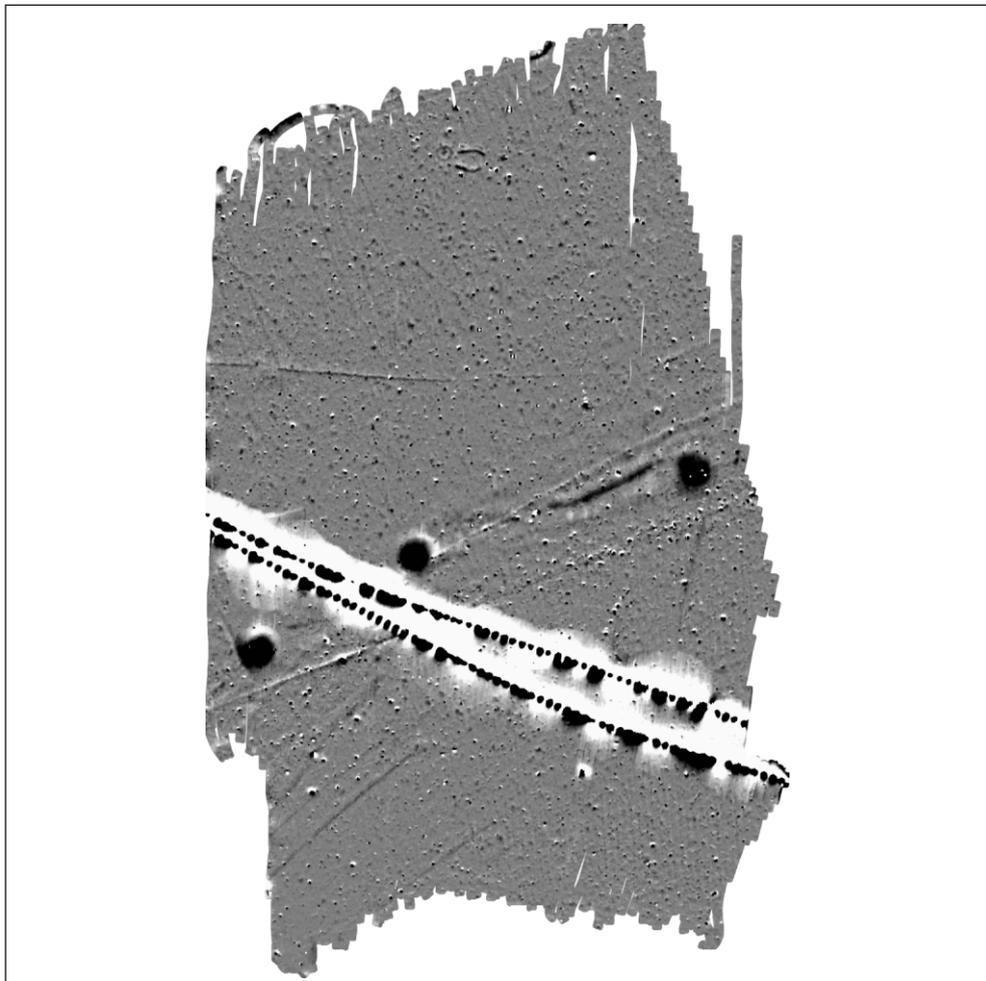




making sense of heritage

Army Rebasing: Larkhill East Site Salisbury, Wiltshire

Detailed Gradiometer Survey Report



Ref: 104151.05
October 2014



Army Rebasing: Larkhill East Site Salisbury, Wiltshire

Detailed Gradiometer Survey Report

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October 2014

Report Ref. 104151.05



Quality Assurance

Project Code	104151	Accession Code		Client Ref.	24/10/2014
Planning Application Ref.		Ordnance Survey (OS) national grid reference (NGR)	414600, 144720		

Version	Status*	Prepared by	Checked and Approved By	Approver's Signature	Date
v01	E	BCU			24/10/2014
File:	X:\PROJECTS\104151\Reports\Larkhill East\104151_Geophysics_Report_BCU_20141024.docx				

* I = Internal Draft; E = External Draft; F = Final

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Detailed Gradiometer Survey Report

Summary

A detailed gradiometer survey was conducted over land within the Salisbury Plain Training Area (SPTA), Salisbury, Wiltshire. The project was commissioned by URS Infrastructure & Environment UK Limited, on behalf of the defence Infrastructure Organisation (DIO) with the aim of establishing the presence, or otherwise, and nature of detectable archaeological features on the site ahead of a proposed housing development for Service Family Accommodation (SFA).

