LAND AT IRCHESTER, NORTHAMPTONSHIRE

Report on Archaeological Geophysical Survey 2011

Surveyed by:

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for:

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Introduction

The geophysical surveys described in this report were undertaken as part of an archaeological evaluation of two areas of land which are subject to development proposals at Irchester, Northamptonshire.

The surveys were commissioned from Bartlett-Clark Consultancy (BCC), Specialists in Archaeogeophysics of Oxford, by EDP of Cirencester on behalf of Barwood Development Securities Ltd. Fieldwork at the two sites was done on 9-11 November 2011.

The Site

The evaluation is required to test for evidence of archaeological features or remains within two nearby sites, both located immediately to the north of Irchester, and centred approximately at NGR SP922661. The first site (Site 1 as labelled on enclosed plans) covers 3.06 ha adjacent to the existing sports ground, and is to be developed as a sports field. The second site (Site 2 on plans) is a proposed housing development adjacent to Chester Road 500m north east of Site 1, and immediately to the north of existing housing. This site is 4.1 ha in area, and is currently in arable use.

A full description of the conditions and topography at each site is given in the Draft Archaeological Desk Based Assessment (DBA) prepared and supplied to us by EDP (report reference EDP1270_01, October 2011). This document also lists and describes previously recorded archaeological sites and findings in the surrounding area. The following notes are summarised briefly from the DBA, and also reproduced in part from the Written Scheme of Investigation for the project (as submitted to EDP by BCC on 3 November 2011) .

Geology and topography

The underlying geology of the both sites is Jurassic limestone and mudstone. The subsoil is described as Oolite with a heavy clay content, but the sites appear to be free of drift deposits. Sites on Jurassic bedrock usually respond well to magnetometer surveys, as has been seen in various previous surveys done in comparable conditions in this part of Northamptonshire. It is possible that the response to some features may be less distinct on a clay subsoil that would be the case on a site with near-surface limestone bedrock, but conditions should, even so, be favourable for a survey of this kind.

Archaeology

The sites are about 1km south and south east of the Scheduled Irchester Roman Town (MNN4230 and SAM 83), but there could be extra-mural settlement or industrial activity near to the N-S Roman road (MNN24835), the line of which should intersect the sports field site (Site 1). There are also crop marks near to this site. These include enclosures of possible archaeological interest (MNN120159 and MNN120160), which appear to be located on the northern boundary of the survey area, and possible adjacent round barrows (MNN22785).

There are no comparable known archaeological features within the housing development site (Site 2), although there are cropmark enclosures west of Chester Road immediately to the north (MNN120133 and 120134).

A possibility that there could be infilled former quarry pits within either of the survey areas is also noted in the DBA. A rectilinear cropmark to the north of Site 2 (MNN134740) has been identified as a possible quarry site, and there may have been other quarries nearby. The detectability of these in a survey would depend on the origin and composition of the fill, but often they are clearly visible. A large former ironstone quarry to the north west of the sites has been landscaped as Irchester Country Park.

Survey Procedure

The methods used for this geophysical investigation were recorded magnetometer surveying, supplemented by background magnetic susceptibility testing. Procedures for both techniques were as described in the Written Scheme of Investigation for the project.

Magnetometer survey

The magnetometer readings were collected along transects 1m apart using Bartington 1m fluxgate gradiometers, and are plotted at 25cm intervals along each transect. The results of the survey are presented as grey scale plots at 1:1250 scale for the two sites (figures 2-3), and as graphical (x-y trace) plots in figures 4-5. Inclusion of these alternative presentations allows the detected magnetic anomalies to be examined in plan and profile respectively. An interpretation of the findings is shown superimposed on figures 4-5 (which permits the interpreted outlines to be compared with the underlying data), and is reproduced separately to provide a summary of the findings (figures 6-7).

The survey plots show the magnetometer readings after standard treatments which include adjustment for irregularities in line spacing caused by variations in the instrument zero setting, and slight linear smoothing. Additional 2D low pass filtering has been applied to the grey scale plot to reduce background noise levels.

Colour coding has been used in the interpretation to distinguish different effects. Features are indicated by coloured outlines, or broken lines.

