

Substrata

Archaeological Geophysical Surveyors

An archaeological magnetometer survey

**Blackbury Castle Camp, Wiscombe Park,
Honiton, Devon**

Centred on NGR (E/N): 318730,092240

Report: 1802BLA-R-1

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1 Introduction

This report presents the results of an archaeological geophysical survey at the site listed below, hereafter referred to as the Site. It has been prepared for Devon County Council Environment Group is designed to further understand the archaeological potential of the fields adjacent to Blackbury Castle Camp univallate hillfort. The hillfort is thought to be iron age in date although, in keeping with many monuments of this type, it may have earlier elements.

The survey and report were completed in compliance with a Survey Method Statement (Dean, 2018). The Site location is shown in Figure 1.

2 Survey description

2.1 Survey

Method: magnetometry
Instrument: twin-sensor fluxgate gradiometer
Date: 15 and 16 March 2018
Area: 2.4ha

2.2 Location

Site name: Blackbury Castle Camp, Wiscombe Park
Village & Civil Parish: Southleigh
District: East Devon
County: Devon
Nearest Postcode: EX24 6JE
NGR: SY 18730 92240 (point)
NGR (E/N): 318730,092240 (point)
Historic environment designation: The Site is adjacent to Scheduled Monument 1013425, Historic Environment Entry MDV10840, Blackbury Castle Camp univallate hillfort

2.3 OASIS entry: substrat1-315233

2.4 Client

Devon County Council Environment Group.

3 Summary

A magnetometer survey was selected to provide a relatively fast and cost-effective evaluation of any buried archaeology across the Site (see Section 12). The magnetic anomaly groups pertaining to potential buried archaeology were georeferenced to the Ordnance Survey National Grid, mapped, characterised and assigned with an appropriate degree of certainty in conformance with the survey aims and objectives set out in Section 4.

The differences in magnetic responses across the Site were sufficient to be able to differentiate between anomalies representing possible buried archaeology and background magnetic responses.

Eight magnetic anomaly groups were mapped as representing potential buried archaeology and all were located in the north-western field. Of these, two groups, and possibly a third group, coincide with and likely represent, a field boundary recorded on historic maps. The pattern of one of these suggests that the historic field boundary may have followed the course of an earlier feature such as a ditch, lynchet or earthen bank. The remaining groups have characteristics typical of anomalies representing linear archaeological deposits such as fragments of enclosure and/or field boundaries although three of them may represent field drains.

4 Aims and objectives

4.1 Aims

Within the framework set out in Chartered Institute for Archaeologists (2014a), complete an

archaeological geophysical survey and report to:

1. As far as possible inform on the presence of absence, character, extent and in some cases, apparent relative phasing of buried archaeology, in order to make an assessment of its merit in the appropriate context, which may lead to one or more of the following:
 - a. The formulation of a strategy to ensure further recording, preservation or management of the resource
 - b. The formulation of a strategy to mitigate a threat to the archaeological resource
 - c. The formulation of a proposal for further archaeological investigation within a programme of research (ibid, 2014a: 4).

4.2 Survey objectives

1. Complete a magnetometer survey across agreed parts of the survey area.
2. Identify any magnetic anomalies that may be related to archaeological deposits, structures or artefacts.
3. Within the limits of the technique and dataset, archaeologically characterise any such anomalies or patterns of anomalies.
4. Accurately record the location of the identified anomalies.
5. Produce a report based on the survey that is sufficiently detailed to inform any subsequent development on the survey area about the location and possible archaeological character of the recorded anomalies.

5 Standards

The standards used to complete this survey are defined by the Chartered Institute for Archaeologists (2014a) and Historic England (2008). The codes of approved practice that were followed are those of the Chartered Institute for Archaeologists (2014b) and Archaeology Data Service (undated).

6 Methodology

The magnetometer survey was undertaken in accordance with a Survey Method Statement (Dean, 2018) to achieve the aims and objectives set out in Section 4 using the standards and guidance specified in Section 5. The survey method was selected to provide a relatively fast and cost-effective evaluation of any buried archaeology across the Site (see Section 12).

Data processing was undertaken using appropriate software (Table 2), with all anomalies being digitised and geo-referenced. The final report (this document) includes a graphical and textual account of the techniques undertaken, the data obtained and an archaeological interpretation of that data and conclusions about any likely archaeology. The survey and report conformed to the Chartered Institute for Archaeologists standard for geophysical survey (CIfA, 2014a).

7 Site

7.1 Location and land use

The Site comprises three complete agricultural fields (Areas 1, 2 and 3) lying to the southwest of the village of Southleigh in the parish of Southleigh, East Devon. The field locations and designations are provided in Figure 1.

At the time of the survey, all three fields were under grass pasture. They were bounded by wire fencing with woods beyond on all but the southern field boundaries which were hedged. Further fields lay beyond the hedges in Fields 1 and 2 while the buildings of Little Farm lay south of the southern boundary of Area 3.

7.2 Topology

The Site is on a slope descending southwards from approximately 180m AOD at the north-western corner of Area 1 to approximately 145m AOD at the south-eastern corner of Area 3.

7.3 Geology

A geological boundary is located near the southern edge of the Site. Over most of the Site the bedrock is silt and fine-grained glauconitic, shelly sand and sandstone of the Cretaceous Upper Greensand Formation. Along the southern boundary of the site the rocks are of the Triassic

Branscombe Mudstone Formation. Generically these rocks comprise mudstone and siltstone which are red-brown in colour with common grey-green reduction patches and spots. The mudstones are mostly structureless, with a blocky weathering habit. Gypsum/anhydrite, locally of economic importance, is common throughout in beds, nodules and veins. Sporadic thin beds of argillaceous sandstone and silty dolomite occur in the lower part of the formation. Beds of thinly interlaminated, dark grey-green mudstone and dolomitic siltstone occur locally towards the top of the formation. The superficial geology is not recorded in the source used (British Geological Survey, undated).

8 Archaeological background

8.1 Historic Environment Status

None but the Site is adjacent to Scheduled Monument 1013425 Blackbury Castle Camp univallate hillfort, Historic Environment Entry MDV10840, which is thought to be iron age in date but which may have earlier elements.

8.2 Historic landscape characterisation (Devon County Council, undated)

All three areas are Modern enclosures

Modern enclosures that have been created by adapting earlier fields of probable post-medieval date laid out in the 18th or 19th centuries. Commonly such fields have many surveyed, dead-straight field boundaries.

8.3 Statement of research

The Devon Council Historic Environment Record (HER) was examined via the Heritage Gateway (Historic England, undated) to gain an appreciation of historic assets pertinent to the geophysical survey data within approximately 500m of the survey area perimeter. Whilst providing a useful context for the data analysis, this source is not comprehensive and publication of the information in commercial reports is not permitted.

9 Results

9.1 Scope and definitions

This survey was designed to record magnetic anomalies. A magnetic anomaly is a local variation in the Earth's magnetic field. Such variations can result from changes in the magnetism of the underlying solid geology, superficial geology and other near-surface deposits including those altered and created by past human activities. Near-surface artefacts can also create magnetic anomalies.

Magnetic anomalies cannot be regarded as physical archaeological deposits, structures or features and the dimensions of the anomalies shown do not represent the dimensions of any associated archaeology.

The analysis presented below identifies and characterises anomalies and anomaly groups that may relate to buried archaeology.

