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CHARLTON BARROWS AND ROMAN VILLA, WILTSHIRE
REPORT ON GEOPHYSICAL SURVEYS, JULY 2012 AND MARCH 2013

Neil Linford, Paul Linford and Andrew Payne

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ENGLISH HERITAGE

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Research Report Series 9-2013

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SUMMARY

A caesium magnetometer survey was conducted as part of the Marden Environs NMP enhancement project (RASMIS 6302) over an area of approximately 11ha, encompassing the Bronze Age barrow cemetery and Roman villa complex at Charlton St Peter, Wiltshire, previously identified through aerial photography and limited geophysical coverage. It was hoped that more extensive magnetic survey might enhance the archaeological record of the site and determine the survival of the monuments that fall largely within an arable field reverted to pasture through a countryside stewardship scheme. A vehicle-towed, caesium magnetometer array was used to cover the accessible areas of the site and the results confirm the majority of the barrows to the north of the site survive as very weak anomalies, although levels of magnetisation in the vicinity of the Roman settlement are more enhanced.

CONTRIBUTORS

The field work was conducted by Neil Linford, Paul Linford and Andy Payne from the English Heritage Geophysics Team.

ACKNOWLEDGEMENTS

The authors wish to express their thanks to the land owners, Mr and Mrs Tim Fowle, for permission in granting access to their land to allow the survey to take place. We are also grateful for the logistical support provided during our survey campaigns within the Marden environs and, in particular, lessons in reversing a hitched trailer.

ARCHIVE LOCATION

Fort Cumberland.

DATE OF FIELDWORK AND REPORT

The fieldwork was conducted between 30th July to 3rd August 2012 and 13-15th March 2013. The report was completed on 10th June 2013. The cover shows a view of the March 2013 survey in progress looking south towards Cleeve Hill.

CONTACT DETAILS

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INTRODUCTION

The Charlton barrow cemetery is situated approximately 2.5km downstream from Marden henge, SE of Wilsford village, on the edge of the floodplain, perhaps suggesting part of a prehistoric complex focussed on the river Avon. Whilst the water table here may have been different in prehistory, it is possible that the barrows were seasonally flooded and is comparable to the Neolithic and Bronze Age funerary monuments found in the lower Avon Valley at Fordingbridge and elsewhere in Hampshire (Young 2008, 33-35, figures 17, 18) or to the Upton Lovell barrow cemetery alongside the River Wylye in Wiltshire (Eagles and Field 2004; Field 2008). The barrow cemetery appears as cropmarks on aerial photographs and some survive as low earthworks in the field, with an additional mound recently identified from the Environment Agency flood risk lidar survey 2005 (E Carpenter, *pers comm*). There is also a Roman villa site to the south that, given the close proximity to the barrows, presents an opportunity to explore change and continuity between the prehistoric and Roman periods. The site of the villa was suggested by building material and pottery found in the field subsequently confirmed through geophysical survey (Corney *et al* 1994), which suggests the Roman buildings may be associated with rectilinear enclosures also partially visible as cropmarks (Figure 6).

The aim of the current geophysical survey was to expand the geophysical coverage beyond the immediate focus of the villa to include all of the known extent of the prehistoric funerary monument complex, and determine whether any additional barrows may exist. It was hoped that the survey would support the high designation potential of the site, as it represents a rare earthwork survival of a prehistoric site off the chalk downlands. This work forms part of the Marden Environs NMP enhancement project (RASMIS 6302) examining a series of sites identified in the upper Avon valley and their possible relationship to the Marden henge (Winton and Linford 2012).

The site (NMR Monument records 220208 and 907086) lies over an area of river and valley gravel drift geology over Lower Chalk where soils of the 511f Coombe 1, chalky drift and chalk and 814a Thames river alluvium associations have developed (British Geological Survey 1967; Soil Survey of England and Wales 1983). Well preserved earthworks forming a post-medieval water meadow system bound the site to the north, most probably diverting the original meander of the Avon through the valley. At the time of the survey the majority of the site was down to pasture, as part of a Higher Level Stewardship scheme in association with Natural England, and a hay crop had just been taken from the field. To the east, a strip had been left for a lapwing habitat, which was kindly cleared of vegetation by the landowner, and a final area that was under a maturing maize crop during the original survey was completed during a return visit in March 2013. Weather conditions during the field work were characterised by frequent rain showers with intervening dryer spells for the first survey and was generally cold and dry during the return visit to the site.