Magnetic anomalies of possibly archaeological origin are outlined in red. Features of uncertain, but probably natural, origin are shown in a light brown. Some further uncertain features of possible archaeological relevance are in a green/brown. Strong magnetic anomalies which are likely to be of recent origin are shown in dark brown. Linear markings representing cultivation effects are indicated by green outlines or broken green lines. Strong magnetic anomalies which appear to represent iron objects are in blue.

Magnetic susceptibility tests

The magnetometer survey was supplemented by a background magnetic susceptibility survey based on readings taken at 30m intervals with a Bartington MS2 meter. Susceptibility readings can (sometimes) be used to provide a broad indication of previously occupied or disturbed areas in which burning associated with past human occupation has enhanced the magnetic susceptibility of the topsoil, although the readings are usually affected also by non-archaeological factors, including geology and land use. A background survey of the kind done here is unlikely to provide any direct evidence for the presence or otherwise of archaeological features, but is undertaken to test the (largely) geologically determined magnetic properties of the soil. This information provides an indication of the strength of magnetic response to be expected from the site, and can be of help when interpreting the magnetometer survey**.** Susceptibility readings are shown on plots inset in figures 6-7.

Survey location

The survey grid was set out and tied to the OS grid using a differential GPS system (with Omnistar correction to give accuracy of c. 10cm). The plans are therefore geo-referenced, and OS co-ordinates of map locations can be read from the AutoCAD version of the plans which can be supplied with this report.

Results

Site 1

The survey has produced a number of positive findings, although they do not necessarily relate directly to the previously identified archaeological features listed in the DBA. They include part of a large ditched enclosure in the north east corner of the survey (indicated in red and labelled A on figure 6), and a weaker east-west linear feature (B). This could perhaps be the line of a former track, or a cultivation headland. Both features are rather weaker and less distinct than would be expected from well-preserved ditches or earthworks on a strongly magnetic soil (as is indicated by the magnetic susceptibility readings, which have a high mean value of 62 SI at this site). The features may therefore have been partly eroded by cultivation, as is suggested also by a strong north-south cultivation pattern (indicated in green). This is visible across the greater part of the survey, and may indicate that traces of ridge and furrow are present.

There are no clearly identifiable findings to correspond to the north-south Roman road, which is expected to intersect the western half of the survey. The road metalling itself is unlikely to respond

to a magnetometer survey, but roadside ditches are often detectable. In this case any ditches which are present may be difficult to distinguish from the (similarly aligned) cultivation, and roadside settlement activity appears to be absent.

Other possible findings include an elongated pit-like magnetic anomaly at C, but this is not clearly distinct from other, probably mainly recent, magnetic disturbances along the southern field boundary. A few other weak possible findings may be visible in the grey scale plot (and are indicated tentatively in the interpretation in a light green/brown). These features may include a curving ditch to the west of A (which could in fact represent no more than irregularities in the cultivation pattern), and perhaps some nearby circular features. These are indicated because they are close to the location of the possible cropmark barrows (as shown on the plan in the DBA). They may be faintly visible in the grey scale plot, but are perhaps rather small for barrows, and the magnetic evidence remains marginal and inconclusive.

Site 2

Findings here again include a distinct (east-west) cultivation pattern (green), together with other magnetic disturbances, particularly in the northern half of the survey. Magnetic susceptibility values remain high (mean = 76), and so it is possible that minor variations in topsoil depth will give rise to detectable magnetic anomalies.

The most clearly defined findings are a group of pit-like features (in red) around D. These appear to be bounded to the west by a weak linear feature suggesting a former track or boundary at E. The features at D are not associated with any other detectable ditches or enclosures which would together suggest the presence of an archaeological site. They could perhaps therefore be pits or disturbances associated with former quarrying, as is recorded nearby to the north. The survey findings do not suggest the presence of a single large backfilled quarry pit, but small stone-digging pits could give rise to the observed effects. It is unclear whether a further group of smaller magnetic anomalies (around F) could also relate to quarrying, or are natural. They could be caused by minor variations in the depth of a strongly magnetic topsoil above a shallow outcrop of limestone bedrock, as has been seen in other surveys in comparable ground conditions.