9.2 Analysis

Only in Area 1 were magnetic anomaly groups classified as pertaining to buried archaeology.

Figures 2 and 3 show the interpretation of the survey data and include the anomaly groups identified as possibly relating to archaeological deposits along with their identifying numbers. Table 1 is an extract of the detailed analysis of the survey data sourced from the attribute tables of the GIS project provided in the project archive.

Figures 2 and 3 along with Table 1 comprises the analysis of the survey data.

Figures 4 to 7 are plots of processed data as specified in Table 3. Figure 8 is a plot of minimally processed data as specified in Table 4. Figure 9 shows the location of the survey grid.

10 Discussion

10.1 General points

10.1.1 Discussion scope

Not all anomalies or anomaly groups identified in Table 1 are necessarily discussed below. All identified anomaly groups are recorded in the GIS project held in the survey archive.

10.1.2 Data collection

Data collection along the survey area edges was restricted as shown in the figures due to the presence of magnetic materials within and adjacent to boundaries. Strong magnetic responses mapped close to the boundaries are likely to relate to these materials except where otherwise indicated in Figures 2 and 3 and Table 1.

10.1.3 Anomaly characterisation

There are a number of anomaly groups that could be interpreted as relating to large postholes or pits although most will have natural origins. Anomalies of this sort were mapped as potential archaeology when they were associated with other significant anomaly groups or otherwise formed recognisable patterns as listed in Table 1.

Anomalies thought to relate to natural features and recent man-made objects such as manholes, water management equipment, drains, cables and other services were only mapped where they comprised significant magnetic responses across the dataset that needed clarification.

Numerous dipole magnetic anomalies are present within the dataset. These are likely to represent recent ferrous objects. They are only mapped if they could influence the analysis of anomaly groups thought to have an archaeological origin.

10.2 Data relating to historic maps and other records

Magnetic anomaly groups **3** and **4** coincide with, and likely represent, a field boundary recorded on historic maps as shown in Table 1. The anomaly pattern of group 3 indicates a spread of material which is not a common anomaly pattern for former post-medieval fields in Devon. This may be because the anomaly group represents a deposition of material associated with, for example, a former lynchet, an earthen bank or a broad, filled ditch. As such, the anomaly group may represent a structural element of the adjacent Blackbury Castle Camp univallate hillfort, although this could only be proven by further archaeological investigation. The anomaly pattern of group 4 is suggestive of rubble deposits which may be associated with the post-medieval field boundary or, possibly, a former earthen bank represented by group 3, should it exist.

10.3 Data with no previous archaeological provenance

The remaining magnetic anomaly groups are typical of anomalies representing linear deposits such as remnants of enclosure or field boundaries, although groups **2**, **6** and **8** may equally well represent field drains.

It is not clear whether group **5** is associated with the buried archaeology represented by groups 3 and 4 or a separated archaeological deposit.

11 Conclusions

The differences in magnetic responses across the Site were sufficient to be able to differentiate between anomalies representing possible buried archaeology and background magnetic responses.

Eight magnetic anomaly groups were mapped as representing potential buried archaeology and all are located in Area 1 (Figures 2 and 3). Of these, two groups (3 and 4), and possibly a third group (5) coincide with, and likely represent, a field boundary recorded on historic maps. The pattern of one of these (3) suggests that the historic field boundary may have

followed the course of an earlier feature such as a ditch, lynchet or earthen bank. The remaining groups have characteristics typical of anomalies representing linear archaeological deposits such as fragments of enclosure and/or field boundaries although three of them (2, 6 and 8) may represent field drains.

12 Disclaimer

The description and discussion of the results presented in this report are the authors', based on their interpretation of the survey data. Every effort has been made to provide accurate descriptions and interpretations of the geophysical data set. The nature of archaeological geophysical surveying is such that interpretations based on geophysical data, while informative, can only be provisional. Geophysical surveys are a cost-effective early step in the multi-phase process that is archaeology. The programme of archaeological work of which this survey is part may also be informed by other archaeological work and analysis. It must be presumed that more archaeological features will be found than those specified in this report.

13 Copyright

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14 Archive

14.1 Online Access to the Index of archaeological investigationS (OASIS)

OASIS ID: substrat1-315233

The OASIS entry has been completed and the boundary file and report uploaded with no delay in publication.

14.2 Substrata Limited archive

A full archive of this survey will be held by Substrata Limited on cloud and local hard drive storage as specified in Appendix 3.

14.3 Archaeological Data Service (ADS)

Depending on local authority policy, an archive may be deposited with the ADS as specified in Appendix 3.

14.4 Historic Environment Record (HER)

Subject to any contractual requirements on confidentiality, a PDF or printed copy of the report will be submitted to the appropriate HER within six months of completion.

15 Acknowledgements

Substrata would like to thank Bill Horner, County Archaeologist, Devon County Council Environment Group a for commissioning us to complete this survey.

16 Bibliography

Archaeology Data Service (undated) *Archaeology Data Service/Digital Antiquity Guides to Good Practice: Geophysical Data in Archaeology, 2nd Edition* [Online], Available: http://guides.archaeologydataservice.ac.uk/g2gp/Geophysics_Toc [March 2018]

British Geological Survey (undated) *Geology of Britain viewer, 1:50000 scale data* [Online], Available: [http://www.bgs.ac.uk/discovering Geology/geologyOfBritain/viewer.html](http://www.bgs.ac.uk/discovering_Geology/geologyOfBritain/viewer.html) [April 2018]

Chartered Institute for Archaeologists (2014a) *Standard and guidance archaeological geophysical survey* [Online], Available: http://www.archaeologists.net/sites/default/files/CIfAS&GGeophysics_1.pdf [March 2018]

Chartered Institute for Archaeologists (2014b) *Code of conduct* [Online], Available <http://>

www.archaeologists.net/sites/default/files/CodesofConduct.pdf [March 2018]

Clark, A. (2000) *Seeing Beneath the Soil, Prospecting methods in archaeology*, London: Routledge

Dean, R. (2018) *Magnetometer survey method statement, Blackbury Castle Camp, Wiscombe Park, Honiton, Devon, Centred on NGR (E/N): 318730,092240*, Substrata Ltd unpublished document 1802BLA-M-1

Devon County Council (undated), *Historic Environment Map* [Online], Available: <https://new.devon.gov.uk/historicenvironment/> [April 2018]

Historic England (undated) *Heritage Gateway* [Online], Available <http://www.heritagegateway.org.uk/gateway/> [March 2018]