The Site currently forms part of Larkhill artillery range, approximately 3km northwest of Amesbury. The Site is located at the head of a dry valley that runs northeast towards the River Avon, with local undulations and was under stubble at the time of the fieldwork. The magnetometer survey covered 15.3ha, using a combination of cart-based and hand-held equipment, and was undertaken between 15th and 18th September 2014. Anomalies of definite, probable and possible archaeological interest have been identified, along with two modern services, and geological and agricultural features.

Towards the northern extent of the survey area, two probable round barrows and a possible long barrow have been identified, one of which probably coincides with a cropmark noted by OGS Crawford; it is therefore possible that these anomalies represent elements of a larger barrow group.

Three large circular anomalies can be seen extending in an approximate NE-SW row. Whilst it is possible that they relate to agricultural practices or even geological features, it is considered probable that they will be of archaeological interest.

Two linear anomalies consistent with former boundaries have been identified, one of which is likely to correspond with a boundary on historic mapping. However, the other is on a different orientation and may indicate part of a former field system predating the mapping.

Numerous pit-like anomalies are visible throughout the dataset, although it is unclear which of these relate to archaeological features and which are the result of tree throws or similar.

Ploughing and other weak trends can be seen on varying orientations within the survey area, most of which appear to relate to modern agricultural activity.

Two services have been identified oriented NW-SE across the southern part of the dataset.



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Detailed Gradiometer Survey Report

Acknowledgements

The detailed gradiometer survey was commissioned by URS Infrastructure & Environment UK Limited. The assistance of Robert Beaumont is gratefully acknowledged in this regard.

The fieldwork was undertaken by Patrick Dresch, Alistair Salisbury, Laura Andrews, Jen Smith and Ross Lefort. Ben Urmston processed and interpreted the geophysical data and wrote this report. The geophysical work was quality controlled by Dr. Paul Baggaley. Illustrations were prepared by Richard Milwain and Karen Nichols. The project was managed on behalf of Wessex Archaeology by Paul Baggaley.



Army Rebasing: Larkhill East Site Salisbury, Wiltshire

Detailed Gradiometer Survey Report

1 INTRODUCTION

1.1 Project background

- 1.1.1 Wessex Archaeology was commissioned by URS Infrastructure & Environment UK Limited, on behalf of the Defence Infrastructure Organisation (DIO), to carry out a geophysical survey on land within the Salisbury Plain Training Area (SPTA), Wiltshire (**Figure 1**), hereafter “the Site” (centred on NGR 414600, 144720). The survey forms part of an ongoing programme of archaeological works being undertaken in advance of the proposed development of Service Family Accommodation (SFA).
- 1.1.2 The aim of the geophysical survey was to establish the presence/absence, extent and character of detectable archaeological remains within the survey area.
- 1.1.3 This report presents a brief description of the methodology followed, the detailed survey results and the archaeological interpretation of the geophysical data.

1.2 Site Location and Topography

- 1.2.1 The survey area currently forms part of Larkhill artillery range. The survey area is located approximately 3km northwest of Amesbury and 14.5km north of the centre of Salisbury (**Figure 1**).
- 1.2.2 The Site is located at the head of a dry valley that extends northeast towards the River Avon. The land slopes from 105m above Ordnance Datum (aOD) at the western edge of the site to c. 80m aOD at the eastern side of the Site. The proposed size of the survey area totals 16.6ha, of which a total of 15.3ha was surveyed; a field at the southwestern extent of the proposed area was sufficiently overgrown to preclude geophysical survey.

1.3 Soils and Geology

- 1.3.1 The bedrock geology under the Site is recorded as Seaford chalk formation that dates to the Cretaceous period. The superficial deposits recorded at the Site are limited to head deposits (clay, silt, sand and gravel) recorded in the dry valley nearby (BGS).
- 1.3.2 The soils underlying most of the Site are likely to be the grey rendzinas of the 342a (Upton 1) association and brown rendzinas of the 343h (Andover 1) association (SSEW 1983). Soils derived from such geological parent material have been shown to produce magnetic contrasts acceptable for the detection of archaeological remains through magnetometer survey.



