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BRADING ROMAN VILLA, ISLE OF WIGHT
UPDATED REPORT ON GEOPHYSICAL SURVEYS, MARCH 1994, APRIL 1995, FEBRUARY 2009 AND FEBRUARY 2010

Andrew Payne

ARCHAEOLOGICAL SCIENCE

ENGLISH HERITAGE

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NGR SZ 599 862

ISSN 1749-8775

SUMMARY

Further caesium magnetometer survey was undertaken in 2010 to investigate the wider setting of the Roman villa remains at Brading, Isle of Wight. This work broadened the previous fluxgate and caesium magnetometer surveys conducted at the site in stages between 1994 and 2009, which mapped an extensive complex of ditch-type anomalies, possibly defining field boundaries, enclosures and trackways in the wider landscape around the villa. The extension to the previous coverage indicates further ditches defining an additional rectilinear enclosure south of the main villa complex and a series of possible boundaries at the western extremity of the settlement area, flanking a possible access approach towards the villa from the east. Some of the activity identified by the magnetic surveys may relate to Iron Age settlement predating the development of the villa, although the 2009 survey also located a previously unknown group of ring-ditches west of the villa, suggestive of prehistoric funerary monuments or perhaps, a series of outlying Romano-British shrines.

CONTRIBUTORS

The caesium magnetometer survey was conducted by Neil Linford, Louise Martin and Andy Payne together with Sam Cheyney (Leicester University). Processing of the total field caesium magnetometer data to enable it to be combined with the previous fluxgate gradiometer survey was undertaken by Neil Linford.

ACKNOWLEDGEMENTS

The author wishes to thank The Oglander Roman Trust for granting access to the site and for providing indoor work-space for processing the data on site during the course of the fieldwork.

ARCHIVE LOCATION

Fort Cumberland.

DATE OF FIELDWORK AND REPORT

The current report is an updated version of Research Department report 104/2009 which described the results of the initial phase of caesium magnetometer coverage undertaken during 23-25th February 2009 and earlier fluxgate magnetometer closer to the villa originally undertaken during 7-11th March 1994 and 28th April 1995. The updated report was completed on 4th November 2010 and includes additional discussion of the data resulting from the expanded caesium magnetometer coverage conducted between 22nd and 26th February 2010. The cover photograph shows the Medusa mosaic situated in the north wing of the main villa house preserved within the protection of the modern visitor centre building.

CONTACT DETAILS

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INTRODUCTION

Excavations of the Roman villa at Brading (Scheduled Monument 30278) from 1879 to 1885 first revealed the presence of a prosperous villa establishment consisting of three main ranges set around a central courtyard (Price and Price 1890). The farm containing the site was purchased by Lady Oglander, for whom the current charitable trust securing the future of the remains is named, and more extensive investigations subsequently revealed several spectacular mosaics in the west range that were then protected by cover buildings erected in 1885 and 1908 (Trow 1996). A number of more recent evaluations took place between 1994-1997 and 2002-5 linked to drainage work, the construction of new car-park facilities and the replacement of the original dilapidated cover buildings with a new visitor centre supported by a grant from the Heritage Lottery Fund (HLF) in 2004 (Busby 1994; Loader and Westmore 1995; Trott 1999; 2002; 2005).

The aim of the current geophysical survey was to assist the Oglander Roman Trust with a programme of research to better understand how the villa may have articulated with, and developed within, the surrounding landscape (Cunliffe 2008a; Payne 2009a). This would build on evidence from the previous fluxgate magnetometer survey and excavations of a probable late Iron Age farmstead under the site of the current car-park (Trott 1999; 2002; 2005). The results reported in this updated version of Research Department Report 104/2009 (Payne 2009b) combine data from the original fluxgate magnetometer surveys carried out in the mid-1990s together with two phases of new field work conducted during 2009-10 with caesium vapour instrumentation, expanding coverage mainly to the north, south and west of the visitor centre. The locations of the four stages of geophysical survey are indicated on Figure 1.

The site (NGR SZ 599862) is situated below the south-eastern end of the central chalk ridge that crosses the length of the Isle of Wight, overlooking the junction of the River Yar and Brading Haven on light sandy soils of the Fyfield 4 association developed over Ferruginous Sands of the Cretaceous Lower Greensand series (Geological Survey of Great Britain (England and Wales) 1976; Soil Survey of England and Wales 1983). The scheduled villa site currently lies towards the centre of a large area of former arable fields covering approximately 16 ha, now under permanent pasture to provide more protection to any outlying archaeological remains (Trow 1996). Weather conditions at the time of the February 2009 caesium magnetometer survey were dry and mild. By contrast weather conditions were wet and windy for the duration of the February 2010 survey.

Survey areas

The first stage of the survey in March 1994 (Figure1, Area 1) consisted of a 60m wide transect of fluxgate gradiometer coverage along the proposed route of new drainage conduits aligned on the access roadway as it approaches the villa. The survey was broadened-out around the known villa structure to investigate part of the re-buried south wing, test for the presence of further previously undiscovered Romano-British remains and any other archaeological activity in the locale associated with, or pre-dating the villa.

A second smaller fluxgate gradiometer survey (Figure 1, Area 2) was carried out in April 1995 at the request of the Isle of Wight Archaeological Unit in the area immediately east of the courtyard of the villa complex, known as the Middle Paddock. For practical reasons the grid was set out on a different alignment including a deliberate overlap with the previous survey coverage. The aim of the survey here was to detect the presence of any archaeological features potentially threatened by the construction of a new car park designed to accommodate coaches. Evaluation trenches were later excavated in this area that subsequently revealed several archaeological features corresponding to geophysical anomalies mapped in the 1995 survey (Trott 1999).

The initial phase of the caesium magnetometer survey, undertaken for the current project in February 2009 (Figure 1, Area 3a), covered a 6.1ha area of former arable land to the immediate north, west and south-west of the fenced compound around the current visitor facilities.

The second phase of caesium survey during February 2010 (Figure 1, Areas 3b and 3c) extended the coverage from the previous year as far as the western boundary of the main field bounding the villa complex and into a previously un-investigated area south of the villa.

METHOD

The caesium magnetometer survey area was divided into 60m x 100m grids, located using a real-time kinematic Global Positioning System (GPS). The earlier magnetometer surveys undertaken in 1994-5 were conducted on a grid of 30m squares set out using a Nikon DTM01 total station theodolite in the two areas described above. Figure 1 shows the location of the survey areas.

The 1994-5 magnetometer surveys were carried out with Geoscan FM36 fluxgate gradiometers with a reading interval of 0.25m along traverses spaced 1.0m apart. Measurements were recorded on the 0.1 nanotesla (nT) instrument range. Subsequent processing was limited to truncating the range of the data set to exclude extreme values beyond -60 to 60 nT/m, followed by the correction of instrument drift and directional sensitivity effects by setting each line of readings to a local zero mean prior to creating a composite of the data from the individual 30m grid squares.

