

**Wick Farm
Heddington Wick
Wiltshire**

MAGNETOMETER SURVEY REPORT

for

Rowden Financial Services Ltd

Kerry Donaldson & David Sabin

April 2015

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ARCHAEOLOGICAL SURVEYS LTD

**Wick Farm
Heddington Wick
Wiltshire**

Magnetometer Survey Report

for

Rowden Financial Services Ltd

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Report by Kerry Donaldson BSc (Hons) and David Sabin
Primary archive location - Archaeological Surveys Ltd, Yatesbury, Wiltshire

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Ordnance Survey Grid Reference – **ST 97920 67065**



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SUMMARY

A detailed magnetometer survey was carried out by Archaeological Surveys Ltd within three fields at Wick Farm, Heddington Wick, Wiltshire. The survey was carried out as a condition of retrospective planning permission related to the construction of a large pond in one of the fields. The pond lies 450m east of the Roman town of *Verlucio* and 140m south of the Wansdyke and Roman road from Speen to Bath. The survey was undertaken within the pond field and the fields immediately to the north and west. The results demonstrate that each of the fields contain a number of anomalies, with Area 1 (the pond field) containing negative linear and rectilinear anomalies that may relate to former bank/ditch features, and a number of pit-like responses. Area 2 to the west, lies within 60m of the Roman town of *Verlucio* and although it contained a number of weakly positive linear and discrete anomalies that may relate to linear and rectilinear ditches and pits, their weak response and indistinct form prevents confident interpretation. Area 3 lies to the north of the pond field and is bounded along the northern edge by the Wansdyke. A 5m wide negative response, flanked by two parallel positive linear anomalies, appears to relate to the remains of a Roman road which has a number of linear and rectilinear anomalies parallel with it, but also evidence for later cutting and re-utilisation by other linear and rectilinear features. The area also contains a number of positive and negative anomalies which have some association with extant linear bank and ditch features.

1 INTRODUCTION

1.1 *Survey background*

- 1.1.1 Archaeological Surveys Ltd was commissioned by Rowden Financial Services Ltd, to undertake a magnetometer survey of an area of land at Wick Farm, Heddington Wick in Wiltshire. The survey was carried out as a condition of planning (15/00915/FUL) in regard to a large pond which has been recently constructed within the site.
- 1.1.2 The geophysical survey was carried out in accordance with a Written Scheme of Investigation (WSI) produced by Archaeological Surveys (2015) and approved by Melanie Pomeroy-Kellinger, County Archaeologist for Wiltshire Council prior to commencing the fieldwork.
- 1.1.3 The site comprises approximately 5.75ha within three fields, although only one contained the new pond. The pond area lies east of the Roman town of *Verlucio*, south of a Roman road/Wansdyke with linear earthworks and ditches in the surrounding vicinity. As much of the pond area had been disturbed by the digging of the pond and dumping of the removed soil, a wider survey within adjacent fields to the north and west were covered in order to ascertain if any features extend into the pond area from the north and west.

1.2 Survey objectives and techniques

- 1.2.1 The objective of the survey was to use magnetometry to locate geophysical anomalies that may be archaeological in origin with regard to features that may extend beyond the pond area into adjacent fields. The methodology is considered an efficient and effective approach to archaeological prospection.
- 1.2.2 The survey and report generally follow the recommendations set out by: English Heritage (2008) *Geophysical survey in archaeological field evaluation*; and Institute for Archaeologists (2002) *The use of Geophysical Techniques in Archaeological Evaluations*. The work has been carried out to the Chartered Institute for Archaeologists (2014) *Standard and Guidance for Archaeological Geophysical Survey*.

1.3 Site location, description and survey conditions

- 1.3.1 The site is located at Wick Farm, The Common, Heddington Wick within the parish of Heddington in Wiltshire. It is centred on Ordnance Survey National Grid Reference (OS NGR) ST 97920 67065, see Figures 01 and 02. The pond is situated within the northern part of a small field (Area 1), and measures approximately 80m by 25m. The survey covered the remainder of this field where accessible and the fields immediately to the east (Area 2) and to the north (Area 3) to see if any potential features are located immediately adjacent, and which may have extended into the area of the pond.
- 1.3.2 The survey areas are approximately 5.75ha in total and, for the purposes of this report, the fields are labelled Areas 1 - 3. Area 1 contains the pond, soil mounds, building debris and the contents of a small tip, see Plate1 below. The surveyable zone was located in the western part of the field and covered some recent landscaping adjacent to the pond as well as some stripped topsoil.
- 1.3.3 Area 2 lies immediately to the west of Area 1 and contained tall grass at the time of survey. The land slopes down gently from west to east and there is a small pond at the south eastern corner. Area 3 lies immediately to the north of Area 1 and it too contained tall grass. The area is generally flat, though it contains some linear earthworks and tends to slope down towards the east. A stone lined well marked by a post was noted in the south eastern part of the field.



Plate 1: Area 1 looking west



Plate 2: Northern side of Area 3 looking west along line of the Wansdyke

1.3.4 The ground conditions across the site were generally considered to be favourable for the collection of magnetometry data with the exception of zones within Area 1 as outlined above. Weather conditions during the survey were fine and sunny.

1.4 *Site history and archaeological potential*

- 1.4.1 The site of the pond lies 450m east of the Roman town of *Verlucio* and 140m south of the Roman road from Speen to Bath (Margary 53, 1955), later utilised as the Wansdyke. The Wansdyke is a Scheduled Monument (List entry no: 1003785) 700m to the east of the site, and the Roman road is a Scheduled Monument (List entry No: 1003010) within Spye Park 1.2km to the west.
- 1.4.2 The site also contains earthworks and ditches that may relate to a former field system. These can be seen to extend from Area 3 in the northern part of the site, westwards into the adjacent field beyond the survey area, and they therefore predate the existing field boundary layout which has remained unaltered since the first edition Ordnance Survey mapping from 1886.
- 1.4.3 Landscaping and stripped soil within Area 1 provided suitable conditions for the observation of cultural material. Much of the south eastern part of the pond appears to have been excavated into a tip likely to date to the mid 20th century. Widespread glass, ceramic and building debris was visible including numerous crockery items produced for the military and dated 1951, 1952 and 1953. The material may well extend to a depth of approximately 1m and there is some evidence of a pre-existing feature having a cleaner sandy fill. It is possible that the dumped material represents build up within a shallow quarry or earlier pond.
- 1.4.4 Away from the zone of dumping, the sides of the new pond did not appear to contain any obviously cut features, although a flagon neck with handle and part of a flattish bowl or plate were observed. The material was considered likely to be of Roman origin and although disturbed, may have been derived from a nearby feature. No other sherds of Roman pottery were confidently identified within the soil or sides of the pond.
- 1.4.5 At the western end of the pond a small zone of stripped soil revealed numerous small pieces of medieval pottery and a small amount of dense tap slag. Some of the pottery appeared similar to Saxo-Norman wares seen on other Wiltshires sites and certainly Minety type wares were present. Some sherds showed signs of thin lead glaze also. Generally there were few diagnostic pieces within the scatter. Soil stripped adjacent to Wick Farm house to the south east of the site also revealed a similar range of medieval pottery. The settlement of Heddington Wick is believed to have medieval origins, and is recorded to be the residence of Alice atte Wike in 1288 (Gover et al, 1939).
- 1.4.6 Within Area 3, several low linear earth banks were noted. A stone-lined well is also present on a north south trending bank in the eastern part of the field. The well contains an iron pipe probably associated with a former hand pump. The northern field boundary contains a low bank extending several metres into the field and this is considered likely to be the remains of the Wansdyke.
- 1.4.7 The proximity of the Roman town of *Verlucio* and the Wansdyke and Roman road, together with the location of linear ditches and banks within the site

indicate that there is potential for the survey to locate archaeological features within the wider survey area.

1.5 *Geology and soils*

- 1.5.1 The underlying solid geology across the site is Lower Greensand (BGS, 2015).
- 1.5.2 The overlying soil across the survey area is from the Fyfield 4 association and is a typical argillic brown earth. It consists of a deep, well drained, often stoneless, coarse loamy and sandy soil (Soil Survey of England and Wales, 1983).
- 1.5.3 Magnetometry survey carried out across similar soils has produced good results. The underlying geology and soils are therefore considered acceptable for magnetic survey.

2 METHODOLOGY

2.1 *Technical synopsis*

- 2.1.1 Magnetometry survey records localised magnetic fields that can be associated with features formed by human activity. Magnetic susceptibility and magnetic thermoremnance are factors associated with the formation of localised fields. Additional details are set out below and within Appendix A.
- 2.1.2 Iron minerals within the soil may become altered by burning and the break down of biological material; effectively the magnetic susceptibility of the soil is increased, and the iron minerals become magnetic in the presence of the Earth's magnetic field. Accumulations of magnetically enhanced soils within features, such as pits and ditches, may produce magnetic anomalies that can be mapped by magnetic prospection.
- 2.1.3 Magnetic thermoremnance can occur when ferrous minerals have been heated to high temperatures such as in a kiln, hearth, oven etc. On cooling, a permanent magnetisation may be acquired due to the presence of the Earth's magnetic field. Certain natural processes associated with the formation of some igneous and metamorphic rock may also result in magnetic thermoremnance.
- 2.1.4 The localised variations in magnetism are measured as sub-units of the Tesla, which is a SI unit of magnetic flux density. These sub-units are nano Teslas (nT), which are equivalent to 10^{-9} Tesla (T).

2.2 *Equipment configuration, data collection and survey detail*

- 2.2.1 The detailed magnetic survey was carried out using a SENSYS MAGNETO®MXPDA 5 channel cart-based system. The instrument has 5 fluxgate gradiometers spaced 0.5m apart with readings recorded at 20 Hz. The gradiometers have a range of recording data between 0.1nT and 10,000nT. The system is linked to a Leica GS10 RTK GPS with data recorded by SENSYS MAGNETO®MXPDA software on a rugged PDA computer system.
- 2.2.2 Data are collected along a series of parallel survey transects wherever possible. The length of each transect is variable and relates to the size of the survey area and other factors including ground conditions. A visual display allows accurate placing of transects and helps maintain the correct separation between adjacent traverses.
- 2.2.3 Data are not collected within fixed grids and data points are considered to be random even though the data are collected in a systematic manner covering all accessible areas (Aspinall, Gaffney and Schmidt, 2009).

2.3 *Data processing and presentation*

- 2.3.1 Magnetic data collected by the MAGNETO®MXPDA cart-based system are initially prepared using SENSYS MAGNETO®DLMGPS software. Survey tracks are analysed and georeferenced raw data (UTM Z30N) are then exported in ASCII format for further analysis and display using TerraSurveyor.
- 2.3.2 The data are collected between limits of ± 10000 nT and clipped for display. Data are interpolated to a resolution of effectively 0.5m between tracks and 0.12m along each survey track. A zero median traverse function is required in order to remove fixed offset values present within the sensors which do not undergo a zeroing procedure in the field. The approach ensures that the gradiometer sensors are very accurately aligned and fixed to the vertical magnetic field and are not influenced by localised magnetic fields or disturbed by vibration. Although a zero median traverse algorithm can remove anomalies aligned with the survey tracks, in practice this rarely occurs due to the use of long traverses, high resolution measurement and variability within the magnetic susceptibility of long linear features.
- 2.3.3 Appendix C contains metadata concerning the survey and data attributes and is derived directly from TerraSurveyor. Reference should be made to Appendix B for further information on any processes, such as clipping, carried out on the data. A filtered image is also displayed in Figs 04, 06 and 08 where a high pass filter is applied to smooth data and remove slight variations along survey tracks.
- 2.3.4 A TIF file is produced by TerraSurveyor software along with an associated world file (.TFW) that allows automatic georeferencing (OSGB36 datum) when using GIS or CAD software. The main form of data display used in the report

is the minimally processed greyscale plot.