2 METHODOLOGY

2.1 Introduction

- 2.1.1 2.1.1 The detailed magnetometer survey was conducted using Bartington Grad601-2 dual fluxgate gradiometer systems and the Geomatrix Geophysical Exploration Equipment Platform (GEEP) system mounted with four Geometrics G858 caesium vapour sensors. The survey was conducted in accordance with English Heritage guidelines (2008).
- 2.1.2 The geophysical survey was undertaken by Wessex Archaeology's in-house geophysics team between 15th and 18th September 2014. Field conditions at the time of the survey were relatively good, with the entire field being under stubble.

2.2 Method

- 2.2.1 Individual survey grid nodes were established at 30m x 30m intervals using a Leica Viva RTK GNSS instrument, which is precise to approximately 0.02m and therefore exceeds English Heritage recommendations (2008).
- 2.2.2 Some of the magnetometer survey was conducted using Bartington Grad601-2 fluxgate gradiometer instruments, which has a vertical separation of 1m between sensors. Data were collected at 0.25m intervals along transects spaced 1m apart with an effective sensitivity of 0.03nT, in accordance with EH guidelines (2008). Data were collected in the zigzag method.
- 2.2.3 Data from the survey was subject to minimal data correction processes. These comprise a zero mean traverse function (± 5 nT thresholds typically) applied to correct for any variation between the two Bartington sensors used, and a de-step function to account for variations in traverse position due to varying ground cover and topography. The deslope and multiply functions were used in certain instances to process out grid edge discontinuities and account for differences in sensor height between different operators. These four steps were applied to all survey areas, with no interpolation applied.
- 2.2.4 The GEEP system's four G858 caesium vapour magnetometers are set up for single sensor survey with four sensors mounted on the cart at a horizontal separation of 1m. The system was set to collect 10 samples per second along transects spaced at least 1m apart with an effective sensitivity of 0.01nT, in accordance with EH guidelines (2008).
- 2.2.5 The data acquisition software used by the GEEP system was Geometrics MagLog with Geometrics MagMap and MagPick subsequently used to carry out coordinate conversions and to apply some basic data correction. These corrections include a manual despoke to remove dropped readings and smoothing to remove slight differences between the four sensors used, heading errors, diurnal variation and broad geological responses.
- 2.2.6 Further details of the geophysical and survey equipment, methods and processing are described in **Appendix 1**.



3 GEOPHYSICAL SURVEY RESULTS AND INTERPRETATION

3.1 Introduction

- 3.1.1 The gradiometer survey has been successful in identifying a number of anomalies of likely, probable and possible archaeological interest across the Site, along with two modern services. Results are presented as a series of greyscale and XY plots, with corresponding archaeological interpretations, at a scale of 1:2,000 (**Figures 2 and 3**). The data are displayed at -5nT (white) to +5nT (black) for the greyscale image.
- 3.1.2 The interpretation of the datasets highlights the presence of potential archaeological anomalies, ferrous/burnt or fired objects, and magnetic trends (**Figure 4**). Full definitions of the interpretation terms used in this report are provided in **Appendix 2**.
- 3.1.3 Numerous ferrous anomalies are visible throughout the detailed survey dataset. These are presumed to be modern in provenance and are not referred to, unless considered relevant to the archaeological interpretation.