The caesium magnetometer survey was conducted using an array of four specially modified high sensitivity Scintrex SM4 caesium vapour magnetometer sensors mounted on a non-magnetic cart system (Linford *et al.* 2007). Readings were collected at intervals of 0.125m along 100m parallel traverses separated by 0.5m and orientated north-south. The caesium data was processed in the following steps:

i) to correct for diurnal variation and the offset and directional sensitivity of the individual sensors, the data from each 100m instrument traverse was initially processed with windowed high-pass median filter. A radius of 5m was used along the line of the transect with a cross-line window width of 2-8m, to preserve anomalies running parallel to the traverse direction.

ii) range truncation was then applied to the data set to suppress responses to near surface ferrous detritus and disturbance from service pipes, reducing the range of the data to -60 to 60 nT to exclude extreme outlying values.

iii) to enable the total field caesium and fluxgate gradiometer surveys to be presented as a unified data set, the total field measurements were transformed to the equivalent vertical gradiometer response for two sensors separated by 1.0m. The total field data were upward continued by 1m and converted to a pseudo-gradient by subtracting the vertical component of the upward continued version from the vertical component calculated from the original data (Gunn 1975; Blakely 1995; Tabbagh *et al.* 1997).

The combined pseudo-gradient caesium magnetometer and fluxgate gradiometer data are presented as linear greyscale images overlain on the 1:2500 scale Ordnance Survey (OS) mapping in Figure 2. In addition larger scale (1:1000, 1:1250 or 1:1500) plots of the data sets from each of the separate survey areas are presented in Figures 3-5. Linear greyscale images and traceplots of the fluxgate gradiometer data from Areas 1 and 2 are presented in Figures 3 and 4 respectively. The initial total field caesium magnetometer data (processed according to steps (i) and (ii) above) are presented as a linear greyscale image and a traceplot in Figures 5(A) and 5(B) and the pseudo-gradient transform of the caesium data (processed according to step (iii) above) are presented as a linear greyscale image in Figure 5(C).

The combined pseudo-gradient transform of the total field caesium and fluxgate gradiometer data are presented in units of nT/m, with the appropriate correction for the vertical separation of the sensors used (see Annex 1, Section 2).

RESULTS

A graphical summary of the anomalies discussed in the following text, superimposed on the base OS map data is provided in Figure 6.

1994-95 magnetometer data (Areas 1 and 2)

The area around the villa buildings contains a complex pattern of positive linear magnetic anomalies [m1-10]. The most obvious of these appear as parallel pairs of linear anomalies which in places merge together to form single, broader responses. One of these broad anomalies [m1; continuing as m14] runs on an east-west alignment directly north of the villa. To the east of the villa buildings this is joined by a similar anomaly [m2], approaching from the south that intersects with [m3], consisting of two parallel linear components, merging from the east to form a sub-rectangular enclosure [m4] bounded on three sides by [m1-3]. A series of parallel pairs of positive linear anomalies [m5] can be seen branching off from [m1] on a different alignment towards the north-west where they extend into Area 3a as [m13]. To the west of the villa buildings, a series of three parallel and closely set narrower linear anomalies are visible [m6], terminating at [m1] to the north (also mapped as [m30] in the overlapping caesium coverage). Other parallel north-south alignments are visible at [m7] and [m8]. A further parallel pair of linear positive anomalies [m9], similar to [m1-m3], are present in the southern-most part of Area 1 through which a further single positive linear response [m10] passes on a SSW-NNE orientation.

Together this complex of anomalies suggests a series of boundary and enclosure ditches, probably of more than one phase rather than a contemporary multi-ditched rectangular enclosure constructed to house the villa ranges. The broader anomalies [m1 and m2] were initially thought to represent trackways (in the form of in-filled hollow-ways worn into the ground by extended use), but sections cut through them in 1995 and 1997 have indicated the presence of broad, shallow ditches (Loader and Westmore 1995; Trott 1999) forming a rectangular enclosure [m4]. More pronounced magnetic enhancement of sections of the ditch-fills is evident around the south-west and east sides of the enclosure at [m11] and is, perhaps, suggestive of semi-industrial activity.

A zone of intense magnetic disturbance [m12] coincides with the expected position of a detached bath-house building forming part of the southern range, known from excavation in 1881. There is no trace in the geophysical data of any of the rammed chalk wall-foundations of the other structures of the south range known from excavation, although such features would be unlikely to be detectable by magnetic survey (Payne *et al.* 2008).

A limited number of probable pits, defined by localised positive magnetic anomalies, are interspersed among the ditch systems identified in Areas 1 and 2. The effect of modern ploughing can be seen as a series of parallel lines in the data running WSW-NNE in the field south of the villa and from north to south in Area 2.

2009-10 caesium magnetometer data (Areas 3a-c)

To the north and north-west of the villa the continuation of two boundaries or trackways found in the fluxgate data can be followed; [m13] branching off towards the chalk escarpment edge and [m14] running from the north range (aisled building) of the villa to the western limit of the 2010 survey area. Several less substantial, linear positive anomalies [m15-16] possibly represent boundary ditches partitioning the area directly north of the north range accompanied by weaker linear trends [m17] that may be suggestive of a field system. A large ditched enclosure [m18] is present in the north of Area 3, defined by positive linear magnetic anomalies on three sides, but apparently open to the west. A narrow break in the enclosure ditch at [m19] may indicate an entrance providing access to the possible trackway [m14] flanking the enclosure to the south. The open side of the enclosure may be related to an adjacent rectangular positive magnetic response at [m20] and a large ring-ditch [m21], approximately 29m in diameter, with further (probably superimposed) rectilinear boundaries at [m22]. An alignment of four substantial pit-type anomalies [m23] are present immediately south of [m21] and contained within the rectilinear boundaries of [m22]. The magnetic response of the south-western segment of [m21] is weaker and less distinct which may indicate increased magnetic enhancement of the ditch fill to the north due to the influence of adjacent settlement, perhaps associated with the scatter of pit-type anomalies found at [m24]. A similar group of pit-type anomalies at [m25], clustered in a rectangular pattern and tentatively bounded by a weak negative magnetic response, may be indicative of a previously unrecognised small outlying building of the villa complex.

The western section of [m14] also demonstrates an enhanced magnetic response, possibly related to significant semi-industrial activity and burning in the area, or perhaps to the more recent deliberate introduction of magnetic detritus. Two further ring-ditches [m26-27] are present to the south, both on the route of a well used modern footpath, visible as a weak narrow linear anomaly [m28]. The larger of the two ring-ditches [m26] is approximately 18m in diameter and appears to contain a central positive magnetic anomaly [m29], which may represent burial deposits (possibly at risk from footpath erosion). The smaller ring-ditch [m27] to the south is only about 10m in diameter and not so well defined, suggesting a relatively insubstantial feature which may have been more susceptible to plough damage in the past.

A set of triple ditches [m30] appears to define the western boundary of the villa "compound" with little magnetic activity immediately beyond this towards the ring-ditches other than a small number of scattered pit-type anomalies. To the south of the villa [m31-32, plus m9] appear to represent a continuation of the ditch-type anomalies found in the previous fluxgate coverage and completes the southern extent of the enclosure at [m8]. The ditch complex in this area of the site appears to extend as far as the eastern boundary of the present field where it has a junction with a similar north-south aligned trackway or double-ditched feature [m2 in Area 1 - 1994 fluxgate coverage].The superimposed linear anomalies of varying alignment here are strongly suggestive of different phases or re-cutting of ditches.

To the west, further parallel linear anomalies [m33, 34, 49-51] are found, forming a possible bow-shaped arrangement cut by the major east-west linear feature [m14]. Although these anomalies may represent sections of an enclosure boundary around the wider villa settlement they are not fully described within the available survey area and could also represent agricultural features, for example lynchets, caused by downward soil movement where the ground here falls steeply down towards the south and west.