- 2.3.5 The raster images are combined with base mapping using ProgeCAD Professional 2014, creating DWG file formats. All images are externally referenced to the CAD drawing in order to maintain good graphical quality. The CAD plots are effectively georeferenced facilitating relocation of features using GPS, resection method, etc.
- 2.3.6 An abstraction and interpretation is offered for all geophysical anomalies located by the survey. Anomalies are abstracted using colour coded points, lines and polygons. All plots are scaled to landscape A3 for paper printing. A brief summary of each anomaly, with an appropriate reference number, is set out in list form within the results (Section 3) to allow a rapid and objective assessment of features within each survey area. Where further interpretation is possible, or where a number of possible origins should be considered, more subjective discussion is set out in Section 4.
- 2.3.7 The abstraction and interpretation procedure has been supported by analysis of a digital terrain model and contour plot derived from GPS height data automatically logged during the survey. The heights are converted from the ETRS89 ellipsoid using the National Geoid Model OSGM02 to obtain ODN (Ordnance Datum Newlyn) + the GPS antenna height (approximately 1.5M). Shaded relief plots and contours are created using Surfer 10.
- 2.3.8 A digital archive is produced with this report, see Appendix D below. The main archive is held at the offices of Archaeological Surveys Ltd.

3 RESULTS

3.1 *General assessment of survey results*

- 3.1.1 The detailed magnetic survey was carried out over a total of three survey areas covering approximately 5ha.
- 3.1.2 Magnetic anomalies located can be generally classified as positive and negative responses of archaeological potential, positive and negative linear anomalies of an uncertain origin, anomalies associated with land management, areas of magnetic debris and disturbance and strong discrete dipolar anomalies.
- 3.1.3 Anomalies located within each survey area have been numbered and are described below with subsequent discussion in Section 4.

3.2 *Statement of data quality*















- 3.2.1 Data are considered representative of the magnetic anomalies present within

the site. There are no significant defects within the dataset. High pass filtering was carried out on data collected within Areas 2 and 3.

3.2.2 Area 2 was heavily rutted and this appears within the data as series of linear responses running along the line of the survey tracks. Survey within part of Area 3 was carried out in unstable temperatures due to sporadic cloud cover, and this has manifest as very slight drift within the sensors visible as weak lines in the southern part of the field. The filtered images were compared to unfiltered data to ensure there are no detrimental effects on any of the anomalies.

3.3 Data interpretation

3.3.1 The list of sub-headings below attempts to define a number of separate categories that reflect the range and type of features located during the survey. A basic explanation of the characteristics of the magnetic anomalies is set out for each category in order to justify interpretation, a basic key is indicated to allow cross referencing to the abstraction and interpretation plot. CAD layer names are included to aid reference to associated digital files (.dwg/.dxf). Sub-headings are then used to group anomalies with similar characteristics for each survey area.

Report sub-heading CAD layer names and plot colour	Description and origin of anomalies
<p>Anomalies with archaeological potential</p> <p>AS-ABST MAG POS LINEAR ARCHAEOLOGY </p> <p>AS-ABST MAG POS ENCLOSURE DITCH </p> <p>AS-ABST MAG POS ROAD </p> <p>AS-ABST MAG POS DISCRETE ARCHAEOLOGY </p> <p>AS-ABST MAG POS ARCHAEOLOGY </p> <p>AS-ABST MAG NEG ROAD </p> <p>AS-ABST MAG NEG ARCHAEOLOGY </p>	<p>Anomalies have the characteristics (mainly morphological) of a range of archaeological features such as pits, ring ditches, enclosures, etc..</p>
<p>Anomalies with an uncertain origin</p> <p>AS-ABST MAG POS LINEAR UNCERTAIN </p> <p>AS-ABST MAG NEG LINEAR UNCERTAIN </p> <p>AS-ABST MAG POS DISCRETE UNCERTAIN </p> <p>AS-ABST MAG POS UNCERTAIN </p> <p>AS-ABST MAG NEG UNCERTAIN </p>	<p>The category applies to a range of anomalies where <u>there is not enough evidence to confidently suggest an origin</u>. Anomalies in this category <u>may well be related to archaeologically significant features, but equally relatively modern features, geological/pedological features and agricultural features should be considered</u>. Positive anomalies are indicative of magnetically enhanced soils that may form the fill of 'cut' features or may be produced by accumulation within layers or 'earthwork' features; soils subject to burning may also produce positive anomalies. Negative anomalies are produced by material of comparatively low magnetic susceptibility such as stone and subsoil.</p>
<p>Anomalies relating to land management</p> <p>AS-ABST MAG BANK/DITCH </p> <p>AS-ABST MAG LAND DRAIN </p>	<p>Anomalies are mainly linear and may be indicative of the magnetically enhanced fill of cut features or negative anomalies relating to extant ditches or earthworks. The anomalies may be long and/or form rectilinear elements and they may relate to topographic features or be visible on early mapping. Associated agricultural anomalies (e.g. headlands, plough marks and former ridge and furrow) may support the interpretation. Land drains can appear in a classic herringbone pattern of interconnected multiple dipolar linear anomalies, or as parallel linear anomalies. The multiple dipolar response indicates a ceramic land drain.</p>





<p>Anomalies associated with magnetic debris</p> <p>AS-ABST MAG DEBRIS </p> <p>AS-ABST MAG STRONG DIPOLAR </p>	<p>Magnetic debris often appears as areas containing many small dipolar anomalies that may range from weak to very strong in magnitude. It often occurs where there has been dumping or ground make-up and is related to magnetically thermoremnant materials such as brick or tile or other small fragments of ferrous material. This type of response is occasionally associated with kilns, furnace structures, or hearths and <u>may therefore be archaeologically significant</u>. It is also possible that the response may be caused by natural material such as certain gravels and fragments of igneous or metamorphic rock. Strong discrete dipolar anomalies are responses to ferrous objects within the topsoil.</p>
<p>Anomalies with a modern origin</p> <p>AS-ABST MAG DISTURBANCE </p> <p>AS-ABST MAG SERVICE </p>	<p>The magnetic response is often strong and dipolar indicative of ferrous material and may be associated with extant above surface features such as wire fencing, cables, pylons etc.. Often a significant area around such features has a strong magnetic flux which may create magnetic disturbance; such disturbance can effectively obscure low magnitude anomalies if they are present. Fluxgate sensors may respond erratically and with hysteresis adjacent to strong magnetic sources. Buried services may produce characteristic multiple dipolar anomalies dependant upon their construction.</p>

Table 1: List and description of interpretation categories

3.4 List of anomalies - Area 1

Area centred on OS NGR 398020 167025, see Figures 06 & 07.

Anomalies with an uncertain origin

- (1) - An "L" shaped negative linear anomaly is located between the pond and the heap of soil within a zone of scraped back soil. This may relate to a former boundary feature, and it may be associated with other negative linear anomalies to the west.
- (2) - A small number of discrete positive responses are located close to the negative linear and rectilinear anomalies. These appear to relate to cut, pit-like features and an archaeological origin is possible.
- (3) - The southern part of the survey area contains a cluster of discrete positive anomalies and some short positive and negative responses. It is not possible to determine if these are natural or anthropogenic features, although the lack of definable characteristics may indicate a natural origin.
- (4) - A positive anomaly is located at the north western corner of the survey area. It is possible that it relates to agricultural activity or may be associated with anomalies (9) and (30) located to the west and north.

Anomalies associated with magnetic debris

(5) - A zone of magnetic debris is associated with dumped magnetically thermoremanent material. The site of the pond cut through a rubbish tip and this may be associated with material from the tip.

3.5 *List of anomalies - Area 2*

Area centred on OS NGR 397810 167040, see Figures 08 & 09.

Anomalies with an uncertain origin

(6) - A positive linear anomaly extends for 48m eastwards from the western field boundary. This appears to relate to a linear ditch, and it is possible that it forms a rectilinear feature with anomaly (7) and an archaeological origin should be considered.

(7) - A very weakly positive linear anomaly can be seen in the southern part of the survey area. Others lie either side, but it is not possible to determine if they are associated. It is, however, possible that it is related to anomaly (6), forming a rectilinear feature with archaeological potential.

(8) - Two weakly positive linear anomalies are located to the east of anomaly (7). It is possible that they relate to cut, ditch-like features, but they are short and lack a coherent morphology.

(9) - Located in the north eastern corner of the survey area is a positive linear response. It is possible that it is a continuation of anomalies (30) seen in Area 3 to the north east. Although it is possible that it is a natural feature, an anthropogenic origin should also be considered.

(10) - A weakly positive linear anomaly extends towards anomaly (6) from the north. It is not possible to determine if it associated with anomaly (6), but this should be considered.

(11) - A positive curvilinear anomaly is located towards the western end of the survey area. A number of discrete positive responses and short positive linear responses lie close by. It is possible that these relate to naturally formed features, but given the proximity to the Roman town, an archaeological origin cannot be ruled out.

(12) - A group of discrete positive responses are located towards the eastern edge of the survey area. It is not possible to determine if they are naturally or anthropogenically formed features.

Anomalies associated with land management

(13) - A weakly multiple dipolar linear anomaly extends across the central part of the survey area. This type of response would generally indicate the presence of a land drain or pipe.

Anomalies associated with magnetic debris

(14) - The survey area contains a number of patches of magnetic debris. These are generally towards the margins of the field and relate to magnetically thermoremanent material.

(15) - Widespread and numerous strong, discrete, dipolar anomalies indicate that the site contains a large number of ferrous and other magnetically thermoremanent objects within the topsoil.

3.6 *List of anomalies - Area 3*

Area centred on OS NGR 398035 167125, see Figures 06 & 07.

Anomalies of archaeological potential

(16) - A negative linear anomaly approximately 5m wide running parallel with, and 10m south of, the northern field boundary. It is possible that it relates to a Roman road, parallel with the Wansdyke (northern field boundary), flanked by ditches (17) and (18) and later cut by enclosure ditches (19) and (20) and cut or overlain by extant bank feature (36) and negative anomaly (31).

(17) - A positive linear anomaly appears to relate to the southern ditch of the Roman road. It has a variable response, 4nT at the eastern end, rising to over 50nT where it is situated between anomalies (19) and (20).

(18) - A positive linear anomaly extends along the northern part of the survey area and appears to be the northern flanking ditch of the Roman road (16). It appears more fragmented than anomaly (17), and it has been truncated by later features. It also appears that it has been re-cut or utilised by rectilinear features (19) and (20).

(19) - A positive rectilinear anomaly with three sides showing clearly. It cuts or extends over the road (16) in two places, and appears to utilise or re-cut the northern ditch (18). The width of the feature is 37m and the western edge is 66m in length, overlain/cut by the extant linear ditch and bank feature (33), but the response is much weaker here. It also appears to end as a large pit at an extant linear bank feature (35), although the response is much weaker as it heads southwards. It is, however, possible that linear anomaly (29) is a southwards continuation of it. The eastern edge is 24m long, and it is not clear if it has been overlain by extant bank/ditch feature (33).

(20) - Two sides of a positive rectilinear anomaly have similar characteristics to anomaly (19). The eastern edge extends for 67.5m and it has been truncated or overlain by extant bank/ditch features (33), but it appears that it has truncated other linear features (21).

(21) - An "L" shaped positive rectilinear anomaly has been truncated by extant bank features (34) and also appears to have been truncated by rectilinear anomaly (20). It is possible that it continues eastwards as anomaly (22). The anomaly becomes weaker as it extends southwards and it is not clear if it joins or has been overlain/cut by extant bank/ditch feature (35) as the response cannot be seen continuing beyond this feature to the south.

(22) - A positive linear anomaly may be a continuation of anomaly (21). It may join anomaly (19) or possibly extend eastwards as anomaly (32). A number of other positive linear anomalies are located parallel with it to the north and south.

(23) - A positive linear anomaly is parallel with, and located 10.5m west of, the north south part of anomaly (20). It crosses or cuts the road (16), and also appears to cut linear anomalies (24), but is cut or overlain by extant bank and ditch features (33).

(24) - Two positive linear anomalies appear to have been truncated by anomaly (23), although it is possible that the southern one truncates anomaly (21).

