

Substrata

Archaeological Geophysical Surveyors

An archaeological earth resistance survey

**Clovelly Dykes hillfort southern extension
Clovelly, Devon**

Centred on NGR (E/N): 231040,123290 (point)

Report: 1612CLO-R-1

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2 February 2017

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Client
NDAS
North Devon Archaeological Society

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Project archive

Report	Adobe PDF format
Copies of report figures	Adobe PDF format
Raw and processed grid & composite files.....	DW Consulting TerraSurveyor 3 formats
Minimal processing data plots and metadata.....	DW Consulting TerraSurveyor 3 formats
Final data processing data plots and metadata.....	DW Consulting TerraSurveyor 3 formats
GIS project, shape files and classification schema	
GIS project.....	Manifold 8 '.map' file
GIS shape files.....	ESRI standard
GIS classification schema.....	Adobe PDF format
AutoCAD version of the survey interpretation.....	AutoCAD DXF

Website: substrata.co.uk

For an overview of Substrata, our archaeological geophysical surveying techniques and the results we obtain.

1 Survey description and summary

1.1 Survey

Type: resistance meter
Date: between 6 and 13 January 2017
Area: Surveyed area: 1.05ha
Lead surveyor: Mark Edwards BA
Author: Ross Dean BSc MSc MA MifA

1.2 Clients

North Devon Archaeological Society (NDAS)

1.3 Location

Site: Clovelly Dykes hillfort southern extension
Civil Parish: Clovelly
District: Torridge
County: Devon
Nearest Postcode: EX39 5RU
NGR: SS 310 233 (point)
NGR (E/N): 231040,123290 (point)

1.4 Archive

OASIS number: substrat1-275167
Archive: At the time of writing, the archive of this survey will be held by Substrata. Depending on local authority policy, an archive of the unprocessed data may be deposited with the Archaeological Data Service

1.5 Introduction

This report presents the results of an archaeological earth resistance survey at the above site. It has been prepared for NDAS as part of a research project assessing the southern extension of the hillfort. The survey area location is shown in Figure 1.

One of the reasons behind the commissioning of the report are crop marks of a group of banks and ditches situated to the south of the hillfort. These suggest that the hillfort extends into the area to the south of the hillfort and the A39. Unlike the extant hillfort, this southern area is not scheduled.

1.6 Summary

The resistance responses across the survey area were sufficient to be able to differentiate between anomalies representing possible archaeological features and background resistance responses.

Twenty-six resistance anomaly groups were mapped as representing possible archaeological deposits or features. One of these anomaly groups represents a former field boundary recorded on historic maps. Fourteen of the groups, in four sets, may represent former curvilinear, relatively stony banks with a build-up of earthen material on the sides, or possibly four ditch-bank-ditch features. There may be a fifth such group composed of two anomaly groups representing relatively stony deposits only. One group may represent a ditch-flanked track. Four groups may represent archaeological deposits such as former field and enclosure ditches and banks. A further four groups may represent archaeological deposits but recent origins cannot be ruled out.

2 Survey aims and objectives

2.1 Aims

To establish the presence or absence, extent and character of any archaeological features and deposits within the survey area.

2.2 Survey objectives

1. Complete a earth resistance survey across agreed parts of the survey area.
2. Identify any resistance anomalies that may be related to archaeological deposits, structures or artefacts.
3. Within the limits of the techniques 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.

3 Standards

The standards used to complete this survey are defined by the Chartered Institute for Archaeologists (2014a) and Historic England (2010). The codes of approved practice that were followed are those of the Chartered Institute for Archaeologists (2014b) and Archaeology Data Service (undated).

4 Site description

4.1 Landscape and land use

The survey area comprised three plots in three agricultural fields to the south of the Clovelly Dykes hillfort and the A39 as shown in Figure 1. The topography of the site slopes from north to south and the plots lie between 200m and 210m AOD.

4.2 Geology

The bedrock across the site comprises rhythmically bedded, dark blue-grey mudstones and subordinate predominantly grey sandstones and siltstones of the Carboniferous Crackington Formation (British Geological Survey, undated).

Superficial deposits for the site are unknown (ibid).

5 Archaeological background

5.1 Historic landscape characterisation

‘Medieval enclosures based on strip fields’

This area was probably first enclosed with hedge-banks during the later middle ages. The curving form of the hedge-banks suggests that earlier it may have been farmed as open strip-fields (Devon County Council, undated a).

5.2 Summary of archaeological background

Clovelly Dykes hillfort: Devon County Council Historic Environment Record (DCC HER) MDV169, Scheduled Monument 1018522

“One of the largest and most impressive Early Iron Age hillforts in Devon. It is a complex series of earthworks covering more than 8.09 hectares, forming four zones of outworks with restricted entry, suggesting segregation of the herds for milking, or for autumn slaughter. The enclosures are visible on aerial photographs between 1946 and 2007, although scrub growth obscures the earthworks on many. Several new breaches of the hedgebanks were visible between the 1950s and 1970s. Ditches and banks immediately to the south of the hillfort are visible as cropmarks and earthworks on aerial photographs between 1947 and 1986, and may depict the original extent of the outer enclosures.”