METHOD

Magnetic survey

The magnetometer data was collected along the instrument swaths shown on Figure 1, using an array of four specially modified high sensitivity Scintrex SM4 caesium vapour sensors mounted on a non-magnetic cart (Linford et al 2007). During the March 2013 visit survey traverses were collected orthogonal to the original orientation. This cart was towed behind a low impact, all-terrain vehicle (ATV) that also provided the power supply and housed the data logging electronics. The sensors were mounted 0.5 m apart on the cart and the along-traverse sampling rate adjusted according to the speed of the towing vehicle to maintain a sample density of approximately 0.5m x 0.125m along successive swaths. Each swath was separated from the last by approximately 2m, using a Trimble 4700 series GPS receiver mounted on the sensor platform to provide continual positional control. A trial vertical gradiometer configuration was used for the area immediately beneath the overhead power lines collected during the March 2013 visit, although only the output from the lower two total field sensors has been combined into the resultant data set. Sensor output and survey location was monitored during acquisition to ensure data quality and minimise the risk of gaps in the coverage due to the use of a grid-less system.

The median value of each instrument traverse was adjusted to zero, calculated from a 20 to 30m 1D window, to correct for slight biases added to the measurements owing to the diurnal variation of the earth's magnetic field and any directional sensitivity of the sensors. A linear greyscale image of the combined magnetic data, following the suppression of near-surface ferrous responses, is shown superimposed over the base Ordnance Survey (OS) mapping on Figure 2. Minimally processed versions of the range truncated data ($\pm$50 nT) are shown as a traceplot and linear greyscale image in Figures 3 and 4 respectively.

RESULTS

Magnetic survey

A graphical summary of the significant magnetic anomalies, [m1-33], discussed in the following text, superimposed on the base OS map data, is provided in Figure 5.

General response

The magnetic response is extremely subdued to the north of the site close to the river, but much higher magnitude anomalies are recorded in the vicinity of the Roman settlement to the south. A high tension, overhead power line crosses the SE corner of the

survey grid and although no pylon stanchions are present a very high magnitude anomaly [m1] is evident.

The Roman Villa and associated settlement

The trapezoidal Roman settlement area is bounded by ditches to the north [m2] and south [m3], divided into a series of sub-rectangular enclosures [m4-8], containing a distribution of intense positive magnetic responses indicative of pits, quarries and, perhaps, semi-industrial thermoremanent anomalies such as hearths or kilns. Rectilinear negative anomalies at [m9], [m10] and [m11] provide confirmation of the substantial masonry buildings identified by the previous earth resistance survey (Corney *et al* 1994), with particular internal detail revealed within [m11], where individual rooms and corridors are identified. The intense magnetic response to the south of [m11] may possibly suggest the presence of a hypocaust to heat part of the building. Compared to the previous earth resistance data the magnetic anomalies at [m10] appear to suggest the presence of a second building, to the west. The relationship between the buildings is unclear, due to their different alignments, although enclosure [m5], appears to be sub-divided into quadrants containing [m11] and evidence for semi-industrial activity [m12] segregated away from the more domestic occupation to the NE.

There is less evidence for internal activity within [m7], suggesting an area of paddocks or stock enclosures, although the concentration of semi-industrial anomalies increases to the east of [m8] where [m13] may represent the foundation gullies of timber structures, perhaps associated with a distribution of surface noise related to ceramic building material (Linford *et al* 2007, Figure 11). However, the distribution of surface noise also correlates with an EW field boundary shown on the historic mapping data and the response may relate to this rather than ceramic building material (OS Historic County Mapping Series: Wiltshire, Epoch 4 1819 to 1939).

Concentric ditch-type anomalies [m14] and [m15] to the west of the Roman settlement may represent either a trackway or, perhaps, a larger enclosure complex only partially described within the current survey area. A broad, low resistance response in the previous geophysical survey, that partially correlates with [m14], led to the suggestion that this was a former meander of the river Avon, possibly providing a water supply to a bath-house suite at [m9] (Corney *et al* 1994, Figure 5). However, [m14] seems, perhaps, less likely to be of a fluvial origin now from consideration of the wider area magnetic data.

The presence of discrete magnetic anomalies at [m16] together with the local enhancement of the response in this area (eg [m26]) suggests the continuation of significant activity in the fields to the west. A similar selective enhancement of the magnetic response (eg [m32]) occurs in the vicinity of the linear anomalies at [m17], although this does not appear to extend much further to the east, where there is little indication of further activity beyond possible fragments of the Roman enclosure system at [m18].