(25) - Two parallel linear anomalies are situated in the vicinity of extant linear bank (33); however, they are short and very enhanced. They appear to have been truncated by anomaly (31).

(26) - A positive anomaly appears as a fragmented linear response. It is not parallel with any other anomalies within the site, but may have archaeological potential.

(27) - A group of positive responses, located in the north eastern part of the survey area relate to a rectilinear enclosure group containing a number of pits and appearing to be truncated or overlain by extant linear bank (36). They may continue to the west of this linear mound, but the response is not clear.

(28) - The northern part of the survey area contains a number of discrete positive responses that relate to pits. Many of them are between 15nT and 35nT, with some peaking at over 80nT which indicates areas of burning.

(29) - In the southern part of the site is a positive linear anomaly (29). Although short it may be a southwards continuation of the western side of rectilinear anomaly (19).

Anomalies with an uncertain origin

(30) - A group of positive responses are located in the southern part of the survey area. It is possible that these relate to naturally formed features but an anthropogenic origin should also be considered.

(31) - A negative linear anomaly, appears to cut the road (16), a number of linear anomalies (25), extant field bank features (33) but end at boundary feature (35). Although it appears similar in form to other linear bank/ditch features, it does not have a corresponding surface expression.

(32) - A positive and negative anomaly appear to have been truncated by anomaly (31). The response is similar to other extant linear bank features; however, it has no surface expression.

Anomalies associated with land management

(33 & 34) - A number of positive and negative broad linear anomalies relate to extant linear bank and ditch features within the field. They have truncated several other linear anomalies.

(35) - A weakly positive linear anomaly is located along the northern edge of an extant linear bank feature and may relate to an associated ditch.

(36) - A parallel positive and negative linear anomaly are associated with an extant linear bank.

(37) - Two short, weakly dipolar, linear anomalies have a response that would indicate ceramic land drains.

Anomalies associated with magnetic debris

(38) - A linear zone of weakly magnetic debris is located along the southern edge of an extant linear bank. It may relate to material used to infill an associated ditch, but this is uncertain.

(39) - A zone of strongly magnetic debris is located at the southern edge of the survey area is likely to be associated with dumped material used to infill a pond that used to project into this part of the survey area from Area 1 to the south.

Anomalies associated with magnetic disturbance

(40) - A circular zone of magnetic disturbance is located along the linear bank (36) and is a response to an iron pipe within a stone-lined well.

(41) - A zone of magnetic disturbance is associated with magnetic debris (39) and appears to be either under or part of the linear bank (36) that extends within the eastern part of the field. The response is very strong, indicating ferrous material or intense burning, and it is not certain if it relates to dumped material or structural remains. No structures are recorded on any Ordnance Survey mapping from 1886 onwards.

4 DISCUSSION

4.1.1 The survey has located a large number of geophysical anomalies, with linear and discrete anomalies in Area 1 where the pond has been constructed possibly indicating pit-like and bank/ditch-like features. Other weakly positive linear anomalies may relate to linear ditches within Area 2 to the west. However, the area with the largest amount of anomalies with an archaeological origin is Area 3 to the north of the pond, with a number of positive and negative linear features visible. The site of the pond is located 450m east of the Roman town of *Verlucio* and Area 3 is bounded by the Wansdyke and a Roman road.

4.1.2 It appears within Area 3 that along the northern edge of the survey area, approximately 10m south of the northern boundary, is a negative linear anomaly, 5m wide and flanked by two positive linear anomalies. This type of response may indicate the presence of a former Roman road with adjacent flanking ditches. There are a large number of positive linear and rectilinear anomalies that are parallel with the road feature, and some of the anomalies have cut or overlain the road, with two rectilinear enclosures appearing to have re-cut or utilised the northern flanking ditch, and also cut a number of other linear and rectilinear anomalies to the south. These in turn have been cut or overlain by a number of extant linear bank and ditch features that are visible within the survey area.

4.1.3 Given the geophysical and topographic evidence a series of phases can be postulated for Area 3, although clearly it is not possible to determine dates, except in the broadest terms.

Phase 1: construction of Roman military road.

Phase 2: growth of Roman roadside settlement and industry.

Phase 3: construction of Wansdyke immediately north of road.

Phase 4: establishment of enclosures cutting over road and possibly into Wansdyke bank.

Phase 5: construction of boundary banks and ditches.

Phase 6: establishment of current field boundaries.

4.1.4 Considering Phase 3 in more detail, the Wansdyke bank appears to survive as a low broad bank surmounted by the extant field boundary hedge. It lies approximately 10-15m north of the centre of the Roman road with the bank disappearing just north of the northern road ditch. The evidence may, therefore, support an interpretation of the road being a functional part of the Wansdyke or at least accessible at the time of its construction.

4.1.5 Phase 4 is demonstrated by clear truncation of the road, and other east to west trending anomalies, by at least two and possibly three enclosure ditches. Numerous pits also appear between the road ditches. The morphology of the enclosures would certainly be consistent with a Roman style; however, the disturbance and truncation of the road would tend to suggest a demise in its

importance at the time of their construction. A late Roman or sub Roman date may be postulated.

- 4.1.6 The boundary banks and ditches, mostly extant, referred to in Phase 5, appear to have cut or overlain many of the archaeological anomalies, although one such bank does seem to delimit the archaeological features within Area 3. These linear banks and ditches are in turn overlain by the modern field boundaries. A potential medieval and/or post medieval date of use and construction is suggested for the extant banks and ditches within the site. The observation of early medieval pottery within Area 1, and adjacent to the farm house, may indicate early medieval settlement extending further to the west from the current settlement at Heddington Wick. Later, this appears to have shrunk, allowing the current field layout to become established and enclosed.

5 CONCLUSION

- 5.1.1 The detailed magnetometer survey was carried out within three survey areas and located a number of positive linear, rectilinear and discrete anomalies within all three. Area 1 contains the newly constructed pond, a soil heap and evidence of the ground surface being scraped back; however, there are negative linear and rectilinear anomalies that may relate to former bank or ditch features. Discrete positive responses indicate the presence of pit-like features, and although some may be anthropogenic in origin, it is possible that a cluster along the southern edge of Area 1 relate to natural features.
- 5.1.2 Area 2 lies to the west of the pond area, with the western boundary approximately 60m east of the Roman town of *Verlucio*. Positive linear, discrete and curvilinear anomalies are situated within this part of the site, but they lack definition and cannot be confidently interpreted. At least two positive linear anomalies may relate to a rectilinear feature.
- 5.1.3 Area 3 contains a large amount of positive and negative responses which indicate archaeological features. The line of the former Roman road appears to be situated 10m to the south of the northern field boundary, which is also the Wansdyke. The ditches of the road appear to be later re-utilised with the road overlain or cut by at least two rectilinear enclosures. These have also cut through several other linear features, which are generally parallel and orthogonal with the road and northern boundary. A number of positive and negative broad linear anomalies are also associated with extant linear bank and ditch features which are visible within the field.

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Appendix A – basic principles of magnetic survey

Iron minerals are always present to some degree within the topsoil and enhancement associated with human activity is related to increases in the level of magnetic susceptibility and thermoremanent material.

Magnetic susceptibility is an induced magnetism within a material when it is in the presence of a magnetic field. This can be thought of as effectively permanent due to the presence of the Earth's magnetic field.

Thermoremanent magnetism occurs when ferrous material is heated beyond a specific temperature known as the Curie Point. Demagnetisation occurs at this temperature with re-magnetisation by the Earth's magnetic field upon cooling.

Enhancement of magnetic susceptibility can occur in areas subject to burning and complex fermentation processes on biological material; these are frequently associated with human settlement. Thermoremanent features include ovens, hearths, and kilns. In addition thermoremanent material such as tile and brick may also be associated with human activity and settlement.

Silting and deliberate infilling of ditches and pits with magnetically enhanced soil can create an area of enhancement compared with surrounding soils and subsoils into which the feature is cut. Mapping enhanced areas will produce linear and discrete anomalies allowing an assessment and characterisation of hidden subsurface features.

It should be noted that areas of negative enhancement can be produced from material having lower magnetic properties compared to the topsoil. This is common for many sedimentary bedrocks and subsoils which were often used in the construction of banks and walls etc. Mapping these 'negative' anomalies may also reveal archaeological features.

Magnetic survey or magnetometry can be carried out using a fluxgate gradiometer and may be referred to as gradiometry. The SENSYS gradiometer is a passive instrument consisting of two fluxgate sensors mounted vertically 65cm apart. The instrument is carried about 10-20cm above the ground surface and the upper sensor measures the Earth's magnetic field as does the lower sensor but this is influenced to a greater degree by any localised buried field. The difference between the two sensors will relate to the strength the magnetic field created by the buried feature.

There are a number of factors that may affect the magnetic survey and these include soil type, local geology and previous human activity. Situations arise where magnetic disturbance associated with modern services, metal fencing, dumped waste material etc., obscures low magnitude fields associated with archaeological features.

Appendix B – data processing notes

Clipping

Minimum and maximum values are set and replace data outside of the range with those values. Extreme values are removed improving colour or greyscale contrast associated with data values that may be archaeologically significant. It has been found that clipping data to ranges between $\pm 20\text{nT}$ and $\pm 10\text{nT}$ often improves the appearance of features associated with archaeology. Different ranges are applied to data in order to determine the most suitable for anomaly abstraction and display.

Zero (destripe) Median/Mean Traverse

The median (or mean) of each traverse is calculated ignoring data outside a threshold value, the median (or mean) is then subtracted from the traverse. The process is used to equalise differences between the baseline value of gradiometer sensors.

High Pass Filtering

A mathematical process used to remove low frequency anomalies relating to survey tracks and modern agricultural features.

Appendix C – survey and data information

Area 1 - minimally processed data

COMPOSITE

Path: C:\Business\Jobs\J605 Wick Farm, Heddington\Data\Area 1\comps\
 Filename: J605-mag-Area1-proc.xcp
 Description: Imported as Composite from: J605-mag-Area1.asc
 Instrument Type: Sensys DLMGPS
 Units: nT
 UTM Zone: 30U
 Survey corner coordinates (X/Y): OSGB36
 Northwest corner: 397937.899768933, 167067.431956182 m
 Southeast corner: 398048.539768933, 166970.231956182 m
 Collection Method: Randomised
 Sensors: 5
 Dummy Value: 32702

Source GPS Points: 144500

Dimensions

Composite Size (readings): 922 x 810
 Survey Size (meters): 111 m x 97.2 m
 Grid Size: 111 m x 97.2 m
 X Interval: 0.12 m
 Y Interval: 0.12 m

Stats

Max: 3.32
 Min: -3.30
 Std Dev: 1.16
 Mean: 0.03
 Median: 0.00
 Composite Area: 1.0754 ha
 Surveyed Area: 0.36085 ha

PROGRAM

Name: TerraSurveyor
 Version: 3.0.23.0

Processes: 1
 1 Base Layer

GPS based Proce5

1 Base Layer.
 2 Unit Conversion Layer (to OSGB36).
 3 DeStripe Median Traverse:
 4 Clip from -5.00 to 5.00 nT
 5 Clip from -3.00 to 3.00 nT

Area 2 - minimally processed data

COMPOSITE

Path: C:\Business\Jobs\J605 Wick Farm, Heddington\Data\Area 2\comps\
 Filename: J605-mag-Area2-proc-hpf.xcp
 Description: Imported as Composite from: J605-mag-Area2.asc
 Instrument Type: Sensys DLMGPS
 Units: nT
 UTM Zone: 30U
 Survey corner coordinates (X/Y): OSGB36
 Northwest corner: 397675.273421917, 167127.39928233 m
 Southeast corner: 397938.073421917, 166963.23928233 m
 Collection Method: Randomised
 Sensors: 5
 Dummy Value: 32702

Source GPS Points: 659600

Dimensions

Composite Size (readings): 2190 x 1368
 Survey Size (meters): 263 m x 164 m
 Grid Size: 263 m x 164 m
 X Interval: 0.12 m
 Y Interval: 0.12 m

