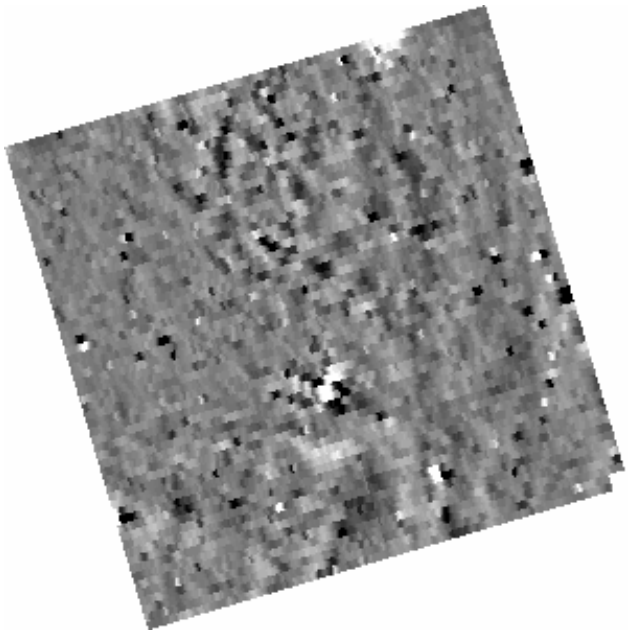
Northamptonshire County Council

Northamptonshire Archaeology

An Archaeological Geophysical Survey of Land at London Road, Buckingham Buckinghamshire

November 2008



Adrian Butler

November 2008

Report 08/200

Northamptonshire Archaeology
2 Bolton House
Wootton Hall Park
Northampton NN4 8BE
t. 01604 700493 f. 01604 702822
e. sparry@northamptonshire.gov.uk
w. www.northantsarchaeology.co.uk

REGISTERED IfA ORGANISATION

STAFF

Project Manager	Adrian Butler BSc MA AIFA
Fieldwork	John Walford MSc Joe Bampton BA Paul Clements BA James Ladocha BA Michael Puntorno BA Heather Smith MA Ian Fisher BSc
Text and illustrations	Adrian Butler

QUALITY CONTROL

	Print name	Signature	Date
Checked by	Pat Chapman	*PC*	24/11/08
Approved by	Andy Chapman	*AC*	24/11/08

OASIS REPORT FORM

PROJECT DETAILS		
Project name	An Archaeological Geophysical Survey on Land at London Road, Buckingham, Buckinghamshire	
Short description	Northamptonshire Archaeology conducted an archaeological geophysical survey on 31ha of land at London Road, Buckingham. Reconnaissance survey was unsuccessful, but a 20% sample by detailed magnetometer survey located two pits and a possible ditch. Medieval ridge and furrow was found to be widespread as were geological variations. Possible cables lead to a communications mast in the south-west of the site.	
Project type	Geophysical survey	
Site status	None	
Previous work	None	
Current Land use	Agricultural	
Future work	Unknown	
Monument type/ period		
Significant finds	None	
PROJECT LOCATION		
County	Northamptonshire	
Site address	Daventry, Northamptonshire	
Study area	27 ha	
OS Easting & Northing	SP 585, 645 centre	
Height OD	115m – 140m AOD	
PROJECT CREATORS		
Organisation	Northamptonshire Archaeology	
Project brief originator	CgMs Consulting	
Project Design originator	Northamptonshire Archaeology	
Director/Supervisor	John Walford	
Project Manager	Adrian Butler	
Sponsor or funding body	CgMs Consulting	
PROJECT DATE		
Start date	October 2008	
End date	November 2008	
ARCHIVES	**Location**	**Content**
Physical	n/a	
Paper	NA	Site survey records
Digital	NA	Geophysical survey & GIS data
BIBLIOGRAPHY	Journal/monograph, published or forthcoming, or unpublished client report	
Title	An Archaeological Geophysical Survey on Land North-East of Daventry, Northamptonshire	
Serial title & volume	NA Report 08/200	
Author(s)	Adrian Butler & Ian Fisher	
Page numbers	7	
Date	24/11/08	

CONTENTS

Figures

AN ARCHAEOLOGICAL GEOPHYSICAL SURVEY ON LAND

AT LONDON ROAD, BUCKINGHAM, BUCKINGHAMSHIRE

NOVEMBER 2008

ABSTRACT

Northamptonshire Archaeology conducted an archaeological geophysical survey on 31ha of land at London Road, Buckingham. Reconnaissance survey was unsuccessful, but a 20% sample by detailed magnetometer survey located two pits and a possible ditch. Medieval ridge and furrow was found to be widespread as were geological variations. Possible cables lead to a communications mast in the south-west of the site.