6 Results, discussion and conclusions

6.1 Scope and definitions

This survey was designed to record resistance anomalies. A resistance anomaly is a local variation in the electrical resistance of a soil and is related to its porosity, permeability, saturation, and chemical nature of entrapped fluids (Heimmer and De Vore, 1995:30), all of which can be altered by past human activities. Higher concentrations of ions allow electrical current to pass more easily through the soil, creating a lower electrical resistance.

The terms ‘archaeological deposit’, ‘structure’ and ‘feature’ refer to any artefacts, material deposits or disturbance of natural deposits thought to be the result of human activity, excluding recent land maintenance and farming.

Resistance 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 anomalies express resistance properties of sub-surface deposits and bedrock that, as appropriate, can be interpreted as representing archaeological deposits and features.

The analysis presented below identifies and characterises anomalies and anomaly groups that may relate to archaeological deposits, structures and features.

The reader is referred to section 7.

6.2 Results

The survey area was sub-divided into Plots 1 to 3 as (Figure 2)

Figure 2 shows the interpretation of the survey data. It includes 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 Table 1 comprise the analysis of the survey data.

Figures 3 and 4 are plots of processed data as specified in Tables 3 and 4. Figure 5 is a plot of unprocessed data along with its metadata.

6.3 Discussion

6.3.1 General points

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 the survey archive.

Data collection

The data collection areas (Plots 1 to 3) were sited to the south of any likely ground disturbance from the construction and maintenance of the A39. They were designed to facilitate the recording of anomalies associated with any archaeological deposits and features to the south of the hillfort within the constraints of the project budget.

Anomaly characterisation and mapping

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 are only mapped as potential archaeology if they are clustered in groups or otherwise form recognisable patterns.

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 resistance responses across the dataset that needed clarification.

Data trends

The faint parallel, linear trends visible in the data (resistance anomaly trends 101 to 104 in Figure 2) are likely to represent relatively recent ploughing disturbance.

6.3.2 Data relating to historic maps and other records

Resistance anomaly group 26 coincides with and is likely to a former field boundary recorded on historic maps as shown in Table 1 (Devon County Council, undated b).

6.3.3 Data with no previous archaeological provenance

A number of curvilinear anomaly groups have a resistance pattern low-high-low. This can be interpreted as equating to stony banks with flanking earthen deposits or ditch-bank-ditch features although only archaeological excavation could confirm this interpretation. The distribution and pattern of the sets of anomaly groups is strongly suggestive of a continuation of the pattern of extant banks comprising the Clovelly Dykes hillfort to the north. The groups are:

1 to 3;

4 to 6;

7, 8, 9, and 11;

23 possibly along with 22, 24 and 25.

Speculatively, groups 10 and 12 may be part of another such pattern.

There is a possibility that the A39 follows the curve of groups 1 to 3.

Anomaly group 18 may represent archaeological deposits such as a former ditch.

Group 15 may represent a track flanked by ditches

Resistance anomalies 16, 17, 18, and 19 may represent archaeological deposits such as former field and enclosure ditches and banks, of unknown period and more than one phase of past land management

Anomalies 13, 14, 20 and 21 may represent archaeological deposits but recent origins, such a disturbance by vehicles, cannot be ruled out.

6.4 Conclusions

Twenty-six resistance anomaly groups were mapped as representing possible archaeological deposits or features. One of these anomaly groups represents a former field boundary recorded on historic maps. Fourteen of the groups, in four sets, may represent former curvilinear, relatively stony banks with a build-up of earthen material on the sides, or possibly four ditch-bank-ditch features. There may be a fifth such group composed of two anomaly groups representing relatively stony deposits only. One group may represent a ditch-flanked track. Four groups may represent archaeological deposits such as former field and enclosure ditches and banks. A further four groups may represent archaeological deposits but recent origins cannot be ruled out.

7 Disclaimer and copyright

The description and discussion of the results presented in this report are the authors, based on his 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 evaluation programme of which this survey is part may also be informed by other archaeological assessment work and analysis. It must be presumed that more archaeological features will be evaluated than those specified in this report.

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8 Acknowledgements

Substrata would like to thank NDAS for commissioning us to complete this survey.