Stats

Max: 3.32
 Min: -3.30
 Std Dev: 0.95
 Mean: 0.01
 Median: 0.00
 Composite Area: 4.3141 ha
 Surveyed Area: 1.792 ha

Processes: 1
 1 Base Layer

GPS based Proce4

1 Base Layer.

2 Unit Conversion Layer (to OSGB36).
 3 DeStripe Median Traverse:
 4 Clip from -3.00 to 3.00 nT

Area 2 filtered data

COMPOSITE

Path: C:\Business\Jobs\J605 Wick Farm, Heddington\Data\Area 2\comps\
 Filename: J605-mag-Area2-proc-hpf.xcp
 Description: Imported as Composite from: J605-mag-Area2.asc
 Instrument Type: Sensys DLMGPS
 Units: nT
 UTM Zone: 30U
 Survey corner coordinates (X/Y): OSGB36
 Northwest corner: 397675.273421917, 167127.39928233 m
 Southeast corner: 397938.073421917, 166963.23928233 m
 Collection Method: Randomised
 Sensors: 5
 Dummy Value: 32702

Source GPS Points: 659600

Dimensions

Composite Size (readings): 2190 x 1368
 Survey Size (meters): 263 m x 164 m
 Grid Size: 263 m x 164 m
 X Interval: 0.12 m
 Y Interval: 0.12 m

Stats

Max: 3.32
 Min: -3.30
 Std Dev: 0.89
 Mean: 0.02
 Median: 0.00
 Composite Area: 4.3141 ha
 Surveyed Area: 1.792 ha

Processes: 1
 1 Base Layer

GPS based Proce6

1 Base Layer.
 2 Unit Conversion Layer (Lat/Long to OSGB36).
 3 DeStripe Median Traverse:
 4 Clip from -3.00 to 3.00 nT
 5 High pass Uniform (median) filter: Window dia: 300
 6 Clip from -3.00 to 3.00 nT

Area 3 minimally processed data

COMPOSITE

Path: C:\Business\Jobs\J605 Wick Farm, Heddington\Data\Area 3\comps\
 Filename: J605-mag-Area3-proc.xcp
 Description: Imported as Composite from: J605-mag-Area3.asc
 Instrument Type: Sensys DLMGPS
 Units: nT
 UTM Zone: 30U
 Survey corner coordinates (X/Y): OSGB36
 Northwest corner: 397932.617656504, 167195.216566002 m
 Southeast corner: 398133.137656504, 167051.216566002 m
 Collection Method: Randomised
 Sensors: 5
 Dummy Value: 32702

Source GPS Points: 860600

Dimensions

Composite Size (readings): 1671 x 1200
 Survey Size (meters): 201 m x 144 m
 Grid Size: 201 m x 144 m
 X Interval: 0.12 m
 Y Interval: 0.12 m

Stats

Max: 3.32
 Min: -3.30
 Std Dev: 1.37
 Mean: 0.02
 Median: 0.01
 Composite Area: 2.8875 ha
 Surveyed Area: 2.4801 ha

Processes: 1
 1 Base Layer

GPS based Proce4

- 1 Base Layer.
- 2 Unit Conversion Layer (to OSGB36).
- 3 DeStripe Median Traverse:
- 4 Clip from -3.00 to 3.00 nT

X Interval: 0.12 m
Y Interval: 0.12 m

Area 3 filtered data

Filename: J605-mag-Area3-proc-hpf.xcp
Description: Imported as Composite from: J605-mag-Area3.asc
Instrument Type: Sensys DLMGPS
Units: nT
UTM Zone: 30U
Survey corner coordinates (X/Y): OSGB36
Northwest corner: 397932.617656504, 167195.216566002 m
Southeast corner: 398133.137656504, 167051.216566002 m
Collection Method: Randomised
Sensors: 5
Dummy Value: 32702
Source GPS Points: 860600

Stats
Max: 5.53
Min: -5.50
Std Dev: 1.81
Mean: 0.05
Median: 0.01
Composite Area: 2.8875 ha
Surveyed Area: 2.4801 ha

Processes: 1
1 Base Layer

GPS based Process
1 Base Layer.
2 Unit Conversion Layer (to OSGB36).
3 DeStripe Median Traverse:
4 High pass Uniform (median) filter: Window dia: 500
5 Clip from -5.00 to 5.00 nT

Dimensions
Composite Size (readings): 1671 x 1200
Survey Size (meters): 201 m x 144 m
Grid Size: 201 m x 144 m

Appendix D – digital archive

Archaeological Surveys Ltd hold the primary digital archive at their offices in Wiltshire. Data are backed-up onto an on-site data storage drive and at the earliest opportunity data are copied to CD ROM for storage on-site and off-site.

A printed copy of the report and a PDF copy will be supplied to the Wiltshire Historic Environment Record. The report will also be uploaded to the Online Access to the Index of archaeological investigationS (OASIS).

Archive contents:

Geophysical data Area 1 - path: J605 Wick Farm, Heddington\Data\				
Path and Filename	Software	Description	Date	Creator
heddington1\MX\ .prm .dgb .disp	Sensys MXPDA	Proprietary data formats representing magnetometer survey traverses logged to a PDA.		D.J.Sabin
heddington1\MX\J605-mag-Area1.asc	Sensys DLMGPS	ASCII CSV (tab) file representing survey Area 1 in eastings, northings (UTM Z30N), magnetic measurement, traverse file and sensor number.		D.J.Sabin
Area1\comps\J605-mag-Area1.xcp	TerraSurveyor 3.0.23.0	Composite data file derived from ASCII CSV.		D.J.Sabin
Area1\comps\J605-mag-Area1-proc.xcp	TerraSurveyor 3.0.23.0	Processed composite data file (zmt and clipping to $\pm 3nT$).		D.J.Sabin
Geophysical data Area 2 - path: J605 Wick Farm, Heddington\Data\				
heddington2\MX\ .prm .dgb .disp	Sensys MXPDA	Proprietary data formats representing magnetometer survey traverses logged to a PDA at.		D.J.Sabin
heddington2\MX\J605-mag-Area2.asc	Sensys DLMGPS	ASCII CSV (tab) file representing survey Area 2 in eastings, northings (UTM Z30N), magnetic measurement, traverse file and sensor number.		D.J.Sabin
Area2\comps\J605-mag-Area2.xcp	TerraSurveyor 3.0.23.0	Composite data file derived from ASCII CSV.		D.J.Sabin
Area2\comps\J605-mag-Area2-proc.xcp	TerraSurveyor 3.0.23.0	Processed composite data file (zmt and clipping to $\pm 3nT$).		D.J.Sabin
Area2\comps\J605-mag-Area2-proc-hpf.xcp	TerraSurveyor 3.0.23.0	Processed composite data file (zmt and clipping to $\pm 3nT$ and high pass filtered (median) .		D.J.Sabin
Geophysical data Area 3 - path: J605 Wick Farm, Heddington\Data\				
heddington3\MX\ .prm .dgb .disp	Sensys MXPDA	Proprietary data formats representing magnetometer survey traverses logged to a PDA at.		D.J.Sabin
heddington3\MX\J605-mag-Area3.asc	Sensys DLMGPS	ASCII CSV (tab) file representing survey Area 2 in eastings, northings (UTM Z30N), magnetic measurement, traverse file and sensor number.		D.J.Sabin
Area3\comps\J605-mag-Area3.xcp	TerraSurveyor 3.0.23.0	Composite data file derived from ASCII CSV.		D.J.Sabin

Area3\comps\J605-mag-Area3-proc.xcp	TerraSurveyor 3.0.23.0	Processed composite data file (zmt and clipping to $\pm 3nT$).		D.J.Sabin
Area3\comps\J605-mag-Area3-proc-hpf.xcp	TerraSurveyor 3.0.23.0	Processed composite data file (zmt and clipping to $\pm 3nT$ and high pass filtered (median)).		D.J.Sabin
Graphic data - path: J605 Wick Farm, Heddington\Data\				
Area1\graphics\J605-mag-Area1-proc.tif	TerraSurveyor 3.0.23.0	TIF file showing a minimally processed greyscale plot clipped to $\pm 3nT$.		D.J.Sabin
Area1\graphics\J605-mag-Area1-proc .tfw	TerraSurveyor 3.0.23.0	World file for georeferencing TIF to OSGB36.		D.J.Sabin
Area2\graphics\J605-mag-Area2-proc .tif	TerraSurveyor 3.0.23.0	TIF file showing a minimally processed greyscale plot clipped to $\pm 3nT$.		D.J.Sabin
Area2\graphics\J605-mag-Area2-proc .tfw	TerraSurveyor 3.0.23.0	World file for georeferencing TIF to OSGB36.		D.J.Sabin
Area2\graphics\J605-mag-Area2-proc-hpf .tif	TerraSurveyor 3.0.23.0	TIF file showing a minimally processed greyscale plot clipped to $\pm 3nT$ and high pass filtered.		D.J.Sabin
Area2\graphics\J605-mag-Area2-proc-hpf.tfw	TerraSurveyor 3.0.23.0	World file for georeferencing TIF to OSGB36.		D.J.Sabin
Area3\graphics\J605-mag-Area3-proc .tif	TerraSurveyor 3.0.23.0	TIF file showing a minimally processed greyscale plot clipped to $\pm 3nT$.		D.J.Sabin
Area3\graphics\J605-mag-Area3-proc .tfw	TerraSurveyor 3.0.23.0	World file for georeferencing TIF to OSGB36.		D.J.Sabin
Area3\graphics\J605-mag-Area3-proc-hpf .tif	TerraSurveyor 3.0.23.0	TIF file showing a minimally processed greyscale plot clipped to $\pm 3nT$ and high passed filtered.		D.J.Sabin
Area3\graphics\J605-mag-Area3-proc-hpf.tfw	TerraSurveyor 3.0.23.0	World file for georeferencing TIF to OSGB36.		D.J.Sabin
CAD data - path: J605 Wick Farm, Heddington\CAD\				
J605 version 1.dwg	ProgeCAD 2014	CAD file for creating plots of greyscales, abstraction, interpretation and mapping. Grid coordinates as OSGB. AutoCAD 2010 format.		K.T.Donaldson
Text data - path: J605 Wick Farm, Heddington\Documentation\				
J605 report.odt	OpenOffice.org 3.0.1 Writer	Report text as an Open Office document.		K.T.Donaldson

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**Geophysical Survey
Wick Farm
Heddington Wick
Wiltshire**