A large ferrous pipe defined by an intense linear magnetic response [m35] is also found to pass through the far north-western corner of the survey area. Additional positive linear anomalies, most notably at [m36] and [m37], are likely to relate to relatively recent former field boundaries and land allotment based on an examination of historical OS mapping (Ordnance Survey 1882). The weak narrow parallel linear anomalies at [m38] are also likely to be associated with recent cultivation patterns or vehicle tracks.

To the south of the 1994 fluxgate coverage (Area 3b) the caesium magnetometer survey has traced the continuation of a ditch-type anomaly [m10] that runs for some 100m further south where it appears to form a rectilinear enclosure with [m39], possibly containing an internal partition [m40] together with an area of slightly raised magnetic response [m41] and a loose cluster of pit-type anomalies [m42]. Further linear anomalies at [m43] may also be related to this occupation activity.

Little else of note was located in the southerly extension to the caesium coverage other than a number of narrow positive and negative linear responses suggestive of modern agricultural plough furrows [m44-6].

A further possible trackway running approximately north-south may be indicated by a faint pair of narrow parallel linear positive (ditch-type) anomalies at [m52]. Whilst this may be of archaeological significance a more recent origin associated with the farm buildings to the south cannot be discounted. Anomaly [m52] does not appear to continue north beyond the area of pipeline disturbance and may therefore connect and terminate with the main east-west roadway defined by [m14] but again this cannot be determined with certainty due to the intense modern interference.

DISCUSSION

The original fluxgate survey results correspond remarkably well with the results of limited excavation in the Middle Paddock area carried out in two stages in 1995 and 1997 (Loader and Westmore 1995; Trott 1999) further confirmed by renewed excavation of this area in August 2010. Here, during construction work for the new visitor centre car-park, a late Iron Age and early Roman ditch pre-dating the villa construction was discovered together with a possible circular, sunken potter's clamp. The magnetic response to both of these features is very pronounced in the fluxgate data, specifically at [m11], and the associated semi-industrial activity seems to be a likely source of the strong magnetic enhancement of the anomalies in this area. Burnt deposits contained within the ditches in Area 2 revealed by further excavation in 2010 clearly correspond to the more intensive anomalies recorded over the ditches in the 1995 fluxgate coverage (Figure 7). Romano-British cremation burials recovered from the area in 2010 may account for some of this localised enhancement as funerary pyre activity may have taken place in the vicinity. In areas where the ditches did not contain burnt material, they were barely visible in plan in the stripped surface of the excavation trench and therefore the magnetometer survey evidence was particularly valuable for revealing their presence prior to the excavation. Excavation has also shown the presence of a third narrower ditch interleaved between the two ditches at [m3]. The magnetic signal from this is obscured by the strong magnetic response from the adjacent closely set and more substantial ditches, but the likely extension of the middle ditch is, perhaps, visible as a weaker linear anomaly continuing to the west across the present car-park area.

It is now known (following the results of excavation in August 2009) that the intense magnetic response recorded in the fluxgate magnetometer survey over the detached Roman bath-house at [m12] is the product of large amounts of ferrous debris deposited in the back-fill of the earlier Victorian excavations. Underneath the Victorian back-fill deposits, the bath house structure was found still preserved remarkably intact (Figures 8(A) and 8(B)).

Although the ring-ditch anomalies [m21, m26 and m27] would generally be interpreted as the remnants of ploughed-out Bronze Age barrows the location of these close to a major Romano-British villa complex would not preclude their interpretation as a complex of small shrines or temples forming part of the villa landscape, possibly adapted from earlier prehistoric funerary monuments (Cunliffe, pers. comm.; Dark 1993).

CONCLUSION

The 1994-5 fluxgate gradiometer results indicated that the villa ranges are situated in an area criss-crossed by several ditch systems. Their arrangement suggests a complex evolution over time and it is likely that several phases of construction and modification are represented. This would suggest, together with the available excavation data, that the villa probably developed from an earlier late Iron Age settlement focus in common with other excavated villa sites in Hampshire, such as Grateley, Houghton Down, Dunkirt Barn and Meonstoke (King 1996; Linford *et al.* 2005; Cunliffe 2008b). The known location of the building remains of the south range failed to produce a detectable magnetic response in the fluxgate data with the exception of the previously excavated detached bath-house. However, following subsequent excavation in August 2009 the surviving features of the south range are now known to be sealed by up to ~0.75m of soil and largely constructed from compacted chalk unlikely to produce a contrasting magnetic signature (Figure 8(C)).

The more recent caesium magnetometer coverage has revealed the wider extent of significant activity extending beyond the villa, but also includes a linear group of ring-ditches suggestive of the ploughed out remains of a small Bronze Age barrow cemetery or, perhaps, a complex of Romano-British shrines related to the villa. The activity mapped by the caesium survey is particularly concentrated to the north of the site and contains several clusters of pit-type anomalies suggestive of further occupation. The suggested western boundary of the villa complex itself appears as a triple alignment of parallel linear anomalies linking the two major east-west aligned boundaries or trackways around the main villa ranges to the north and south. A possible series of outlying curvilinear (bow-shaped) boundary ditches has been revealed in the caesium survey towards the far west of the site, perhaps forming part of an outer enclosure circuit. Additional occupation activity has been revealed to the south of the villa complex, but appears to fall off beyond this towards the southern extremity of the survey coverage.

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ANNEX 1: NOTES ON STANDARD PROCEDURES

1) Earth Resistance Survey

Each 30 metre grid square is surveyed by making repeated parallel traverses across it, all aligned parallel to one pair of the grid square's edges, and each separated by a distance of 1 metre from the last; the first and last traverses being 0.5 metres from the nearest parallel grid square edge. Readings are taken along each traverse at 1 metre intervals, the first and last readings being 0.5 metres from the nearest grid square edge.
Unless otherwise stated the measurements are made with a Geoscan RM15 earth resistance meter incorporating a built-in data logger, using the twin electrode configuration with a 0.5 metre mobile electrode separation. As it is usually only relative changes in earth resistance that are of interest in archaeological prospecting, no attempt is made to correct these measurements for the geometry of the twin electrode array to produce an estimate of the true apparent resistivity. Thus, the readings presented in plots will be the actual values of earth resistance recorded by the meter, measured in Ohms (Ω). Where correction to apparent resistivity has been made, for comparison with other electrical prospecting techniques, the results are quoted in the units of apparent resistivity, Ohm-m (Ωm).

Measurements are recorded digitally by the RM15 meter and subsequently transferred to a portable laptop computer for permanent storage and preliminary processing. Additional processing is performed on return to Fort Cumberland using desktop workstations.

2) Magnetometer Survey

Each 30 metre grid square is surveyed by making repeated parallel traverses across it, all parallel to that pair of grid square edges most closely aligned with the direction of magnetic N. Each traverse is separated by a distance of 1 metre from the last; the first and last traverses being 0.5 metre from the nearest parallel grid square edge. Readings are taken along each traverse at 0.25 metre intervals, the first and last readings being 0.125 metre from the nearest grid square edge.

These traverses are walked in so called 'zig-zag' fashion, in which the direction of travel alternates between adjacent traverses to maximise survey speed. Where possible, the magnetometer is always kept facing in the same direction, regardless of the direction of travel, to minimise heading error. However, this may be dependent on the instrument design in use.

Unless otherwise stated the measurements are made with either a Bartington Grad601 or a Geoscan FM36 fluxgate gradiometer which incorporate two vertically aligned fluxgates, one situated either 1.0m or 0.5 metres above the other; the bottom fluxgate is carried at a height of approximately 0.2 metres above the ground surface. Both instruments incorporate a built-in data logger that records measurements digitally; these are subsequently transferred to a portable laptop computer for permanent storage and preliminary processing. Additional processing is performed on return to Fort Cumberland using desktop workstations.

