

Section 5. Comprehensive Documentation#

5.6 Case study 1: the Cottam project#

by Julian Richards

The presence of Anglian and Anglo-Scandinavian settlements at Cottam, East Yorkshire, was first indicated in 1987 by numerous finds by metal detector users of coins, dress pins, strap ends and other copper alloy artefacts. The Department of Archaeology, University of York, carried out a programme of fieldwork on the site between 1993-1995 which included fieldwalking, geophysical survey and excavation (Richards 1999; 2001). The digital archive has been deposited with the ADS, while the finds and paper archive from the project are deposited with Hull Museum.

The geophysical survey was carried out between October and December 1994. The aim of the survey was to produce a detailed map of sub-surface geophysical anomalies within two sites defined by concentrations of metal finds. The southern concentrations also coincided with a cropmark enclosure. The survey was also to act as a pilot study to assess the relative effectiveness of magnetic and earth resistance techniques in mapping anomalies in this area.

Two survey areas were located in the northern part of the large field to the west of Burrow House Farm. Area 1 (NGR 49760 46674) was situated over the central and eastern part of the concentration of cropmarks forming a large enclosure with several associated smaller enclosures. Area 2 (NGR 49763 46690) was sited over two small sub-rectangular enclosures to the north-east of the larger cropmark site. Both areas were subsequently examined by excavation.

In the field the geophysical data were downloaded from the surveying instruments (an RM4 earth resistance meter and an FM18 fluxgate gradiometer) onto a laptop and processed using Geoplot version 2.02. The processed data were transferred to Surfer version 6 and prepared for presentation.

The digital Archive created by the Cottam project is a research level archive and has been deposited with the ADS. The Archive consists of:

- 'Level III' reports covering the stratigraphic sequence
- Fieldwalking, metal detector, geophysical survey reports
- Specialist reports: animal bone, flint, pottery, plant macrofossils
- Geophysics data
- Finds database
- Context database
- CAD files, including a rectified aerial photographic plot
- Colour images of many of the finds

Metadata records were created for the Cottam project as a whole and for individual survey types. Table 3 (below) shows the earth resistance survey documentation for Area 1.

Project Information	
Survey name	Burrow House Farm, Cottam
Survey index	Area 1 - COT93 - Earth Resistance - CTR1K
Survey purpose	The aim of the survey was to produce a detailed map of sub-surface geophysical anomalies within two sites defined by concentrations of metal finds. One concentration also coincided with a cropmark enclosure. The survey was also to act as a pilot

	study to assess the relative effectiveness of magnetic and earth resistance techniques in mapping anomalies in this area.
Report summary	Although high resolution magnetic survey proved itself to be the most effective technique in mapping sub-surface archaeological remains, the results of the soil resistance survey clearly provide valuable complementary information on variations in soil compaction as well as identifying features with non-magnetic backfills. The survey provided detailed maps of two sites coarsely defined through aerial photography. The results also indicate basic zonation within these sites based on feature density and variations in soil compaction.
Bibliographic references	Richards, J.D. 1999 'Cottam: An Anglian and Anglo-Scandinavian settlement on the Yorkshire Wolds' Arch J 156, 1-110 Richards, J.D. 2001 'Anglian and Anglo-Scandinavian Cottam: linking digital publication and archive', Internet Archaeology 10, http://intarch.ac.uk/journal/issue10/richards_index.html Survey report: http://archaeologydataservice.ac.uk/archives/view/cottam_ba/geophys.cfm
Survey keywords	Earth Resistance, Settlement, Anglian, Anglo-Scandinavian
Spatial coverage	Area 1: 497565,466700 to 497644,466779
Administrative area	Cottam
State	East Riding of Yorkshire
Country	England
Solid geology	Chalk
Drift geology	Not reported
Duration	October-December 1994
Weather	Not reported
Soil condition	Not reported
Land use	Arable
Monument type	Settlement
Monument period	Early medieval
Scheduled Ancient Monument (SAM) number	Not scheduled
Surveyor	Field Archaeology Specialists, Department of Archaeology, King's Manor, York, YO1 7EP
Client	Julian Richards, Department of Archaeology, University of York, King's Manor, York, YO1 7EP
Depositor	Julian Richards, Department of Archaeology, University of York, King's Manor, York, YO1 7EP
Primary archive	Archaeology Data Service: http://archaeologydataservice.ac.uk/archives/view/cottam_ba/
Related archives	Digital archive: http://archaeologydataservice.ac.uk/archives/view/cottam_ba/ Physical archive: Hull Museum

Copyright	Julian Richards
Term list	Not reported
Geophysics metadata	
Survey type	Earth resistance survey
Instrumentation	RM4 Earth Resistance Meter
Probe configuration	PA1 twin-electrode probe array
Probe spacing	0.5 m
Reasons for choice of survey technique	The survey was to act as a pilot study to assess the relative effectiveness of magnetic and earth resistance techniques in mapping anomalies in this area.
Area surveyed	0.64 ha
Method of coverage	Regular grid, Zigzag
Traverse separation	1 m
Line separation	1 m
Reading interval	1 m
Sampling position	Centre of each 1 m x 1 m square
Data grid size	20 m x 20 m
Accuracies	The location of each measurement point is accurate to 0.1 m with respect to the data grids.
Survey methodology	All data grids have the same size and resolution. The arrangement of data grids is captured in the file mesh.csv. The survey direction was in positive x-direction, subsequent lines were added in negative y-direction, following a zigzag pattern.
Data treatment	The raw data were processed using Geoplot version 2.02. This involved the adjustment of any differences in the average background reading between individual survey grids as well as inconsistencies caused by electrode repositioning or changing climatic conditions. The data were interpolated to 0.5 m x 0.5 m to provide a smoother image of the data. The processed data were transferred to Surfer version 6 in which it was prepared for presentation.
Report	
Report title	Cottam B Geophysical Survey
Report reference number	COT01
Report author	Justin Garner-Lahire
Report holder	Field Archaeology Specialists
Geophysics georeferencing	
Geophysics coordinate system	Baseline 1 was laid out 2 m west, and parallel with the field boundary to the east, starting 5 m north of the intersection with the wall in the south of the field. This starting point has coordinate (60 m, 0 m) in the geophysics grid, running parallel with its y-axis.
Georeferencing	Two points of the geophysics grids (A, B) were measured with tapes from two positions in the field (C, D; see map figure): A = (20 m, 60 m); B = (80 m, 60 m); C = SW corner of concrete base of pylon; D = NW edge of northern concrete gate post in eastern field boundary.

	AC = 21.4 m; AD = 33.2 m; BC = 22.3 m; BD = 11.4 m.
File description	
Explanation of codes used in filenames	ct = Cottam r = Earth resistance 1 = Area 1
Description of file formats	Geoplot 2.02 data grids (.dat, .grd, .his, .sta) and plotmesh (.plm) Surfer files (.srf)
Date of last modification	April 1995

Table 3: Cottam Area 1 Earth Resistance Survey Documentation

Acknowledgements

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[Previous](#) | [Next](#) | [Contents](#)