A further linear magnetic anomaly to the north east of the survey at G could be a ditch-like feature, but does not form part of any clearly interpretable group of findings. The same applies to a fragmentary sequence of magnetic anomalies in the south west corner of the survey (H). This could be part of an enclosure, but if so it is weak and incomplete.

Conclusions

The findings from Site 1 (sports field) are rather more clearly interpretable than from the housing development (Site 2), but each case there are strong cultivation effects which may have eroded or weakened other features.

The most distinct features in Site 1 are the enclosure A, and the weak linear marking suggesting a

track, boundary or headland at B. No roadside ditches were detected to indicate the location of the Roman road, and there are no clearly defined features to suggest the presence of roadside settlement activity. A few rather conjectural circular features are indicated because they are near to the previously recorded cropmark enclosures and barrows, but the survey evidence is very uncertain.

Findings, other than cultivation, from Site 2 include pit-like features around D which may indicate former quarrying. They could perhaps be small stone pits, but are near to other disturbances (F) which could be natural. Other findings include a possible former track or boundary (E), and isolated ditch-like features (G, H).

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01865 200864 5 December 2011

The fieldwork for this project was done by P. Cottrell and F. Prince.

Areas proposed for magnetometer survey

Approximate extent of survey

Location of 1:1250 scale figures

Site 1 (figures 2, 4, 6)

Site 2 (figures 3, 5, 7)

492000E

493000E

266000N

N

Irchester, Northamptonshire

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Figure 1: Location Plan

0 1:5000 200m

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Map contains Ordnance Survey data
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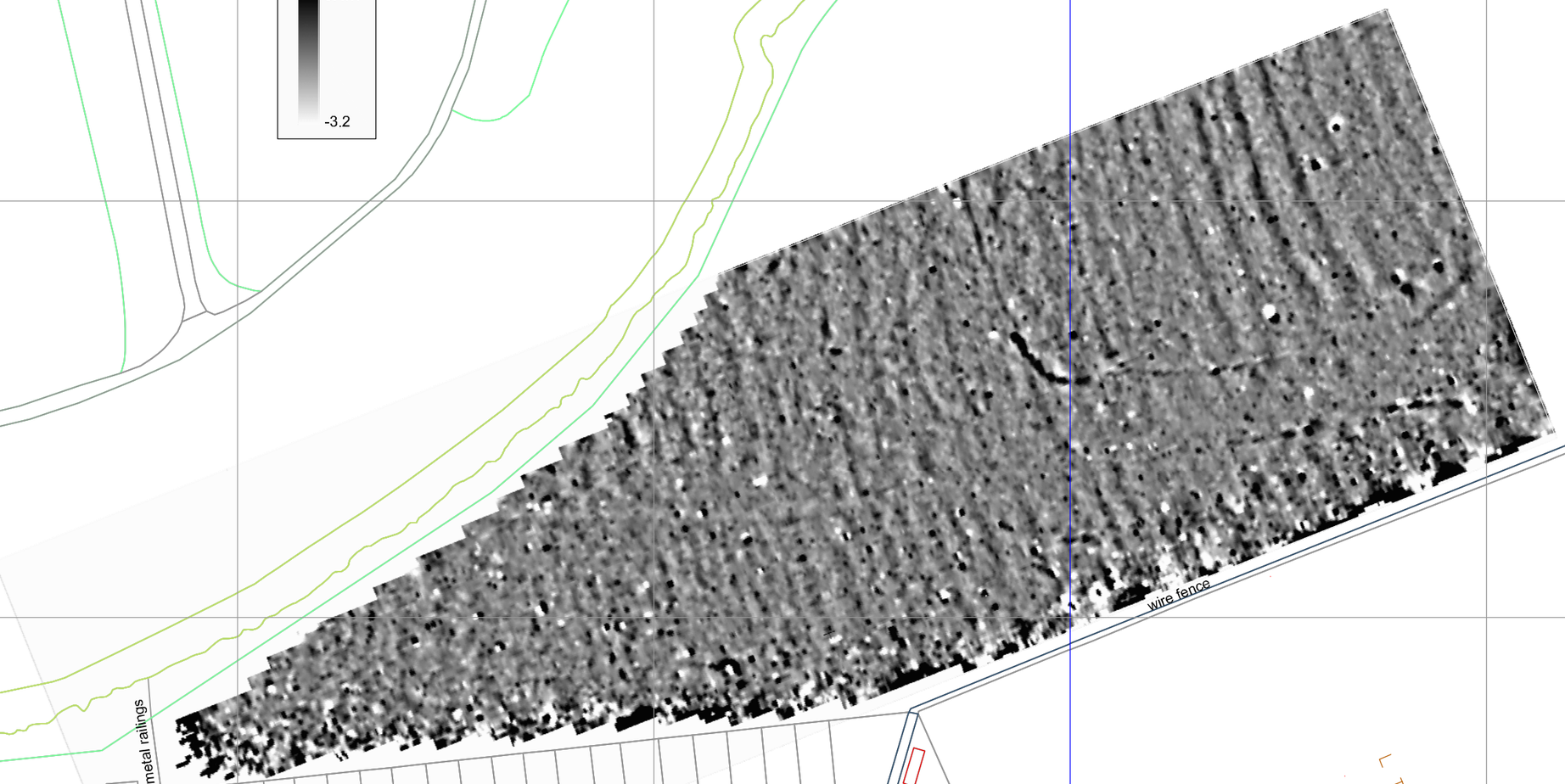