Map of survey area

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Controller of Her Majesty's Stationery Office.
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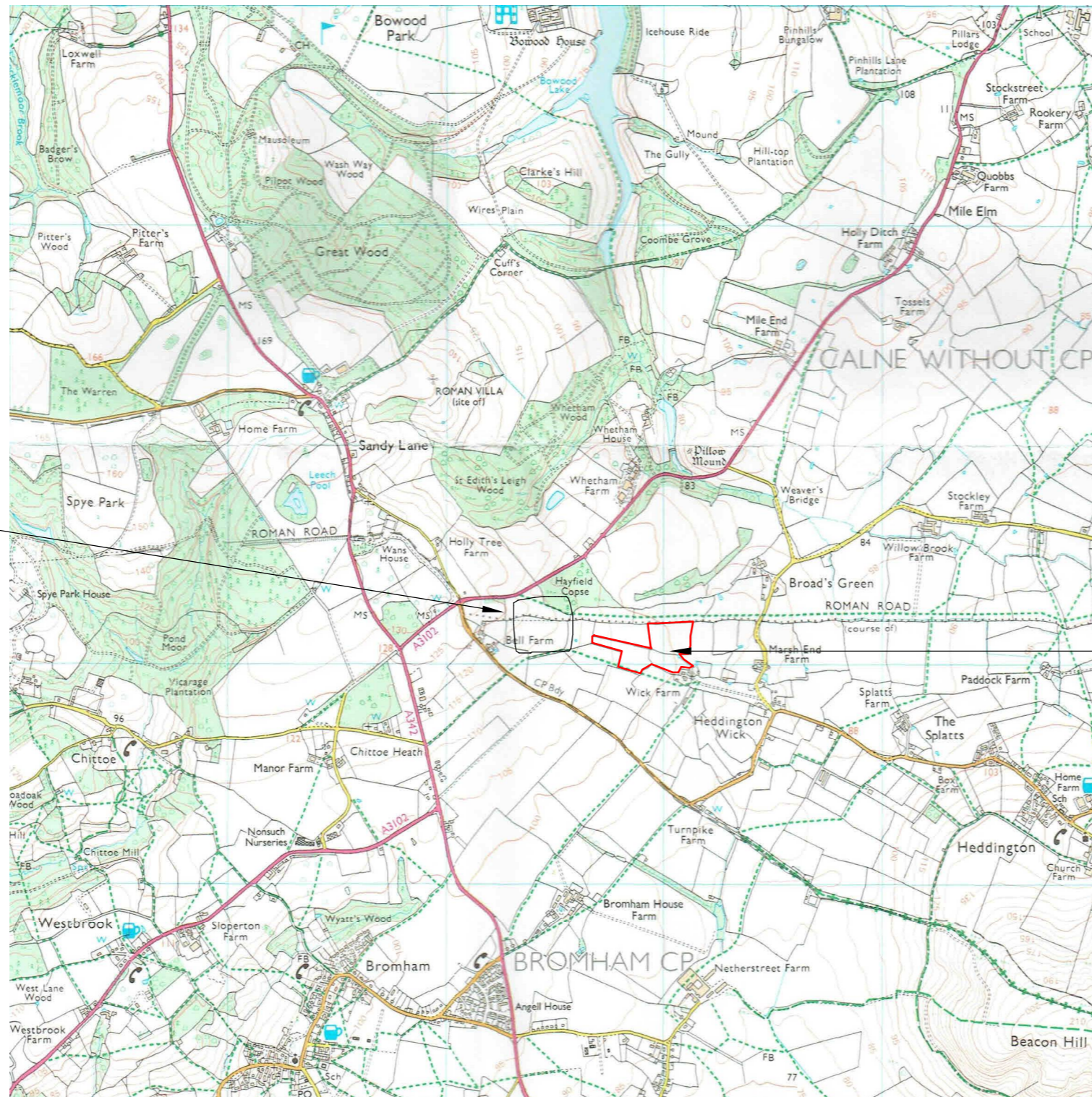
● Survey location

Site centred on OS NGR
ST 97920 67065

SCALE 1:25 000



SCALE TRUE AT A3



Approximate location of core of
Verulcio Roman town

Survey location

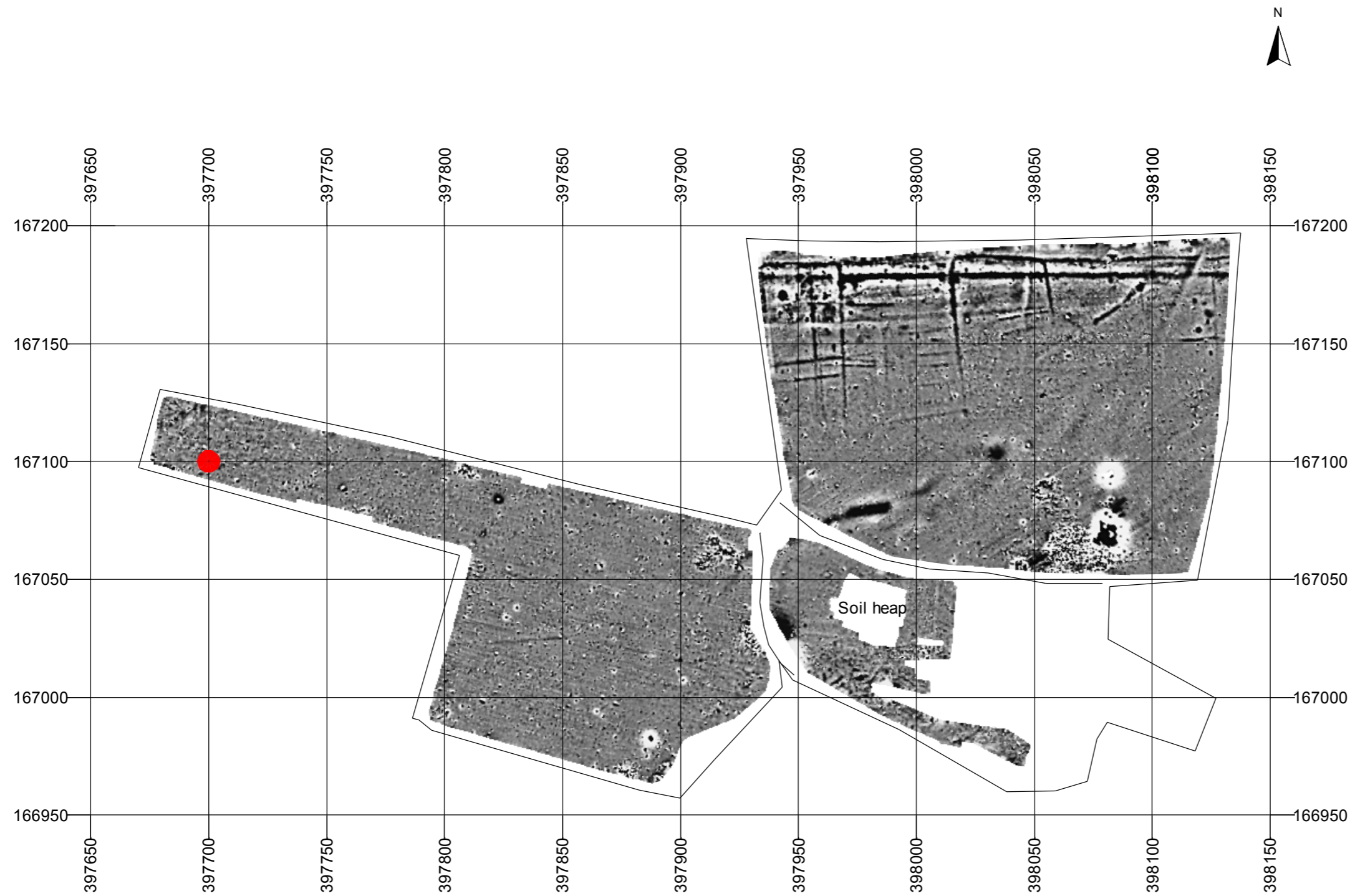
**Geophysical Survey
Wick Farm
Heddington Wick
Wiltshire**

Referencing information

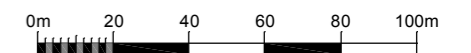
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Data collected at 20Hz and georeferenced to ETRS89 zone 30 with conversion to OSGB36 using OSTN02

● 397700 167100



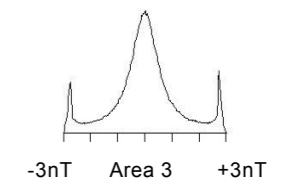
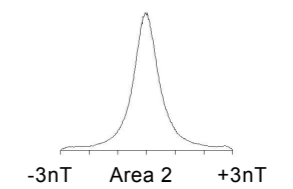
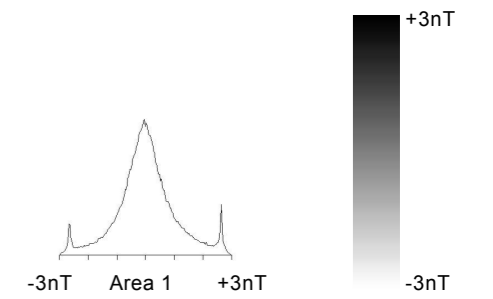
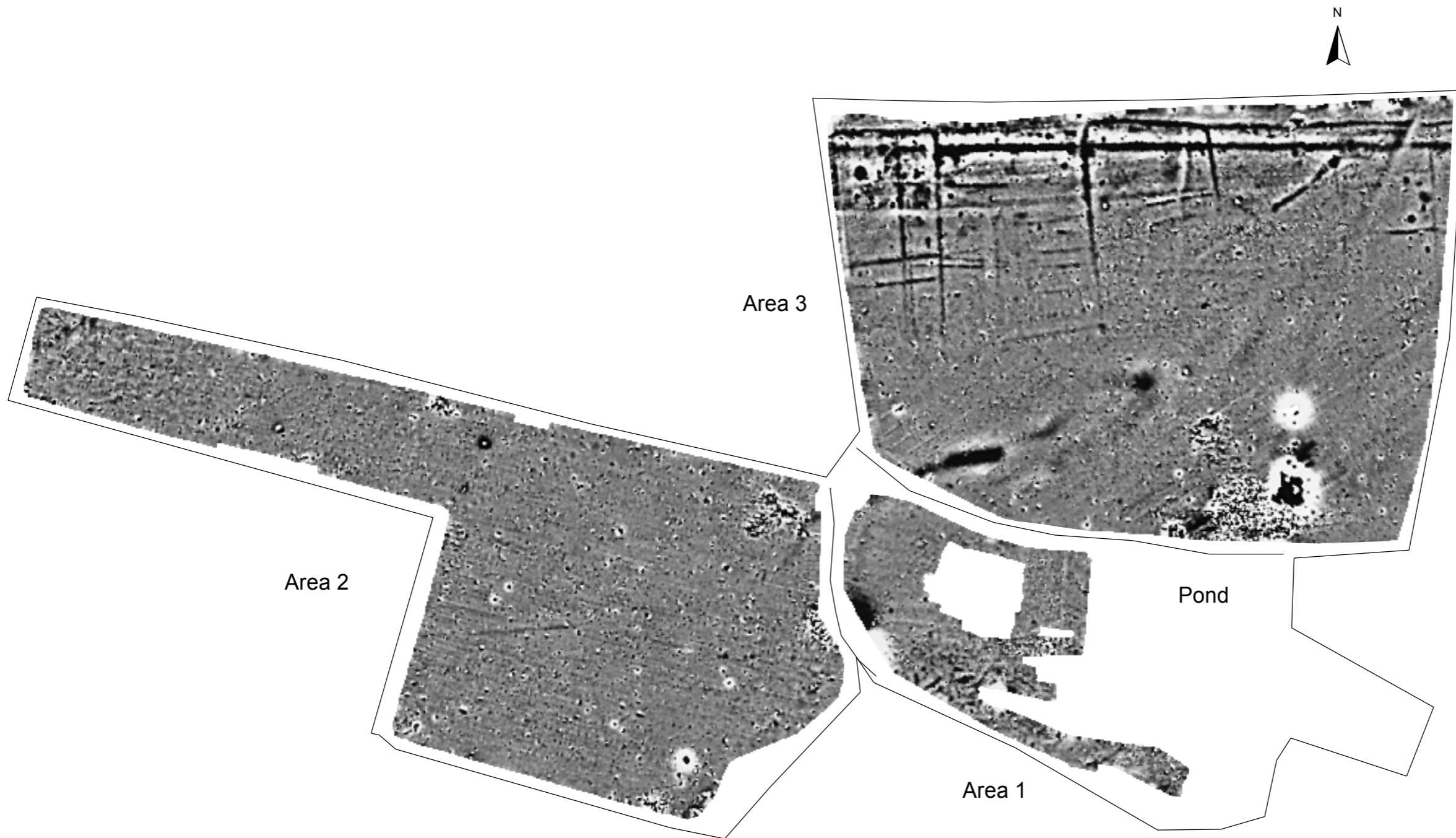
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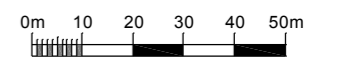
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**Geophysical Survey
Wick Farm
Heddington Wick
Wiltshire**