9 Bibliography

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Dean, R. (2016) *A survey method statement for an earth resistance survey at Clovelly Dykes hillfort southern extension, Clovelly, Devon*, Substrata Ltd unpublished document 1612CLO-M-1

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Gaffney, C. and Gater, J. (2003) *Revealing the buried past: geophysics for archaeologists*, Stroud, Tempus Publishing

Heimmer, Don H., and Steven L. DeVore (1995) *Near-Surface, High Resolution Geophysical Methods for Cultural Resource Management and Archaeological Investigations*. Revised edition. National Park Service, Denver, Colorado

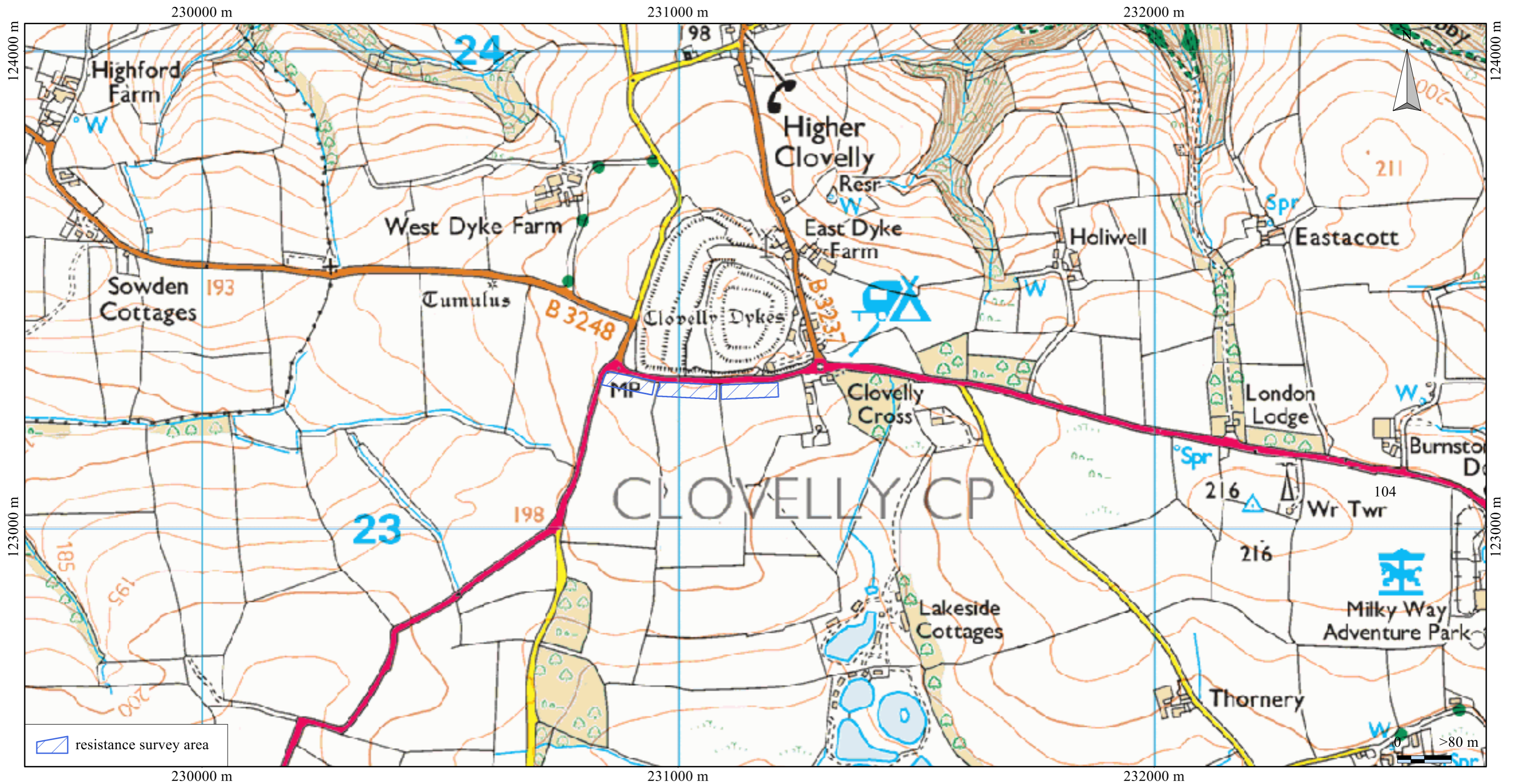
Historic England (2010) *Geophysical Survey in Archaeological Field Evaluation*, [Online], Available: <https://content.historicengland.org.uk/images-books/publications/geophysical-survey-in-archaeological-field-evaluation/geophysics-guidelines.pdf> [August 2016]

Appendix 1 Figures

General Guidance

The anomalies represented in the survey plots provided in this appendix are resistance anomalies. The apparent size of such anomalies and anomaly patterns are unlikely to correspond exactly with the dimensions of any associated archaeological features (see Section 6.1).

A rough rule for interpreting resistance anomalies is that if an x-y trace is drawn of the resistance over an anomaly, then the width of an anomaly at half its maximum height is equal to the width of the buried feature. Caution must be applied when using this rule as it depends on the anomalies being clearly identifiable and distinct from adjacent anomalies and it should be noted that the relationship between change in resistance response and depth is not linear (Gaffney and Gater, 2003: 112).