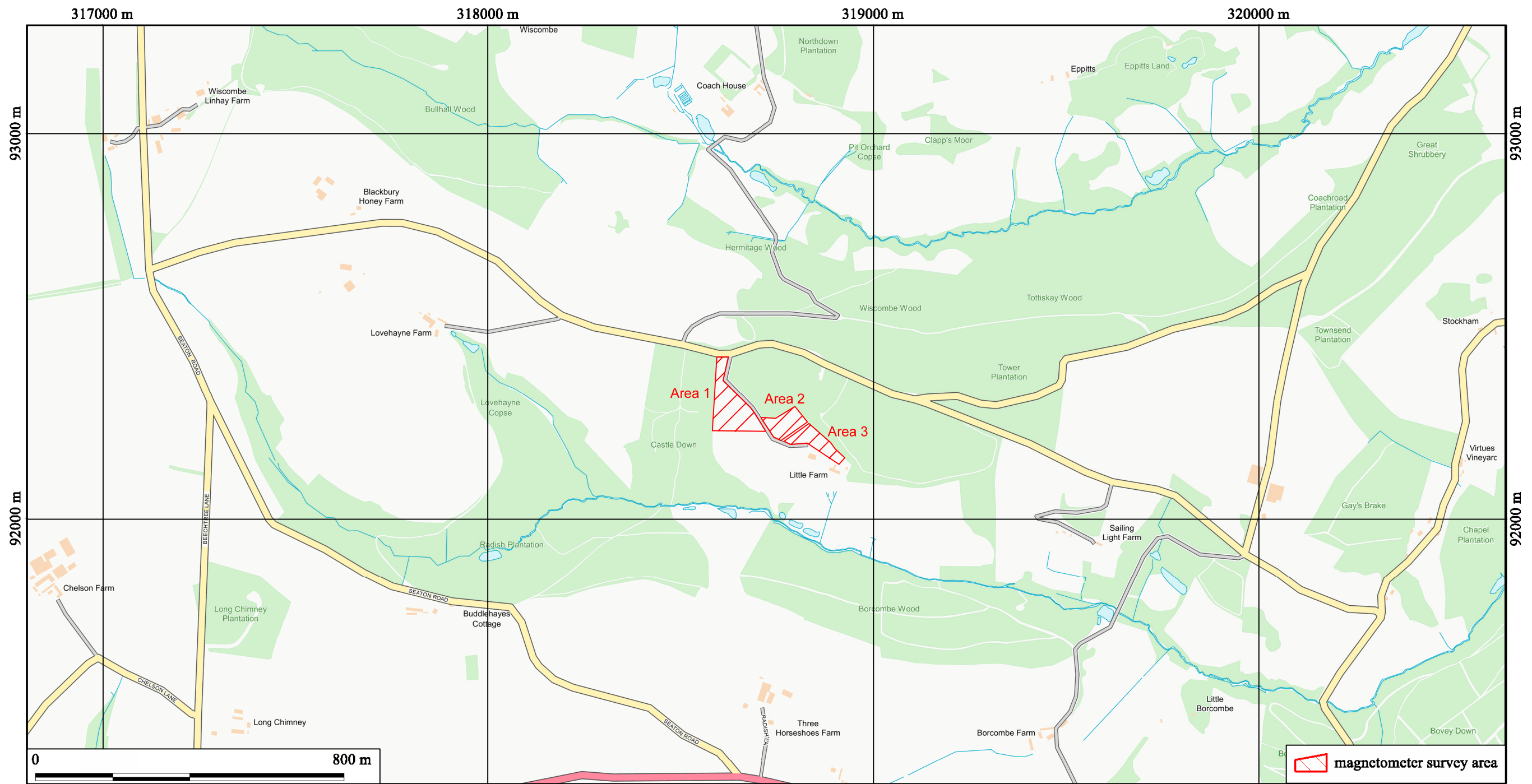
Historic England (2008) *Geophysical Survey in Archaeological Field Evaluation* [Online], Available: <https://content.historicengland.org.uk/images-books/publications/geophysical-survey-in-archaeological-field-evaluation/geophysics-guidelines.pdf/> [March 2018]

Appendix 1 Figures

General Guidance

The anomalies represented in the survey plots provided in this appendix are magnetic anomalies. The apparent size of such anomalies and anomaly patterns are unlikely to correspond exactly with the dimensions of any associated archaeological features .

A rough rule for interpreting magnetic anomalies is that the width of an anomaly at half its maximum reading is equal to the width of the buried feature, or its depth if this is greater (Clark, 2000: 83). Caution must be applied when using this rule as it depends on the anomalies being clearly identifiable and distinct from adjacent anomalies. In northern latitudes the position of the maximum of a magnetic anomaly will be displaced slightly to the south of any associated physical feature.



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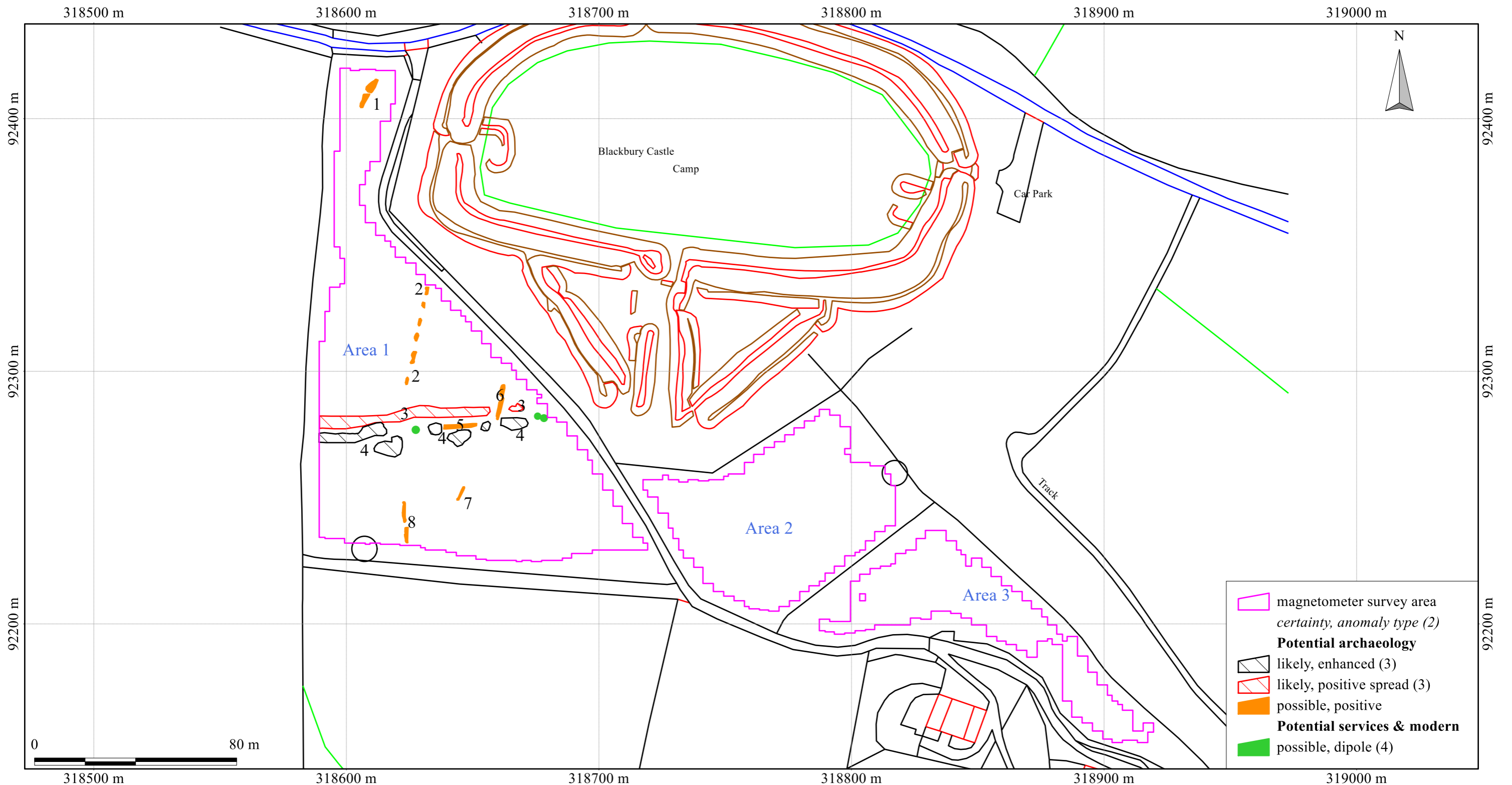
Scale: 1:10000 @ A3. Spatial Units: Meter. Do not scale off this drawing