It is the opinion of the manufacturer of the Geoscan instrument that two sensors placed 0.5 metres apart cannot produce a true estimate of vertical magnetic gradient unless the bottom sensor is far removed from the ground surface. Hence, when results are presented, the difference between the field intensity measured by the top and bottom sensors is quoted in units of nano-Tesla (nT) rather than in the units of magnetic gradient, nano-Tesla per metre (nT/m).

3) Resistivity Profiling

This technique measures the electrical resistivity of the subsurface in a similar manner to the standard resistivity mapping method outlined in note 1. However, instead of mapping changes in the near surface resistivity over an area, it produces a vertical section, illustrating how resistivity varies with increasing depth. This is possible because the resistivity meter becomes sensitive to more deeply buried anomalies as the separation between the measurement electrodes is increased. Hence, instead of using a single, fixed electrode separation as in resistivity mapping, readings are repeated over the same point with increasing separations to investigate the resistivity at greater depths. It should be noted that the relationship between electrode separation and depth sensitivity is complex so the vertical scale quoted for the section is only approximate. Furthermore, as depth of investigation increases the size of the smallest anomaly that can be resolved also increases.

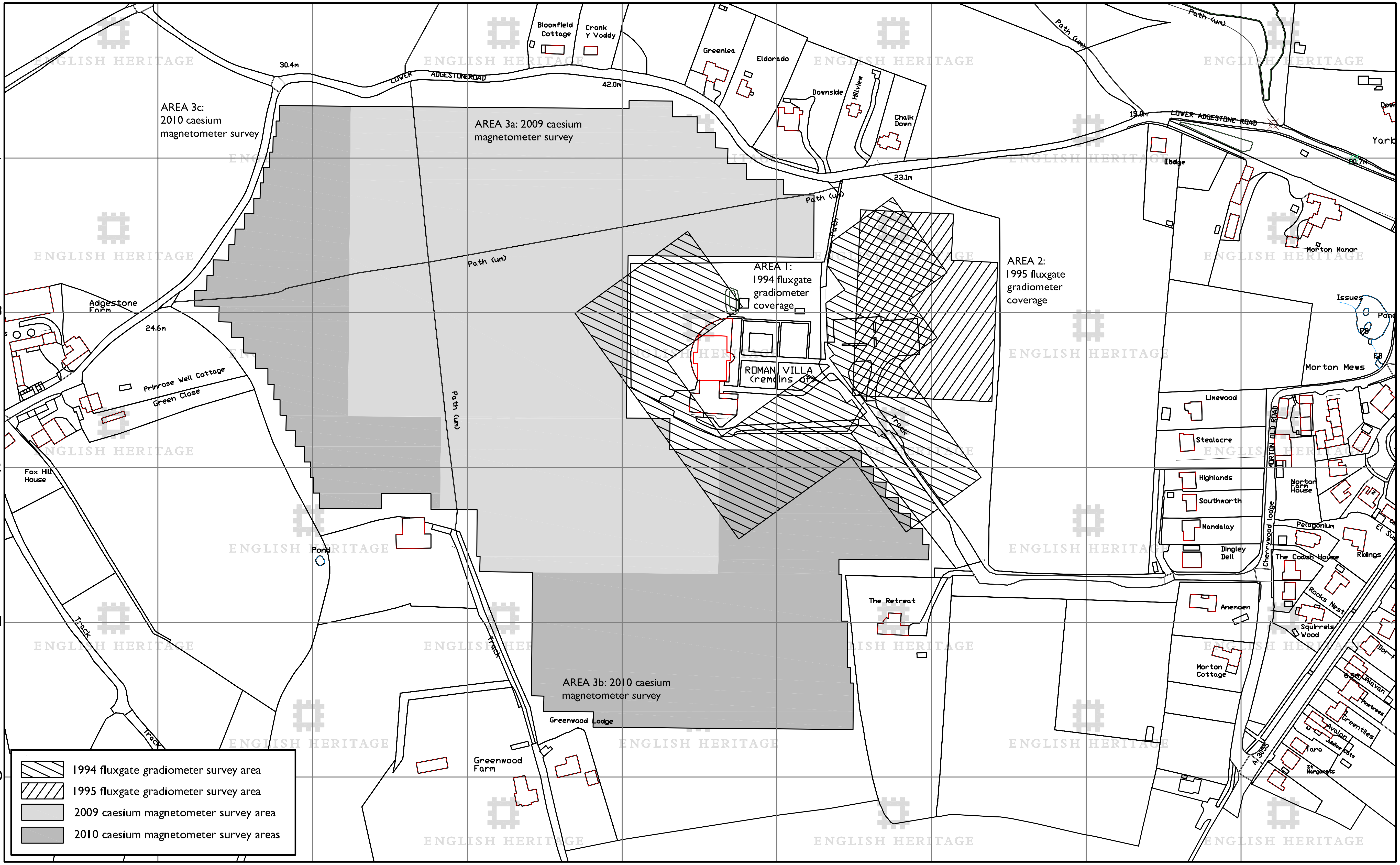
Typically a line of 25 electrodes is laid out separated by 1 or 0.5 metre intervals. The resistivity of a vertical section is measured by selecting successive four electrode subsets at increasing separations and making a resistivity measurement with each. Several different schemes may be employed to determine which electrode subsets to use, of which the Wenner and Dipole-Dipole are typical examples. A Campus Geopulse earth resistance meter, with built in multiplexer, is used to make the measurements and the Campus Imager software is used to automate reading collection and construct a resistivity section from the results.