British Grid
 centre X: 231162.50 m, centre Y: 123277.22 m

Scale: 1:8000 @ A3. Spatial Units: Meter. Do not scale off this drawing

Geophysical survey: Copyright Substrata Limited.
 Base map: Ordnance Survey (c) Crown Copyright 2017.
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An archaeological earth resistance survey
 Clovelly Dykes hillfort southern extension, Clovelly, Devon
 Centred on NGR (E/N): 231040,123290 (point)
 Report: 1612CLO-R-1

Figure 1: location map

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British Grid
 centre X: 231026.43 m, centre Y: 123301.13 m

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

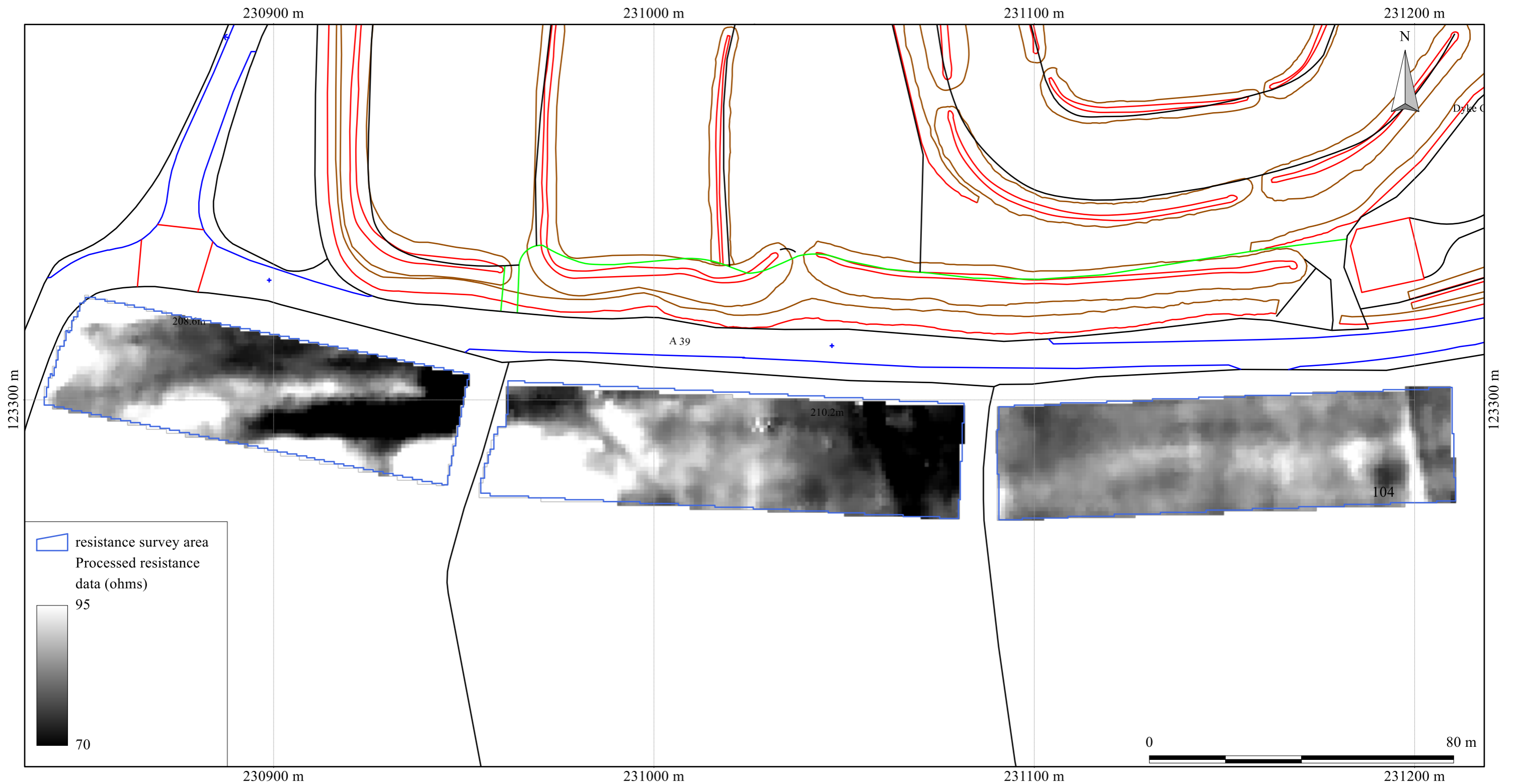
Geophysical survey: Copyright Substrata Limited.
 Base map: Ordnance Survey (c) Crown Copyright 2017.
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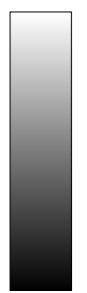
- Notes:
1. All interpretations are provisional and represent potential archaeological deposits.
 2. 'Anomaly type' is a description of the magnetic anomaly. See the report text or GIS for an archaeological characterisation.
 3. Anomalies designated "likely archaeology" have supporting evidence e.g. historical maps and or visible earthworks.
 4. Representative; 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.