1 INTRODUCTION

Northamptonshire Archaeology was commissioned by Andy Birch of Hallam Land Management Ltd to undertake geophysical survey on land at London Road, south-east of Buckingham (NGR SP 706, 326; Fig 1).

The objective of the geophysical survey was to inform a wider field evaluation by identifying the presence or absence of potential archaeological remains within the proposed development area. The programme consisted of a reconnaissance survey of approximately 31ha and detailed gradiometer survey of an approximately 20% sample of that.

2 TOPOGRAPHY AND GEOLOGY

The site comprises six arable fields, extending between the A421 road in the north and the A413 London Road on the western side (Figs 1 & 2). The fields slope down gently to the north-east, undulating from small plateaux in Fields 1 and 5. The eastern boundary of the site relates to an unmarked path through Fields 3 and 6, and the eastern edge of Field 4. Beyond these is further agricultural land.

The geology of the area is mapped by the British Geological Survey as generally Till with deposits of Sand and Gravel to the east and exposures of Mudstone to the north (BGS 2002, Sheet 219: Buckingham).

3 ARCHAEOLOGICAL BACKGROUND

The archaeological background of the area has been studied in a Desk-Based Assessment by CgMs Consulting (Dale 2008). A possible Bronze Age ring ditch is known *c*150m north of the development area and Late Iron Age metalwork *c*225m north-west of the area (Dale 2008, 8).

The Roman period is represented most significantly by the *Magiovinium* Roman road, which approximately follows the line of the A421, the northern border of the development area. A pottery kiln has been excavated in the industrial estate, *c*350m west of the area and Roman enclosure *c*475m to the north (Dale 2008, 9).

The Anglo-Saxon period is under-represented around the area, the nearest material find some half kilometre north-east. The town of Buckingham emerged by the 10th century and became the county town in the medieval period. The medieval village of Bourton was situated 100m north of the development site, and recorded ridge and furrow cultivation within the area constitute the medieval open fields of the settlement (Dale 2008, 10).

4 METHODOLOGY

Geophysical fieldwork was carried out in accordance with the Specification (CgMs 2008), standard NA methodology and to English Heritage and the Institute For Archaeologists Guidelines (EH 2008 & Gaffney, Gater and Ovendon 2002). Seven blocks were subject to geophysical survey.

The fieldwork was divided into two phases, an initial reconnaissance survey by gradiometer scanning followed by 20% detailed gradiometer survey.

Reconnaissance survey

The reconnaissance survey was carried out using Geoscan FM-series fluxgate gradiometers. The development area was surveyed north-west to south-east in parallel transects at 20m intervals. Gradiometers were propelled along the transects and monitored for fluctuations in the local magnetic field (scanning). Where an anomaly exceeding +/-3.0nT (nanoTesla) was encountered it was examined for magnetic characteristics, likely surface ferrous or ceramic anomalies were discounted, and flagged for possible further investigation. Such anomalies were then plotted on scale maps in the field for follow-up by detailed survey.

Detailed Gradiometer Survey

All detailed magnetometer survey was undertaken using Bartington Grad601-2 fluxgate gradiometers. The Grad601-2 is constructed as a dual-sensor instrument with two vertical gradiometers separated on a yoke to enable two lines of survey to be recorded in tandem.

Nine blocks were surveyed in detail in Fields 1 to 5. The detailed gradiometer survey was composed of a total of 63, 30m x 30m grid-squares. Each grid square was traversed at rapid walking pace in zigzag mode; and data was recorded every 0.25m along traverses spaced at 1.0m separations. All fieldwork was carried out in accordance with the aforementioned guidelines (EH 2008 & Gaffney, Gater and Ovendon 2002).