Figure 1

BRADING ROMAN VILLA, ISLE OF WIGHT

Location of magnetometer surveys, 1994, 1995, 2009 and 2010

SZ 5986



0 150m

1:2500

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Figure 2

BRADING ROMAN VILLA, ISLE OF WIGHT

Combined magnetometer surveys, 1994, 1995, 2009 and 2010

SZ 5986

0 150m

1:2500

Geophysics Team 2010

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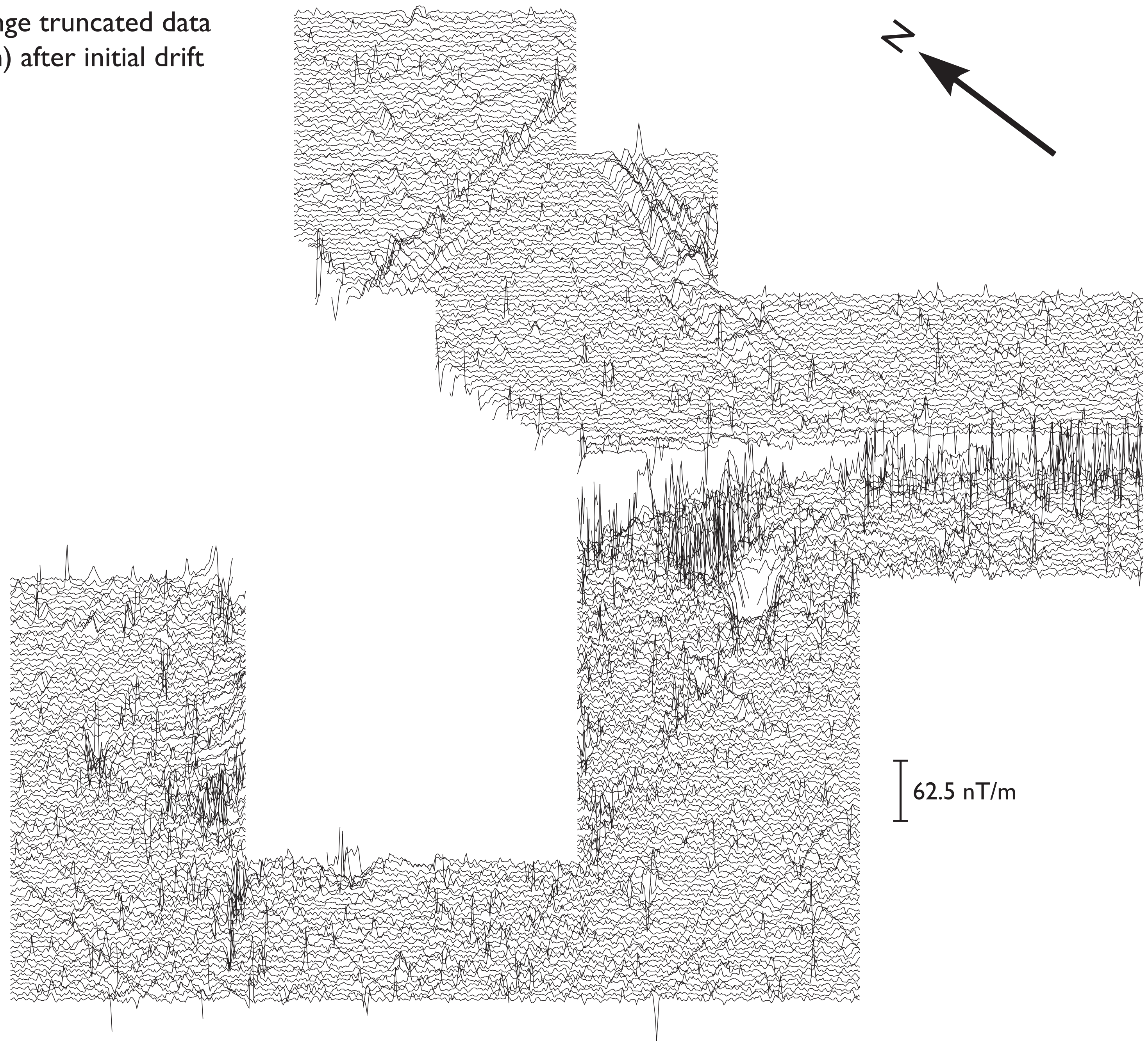
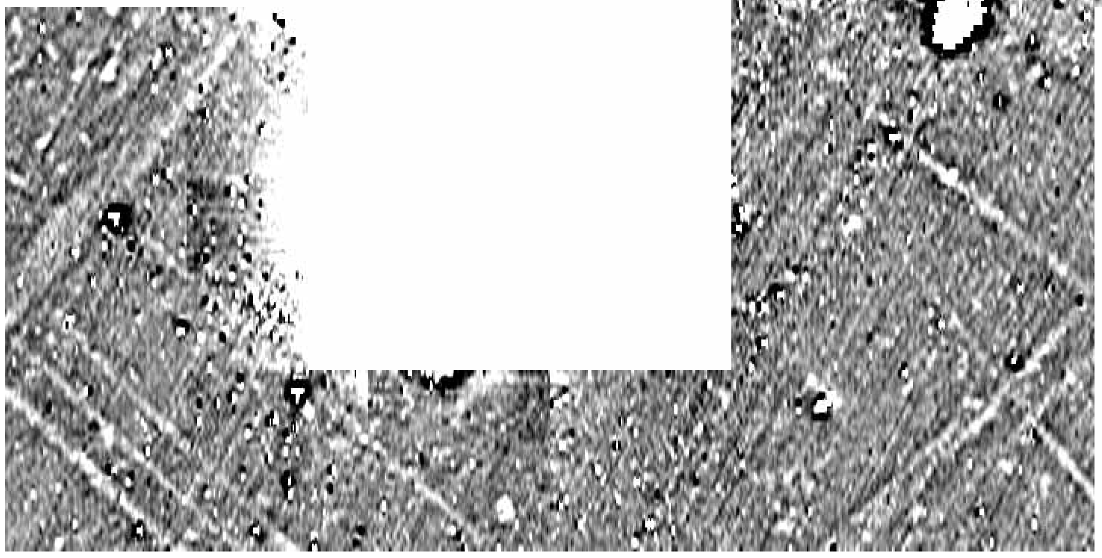
Figure 3

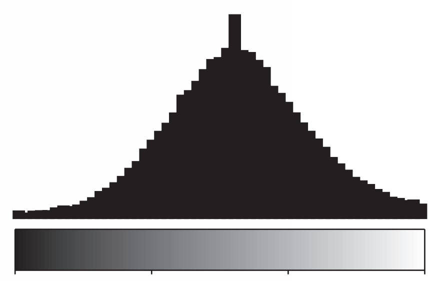
BRADING ROMAN VILLA, ISLE OF WIGHT
Fluxgate gradiometer survey of Area 1, March 1994

(A) Traceplot of range truncated data (-60 to 60 nT/m) after initial drift correction



(B) Greyscale image of range truncated data (-60 to 60 nT/m) after initial drift correction





0 90m

1:1250

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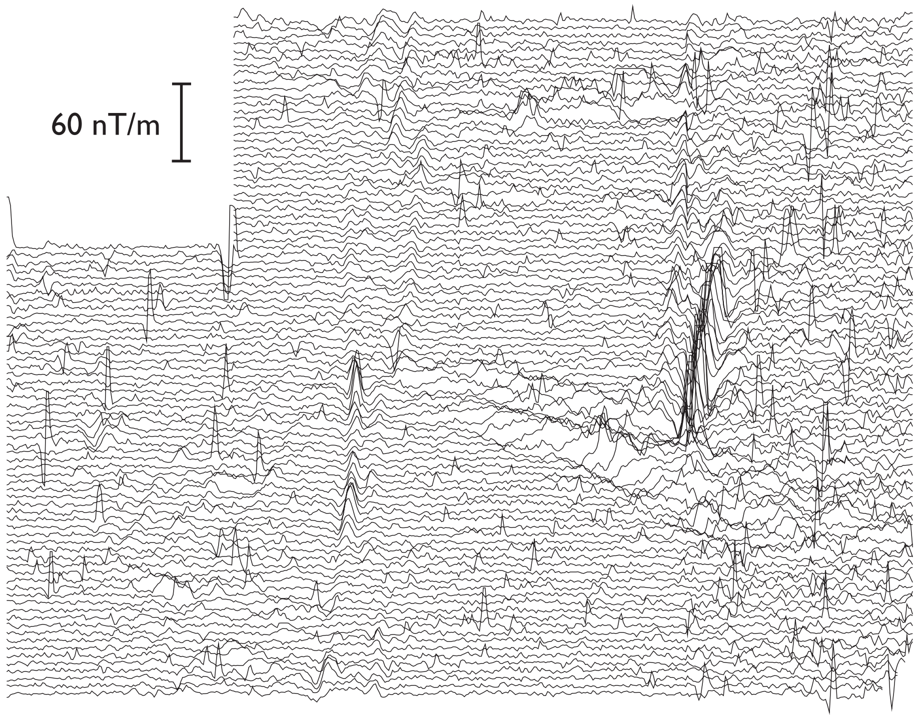
Figure 4

BRADING ROMAN VILLA, ISLE OF WIGHT
Fluxgate gradiometer survey of Area 2, April 1995