The barrow cemetery

To the north of the Roman settlement 15 of the 16 possible barrow ring-ditches identified by the aerial photography and lidar survey have been reproduced as magnetic anomalies [m19 - 33], with varying diameters between 20 and 50m. The largest ring-ditch [m24] appears to be in the centre of the distribution, perhaps surrounded by satellite burials similar to the West Heath barrow cemetery, Harting, West Sussex (Drewett 1985; Woodward 2000). Only one of the barrows [m28] shows evidence for an inner ring-ditch in the magnetic data, the others appear to be of a regular single circular form, although [m24-26] and [m28] also contain responses suggestive of platforms, mounds or other internal pit-like anomalies. The linear distribution of ferrous noise passing through [m29] is most likely due to a former field boundary shown on the historic mapping (OS Historic County Mapping Series: Wiltshire, Epoch 1, 1843 to 1893).

However, the barrows to the north of the survey area adjacent to the river are very weakly resolved (between 0.2 and 1.5nT), particularly compared to those adjacent to the later Roman occupation activity where sediments with enhanced magnetism (Corney *et al.* 1994, Figure 3), have been incorporated into ditches producing a much greater magnitude of response (eg [m19-22]). A tentative ring-ditch anomaly [m33] appears to correlate with the location of a slight mound revealed by the 2005 lidar survey and supports the interpretation of this as a further, perhaps more severely degraded barrow. Weak magnetic responses may, in part, be due to plough levelling of the barrows, geological variation or alluvial overburden from the periodic flooding of the Avon.

CONCLUSION

The current magnetic survey has successfully recorded anomalies related to both the prehistoric and later phases of activity at the site, extending the previous geophysical coverage and refining the overall extent and layout of the Roman settlement. The location of the masonry buildings known from the original earth resistance survey have been confirmed, together with some additional internal detail and the suggestion of another, small building that was obscured in the previous results. To the west the Roman settlement appears to abut a double ditched enclosure boundary or trackway, heading towards the river and, apparently, extending into the adjacent field. The new survey data has also covered the entirety of the known barrow cemetery to the north and has replicated all but one of the ring-ditches known from aerial photography. Given the much weaker response away from the Roman settlement the high sensitivity caesium magnetometer survey has proved essential and provides support for an additional barrow recently recognised from lidar data.

LIST OF ENCLOSED FIGURES

Figure 1 Location of the caesium magnetometer survey instrument swaths, July 2012, superimposed over the base OS mapping data (1:2500).

Figure 2 Location of the caesium magnetometer survey superimposed over the base OS mapping data (1:2500).

Figure 3 Traceplot of the minimally processed caesium magnetometer data, alternate survey lines have been removed to improve clarity (1:1500).

Figure 4 Greyscale image of the minimally processed caesium magnetometer data (1:1500).

Figure 5 Graphical summary of significant magnetic anomalies superimposed over the base Ordnance Survey mapping (1:2500).

Figure 6 Comparison between the magnetic and aerial photographic anomalies superimposed over the base Ordnance Survey mapping (1:2500).