The data was analysed using Geoplot 3.00u software. Low (negative) magnetism is shown as white and high (positive) magnetism as black in the resultant greytone plots. To avoid the introduction of processing errors, minimal manipulation was carried out on the data. The 'Zero Mean Traverse' function was applied in order to bring the average level of each data line into a balanced zero.

The processed data is presented here in the form of a greyscale highlighting the weaker magnetic anomalies (-3nT / +3nT scale; Figs 2, 3 and 5) georectified to the Ordnance Survey base. Interpretative plots have been generated from the results (Figs 4 and 6), both sets of figures are referred to directly in the following section.

5 SURVEY RESULTS

Reconnaissance survey

Gradiometer scanning encountered very low levels of magnetic variation over the five fields assessed. Anomaly intensities were deemed lower than the effective detection level of this form of extensive survey, other than where likely ferrous (intense) anomalies were encountered.

Detailed Gradiometer Survey

Consequent to the lack of response to the reconnaissance survey, detailed survey was targeted considering factors that may have attracted past activity. Nine blocks of gradiometer survey were positioned according to topographic features, ie top and base of slopes. The survey blocks may be assessed as a whole in Figure 2.

Field 1 (Figs 3 & 4)

A group of weak positive and negative magnetic anomalies detected in survey block 1.A, suggests

geological variations. A large, intense anomaly indicates iron debris. Further anomalies indicating geological patterning was located through 1.B. Ferrous debris also appeared in that area. The survey identified ridge and furrow, orientated north to south, across most of area 1.C. A cluster of iron debris was recorded towards the south. A possible length of ferrous pipeline was identified in a set of anomalies orientated south-west to north-east along the southern boundary.

Field 2 (Figs 3 & 4)

Repeated positive and negative anomalies in lines indicated three ceramic field drains orientated north-west to south-east in Field 2. Other than three iron items nothing else was located by survey. The geological patterning of 1.B does not appear to cross into Field 2.

Field 3 (Figs 5 & 6)

Three parallel intensely magnetic linear anomalies orientated north-east to south-west in 3.A may indicate ferrous pipelines. However, the presence of a communications mast to the south-west suggests that they may represent buried cables. The second block in Field 3 was found to contain three ferrous objects, a geological feature and a single possible 20m long ditch orientated east to west.

Field 4 (Figs 5 & 6)

Anomalies indicating geological features were detected through 4.A. Two ferrous objects and a ceramic field drain were also identified from their magnetic signatures in this area. Magnetic disturbance was caused by two large trailers on the eastern boundary of 4.B. Considerable geological anomalies were detected in the north of the area, crossed by ridge and furrow orientated north-east to south-west. Numerous ferrous anomalies were located along the eastern boundary and two discrete positive anomalies indicating pits were identified in the south of Area 4.B.

Field 5 (Figs 3 & 4)

A broad curving anomaly indicated sweeping geological features beneath Field 5. Ridge and furrow was found orientated north to south, and north-east to south-west in the north of the survey area.

6 CONCLUSION

Extensive gradiometer reconnaissance survey was unsuccessful in locating significantly enhanced magnetic anomalies. This was likely due to low levels of magnetic variation on the site. Detailed gradiometer survey, targeted to assess topographic high and low areas, encountered a large degree

of geological variation through Fields 1, 5, 2 and 4. Three possible archaeological features were identified, two pits in Field 4.B and a more equivocal anomaly representing a ditch in Field 3.B.

Medieval ridge and furrow was recorded in Fields 1 and 5, orientated north to south and north-east to south west. In Field 4.B the ridge and furrow was more north-easterly aligned. Three ferrous pipes or possible electrical cables were identified in the western corner of Field 3.A, conceivably related to the adjacent communications mast.