**Greyscale plot of minimally
processed magnetometer data**



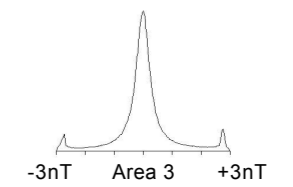
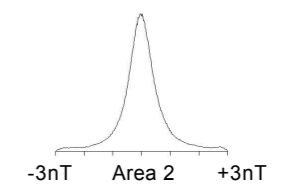
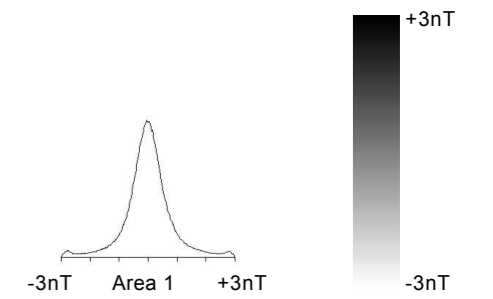
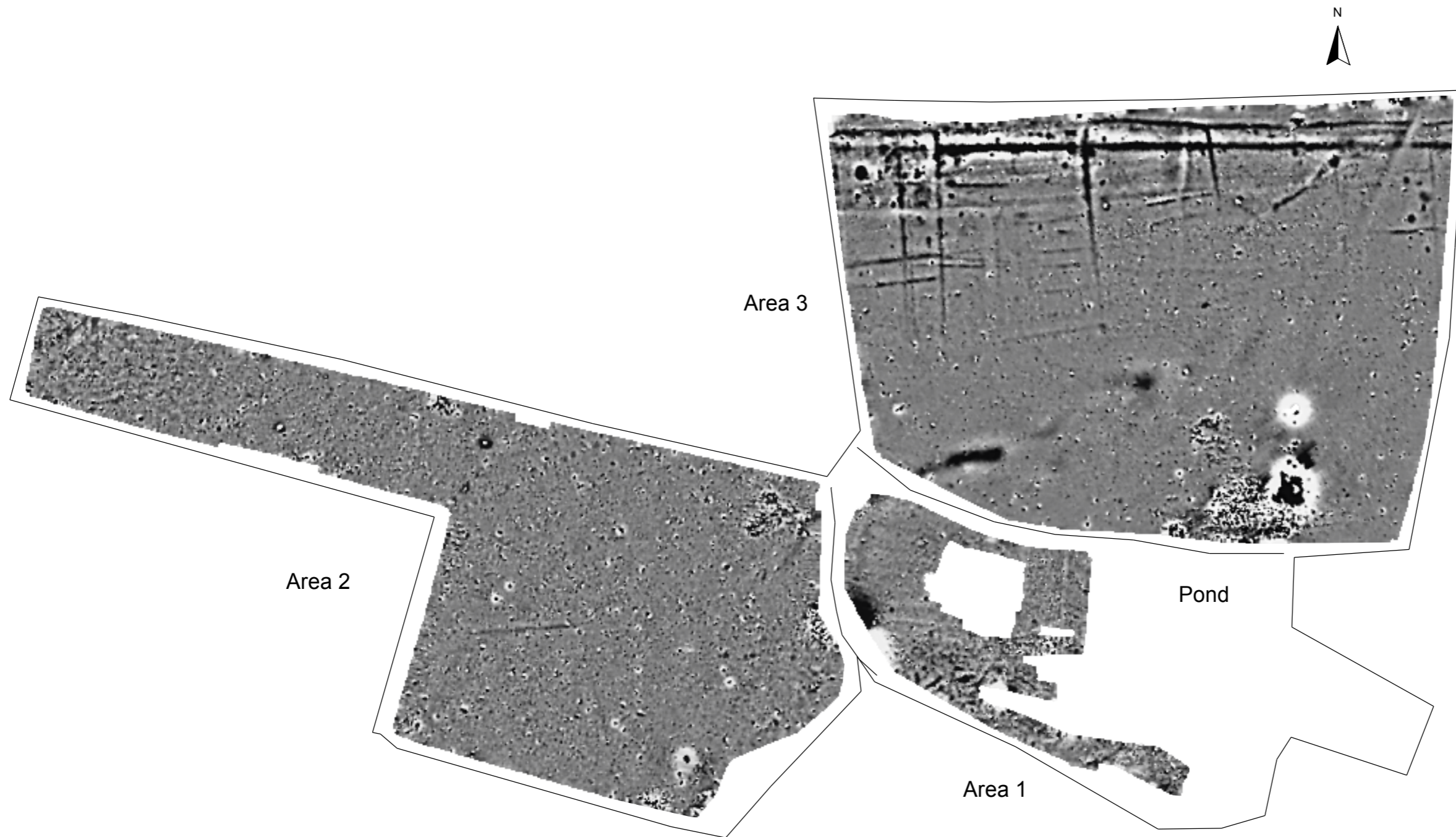
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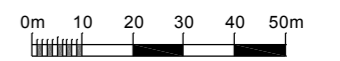
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**Geophysical Survey
Wick Farm
Heddington Wick
Wiltshire**

**Greyscale plot of filtered
magnetometer data**




















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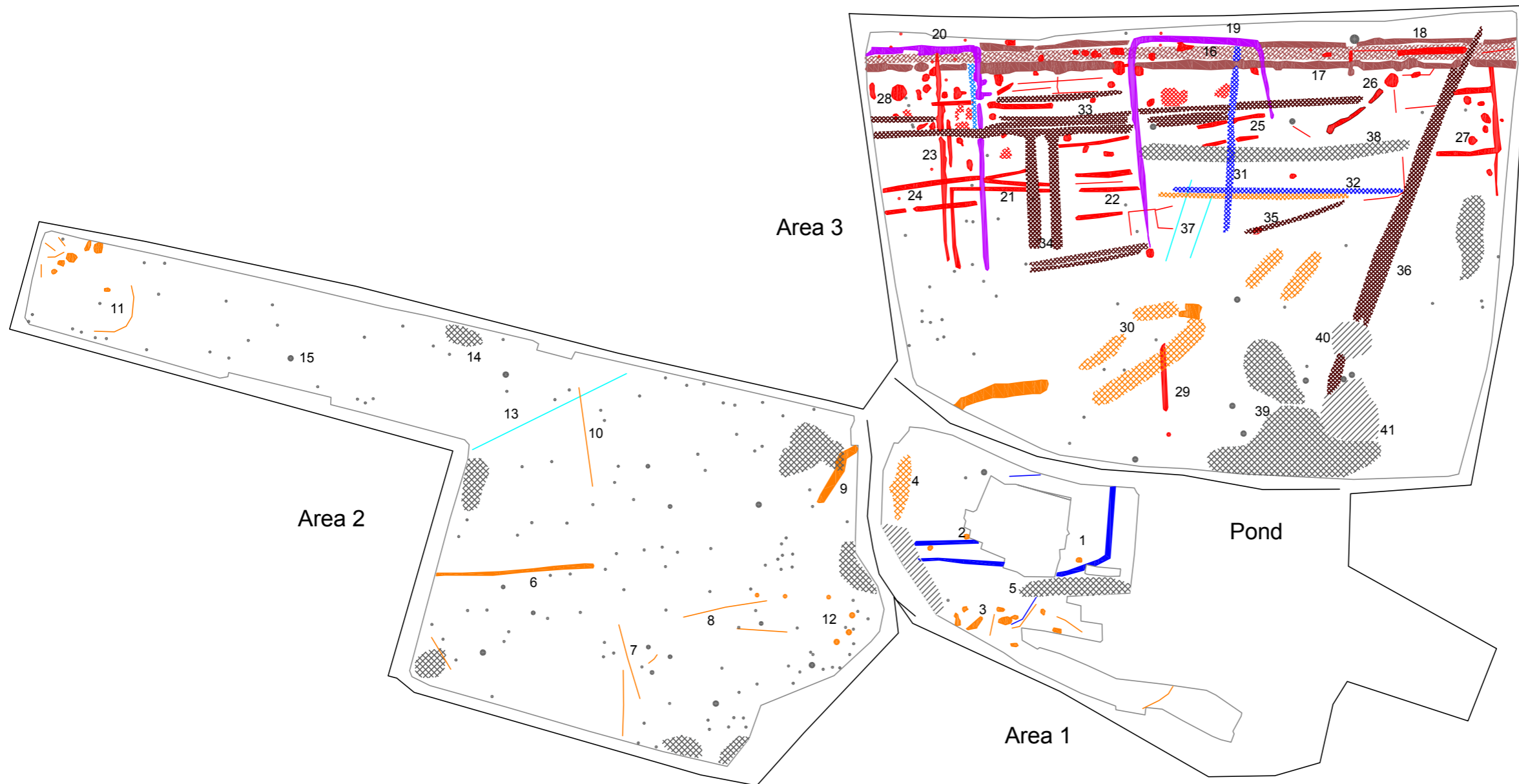


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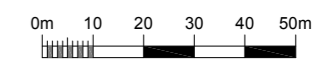
**Geophysical Survey
Wick Farm
Heddington Wick
Wiltshire**

**Abstraction and interpretation of
magnetometer anomalies**

-  Positive linear anomaly - cut feature of archaeological potential
-  Positive rectilinear anomaly - enclosure ditch of archaeological potential
-  Positive linear anomaly - linear ditch associated with road
-  Positive linear anomaly - possible ditch-like feature
-  Negative linear anomaly - material of low magnetic susceptibility
-  Weak multiple dipolar linear anomaly - possible land drain
-  Discrete positive response - cut feature of archaeological potential
-  Discrete positive response - possible pit-like feature
-  Negative anomaly - Roman road
-  Positive/negative linear anomaly - associated with extant ditches/banks
-  Positive anomaly - of archaeological potential
-  Negative anomaly - of archaeological potential
-  Positive anomaly - magnetically enhanced material
-  Negative anomaly - material with low magnetic susceptibility
-  Magnetic debris - spread of magnetically thermoremnant/ferrous material
-  Magnetic disturbance from ferrous material
-  Strong dipolar anomaly - ferrous object