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 Base map: Contains Ordnance Survey data
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 Blackbury Castle Camp, Wiscombe Park, Honiton, Devon
 Centred on NGR (E/N): 318730,092240
 Report: 1802BLA-R-1

Figure 1: location map

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British Grid
 centre X: 318760.40 m, centre Y: 92290.06 m

Scale: 1:1500 @ A3. Spatial Units: Meter. Do not scale off this drawing

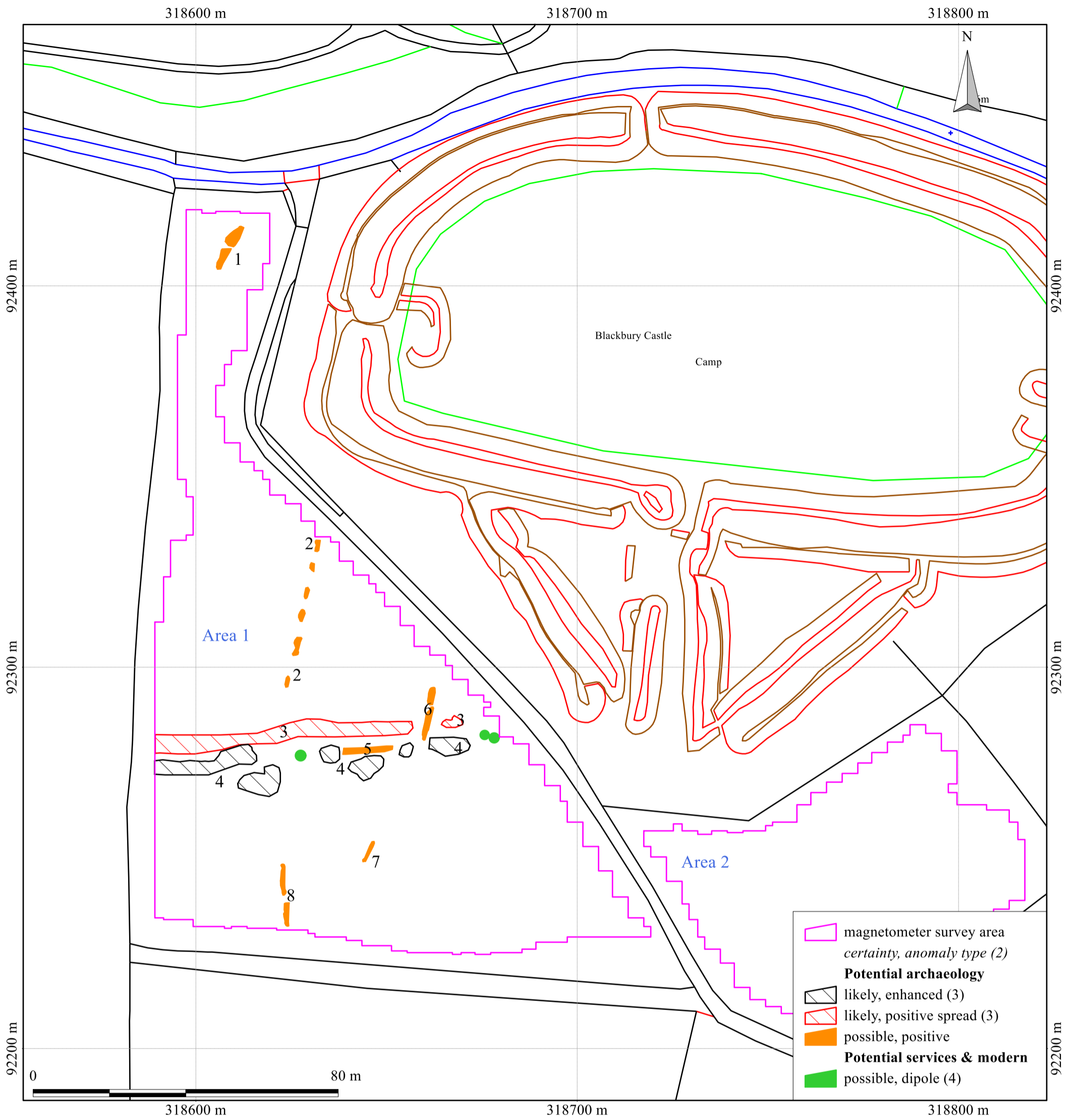
Geophysical survey: Copyright Substrata Limited.
 Base map: Ordnance Survey (c) Crown Copyright 2018.
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- Notes:
1. All interpretations are provisional and represent potential archaeological deposits.
 2. 'Anomaly type' is a description of the magnetic anomaly. See the report text or GIS for an archaeological characterisation.
 3. Anomalies designated "likely archaeology" have supporting evidence e.g. historical maps and or visible earthworks.
 4. Not all instances are mapped.
 5. Anomalies likely to represent geological or other natural deposits are not mapped unless relevant to potential archaeological events or deposits.

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Figure 2: survey interpretation, all areas

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British Grid
centre X: 318688.92 m, centre Y: 92327.46 m

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Scale: 1:1000 @ A3. Spatial Units: Meter. Do not scale off this drawing