(A) Traceplot of range truncated (-60 to 60 nT/m)
data following initial drift correction



(B) Greyscale image of range truncated (-60 to 60 nT/m)
data following initial drift correction

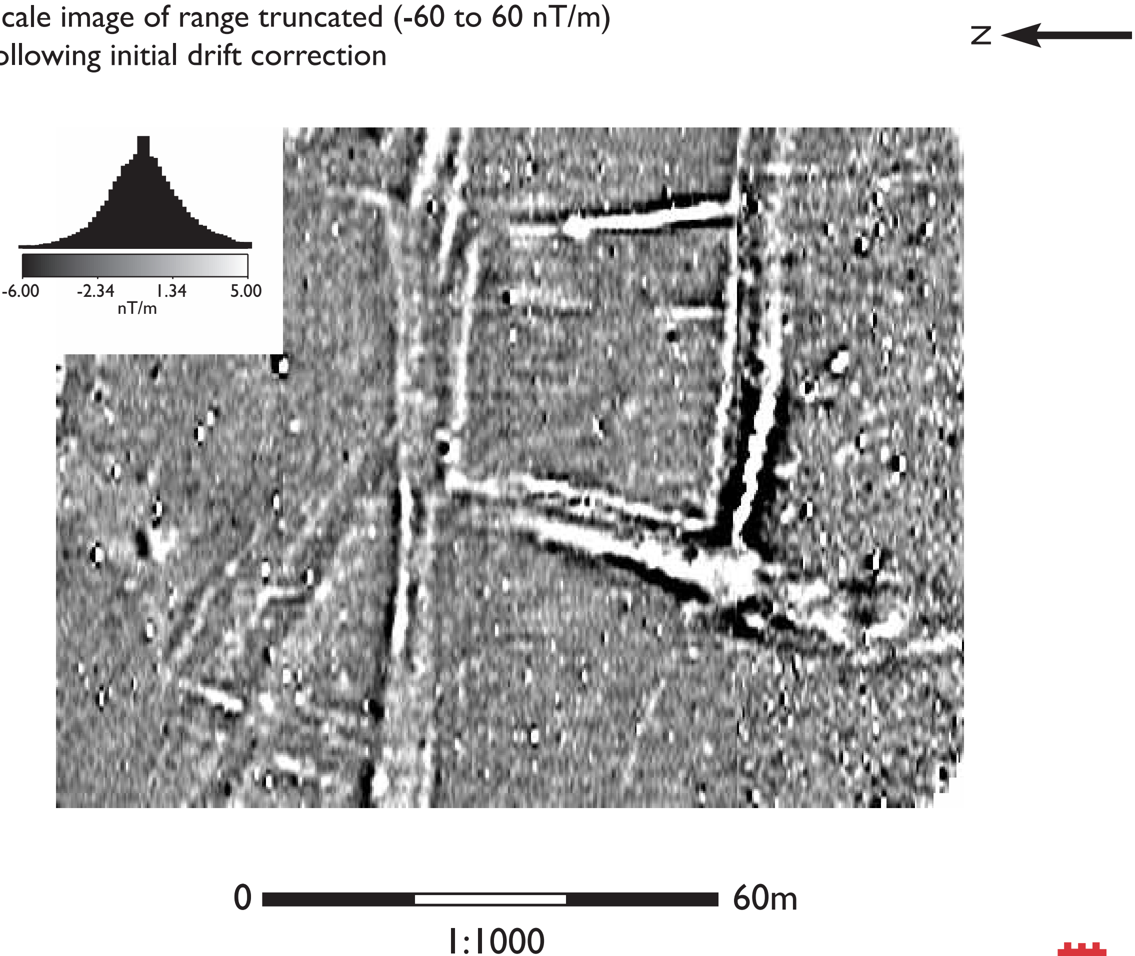


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Figure 5(A)