An archaeological earth resistance survey
 Clovelly Dykes hillfort southern extension, Clovelly, Devon
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Figure 2: survey interpretation

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resistance survey area
 Processed resistance data (ohms)
 95

 70

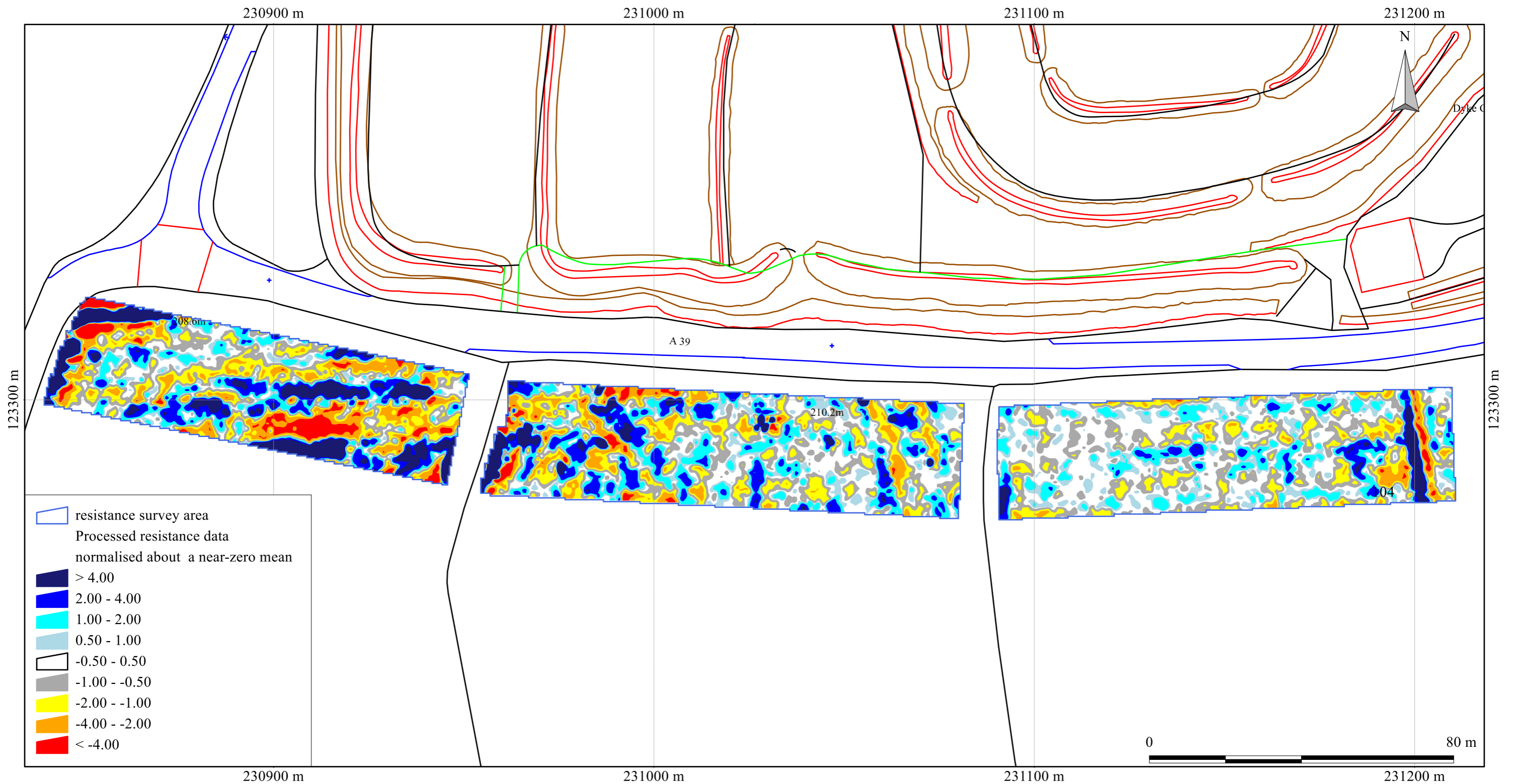
British Grid
 centre X: 231026.43 m, centre Y: 123301.13 m

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

0  80 m

Geophysical survey: Copyright Substrata Limited.
 Base map: Ordnance Survey (c) Crown Copyright 2017.
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Figure 3: shade plot of processed data