3.2 Gradiometer Survey Results and Interpretation

- 3.2.1 At the northernmost extent of the survey area, sub-annular ditch **4000** is consistent with a round barrow approximately 30m in diameter. No central anomalies can be seen although the northern portion of the barrow lies outside the survey area; given that no mound was noted at the surface, it is likely that the barrow has undergone significant truncation through ploughing.
- 3.2.2 Nearby to the southwest, annular anomaly **4001** and curvilinear ditches **4002** lie in close proximity to one another, and are of clear archaeological interest. **4001** is consistent with a barrow of c. 10m diameter; whilst it is possible that it relates to a roundhouse, there are few other anomalies nearby that support an interpretation relating to settlement activity. An internal lobe along the northern portion of the circuit may indicate a central feature associated with the barrow.
- 3.2.3 Although ditches **4002** are curved, they are oriented almost parallel and broadly E-W. The nature of these ditches and their location close to probable barrows **4000** and **4001** suggests that these may relate to a former long barrow, although the mound has presumably been truncated through ploughing. Several small pit-like responses can be seen close by to the east and west, although no direct relationship can be inferred from this proximity alone.
- 3.2.4 Towards the centre of the dataset, linear anomalies **4003** and **4004** are likely to be former field boundaries, although their date is uncertain. Historic mapping shows a number of subdivisions within Durrington Field on different orientations from these ditches, suggesting that they may indicate more ancient land divisions.
- 3.2.5 Linear anomaly **4005** is oriented parallel and is coincident with the base of the dry valley. Whilst it may be that this anomaly is associated with the underlying geology, it is considered possible that it relates to an archaeological feature, an interpretation that cannot be ruled out given the clear difference between this anomaly and the surrounding magnetic background.
- 3.2.6 Large circular anomalies **4006**, **4007** and **4008** are unusual, both within this dataset and others from surveys conducted nearby. Each is in the order of 20m diameter and is surrounded by a region of increased response. Although a number of ferrous anomalies are coincident with **4006**, it is not clear whether these are the result of overlying magnetic



debris or are incorporated in the fill of the features. It is conceivable that these anomalies are the result of agricultural activity, or geological features such as solution hollows. However, they are considered to be of probable archaeological interest due to their size and magnetic response.

- 3.2.7 Linear anomalies **4009** and **4010** are likely to relate to the same feature; given its linear form and character of response, these anomalies are likely to represent a former field boundary that appears on historic mapping. The response is more clearly defined to the southwest, with the boundary appearing as a band of increased response and ferrous anomalies to the northeast.
- 3.2.8 Parallel linear anomalies **4011** are likely to be agricultural in origin and, although they have been interpreted as ploughing, is it possible that they relate to field drains. However, the lack of typical bipolar responses suggests that they are not constructed from ceramic pipes and may therefore be soil-filled features.
- 3.2.9 In the southern portion of the survey area, sub-circular anomalies **4012** and **4013** are visible as weakly defined trends. They have been highlighted largely due to their shape in plan, as their responses are barely elevated about the magnetic background. Numerous similar curvilinear trends can be seen elsewhere, although most exhibit even more ephemeral anomalies and are therefore not likely to be associated with archaeological features.
- 3.2.10 Ploughing trends are more visible in certain regions of the survey area, e.g. **4014**, which may indicate more magnetic deposits being truncated through ploughing. However, the general lack of anomalies of possible archaeological interest suggests that this enhancement is from geological sources rather than anthropogenic deposits.
- 3.2.11 Two bands of geological responses can be seen across the northern and central parts of the survey area, both oriented NE-SW. The central band is coincident with the dry valley seen at the surface. The northern band is parallel with the dry valley and is likely therefore to represent part of an associated landscape feature.
- 3.2.12 The remaining anomalies detected in all the areas include very small positive anomalies of possible archaeological interest and weak linear trends of uncertain origin. It is unclear whether these features indicate the presence of archaeological features or are of modern or geological in origin.

3.3 Gradiometer Survey Results and Interpretation: Modern Services

- 3.3.1 Two services, **4015** and **4016**, bisect the southern portion of the dataset. Their responses are sufficiently different in character to suggest either different functions or dates of installation, although it is beyond the remit of this report to determine their function or status.
- 3.3.2 It is not clear from the geophysical data whether the services identified are in active use. It should also be noted that gradiometer survey may not detect all services present on Site. This report and accompanying illustrations should not be used as the sole source for service locations and appropriate equipment (e.g. CAT and Genny) should be used to confirm the location of buried services before any trenches are opened on Site.