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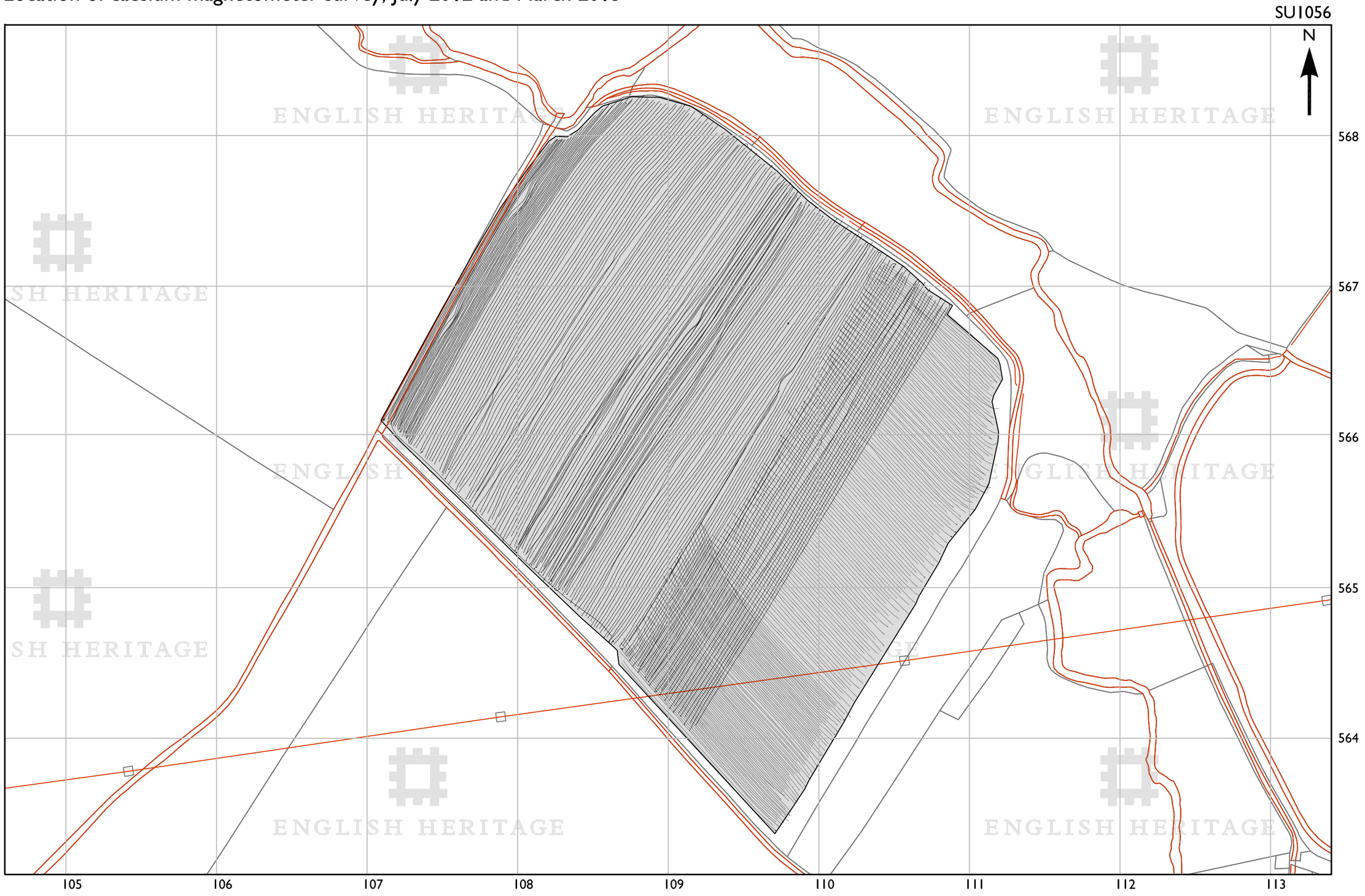
Figure 1