N

wire fence

metal railings

El Sub Sta

Recreation Ground

Pavilion

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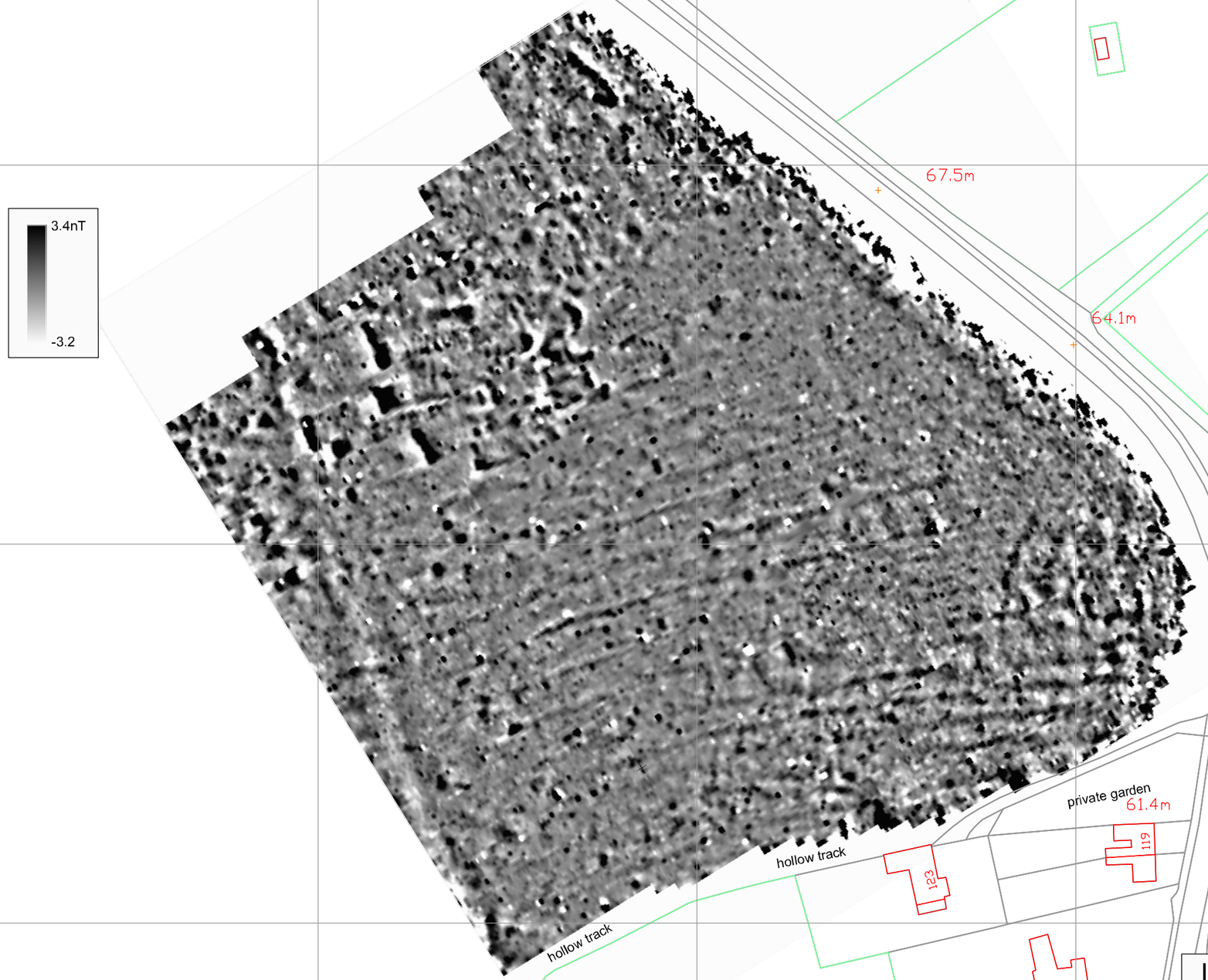
Figure 2: Magnetometer survey
(Site 1: grey scale plot)