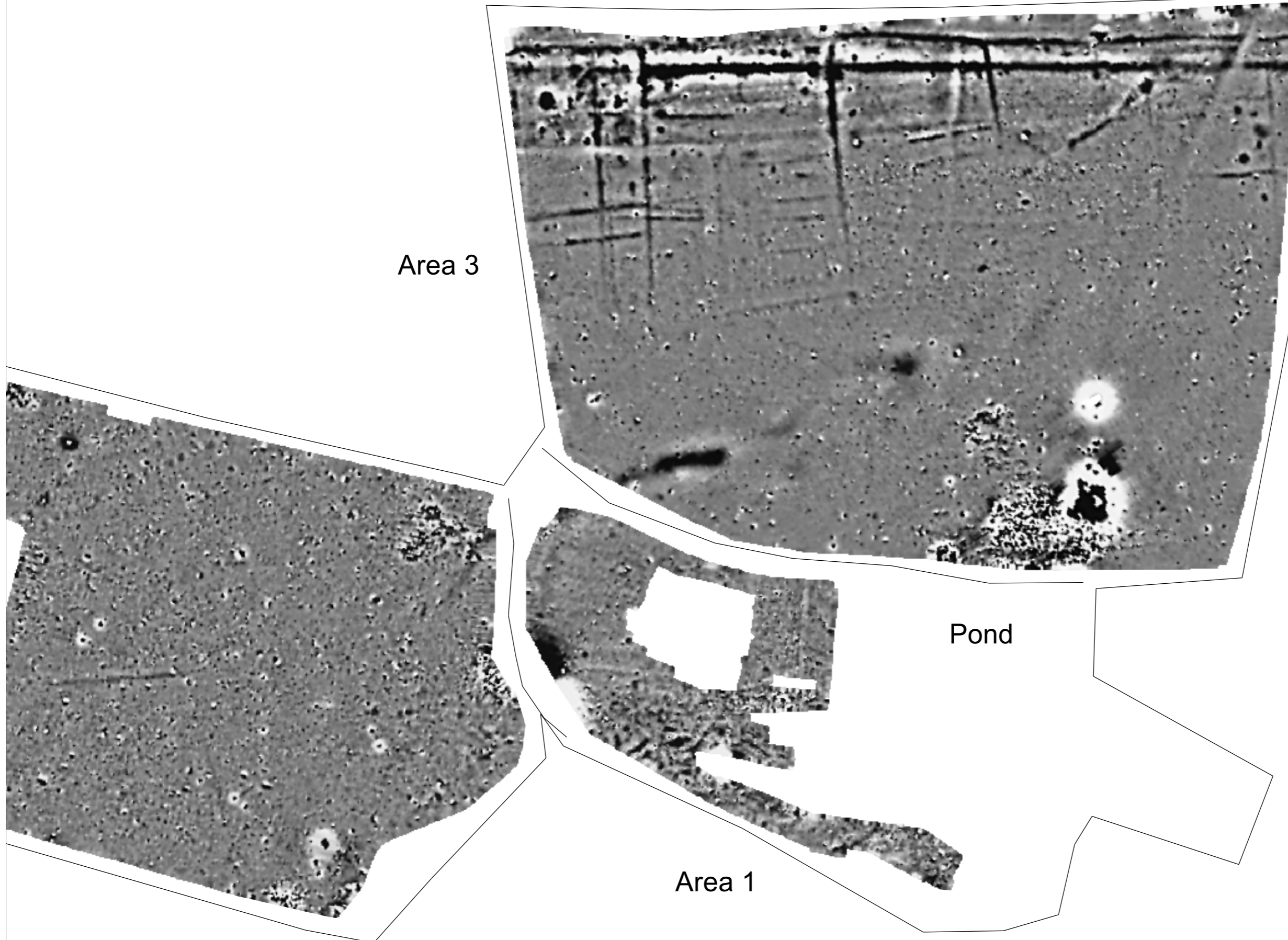
SCALE 1:1500



SCALE TRUE AT A3

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Wiltshire**

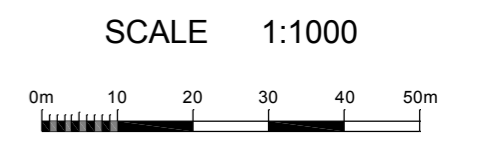
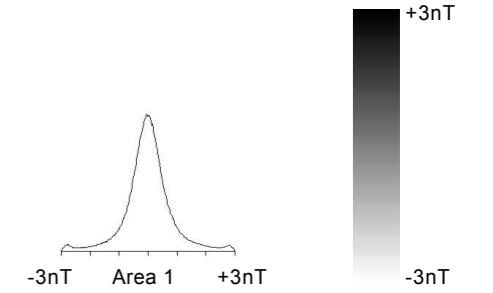
**Greyscale plot of minimally
processed magnetometer data -
Areas 1 & 3 (Area 3 filtered)**



Area 3

Pond

Area 1

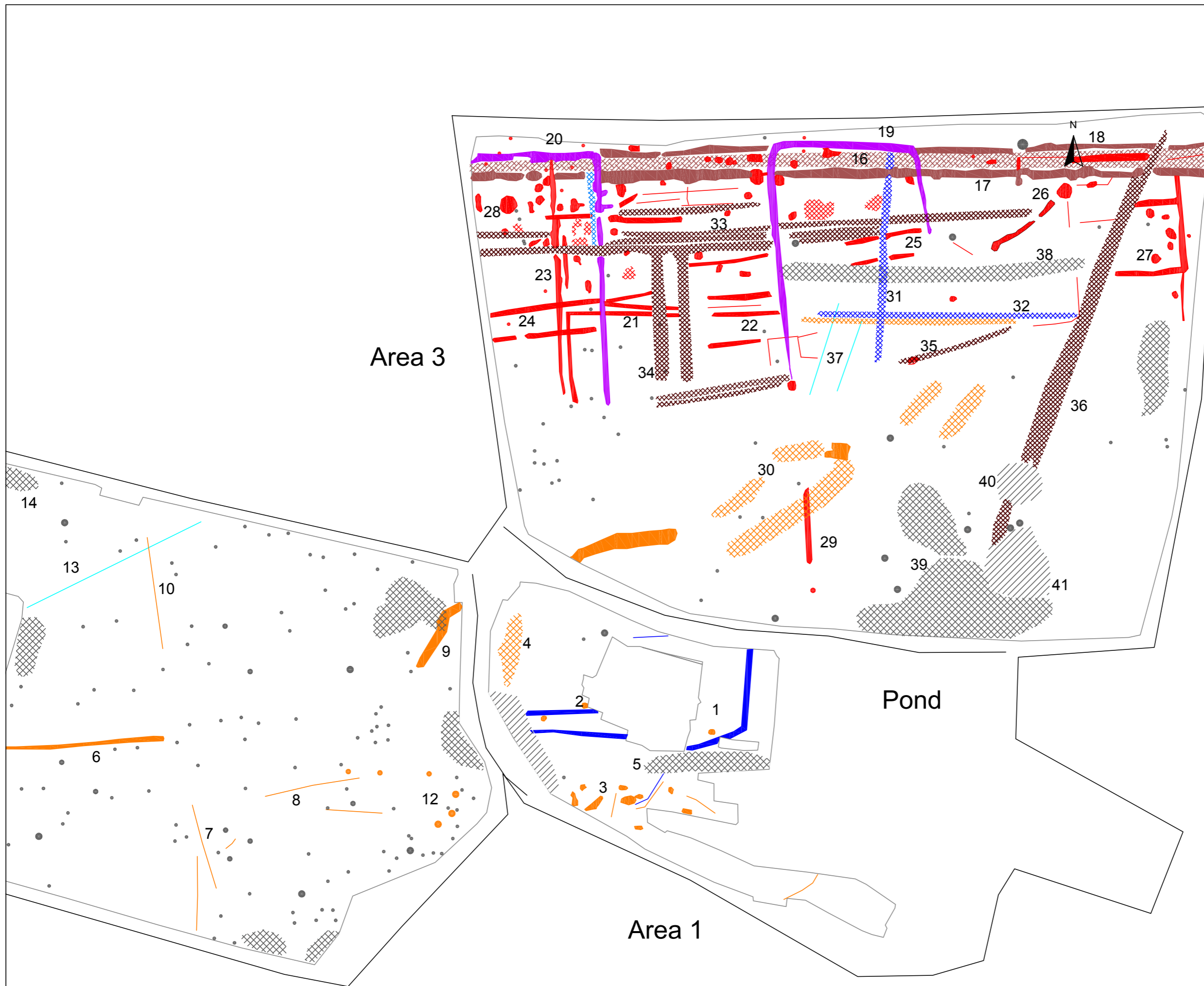


SCALE TRUE AT A3

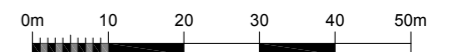
**Geophysical Survey
Wick Farm
Heddington Wick
Wiltshire**

**Abstraction and interpretation of
magnetometer anomalies -
Areas 1 & 3**

- Positive linear anomaly - cut feature of archaeological potential
- Positive rectilinear anomaly - enclosure ditch of archaeological potential
- Positive linear anomaly - linear ditch associated with road
- Positive linear anomaly - possible ditch-like feature
- Negative linear anomaly - material of low magnetic susceptibility
- Positive linear anomaly - possible land drain
- Discrete positive response - cut feature of archaeological potential
- Discrete positive response - possible pit-like feature
- Negative anomaly - Roman road
- Positive/negative linear anomaly - associated with extant ditches/banks
- Positive anomaly - of archaeological potential
- Negative anomaly - of archaeological potential
- Positive anomaly - magnetically enhanced material
- Negative anomaly - material with low magnetic susceptibility
- Magnetic debris - spread of magnetically thermoremanent/ferrous material
- Magnetic disturbance from ferrous material
- Strong dipolar anomaly - ferrous object



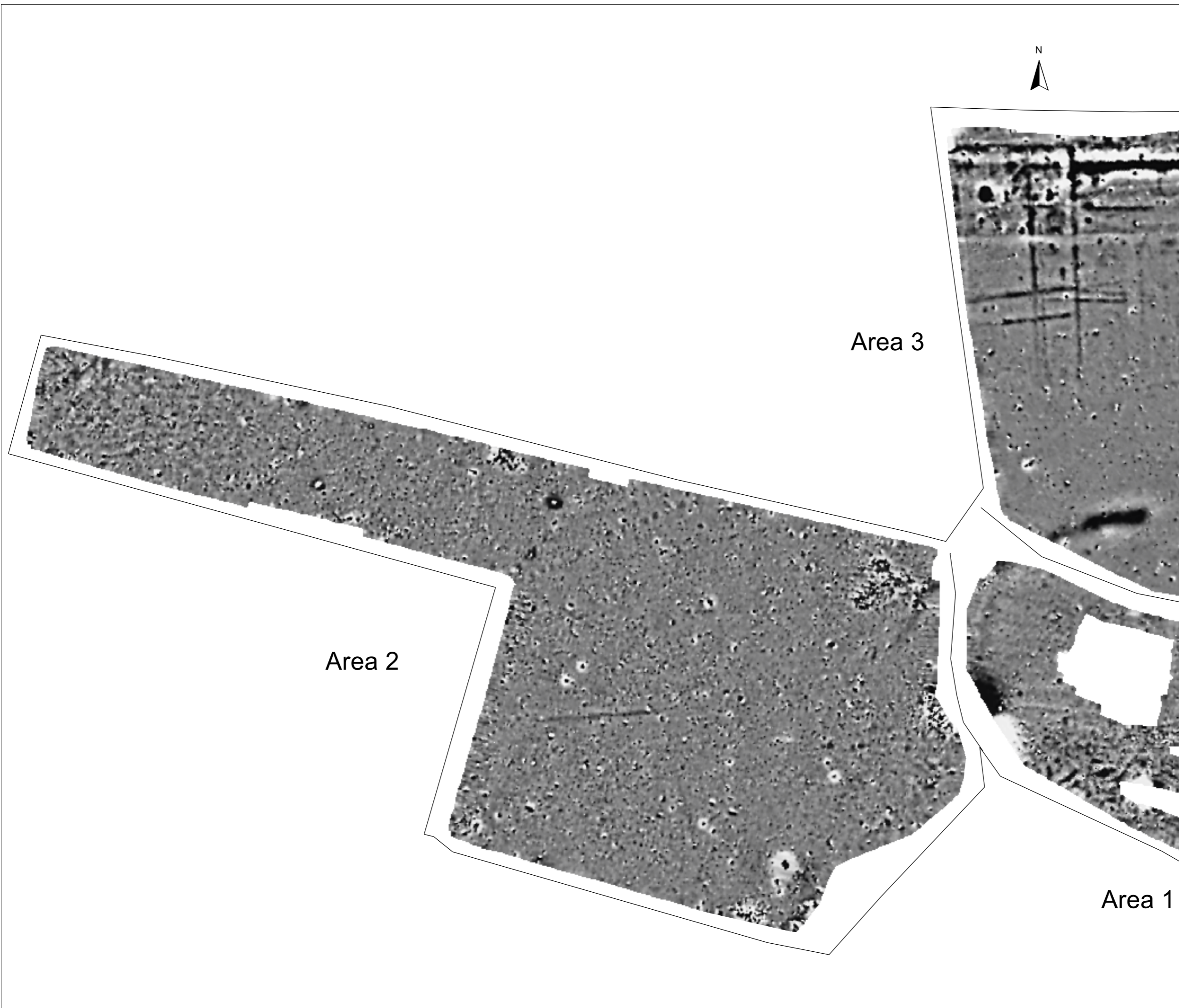
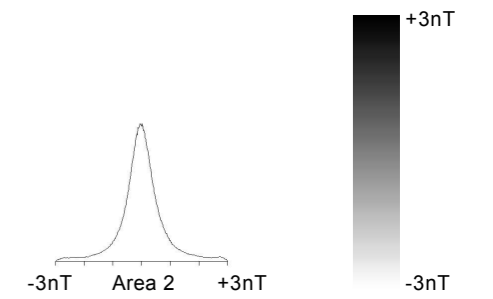
SCALE 1:1000