CHARLTON BARROW CEMETERY AND ROMAN VILLA, WILTSHIRE

Location of caesium magnetometer survey, July 2012 and March 2013



0 90m

1:2500

magnetometer survey swaths

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Figure 2

CHARLTON BARROW CEMETERY AND ROMAN VILLA, WILTSHIRE

Location of caesium magnetometer survey, July 2012 and March 2013

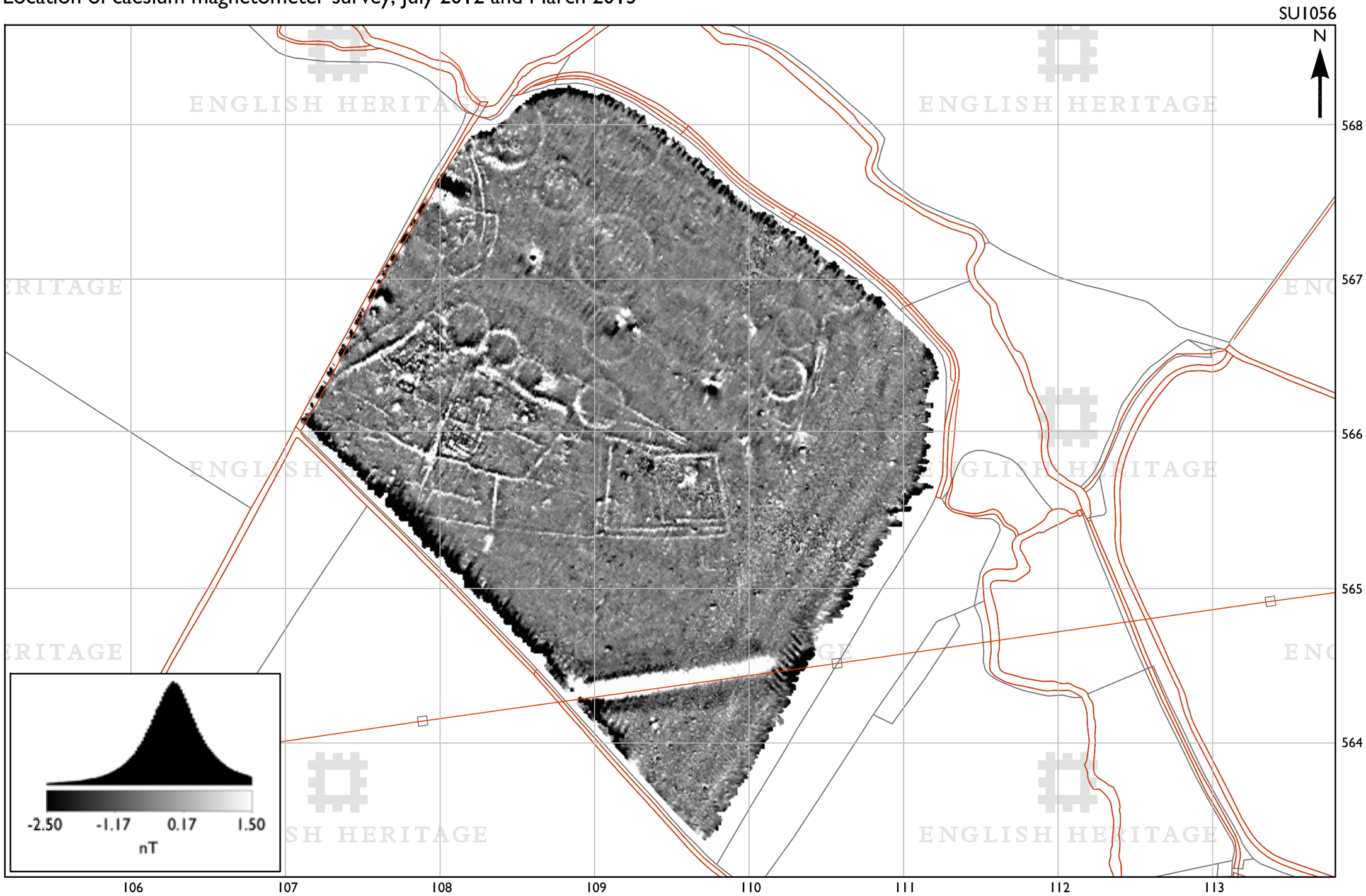