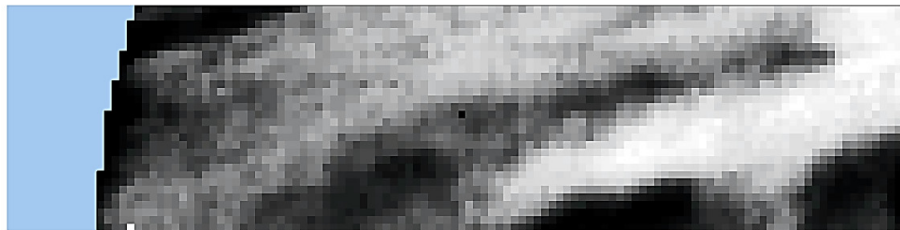


British Grid
 centre X: 231026.43 m, centre Y: 123301.13 m

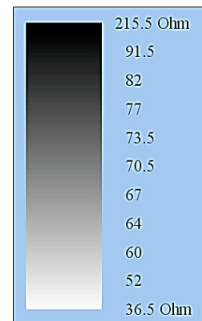
Scale: 1:1000 @ A3. Spatial Units: Meter. Do not scale off this drawing

Geophysical survey: Copyright Substrata Limited.
 Base map: Ordnance Survey (c) Crown Copyright 2017.
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Figure 4: contour plot of processed data

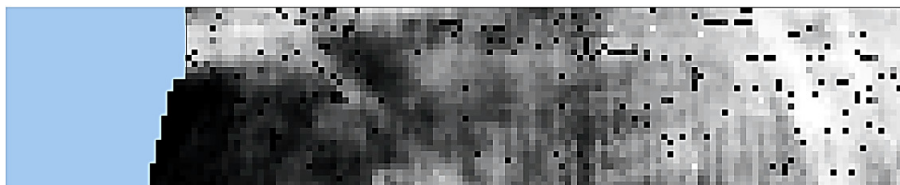


Plot 1

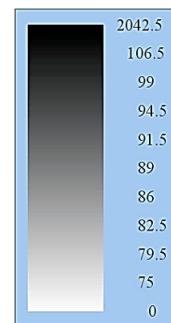


Instrument Type: GeoScan (Resistance)
Units: Ohm
Direction of 1st Traverse: 270 deg
Collection Method: ZigZag
Dummy Value: 32702
Grid Size: 30 m x 30 m
X Interval: 1 m
Y Interval: 1 m
Stats
Max: 215.50
Min: 36.50
Std Dev: 16.16
Mean: 71.79
Median: 70.50
Surveyed Area: 0.3186 ha
PROGRAM
Name: TerraSurveyor
Version: 3.0.31.0

Processes: 1
1 Base Layer

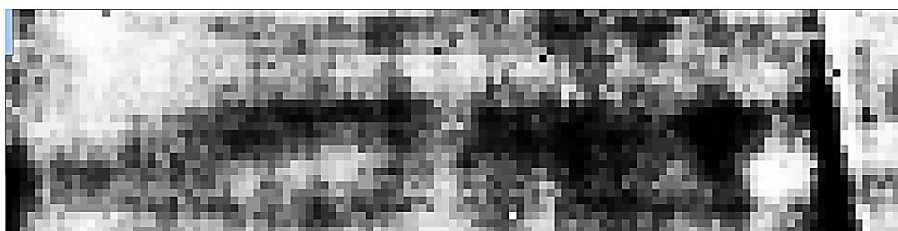


Plot 2

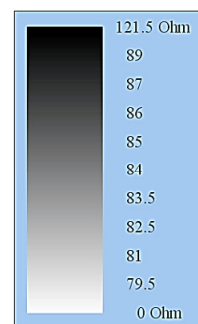


Instrument Type: GeoScan (Resistance)
Units: Ohm
Direction of 1st Traverse: 270 deg
Collection Method: ZigZag
Sensors: 2
Dummy Value: 32702
Dimensions
Grid Size: 30 m x 30 m
X Interval: 1 m
Y Interval: 1 m
Stats
Max: 2042.50
Min: 0.00
Std Dev: 96.70
Mean: 103.12
Median: 89.50
Surveyed Area: 0.3676 ha
PROGRAM
Name: TerraSurveyor
Version: 3.0.31.0

Processes: 1
1 Base Layer



Plot 3



Instrument Type: GeoScan (Resistance)
Units: Ohm
Direction of 1st Traverse: 270 deg
Collection Method: ZigZag
Sensors: 1
Dummy Value: 32702
Grid Size: 30 m x 30 m
X Interval: 1 m
Y Interval: 1 m
Stats
Max: 121.50
Min: 0.00
Std Dev: 4.59
Mean: 84.35
Median: 84.00
Surveyed Area: 0.3594 ha
PROGRAM
Name: TerraSurveyor
Version: 3.0.31.0