0 1:1250 50m



Allotment Gardens

70.1m

67.5m

64.1m

N

Nursery

Cornerfield

134

132

130

130a

130b

130

The Barns

1

5 to 7

8 to 9

4

The Old Stables

Lower Farm

119

123

private garden

61.4m

hollow track

hollow track

115

111

109

Barringers Court

63.2m

Car Park

Bowling Green

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Figure 3: Magnetometer survey
(Site 2: grey scale plot)

0 1:1250 50m

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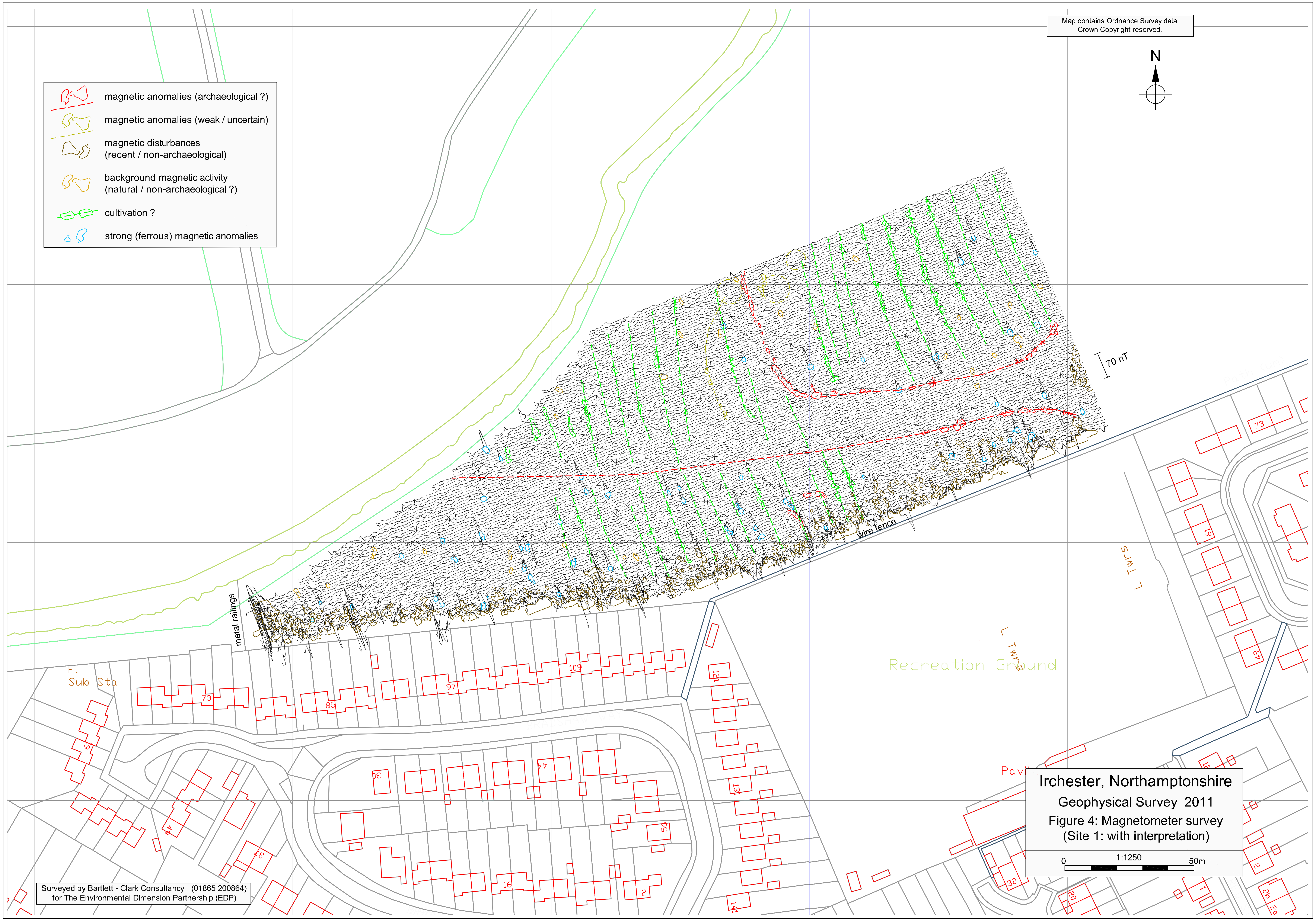