BRADING ROMAN VILLA, ISLE OF WIGHT

Combined caesium magnetometer survey of Area 3, February 2009 and February 2010

Traceplot of range truncated (-100 to +100 nT) total field data

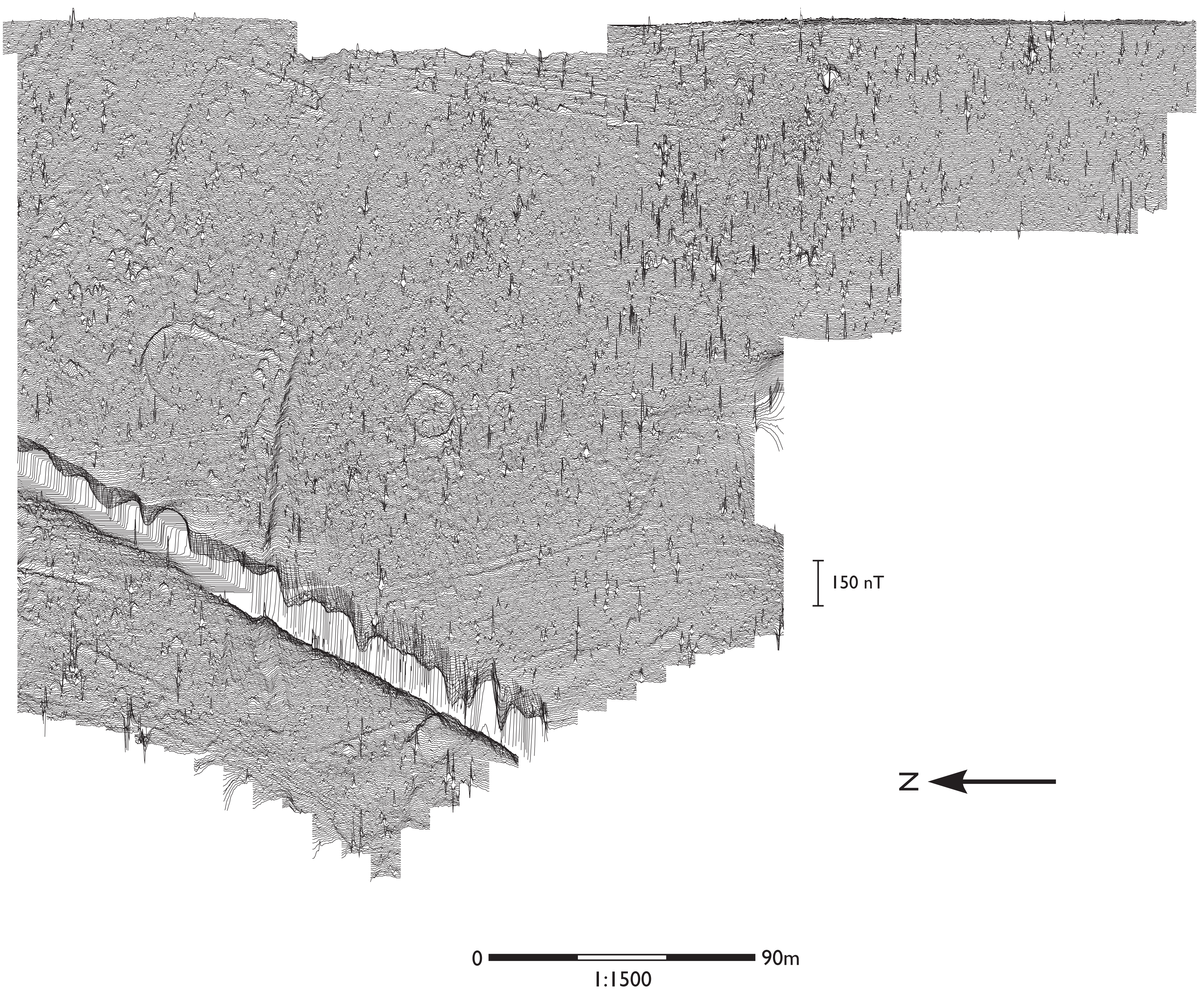

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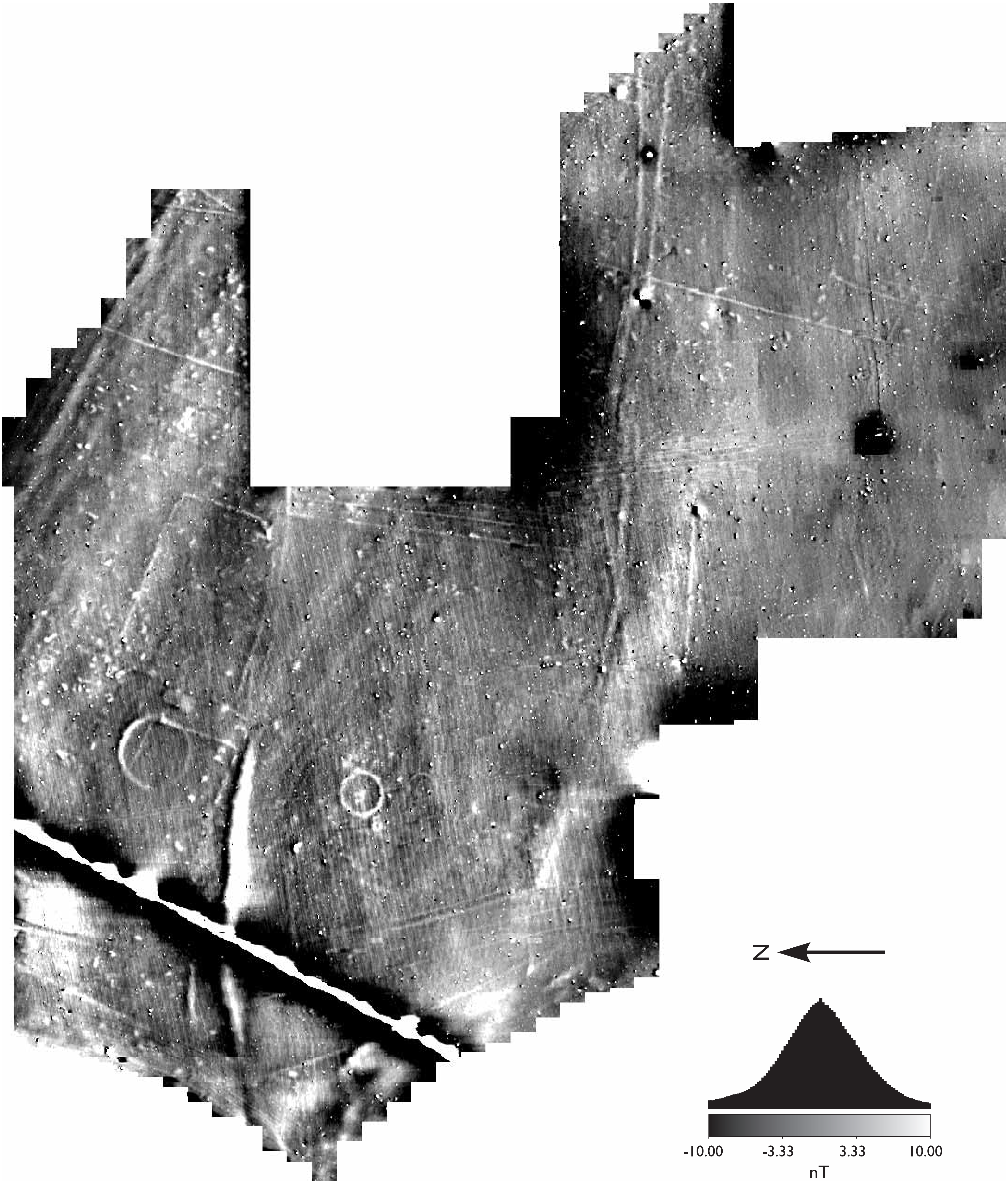
Figure 5(B)

BRADING ROMAN VILLA, ISLE OF WIGHT

Combined caesium magnetometer survey of Area 3, February 2009 and February 2010

Greyscale image of total field data



N

-10.00 -3.33 3.33 10.00

nT

0 90m

1:1500

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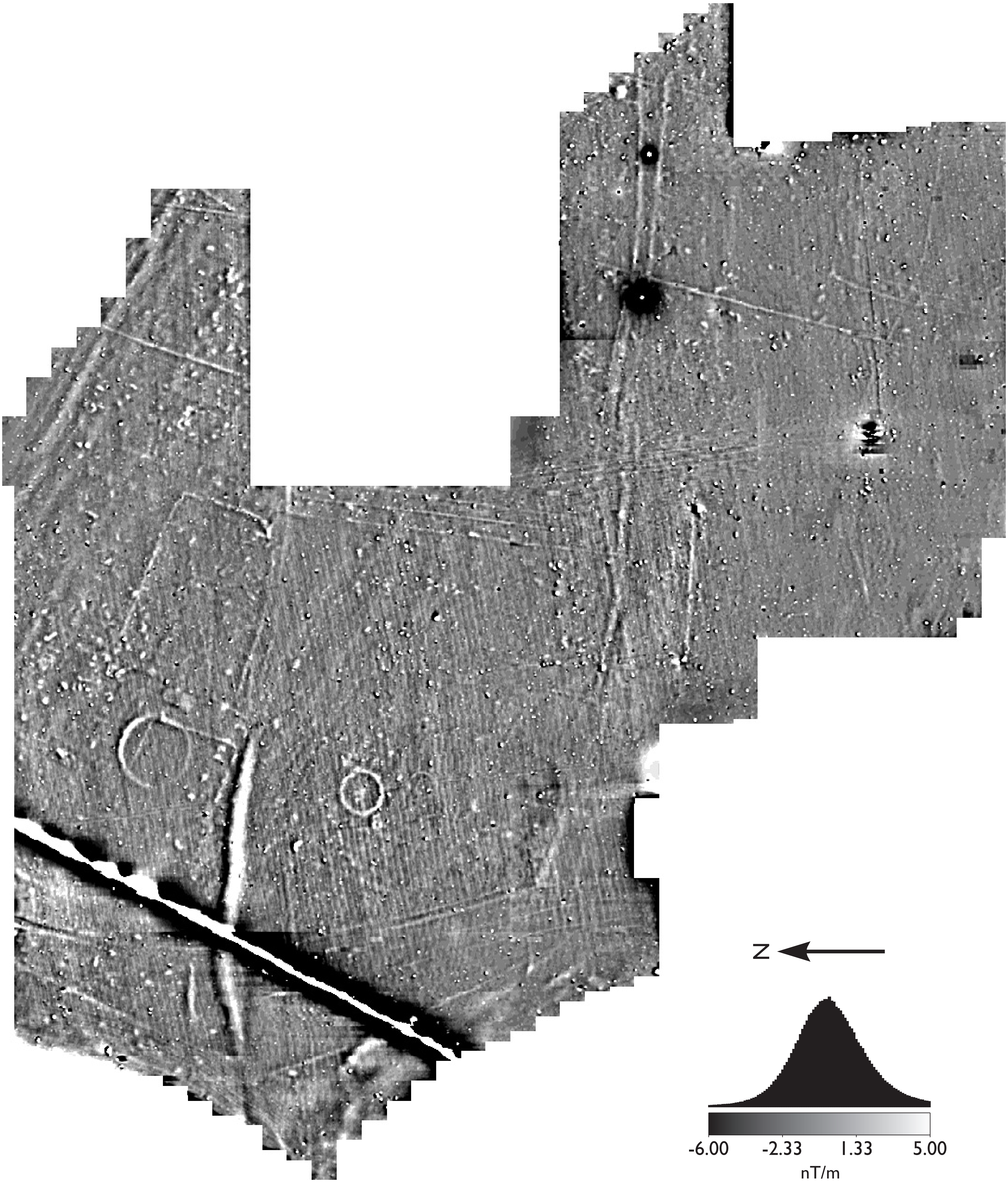
Figure 5(C)