SCALE TRUE AT A3

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Heddington Wick
Wiltshire**

**Greyscale plot of filtered
magnetometer data - Area 2**



SCALE 1:1000



SCALE TRUE AT A3






Area 1

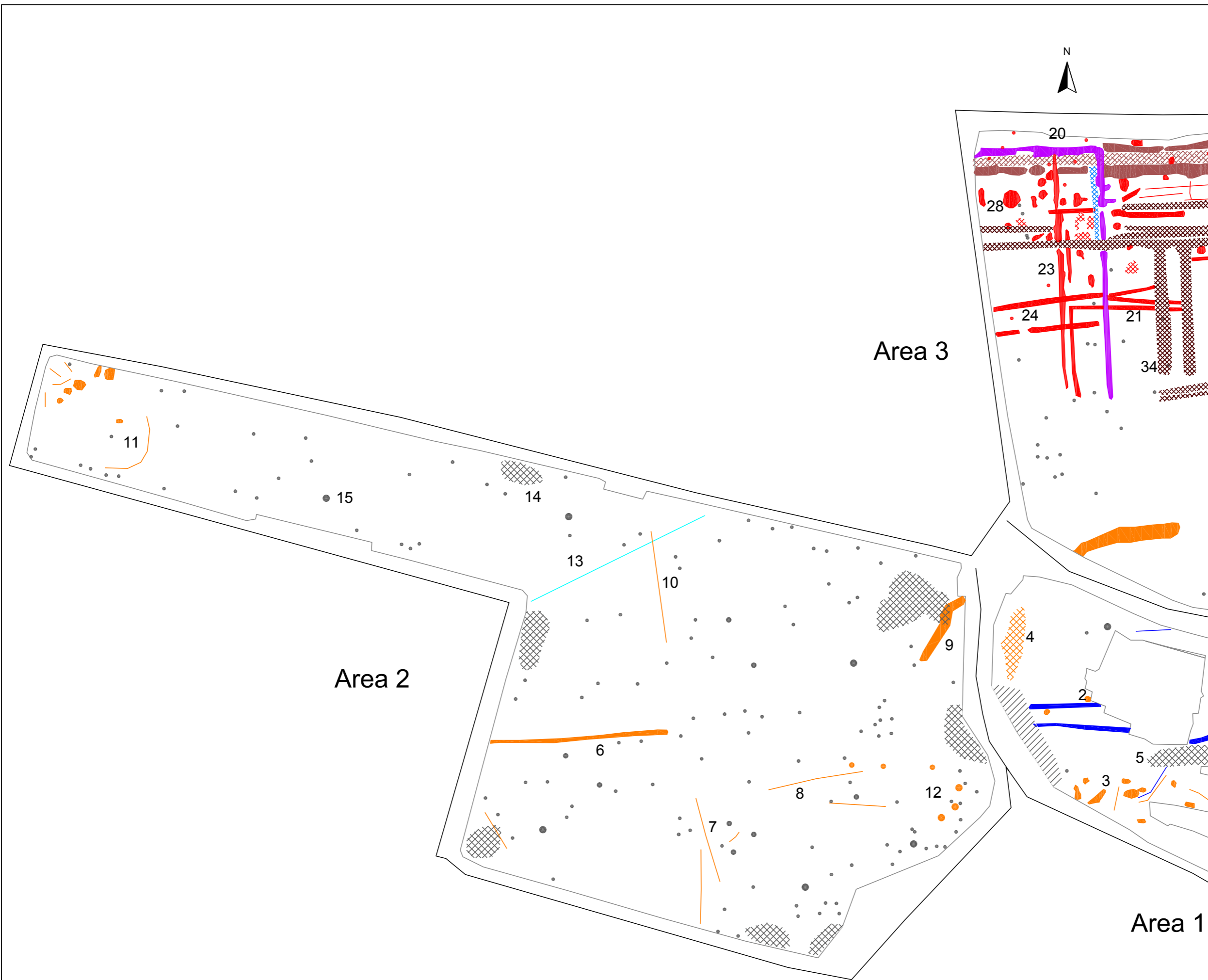
Area 2

Area 3

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Wiltshire**

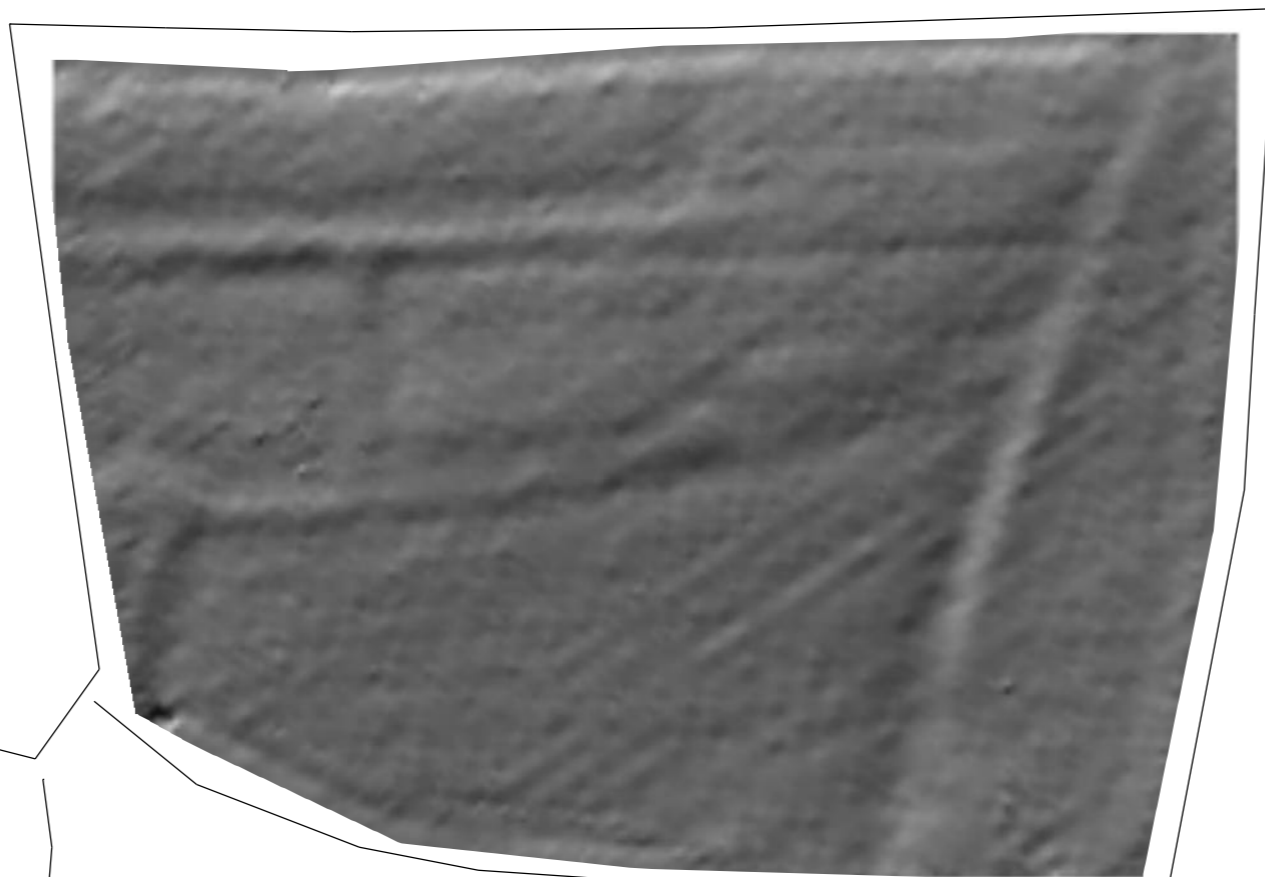
**Abstraction and interpretation of
magnetometer anomalies -
Area 2**

-  Positive linear anomaly - possible ditch-like feature
-  Positive linear anomaly - possible land drain
-  Discrete positive response - possible pit-like feature
-  Magnetic debris - spread of magnetically thermoremnant/ferrous material
-  Strong dipolar anomaly - ferrous object



Shaded relief model derived from height data collected using RTK GPS during magnetometer survey

Area 3



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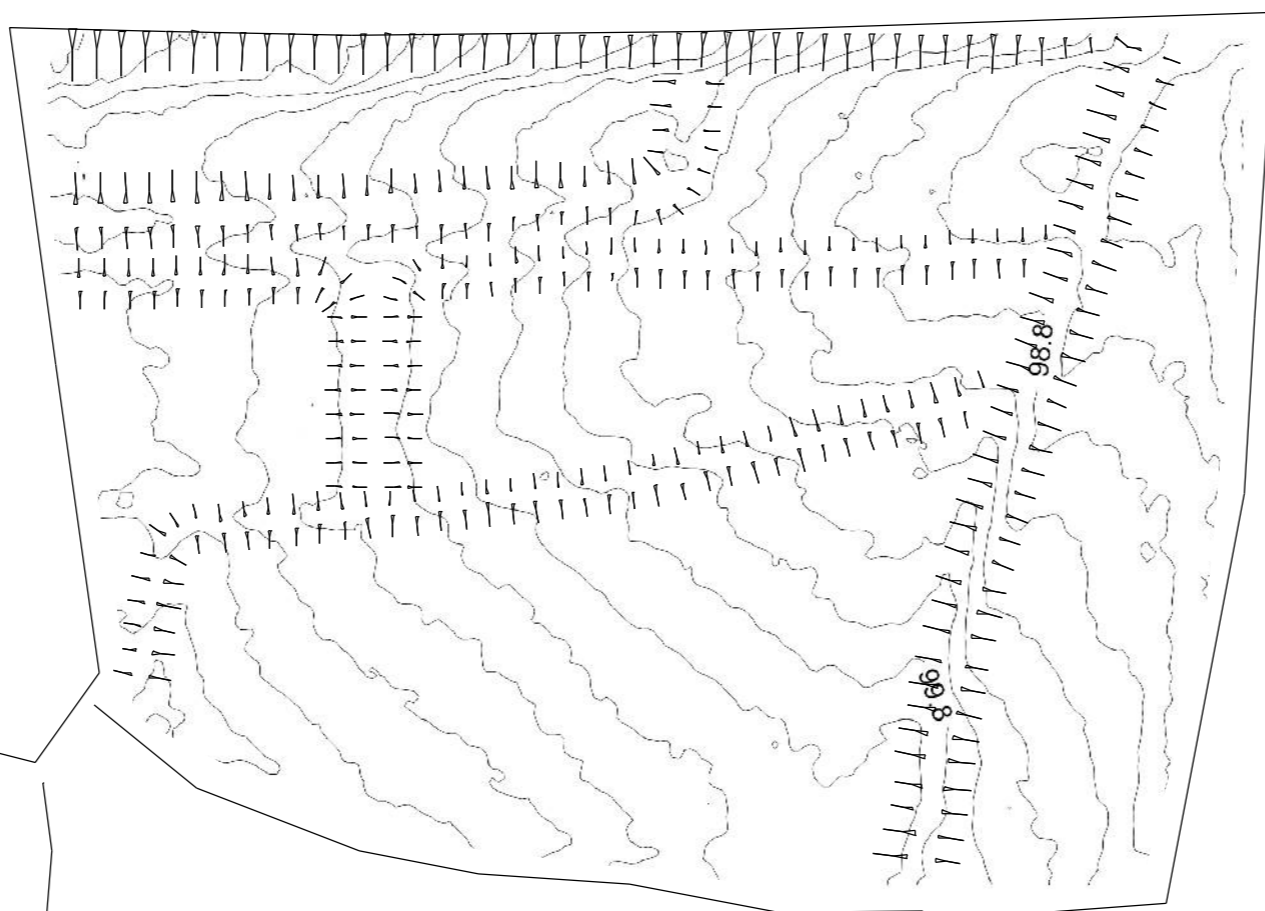
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Heddington Wick
Wiltshire

Shaded relief and contour plots

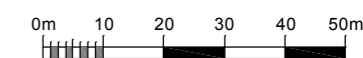
Height data converted from WGS84 to
ODN plus antenna height of 1.5m using
OSGM02

Contour plot derived from height data collected using RTK GPS during magnetometer survey overlain with hachure plan

Area 3



SCALE 1:1250



SCALE TRUE AT A3

FIG 10