Processes: 1
1 Base Layer

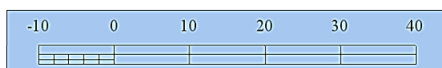


Figure 5: shade plots of unprocessed data

Appendix 2 Tables

Site: An archaeological earth resistance survey
Clovelly Dykes hillfort southern extension, Clovelly, Devon
Centred on NGR (E/N): 231040,123290 (point)
Report: 1612CLO-R-1

plot number	anomaly group	associated anomalies	anomaly characterisation certainty & class	anomaly form	additional archaeological characterisation	comments	supporting evidence
1	1		possible low	linear	filled linear hollow or earthen surface	anomaly group may represent a filled ditch	
	2	3	possible high	return	relatively stony deposit	anomaly group may represent a relatively stony bank	
	3	2	possible low	return	filled linear hollow or earthen surface	anomaly group may represent a filled ditch	
	4	5 6	possible low	disrupted curvilinear	filled linear hollow or earthen surface	anomaly group may represent a filled ditch	
	5	4 6	possible high	linear	stony deposit	anomaly group may represent a relatively stony bank	
	6	4 5	possible low	disrupted curvilinear	filled linear hollow or earthen surface	anomaly group may represent a filled ditch	
	7	8 9 11	possible low spread	linear	filled linear hollow or earthen surface	anomaly group may represent a filled ditch	
	8	7 9 11	possible low	broad linear	filled linear hollow or earthen surface	anomaly group may represent a filled ditch	
	9	7 8 11	possible high	linear	relatively stony deposit	anomaly group may represent a relatively stony bank	
	10	12	possible high	linear	relatively stony deposit	anomaly group may represent a relatively stony bank	
	101		possible parallel linears		relatively recent ploughing disturbance		
2	11	6 7	possible low	linear	filled linear hollow or earthen surface	anomaly group may represent a filled ditch	
	12	10	possible high	linear	relatively stony deposit		
	13		possible high	linear	relatively stony deposit	anomaly group may represent an archaeological deposit but vehicle or ploughing disturbance cannot be ruled out	
	14		possible low	linear		anomaly group may represent an archaeological deposit but vehicle or ploughing disturbance cannot be ruled out	
	15		possible low/high/low	linear	combined linear earthen & stony deposits	anomaly group may represent a ditch-flanked track or a former Devon bank	
	16		possible high	linear	relatively stony deposit	anomaly group may represent an archaeological deposit but vehicle or ploughing disturbance cannot be ruled out	
	17		possible low	linear		anomaly group may represent an archaeological deposit but vehicle or ploughing disturbance cannot be ruled out	
	18		possible low	linear			
	19		possible low	linear		anomaly group may represent an archaeological deposit but vehicle or ploughing disturbance cannot be ruled out	
	102		possible parallel linears		relatively recent ploughing disturbance		
3	20		possible high	linear		anomaly group may represent an archaeological deposit but vehicle or ploughing disturbance cannot be ruled out	
	21		possible low	linear		anomaly group may represent an archaeological deposit but vehicle or ploughing disturbance cannot be ruled out	
	22	23 24 25	possible low	disrupted linear	linear filled deposits	anomaly group may represent former archaeological deposits or possibly remnants of ridge-and-furrow ploughing	
	23	22 24 25	possible high spread	disrupted linear	relatively stony deposit	anomaly group may represent a relatively stony bank	
	24	22 23 25	possible low	disrupted linear	linear filled deposits	anomaly group may represent former archaeological deposits or possibly remnants of ridge-and-furrow ploughing	
	25	22 23 24	possible low	disrupted linear	linear filled deposits	anomaly group may represent former archaeological deposits or possibly remnants of ridge-and-furrow ploughing	
	26		likely low/high/low	linear	field boundary ditch - possible Devon bank	anomaly group coincides with and likely represents a field boundary recorded on historical maps	1840 Clovelly tithe map OS maps between 1886 1:2500 and at least 1986 1:10000
	103		possible parallel linears		relatively recent ploughing disturbance		
	104		possible parallel linears		relatively recent ploughing disturbance		

Table 1: data analysis

Table 2: methodology summary	
Documents Survey method statement: Dean (2016)	
Methodology <ol style="list-style-type: none"> 1. The work was undertaken in accordance with the survey methodology statement. The geophysical survey was undertaken with reference to standard guidance provided by the Chartered Institute for Archaeologists (2014) and Archaeology Data Service/Digital Antiquity Guides (undated). 2. The survey grid location information and grid plan was recorded as part of the project in a suitable GIS system. 3. Data processing was undertaken using appropriate software, with all anomalies being digitised and geo-referenced. The final report included 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. 	
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.	
Resistance Equipment <i>Instrument:</i> Geoscan Research RM15 multi-probe resistance meter <i>Configuration:</i> twin probe <i>Mobile probe spacing:</i> 0.5-metres	Resistance Data Capture <i>Sample Interval:</i> 1 metre <i>Traverse Interval:</i> 1 metre <i>Data capture:</i> automatic data logger <i>Traverse Method:</i> zigzag <i>Traverse Orientation:</i> GW
Data Processing, Analysis and Presentation Software IntelliCAD Technology Consortium IntelliCAD 7.2 DW Consulting TerraSurveyor3 Manifold System 8 GIS Microsoft Corp. Office Excel Microsoft Corp. Office Publisher Adobe Systems Inc Adobe Acrobat 9 Pro Extended	