4 CONCLUSION

- 4.1.1 The detailed gradiometer survey has been successful in detecting anomalies of likely, probable and possible archaeology as well as ploughing and agricultural trends, and two modern services.
- 4.1.2 The most interesting anomalies lie in the northern portion of the survey area and comprise two probable round barrows and a possible long barrow. Whilst no relationship can be inferred between these features from the geophysical survey alone, it is likely that their locations are not entirely coincidental and that they may form part of a larger group of monuments. A cropmark was noted by OGS Crawford near this location (MWI12776 - SU14SW649), although its provenance appears to be questionable (Wiltshire HER); a further possible barrow was noted further west, outside the survey area to the north of Martinbushes Road. The smaller barrow and possible long barrow do not appear in the HER, however.
- 4.1.3 The three large circular anomalies are pit-like in character and may therefore represent infilled hollows or pits. The general lack of ferrous responses in conjunction with these anomalies suggests that they were not infilled recently, as modern and historic debris tends to contain magnetic components to some degree, supporting an archaeological interpretation.
- 4.1.4 The linear anomaly crossing the northern portion of the Site oriented E-W is considered more likely to be of archaeological interest than the more southerly one oriented NE-SW. It is possible that this relates to medieval or earlier land divisions, although no further coaxial anomalies have been identified. The weak responses over these boundaries suggest that they represent ephemeral features, or that their fills are largely unenhanced magnetically.
- 4.1.5 Frequent small pit-like anomalies can be seen throughout the dataset, distributed in varying densities. Previous geophysical surveys by WA have identified similar anomalies within comparable geological backgrounds, and it has been demonstrated through archaeological evaluation that some of these anomalies are associated with tree throws. However, it is not possible to discriminate between anthropogenic pits and naturally-occurring tree throws with confidence from the geophysical data alone; for this reason, these anomalies have been interpreted as being of possible archaeological interest.
- 4.1.6 The remaining anomalies detected appear to be agricultural in origin mainly in the form of ploughing trends. Other trends are visible on varying orientations throughout the remainder of the dataset, although their origins are unclear and it is possible that they relate to changes in the near-surface geology or various agricultural activities.
- 4.1.7 The relative dimensions of the modern services identified by the gradiometer survey are indicative of the strength of their magnetic response, which is dependent upon the materials used in their construction and the backfill of the service trenches. The physical dimensions of the services indicated may therefore differ from their magnetic extents in plan; it is assumed that the centreline of services is coincident with the centreline of their anomalies, however. Similarly, it is difficult to estimate the depth of burial of the services through gradiometer survey.
- 4.1.8 It should be noted that small, weakly magnetised features may produce responses that are below the detection threshold of magnetometers. It may therefore be the case that more archaeological features may be encountered than have been identified through geophysical survey.



5 REFERENCES

5.1 Bibliography

English Heritage, 2008. *Geophysical Survey in Archaeological Field Evaluation*. Research and Professional Service Guideline No 1, 2nd edition.

Institute for Archaeologists, 2011. *Standards and Guidance for Archaeological Geophysical Survey* Unpublished Guidance

5.2 Cartographic Sources

British Geological Survey

<http://www.bgs.ac.uk/discoveringgeology/geologyofbritain/viewer.html> [October 2014]

Ordnance Survey, 1879-1880. *Wiltshire*, 1:2500.

Ordnance Survey, 1901. *Wiltshire*, 1:2500.

Ordnance Survey, 1901. *Wiltshire*, 1:10,560.

Ordnance Survey, 1924. *Wiltshire*, 1:2500.

Ordnance Survey, 1937-1939. *Wiltshire*, 1:2500.

Ordnance Survey, 1961. *Wiltshire*, 1:2500.

Ordnance Survey, 1971. *Wiltshire*, 1:2500.

Soil Survey of England and Wales, 1983. *Sheet 5, Soils of South West England*. Ordnance Survey, Southampton.



APPENDIX 1: SURVEY EQUIPMENT AND DATA PROCESSING

Survey Methods and Equipment

The magnetic data for this project was acquired using Bartington 601-2 dual magnetic gradiometer systems and the Geomatrix Geophysical Exploration Equipment Platform (GEEP).

The Bartington instruments have two sensor assemblies fixed horizontally 1m apart allowing two traverses to be recorded simultaneously. Each sensor contains two fluxgate magnetometers arranged vertically with a 1m separation, and measures the difference between the vertical components of the total magnetic field within each sensor array. This arrangement of magnetometers suppresses any diurnal or low frequency effects.