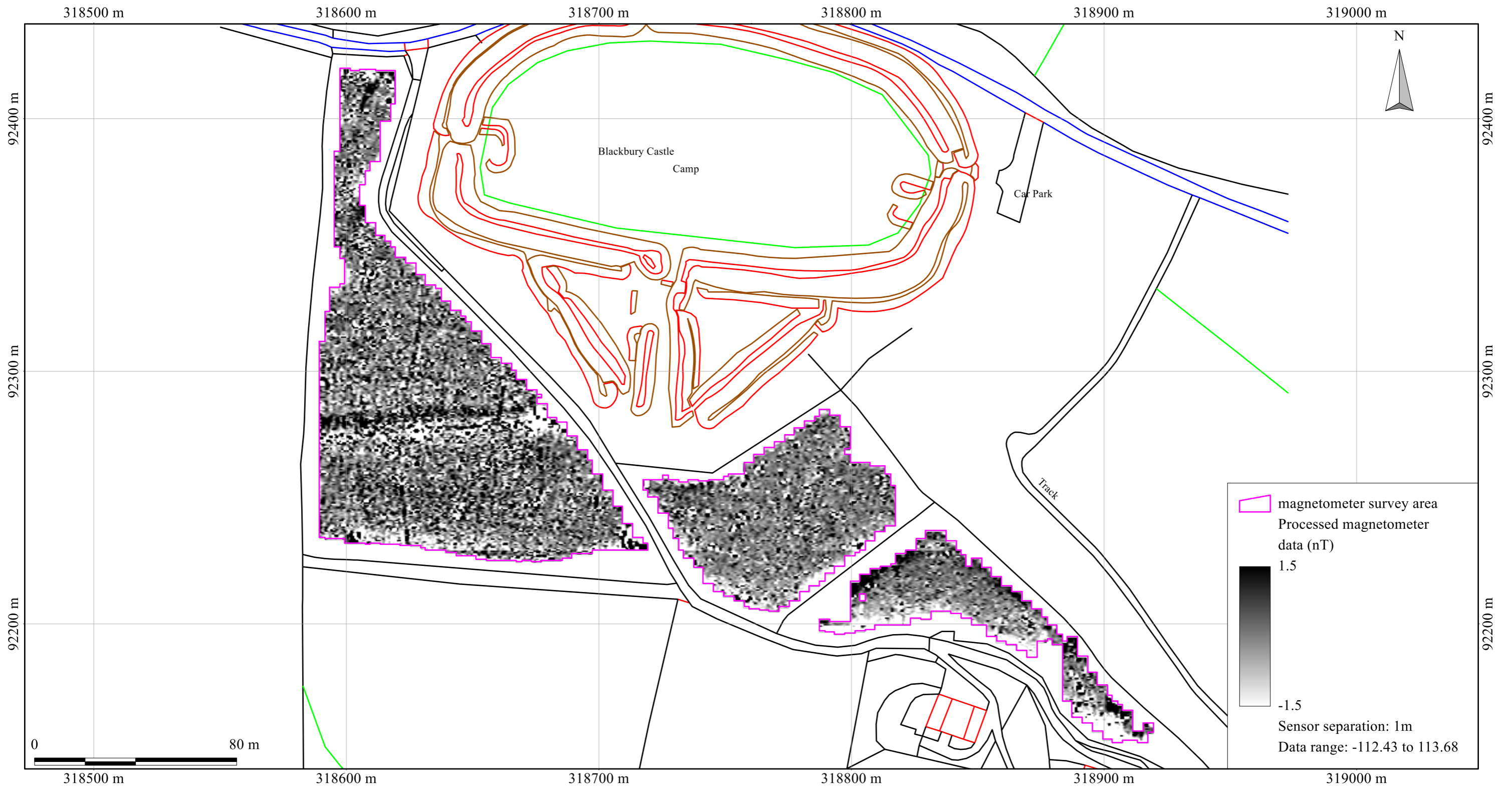
Notes:

1. All interpretations are provisional and represent potential archaeological deposits.
2. 'Anomaly type' is a description of the magnetic anomaly. See the report text or GIS for an archaeological characterisation.
3. Anomalies designated "likely archaeology" have supporting evidence e.g. historical maps and or visible earthworks.
4. Not all instances are mapped.
5. Anomalies likely to represent geological or other natural deposits are not mapped unless relevant to potential buried archaeology.

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Figure 3: survey interpretation, Area 1



British Grid
 centre X: 318760.40 m, centre Y: 92290.06 m

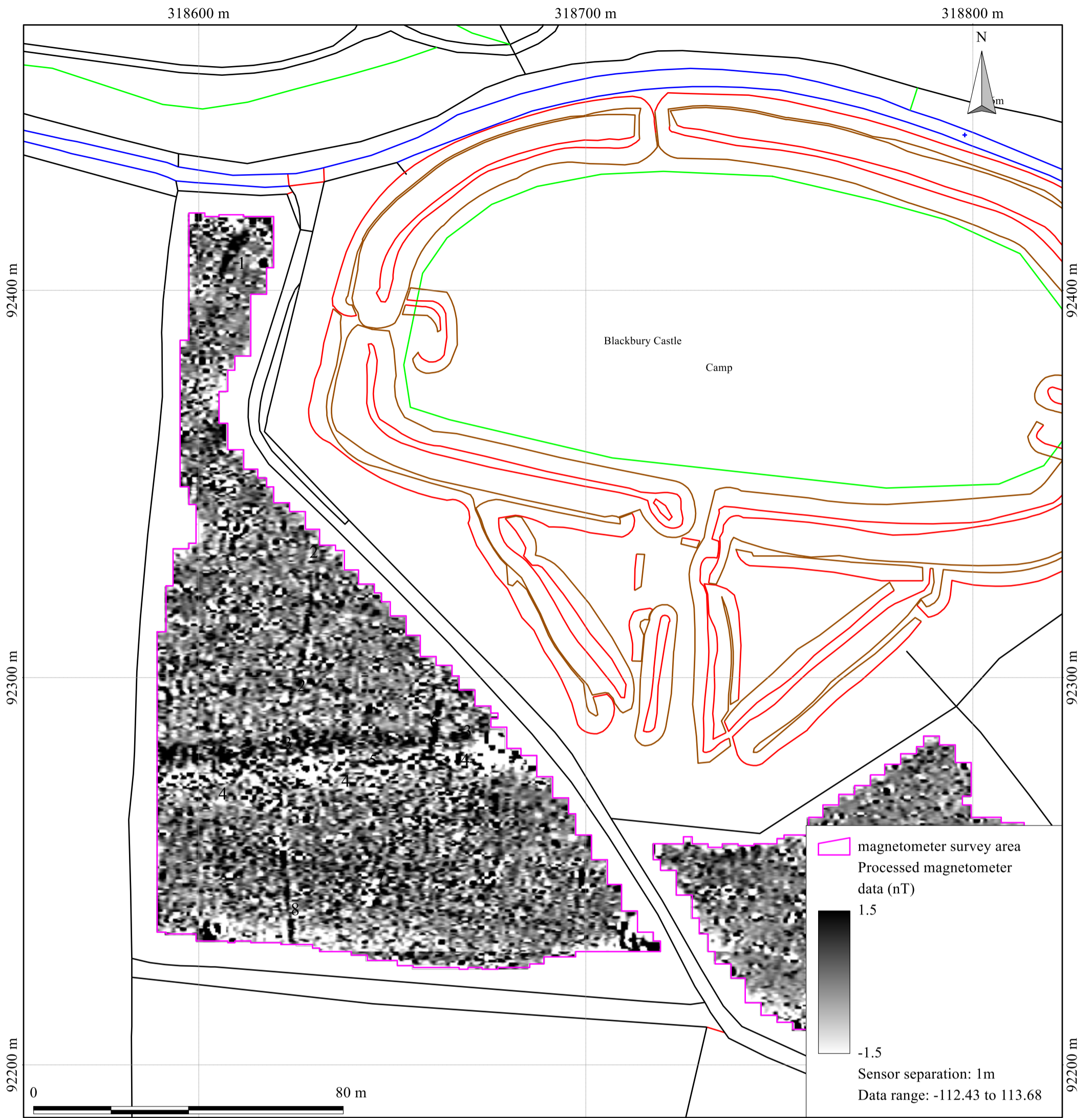
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Figure 4: shade plot of processed data, all areas

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British Grid
centre X: 318688.92 m, centre Y: 92327.46 m