BIBLIOGRAPHY

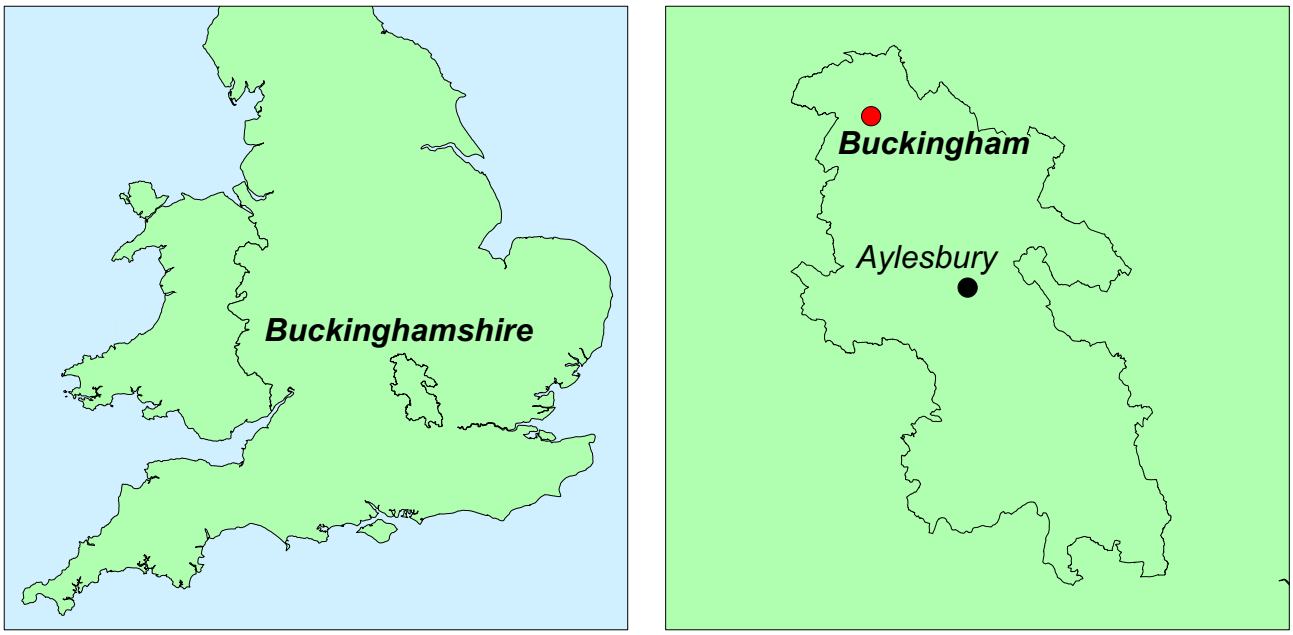
CgMs 2008 *Specification for Geophysical Survey: Land at London Road, Buckingham*, CgMs Consulting, **9342/08/03**