BRADING ROMAN VILLA, ISLE OF WIGHT

Combined caesium magnetometer survey of Area 3, February 2009 and February 2010

Greyscale image of pseudo-gradient data



0 90m

1:1500

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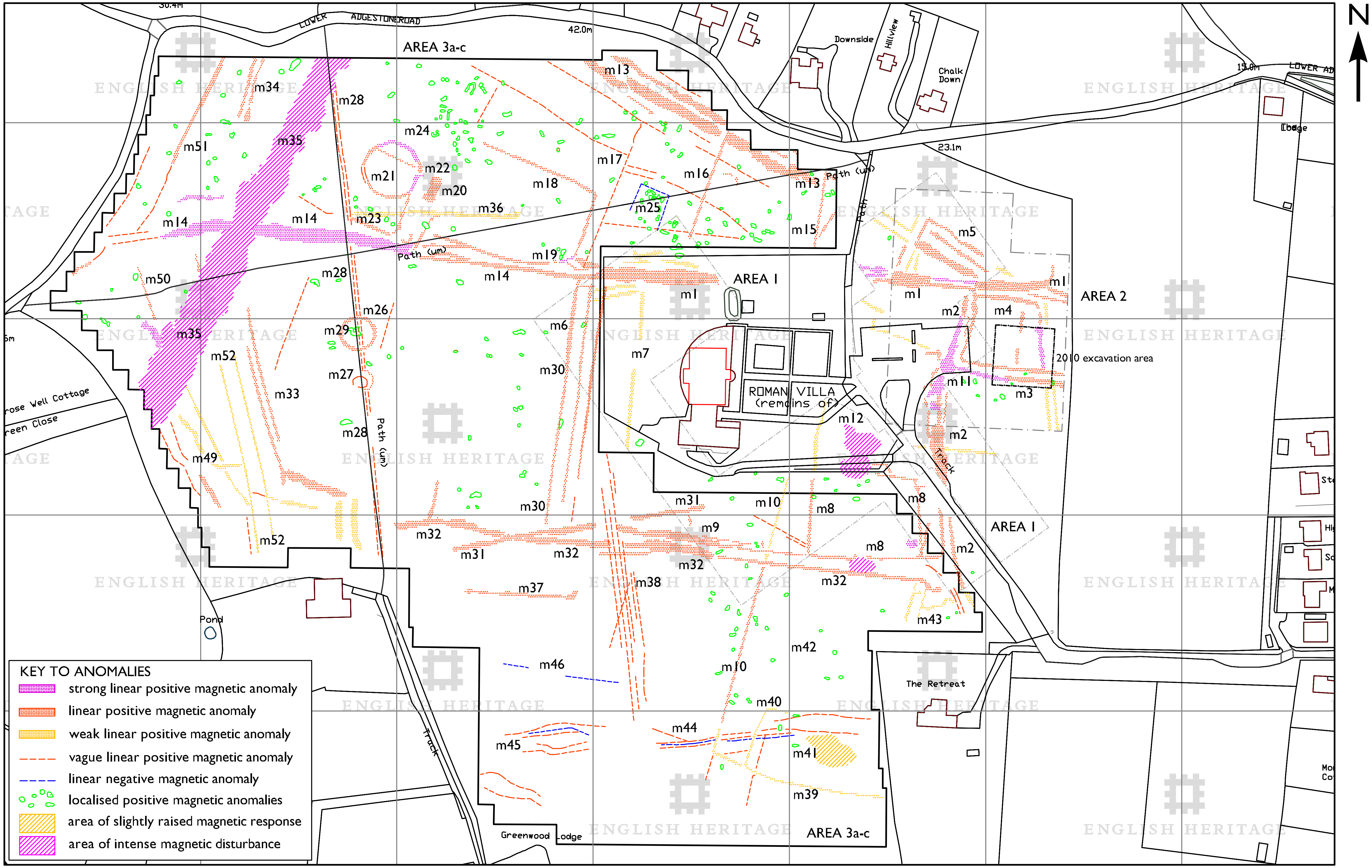
Figure 6

BRADING ROMAN VILLA, ISLE OF WIGHT

Graphical summary of significant magnetic anomalies, 1994, 1995, 2009 and 2010

SZ 5986



0 150m
1:2000

1994 fluxgate gradiometer survey area
1995 fluxgate gradiometer survey area
2009-10 caesium magnetometer survey area
2010 excavation area

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Figure 7

BRADING ROMAN VILLA, ISLE OF WIGHT Photographs of excavation, August 2010

(A)

(B)

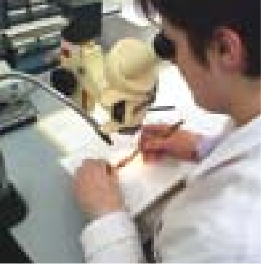
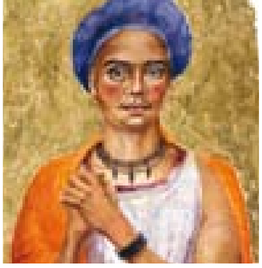
(C)

BRADING ROMAN VILLA, ISLE OF WIGHT Photographs of excavation, August 2009

(A)

(B)

(C)



ENGLISH HERITAGE RESEARCH DEPARTMENT

English Heritage undertakes and commissions research into the historic environment, and the issues that affect its condition and survival, in order to provide the understanding necessary for informed policy and decision making, for sustainable management, and to promote the widest access, appreciation and enjoyment of our heritage.

The Research Department provides English Heritage with this capacity in the fields of buildings history, archaeology, and landscape history. It brings together seven teams with complementary investigative and analytical skills to provide integrated research expertise across the range of the historic environment. These are:

* *Aerial Survey and Investigation*
* *Archaeological Projects (excavation)*
* *Archaeological Science*
* *Archaeological Survey and Investigation (landscape analysis)*
* *Architectural Investigation*
* *Imaging, Graphics and Survey (including measured and metric survey, and photography)*
* *Survey of London*

The Research Department undertakes a wide range of investigative and analytical projects, and provides quality assurance and management support for externally-commissioned research. We aim for innovative work of the highest quality which will set agendas and standards for the historic environment sector. In support of this, and to build capacity and promote best practice in the sector, we also publish guidance and provide advice and training. We support outreach and education activities and build these in to our projects and programmes wherever possible.

We make the results of our work available through the Research Department Report Series, and through journal publications and monographs. Our publication Research News, which appears three times a year, aims to keep our partners within and outside English Heritage up-to-date with our projects and activities. A full list of Research Department Reports, with abstracts and information on how to obtain copies, may be found on www.english-heritage.org.uk/researchreports

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