The gradiometers have an effective resolution of 0.03nT over a ± 100 nT range, and measurements from each sensor are logged at intervals of 0.25m. All of the data are stored on an integrated data logger for subsequent post-processing and analysis.

The Bartington survey depends upon the establishment of an accurate 30m Site grid, which is achieved using a Leica Viva RTK GNSS instrument and then extended using tapes. The Leica Viva system receives corrections from a network of reference stations operated by the Ordnance Survey and Leica Geosystems, allowing positions to be determined with a precision of 0.02m in real-time and therefore exceed the level of accuracy recommended by English Heritage (EH 2008) for geophysical surveys.

The Bartington survey consists of collecting data over 30m x 30m grids with data collected at 0.25m intervals along traverses spaced 1m apart. This strategy gives 3600 measurements per 30m grid, and are the recommended methodologies for archaeological surveys of this type (EH 2008).

The GEEP system has four single G858 caesium vapour sensors fixed horizontally 1m apart allowing four traverses to be recorded simultaneously. As the sensors are mounted as single sensors and not gradiometers as is the case for the Bartingtons therefore diurnal and low frequency effects are not suppressed.

The G858 sensors have an effective sensitivity of 0.01nT when they are run at a cycle rate of 10Hz and when the cart is pulled at a speed of 6-7kmph logs readings at intervals smaller than 0.25m. Together with a 1m separation between traverses this system can achieve coverage that exceeds the minimum requirements set out for this type of survey by EH (2008). The GEEP system records a GPS string to accurately locate the data which removes the need to establish a site grid. All data is recorded to a laptop running Geometrics MagLog for subsequent post-processing and analysis.

A Leica Viva base and rover system was used to provide positioning for the GEEP system. A Leica Viva RTK GNSS instrument receiving corrections from a network of reference stations is first used to establish an accurate position for a selected base station point in the field. The base station is then setup over this point and is used to establish the error in the raw GPS positioning to establish a correction. This correction can then be sent to a rover GPS antenna mounted on the GEEP system via a radio connection to improve accuracy. This method of positioning is precise to approximately 0.01m in real time and exceeds the level of accuracy recommended by EH (2008) for geophysical surveys.



Post-Processing

The gradiometer data collected during the gridded survey are downloaded from the Bartington system for processing and analysis using both commercial software (Geoplot) and in-house software. The single sensor caesium vapour data collected using the GEEP system is processed using Geometrics MagPick. These software packages allow for both the data and the images to be processed in order to enhance the results for analysis; however, it should be noted that minimal data processing is conducted so as not to distort the anomalies.

Typical data and image processing steps may include:

- Deslope – Used to remove a linear trend from data. This is typically used to remove grid edge discontinuities that result from the application of other processing techniques;
- Destripe – Applying a zero mean traverse in order to remove differences caused by directional effects inherent in the magnetometer;
- Destagger – Shifting each traverse longitudinally by a number of readings. This corrects for operator errors and is used to enhance linear features;
- Despike – Filtering isolated data points that exceed the mean by a specified amount to reduce the appearance of dominant anomalous readings (generally only used for earth resistance data);
- Multiply – This function multiplies the data by a positive or negative value. This is most typically used to normalise data in instances where minor differences in the texture of gradiometer data arise from the collection of data by different operators.
- Smooth – This function fits a curve to the data that can then be subtracted from the raw values. This is used to remove diurnal variations, low frequency responses, heading errors and differences between the multiple sensors used.

Typical displays of the data used during processing and analysis:

- XY Plot – Presents the data as a trace or graph line for each traverse. Each traverse is displaced down the image to produce a stacked profile effect. This type of image is useful as it shows the full range of individual anomalies.
- Greyscale – Presents the data in plan view using a greyscale to indicate the relative strength of the signal at each measurement point. These plots can be produced in colour to highlight certain features but generally greyscale plots are used during analysis of the data.



APPENDIX 2: GEOPHYSICAL INTERPRETATION

The interpretation methodology used by Wessex Archaeology separates the anomalies into four main categories: archaeological, modern, agricultural and uncertain origin/geological.