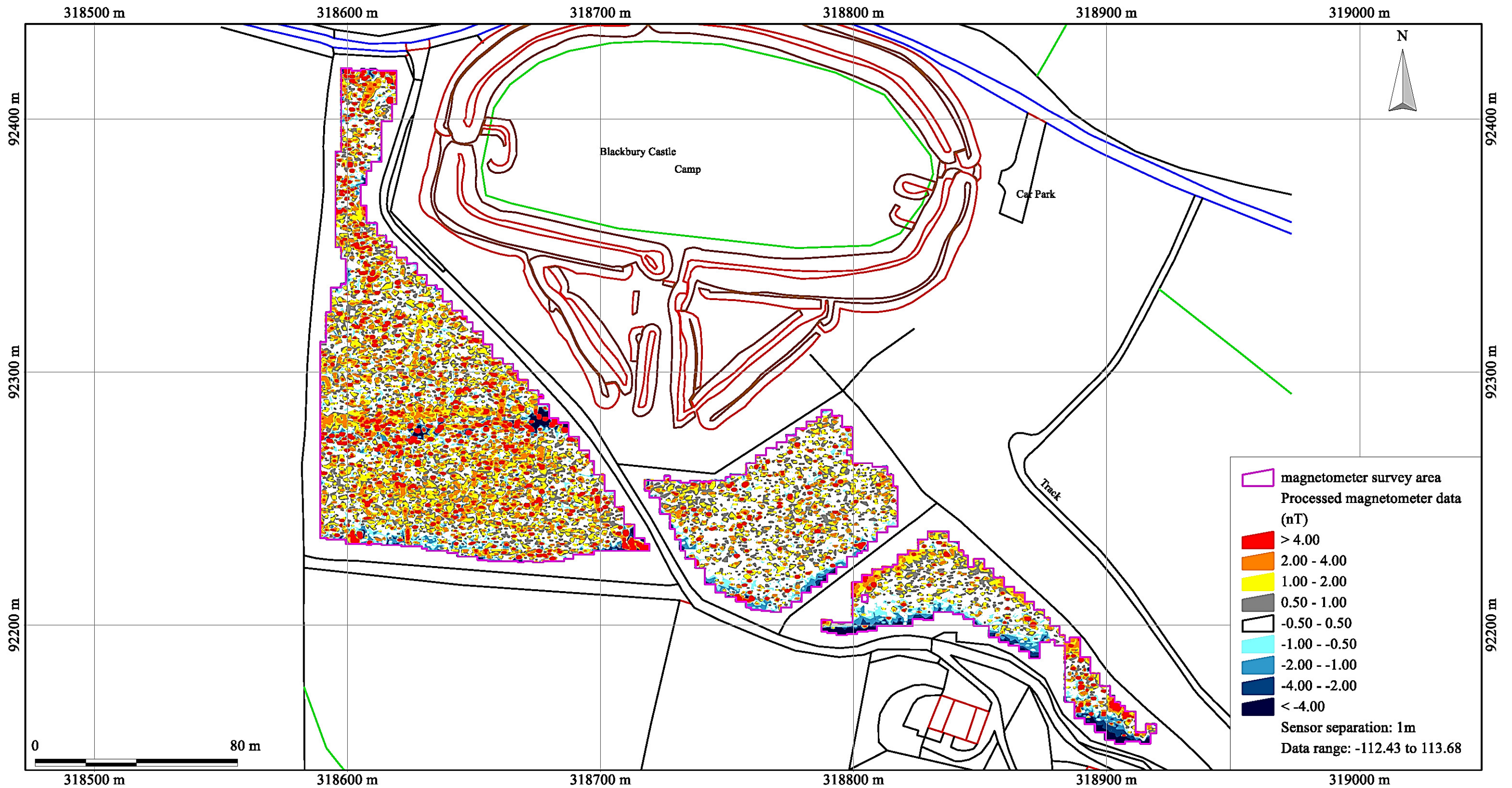
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Figure 5: shade plot of processed data, Area 1

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British Grid
 centre X: 318760.40 m, centre Y: 92290.06 m

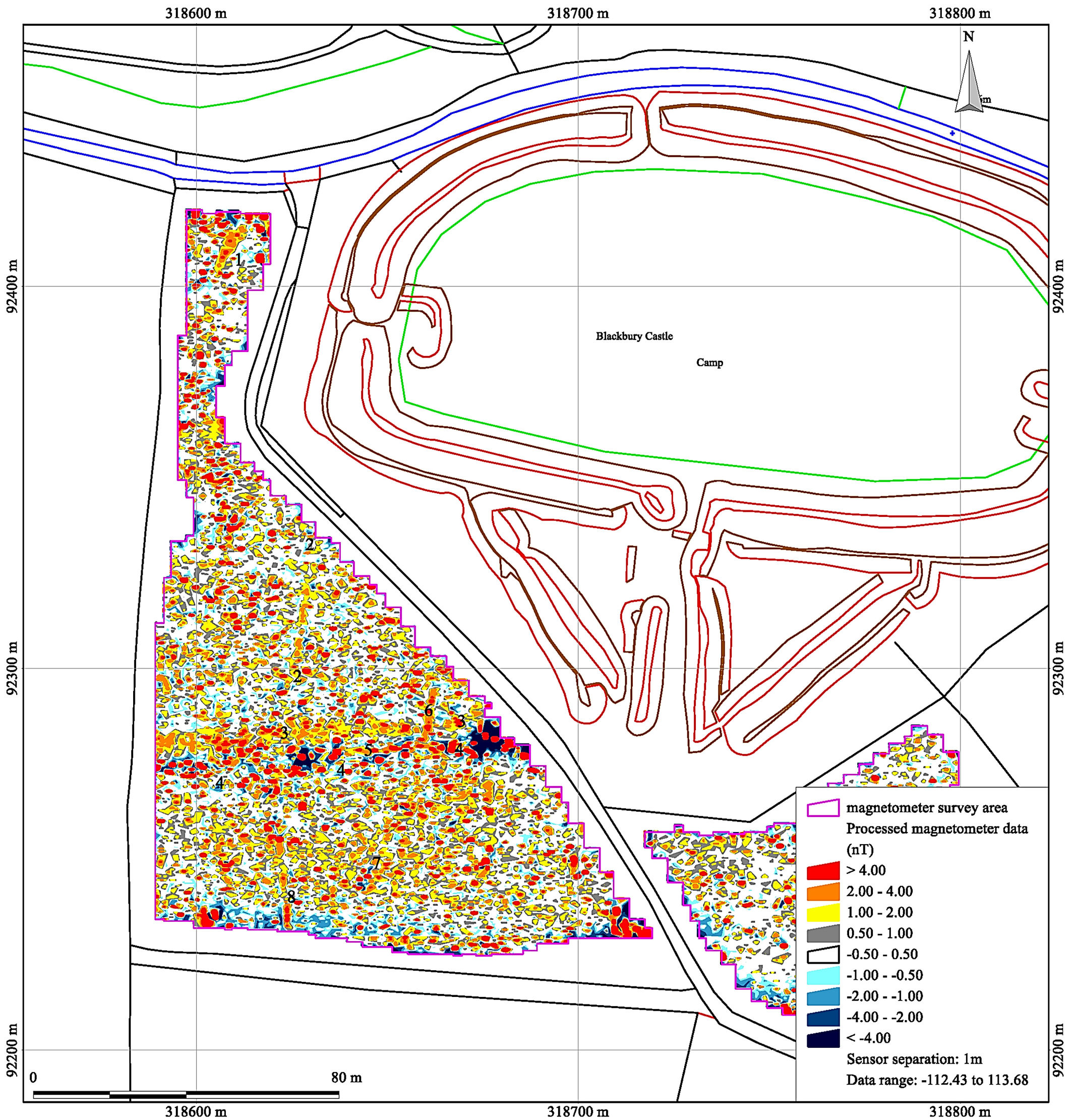
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Figure 6: contour plot of processed data, all areas