Map contains Ordnance Survey data
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N
magnetic anomalies (archaeological ?)
magnetic anomalies (weak / uncertain)
magnetic disturbances
(recent / non-archaeological)
background magnetic activity
(natural / non-archaeological ?)
cultivation ?
strong (ferrous) magnetic anomalies
70 nT
wire fence
metal railings
El
Sub Sta
Recreation Ground
L Twrs
73
85
97
109
Irchester, Northamptonshire
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Figure 4: Magnetometer survey
(Site 1: with interpretation)
1:1250
0
50m
Surveyed by Bartlett - Clark Consultancy (01865 200864)
for The Environmental Dimension Partnership (EDP)

magnetic anomalies (archaeological ?)

magnetic anomalies (weak / uncertain)

magnetic disturbances
(recent / non-archaeological)

background magnetic activity
(natural / non-archaeological ?)

cultivation ?

strong (ferrous) magnetic anomalies

Allotment Gardens

70.1m

67.5m

64.1m

61.4m

63.2m

N

Nursery

Cornerfield

Lower Farm

The Barns

The Old Stables

Barringers Court

Park

Green

private garden

hollow track

hollow track

70 nT

134

132

130

130a

130b

131

1

5 to 7

8 to 9

4

119

121

115

111

109

103

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Figure 5: Magnetometer survey
(Site 2: with interpretation)

0 1:1250 50m

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90 x 10^{-5}SI
(volume susceptibility readings)

30

Magnetic susceptibility survey 1:5000

Map contains Ordnance Survey data
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N

491900E

492000E

492100E

265800N

265700N

265600N

A

B

C

wire fence

metal railings

El Sub Sta

Recreation Ground

L Twrs

Pavilion

magnetic anomalies (archaeological ?)

magnetic anomalies (weak / uncertain)

magnetic disturbances
(recent / non-archaeological)

background magnetic activity
(natural / non-archaeological ?)

cultivation ?

strong (ferrous) magnetic anomalies

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Figure 6: Magnetometer survey
(Site 1: summary of findings)

0 1:1250 50m

Magnetic susceptibility survey 1:5000

100 x 10^{-5}SI
(volume susceptibility readings)

0

Map contains Ordnance Survey data
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492400E 492500E 492600E

266400N 266300N 266200N

N

Allotment Gardens

Nursery

Cornerfield

70.1m 67.5m 64.1m 61.4m

G F D E H

hollow track hollow track

private garden

Barringers

The Barns

The Old Stables

Lower Farm

Car Park

Bowling Green

130 130a 130b 130c 132 134 119 121 115 111 109 1 4 5 to 7 8 to 9

magnetic anomalies (archaeological ?)

magnetic anomalies (weak / uncertain)

magnetic disturbances
(recent / non-archaeological)

background magnetic activity
(natural / non-archaeological ?)

cultivation ?

strong (ferrous) magnetic anomalies

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Figure 7: Magnetometer survey
(Site 2: summary of findings)

0 1:1250 50m