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Figure 3

CHARLTON BARROW CEMETERY AND ROMAN VILLA, WILTSHIRE

Caesium magnetometer survey, July 2012 and March 2013

Traceplot of minimally processed data truncated to +/-50 nT

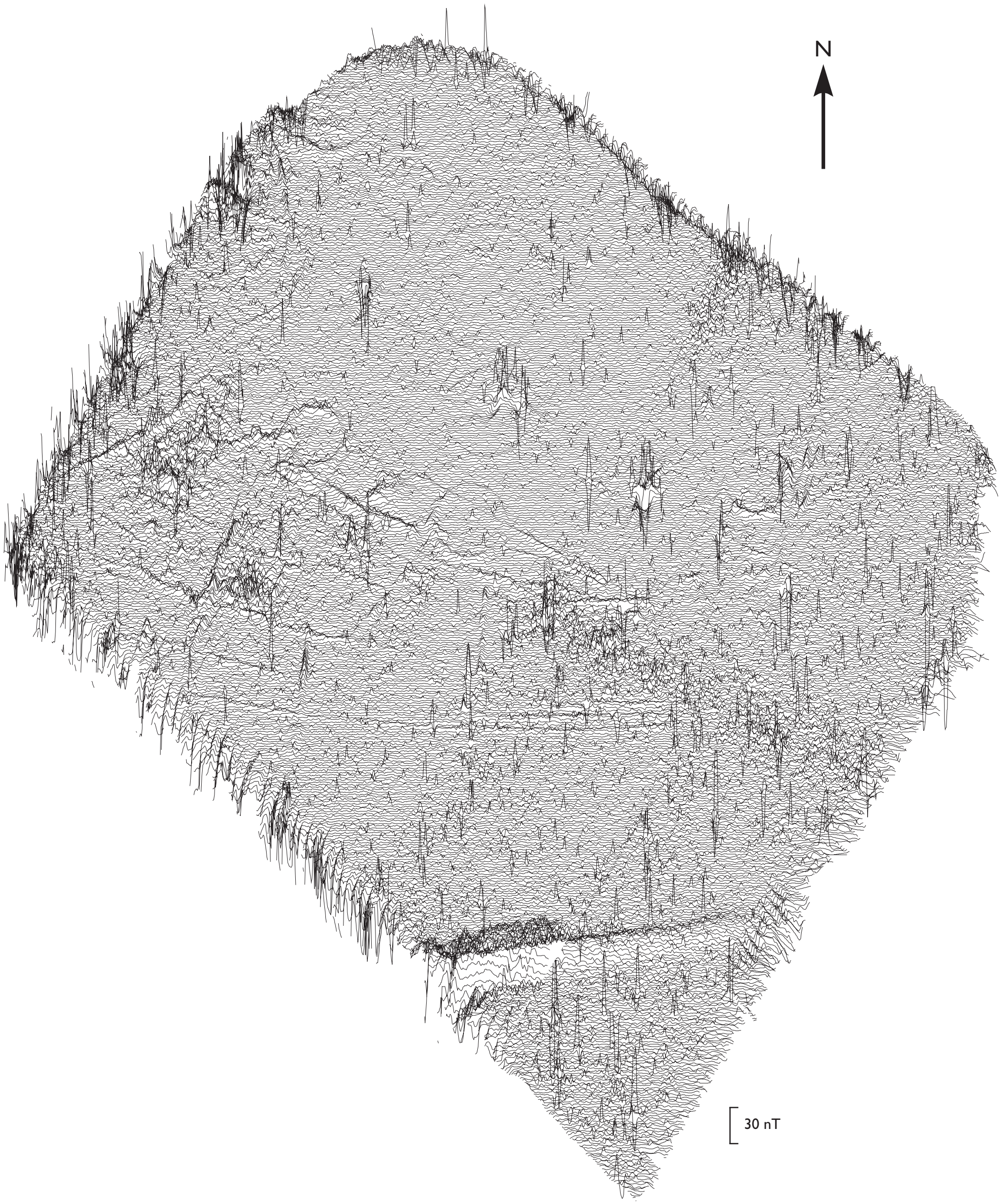

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Figure 4

CHARLTON BARROW CEMETERY AND ROMAN VILLA, WILTSHIRE
Caesium magnetometer survey, July 2012 and March 2013