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British Grid
centre X: 318688.92 m, centre Y: 92327.46 m

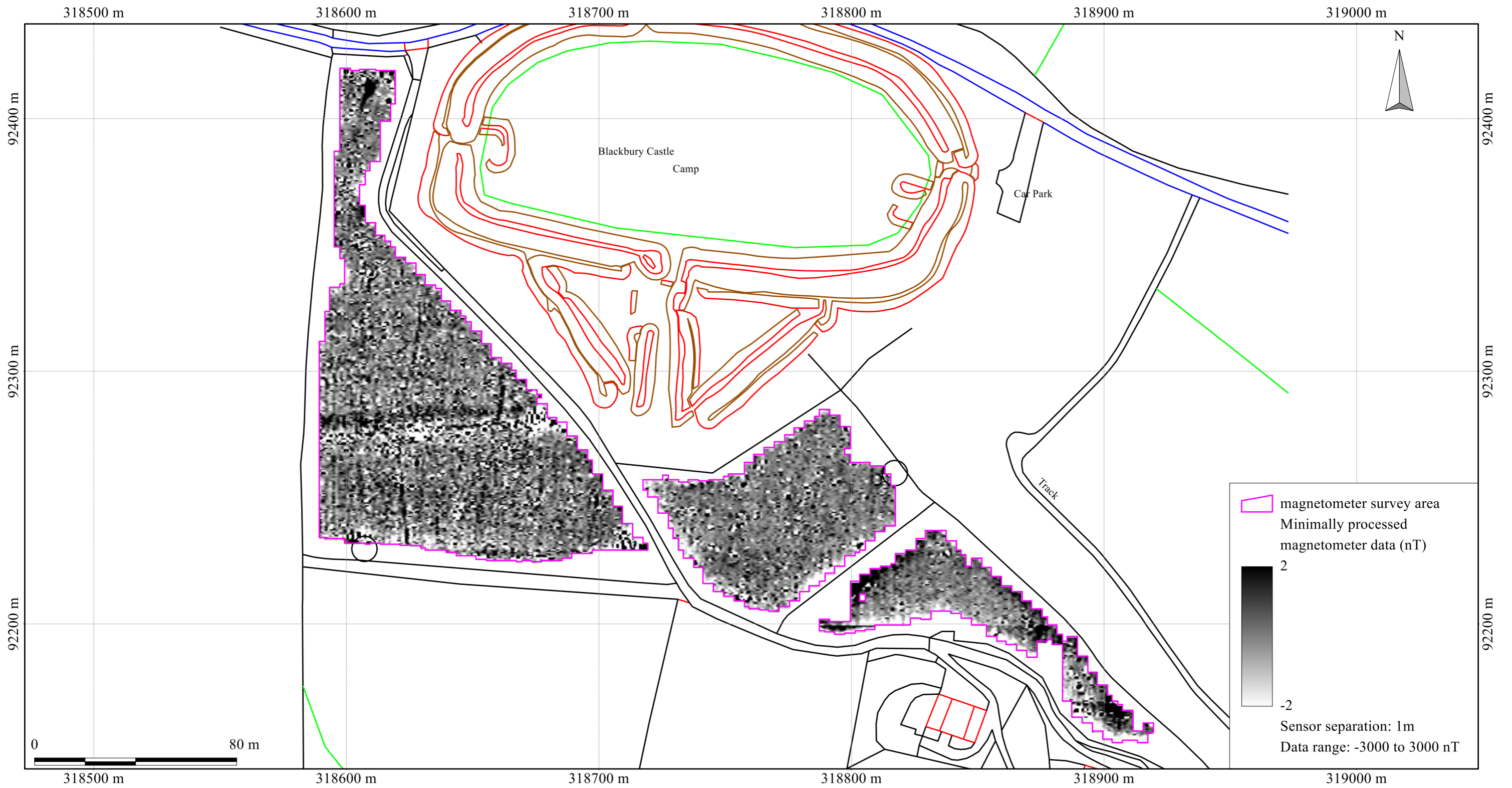
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Figure 7: contour plot of processed data, Area 1



British Grid
 centre X: 318760.40 m, centre Y: 92290.06 m

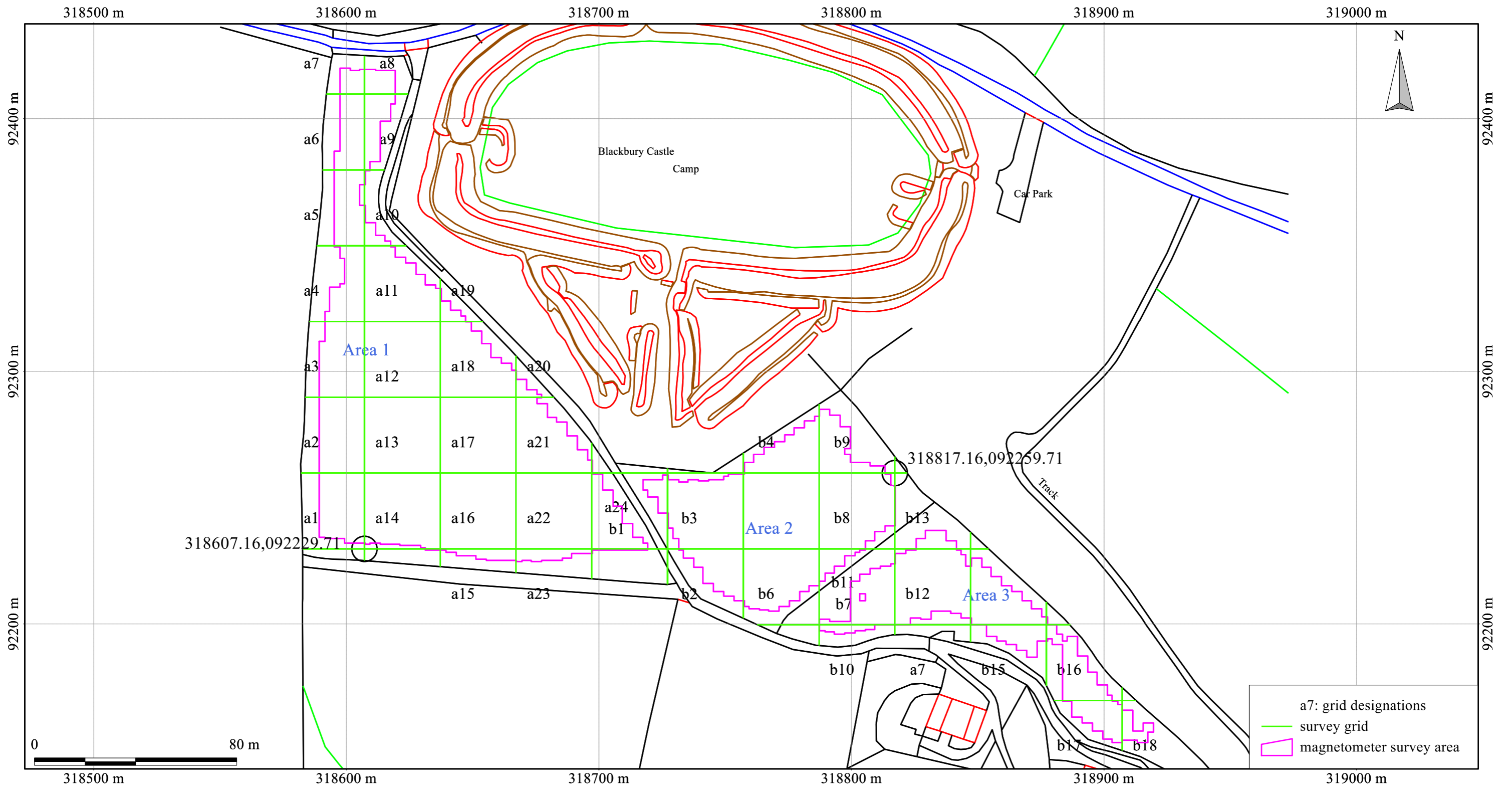
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An archaeological magnetometer survey
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Figure 8: shade plot of minimally processed data