Table 2: methodology summary

SITE	
Instrument Type:	Geoscan Research RM15
Units:	resistance data (ohms) normalised about a near-zero mean
Direction of 1st Traverse:	270 deg
Collection Method:	ZigZag
Sensors:	2 @ 1.00 m spacing.
Dummy Value:	32702
PROGRAM	
Name:	TerraSurveyor
Version:	3.0.31.0
Plot 1	
Stats	
Max:	166.50
Min:	54.50
Std Dev:	15.67
Mean:	84.65
Median:	83.50
Composite Area:	0.36 ha
Processes: 4	
1 Base Layer	
2 Add/Subtract 13 (Area: Top 0, Left 0, Bottom 29, Right 119)	
3 Despike Threshold: 1 Window size: 3x3	
4 Despike Threshold: 1 Window size: 3x3	
Plot 2	
Stats	
Max:	162.50
Min:	62.93
Std Dev:	12.93
Mean:	84.83
Median:	83.93
Composite Area:	0.45 ha
Processes: 6	
1 Base Layer	
2 Add/Subtract -5 (Area: Top 0, Left 0, Bottom 29, Right 149)	
3 Despike Threshold: 1 Window size: 3x3	
4 Despike Threshold: 1 Window size: 3x3	
5 Despike Threshold: 1 Window size: 3x3	
6 Despike Threshold: 1 Window size: 3x3	
Plot 3	
Stats	
Max:	162.50
Max:	101.50
Min:	73.91
Std Dev:	3.83
Mean:	84.35
Median:	84.00
Composite Area:	0.36 ha
Processes: 3	
1 Base Layer	
2 Despike Threshold: 1 Window size: 3x3	
3 Despike Threshold: 1 Window size: 3x3	

Table 3: processed data metadata for Figure 3

<p>SITE</p> <p>Instrument Type: Geoscan Research RM15</p> <p>Units: resistance data (ohms) normalised about a near-zero mean</p> <p>Direction of 1st Traverse: 270 deg</p> <p>Collection Method: ZigZag</p> <p>Sensors: 2 @ 1.00 m spacing.</p> <p>Dummy Value: 32702</p>	
<p>PROGRAM</p> <p>Name: TerraSurveyor</p> <p>Version: 3.0.31.0</p>	
<p>Plot 1</p> <p>Stats</p> <p>Max: 60.50</p> <p>Min: -31.37</p> <p>Std Dev: 5.02</p> <p>Mean: 0.32</p> <p>Median: -0.32</p> <p>Composite Area: 0.36 ha</p> <p>Processes: 6</p> <ol style="list-style-type: none"> 1 Base Layer 2 Add/Subtract 13 (Area: Top 0, Left 0, Bottom 29, Right 119) 3 Despike Threshold: 1 Window size: 3x3 4 Despike Threshold: 1 Window size: 3x3 5 High pass Gaussian filter: Window: 10 x 10 6 Interpolate: X & Y Doubled. 	
<p>Plot 2</p> <p>Max: 49.40</p> <p>Min: -24.08</p> <p>Std Dev: 2.88</p> <p>Mean: 0.04</p> <p>Median: -0.11</p> <p>Composite Area: 0.45 ha</p> <p>Processes: 8</p> <ol style="list-style-type: none"> 1 Base Layer 2 Add/Subtract -5 (Area: Top 0, Left 0, Bottom 29, Right 149) 3 Despike Threshold: 1 Window size: 3x3 4 Despike Threshold: 1 Window size: 3x3 5 Despike Threshold: 1 Window size: 3x3 6 Despike Threshold: 1 Window size: 3x3 7 High pass Gaussian filter: Window: 10 x 10 8 Interpolate: X & Y Doubled. 	
<p>Plot 3</p> <p>Max: 162.50</p> <p>Max: 10.50</p> <p>Min: -10.02</p> <p>Std Dev: 1.55</p> <p>Mean: -0.01</p> <p>Median: -0.04</p> <p>Composite Area: 0.36 ha</p> <p>Processes: 5</p> <ol style="list-style-type: none"> 1 Base Layer 2 Despike Threshold: 1 Window size: 3x3 3 Despike Threshold: 1 Window size: 3x3 4 High pass Gaussian filter: Window: 10 x 10 5 Interpolate: X & Y Doubled. 	

Table 4: processed data metadata for Figure 4