Greyscale image of minimally processed magnetometer data

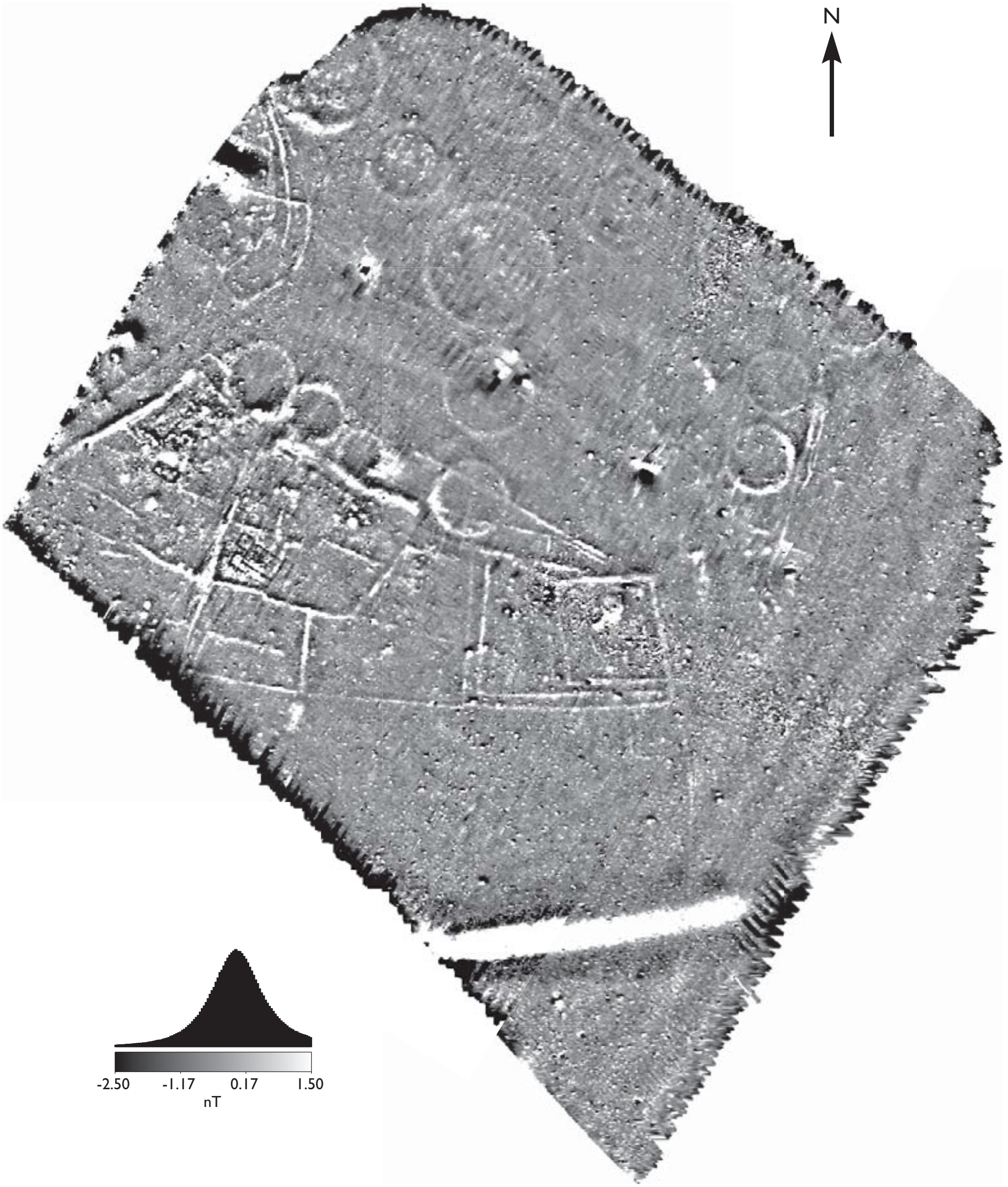

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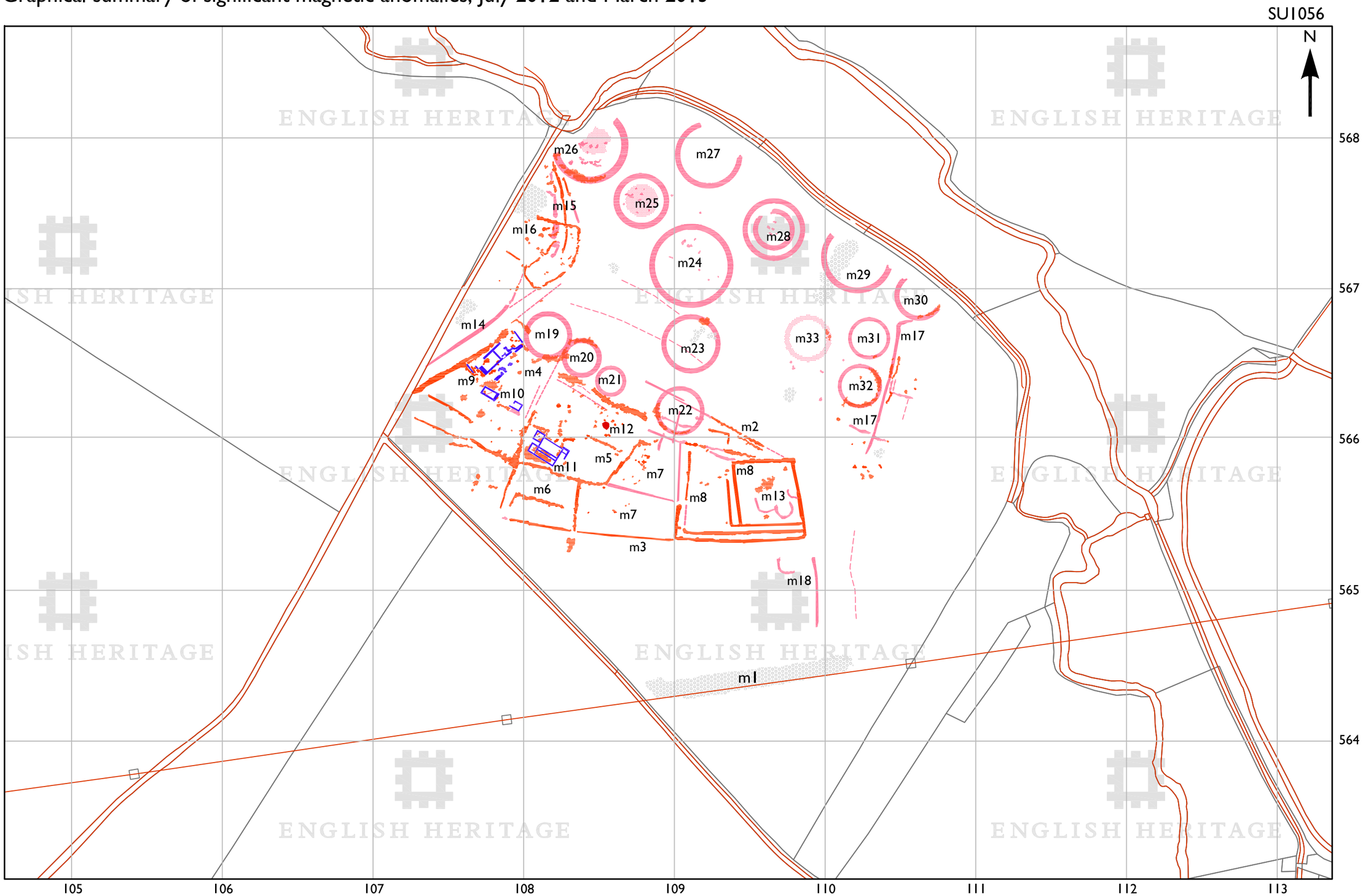
Figure 5