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British Grid
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Figure 9: survey grid plan and location

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Appendix 2 Tables

Site: An archaeological magnetometer survey
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area number	anomaly group	associated anomalies	anomaly characterisation certainty & class	anomaly form	additional archaeological characterisation	comments	supporting evidence
1	1		possible, positive	disrupted linear			
	2		possible, positive	disrupted linear	linear deposit or field drain		
	3	4 5?	likely, positive spread	disrupted broad linear	field boundary maybe with an earlier ditch, lynchet or earthen bank	Anomaly group coincides with a field boundary mapped between 1840 and 1988; the anomaly pattern is unusual for such a feature, however, and it may represent a ditch, a lynchet or a former earthen bank; if any are true then the feature may have formed the basis for the later field boundary.	1840 Southleigh tithe map, Ordnance Survey maps 1889 1:2500 to 1988 1:10000
	4	3 5?	likely, enhanced	disrupted broad linear	field boundary	Anomaly group coincides with a field boundary mapped between 1840 and 1988; the anomaly pattern is suggestive of deposits of rubble which may be associated with the field boundary or may be associated with a bank represented by group 3, should it exist.	1840 Southleigh tithe map, Ordnance Survey maps 1889 1:2500 to 1988 1:10000
	5	3? 4?	possible, positive	linear			
	6		possible, positive	disrupted linear	linear deposit or field drain		
	7		possible, positive	linear			
	8		possible, positive	disrupted linear	linear deposit or field drain		
2	none						
3	none						

Table 1: data analysis

<p>Grid <i>Method of Fixing:</i> DGPS set-out using pre-planned survey grids and Ordnance Survey coordinates. <i>Composition:</i> 30m by 30m grids <i>Recording:</i> Geo-referenced and recorded using digital map tiles. <i>DGPS used:</i> Spectra Precision PM5V2 GPS with external antenna and survey pole and DigiTerra Explorer 7 as the survey control program.</p>	
<p>Equipment <i>Instrument:</i> Bartington Instruments grad601-2 <i>Firmware:</i> version 6.1</p>	<p>Data Capture <i>Sample Interval:</i> 0.25m <i>Traverse Interval:</i> 1 metre <i>Traverse Method:</i> zigzag <i>Traverse Orientation:</i> GN</p>
<p>Data Processing, Analysis and Presentation Software IntelliCAD 8.4 DW Consulting TerraSurveyor3 Manifold System 8 GIS Microsoft Corp. Office 365: Excel, Publisher, Word Adobe Systems Inc Adobe Acrobat 9 Pro Extended</p>	

Table 2: methodology information

<p>Instrument Type: Bartington Grad-601 gradiometer Units: nT Direction of 1st Traverse: see below Collection Method: ZigZag Sensors: 2 @ 1.00 m spacing, each with 1m separation Dummy Value: 32702</p>											
<p>Program Name: TerraSurveyor Version: 3.0.33.6</p>											
<p>Statistics</p> <table> <tr><td>Max:</td><td>86.85</td></tr> <tr><td>Min:</td><td>-86.58</td></tr> <tr><td>Std Dev:</td><td>5.41</td></tr> <tr><td>Mean:</td><td>-0.06</td></tr> <tr><td>Median:</td><td>0.00</td></tr> </table>	Max:	86.85	Min:	-86.58	Std Dev:	5.41	Mean:	-0.06	Median:	0.00	<p>Processing</p> <ol style="list-style-type: none"> 1 Base Layer 2 Clip at 1.00 SD 3 DeStripe Median Traverse: Grids: All 4 Range Match (Area: Top 150, Left 240, Bottom 239, Right 359) to Right edge 5 Clip at 1.00 SD (Area: Top 270, Left 120, Bottom 299, Right 239) 6 Edge Match (Area: Top 270, Left 120, Bottom 299, Right 239) to Right edge 7 Edge Match (Area: Top 210, Left 120, Bottom 239, Right 239) to Right edge 8 De Stagger: Grids: SubGrid (Area: Top 206, Left 120, Bottom 209, Right 239) By: 0 intervals, 50.00cm 9 Clip at 1.00 SD (Area: Top 300, Left 0, Bottom 329, Right 119) 10 Edge Match (Area: Top 300, Left 0, Bottom 329, Right 119) to Right edge
Max:	86.85										
Min:	-86.58										
Std Dev:	5.41										
Mean:	-0.06										
Median:	0.00										

Table 3: processed data metadata

Instrument	
Type:	Bartington Grad-601 gradiometer
Units:	nT
Direction of 1st Traverse:	see below
Collection Method:	ZigZag
Sensors:	2 @ 1.00 m spacing, each with 1m separation
Dummy Value:	32702
Program	
Name:	TerraSurveyor
Version:	3.0.33.6
Statistics	Processing
Max:	3000.00
Min:	-3000.00
Std Dev:	82.61
Mean:	-0.09
Median:	0.00
	1 Base Layer
	2 DeStripe Median Sensors: Grids: All
	3 Interpolate: Match X & Y Doubled.
	4 Clip from -3000.00 to 3000.00 nT

Table 4: minimally processed data metadata

Appendix 3 Project archive contents

A3.1 Substrata Limited archive

A full archive of this survey will be held by Substrata Limited on cloud and local hard drive storage as follows:

Report:	Adobe PDF format
Raw grid & composite files:	DW Consulting TerraSurveyor 3 format xyz files
Final data processing composite files: (excluding interpolation processes)	DW Consulting TerraSurveyor 3 format xyz files
GIS project:	GIS project Manifold 8 .map format ESRI shape files
AutoCAD version of the survey interpretation: (if generated)	AutoCAD DXF
All project working files:	various (Table 2)

A3.2 Online Access to the Index of archaeological investigationS (OASIS)

Metadata:	online form
Georeferenced survey boundary file:	ESRI shape file
Report:	Adobe PDF format

A3.3 Archaeological Data Service

Depending on local authority policy, an archive may be deposited with the ADS as follows:

Raw data composite file:	xyz file
Processed data plot:	rendered images in TIFF format
Survey grid plot:	image in TIFF format
Details of data processing:	image in TIFF format
Interpretation plot:	rendered images in TIFF format
Metadata:	Microsoft Excel format

A3.4 Historic Environment Record (HER)

Subject to any contractual requirements on confidentiality, a PDF copy of the report will be submitted to the appropriate HER within 6 months of the completion of this report via the OASIS process or by other means, depending on the relevant HER process.