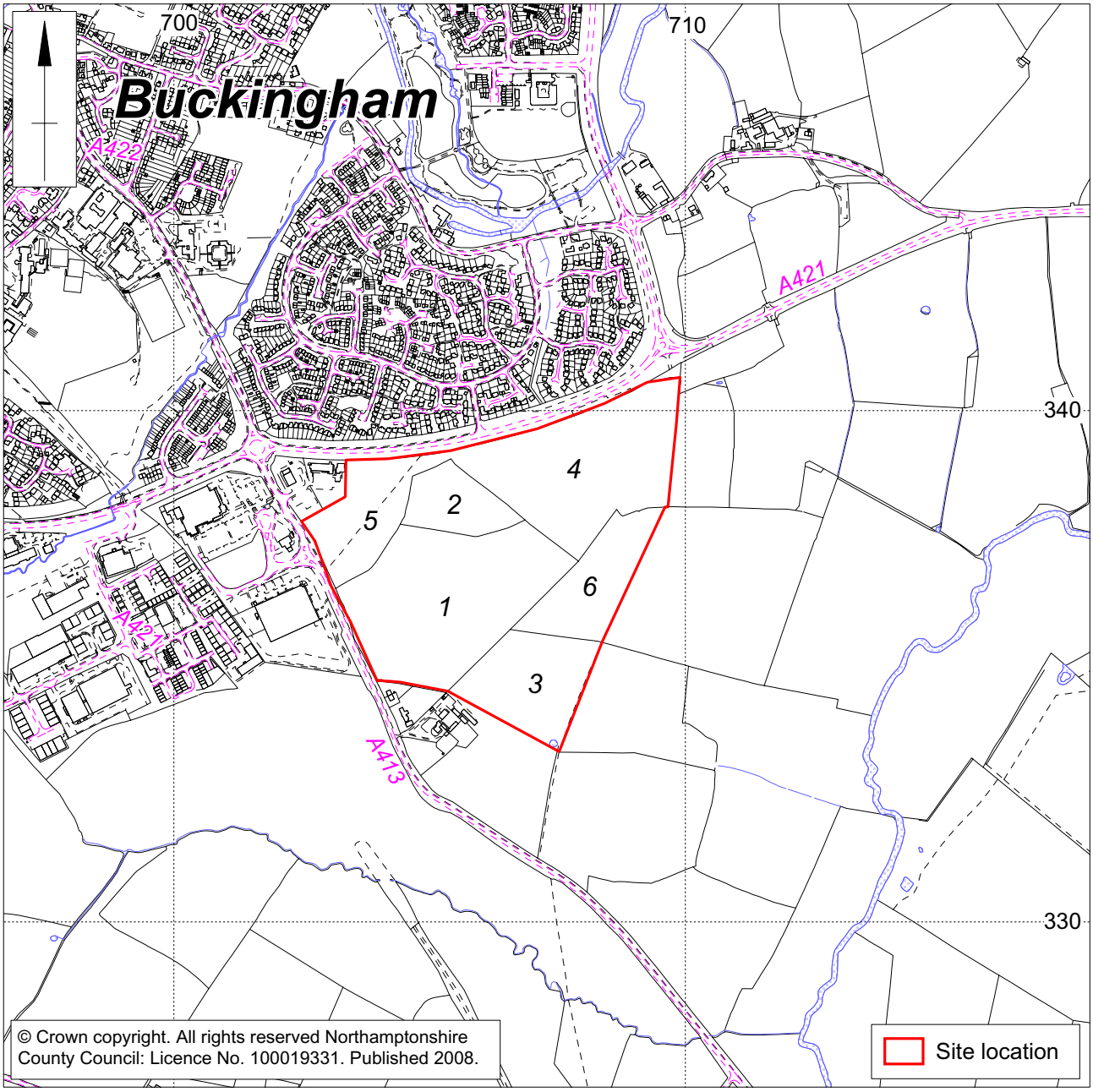
Dale, R, 2008 *An Archaeological Desk-Based Assessment of Land at London Road, Buckingham*, CgMs Consulting, **9342/08/01**

EH 2008 *Geophysical Survey in Archaeological Field Evaluation,* English Heritage

Gaffney, C, Gater, J, and Ovendon, S, 2002 *The Use of Geophysical Techniques in Archaeological Evaluations*, Institute For Archaeologists Technical Paper, **6**

Northamptonshire Archaeology
A service of Northamptonshire County Council 24 November 2008





Scale 1:12,500

Site location Fig 1

704
706
708
710
330
328
326
FIELD 1
FIELD 2
FIELD 3
FIELD 4
FIELD 5
FIELD 6
1.A
1.B
1.C
3.A
3.B
4.A
4.B
Pond
Path (um)
Track
Hoyal Road
BM 99.81m
BM 103.41m
101.3m
Communications
© Crown copyright. All rights reserved Northamptonshire County Council: Licence No. 100019331. Published 2008.
Magnetic Anomalies /nT
-3.0
+3.0
Scale 1:2500
Gradiometer Survey Results Fig 2

704

706

327

328

326

324

FIELD 5

FIELD 2

FIELD 4

FIELD 1

FIELD 3

1.A

1.B

1.C

3.A

Path (um)

MS

BM 99.81m

101.3m

HorseRide

Track

BM
103.41m

103.6m

Magnetic Anomalies /nT

-3.0 +3.0

Scale 1:2000

Gradiometer Survey Results: Fields 1, 2, 3 & 5 Fig 3

704

706

327

328

326

324

FIELD 1

FIELD 2

FIELD 3

FIELD 4

FIELD 5

Path (um)

MS

BM 99.81m

101.3m

Horse Ride

Track

BM 103.41m

103.6m

Archaeology?
Ferrous Pipe / debris
Magnetic effect
Ridge and furrow
Ceramic field drain
Geological feature

Scale 1:2000

Gradiometer Survey Interpretation: Fields 1, 2, 3 & 5 Fig 4

Scale 1:2000

Gradiometer Survey Results: Fields 3 & 4 Fig 5

Scale 1:2000

Gradiometer Survey Interpretation: Fields 3 & 4 Fig 6