CHARLTON BARROW CEMETERY AND ROMAN VILLA, WILTSHIRE

Graphical summary of significant magnetic anomalies, July 2012 and March 2013



0 90m

1:2500

positive magnetic

negative magnetic

weak positive magnetic

magnetic / ferrous noise

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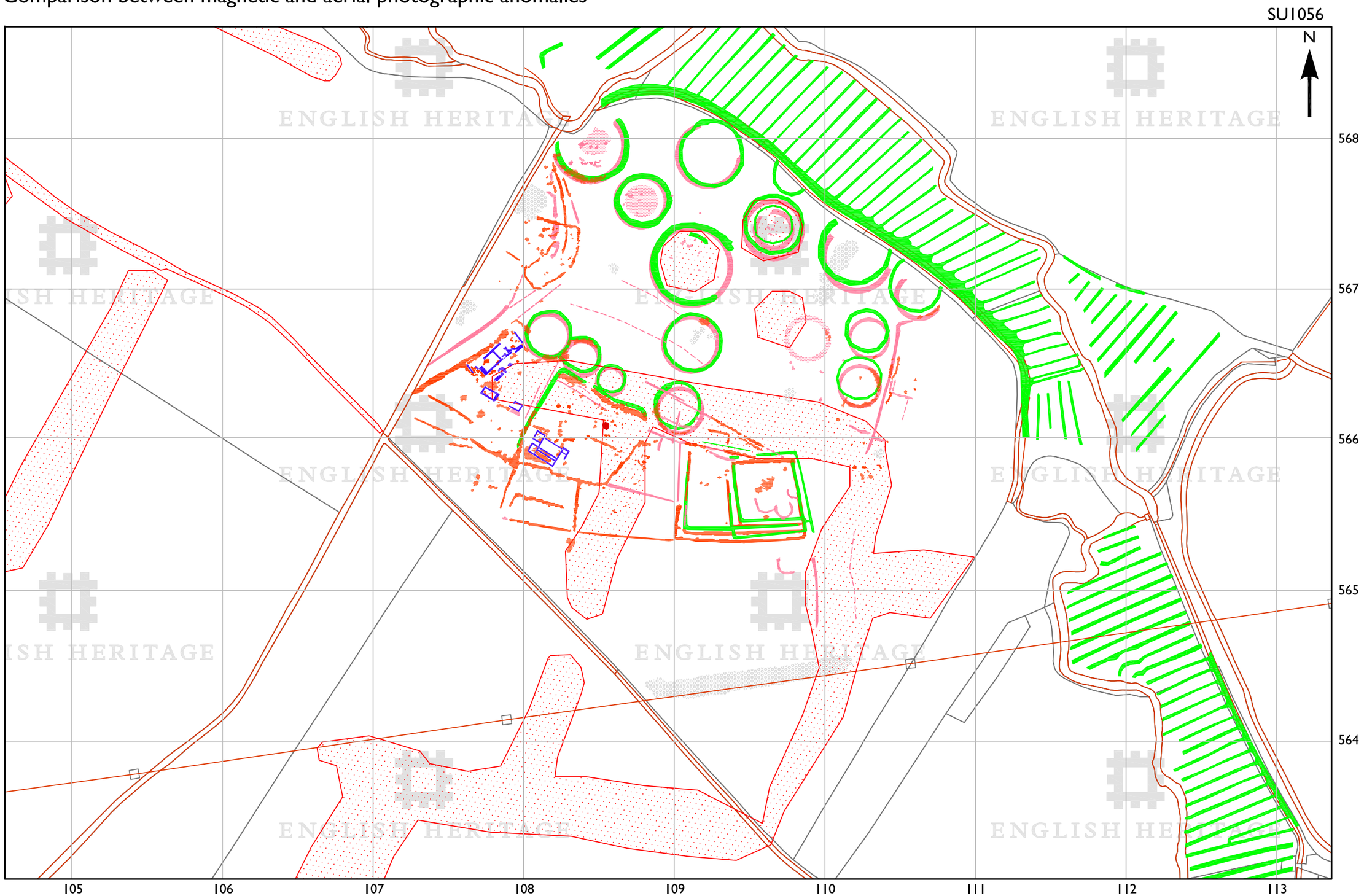
Figure 6

CHARLTON BARROW CEMETERY AND ROMAN VILLA, WILTSHIRE

Comparison between magnetic and aerial photographic anomalies



0 90m

1:2500

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