The archaeological category is used for features when the form, nature and pattern of the anomaly are indicative of archaeological material. Further sources of information such as aerial photographs may also have been incorporated in providing the final interpretation. This category is further sub-divided into three groups, implying a decreasing level of confidence:

- Archaeology – used when there is a clear geophysical response and anthropogenic pattern.
- Probable archaeology – used for features which give a clear response but which form incomplete patterns.
- Possible archaeology – used for features which give a response but which form no discernible pattern or trend.

The modern category is used for anomalies that are presumed to be relatively modern in date:

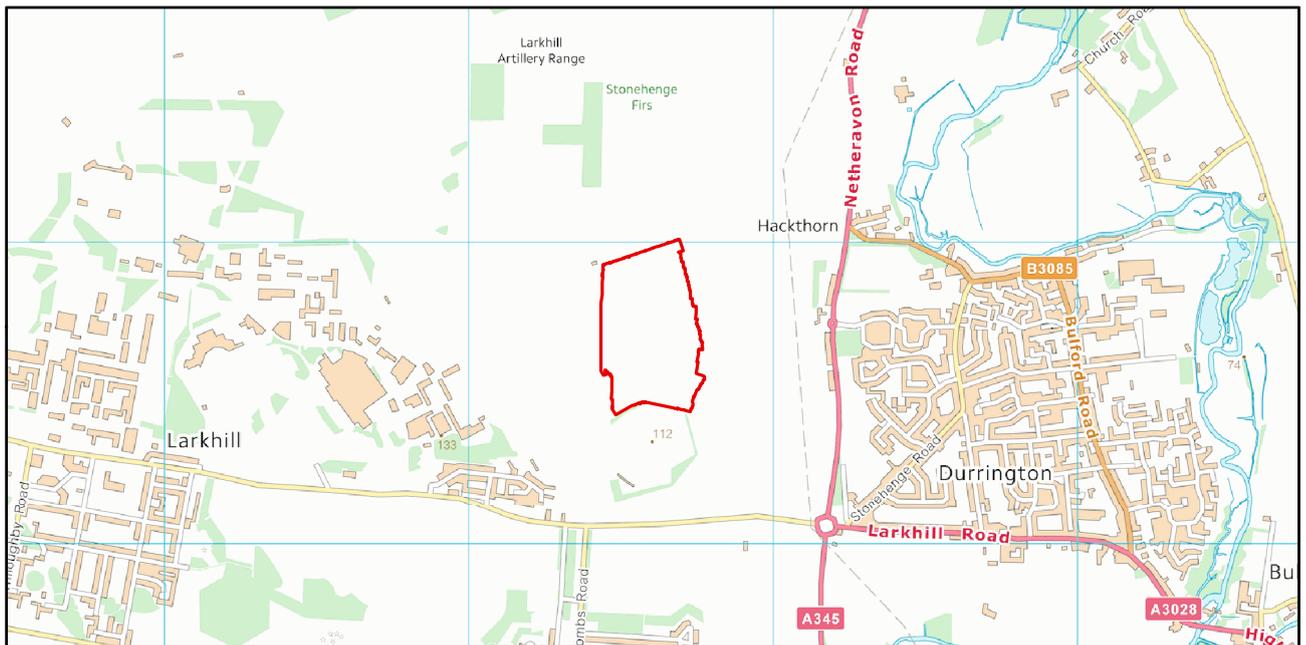
- Ferrous – used for responses caused by ferrous material. These anomalies are likely to be of modern origin.
- Modern service – used for responses considered relating to cables and pipes; most are composed of ferrous/ceramic material although services made from non-magnetic material can sometimes be observed.

The agricultural category is used for the following:

- Former field boundaries – used for ditch sections that correspond to the position of boundaries marked on earlier mapping.
- Agricultural ditches – used for ditch sections that are aligned parallel to existing boundaries and former field boundaries that are not considered to be of archaeological significance.
- Ridge and furrow – used for broad and diffuse linear anomalies that are considered to indicate areas of former ridge and furrow.
- Ploughing – used for well-defined narrow linear responses, usually aligned parallel to existing field boundaries.
- Drainage – used to define the course of ceramic field drains that are visible in the data as a series of repeating bipolar (black and white) responses.

The uncertain origin/geological category is used for features when the form, nature and pattern of the anomaly are not sufficient to warrant a classification as an archaeological feature. This category is further sub-divided into:

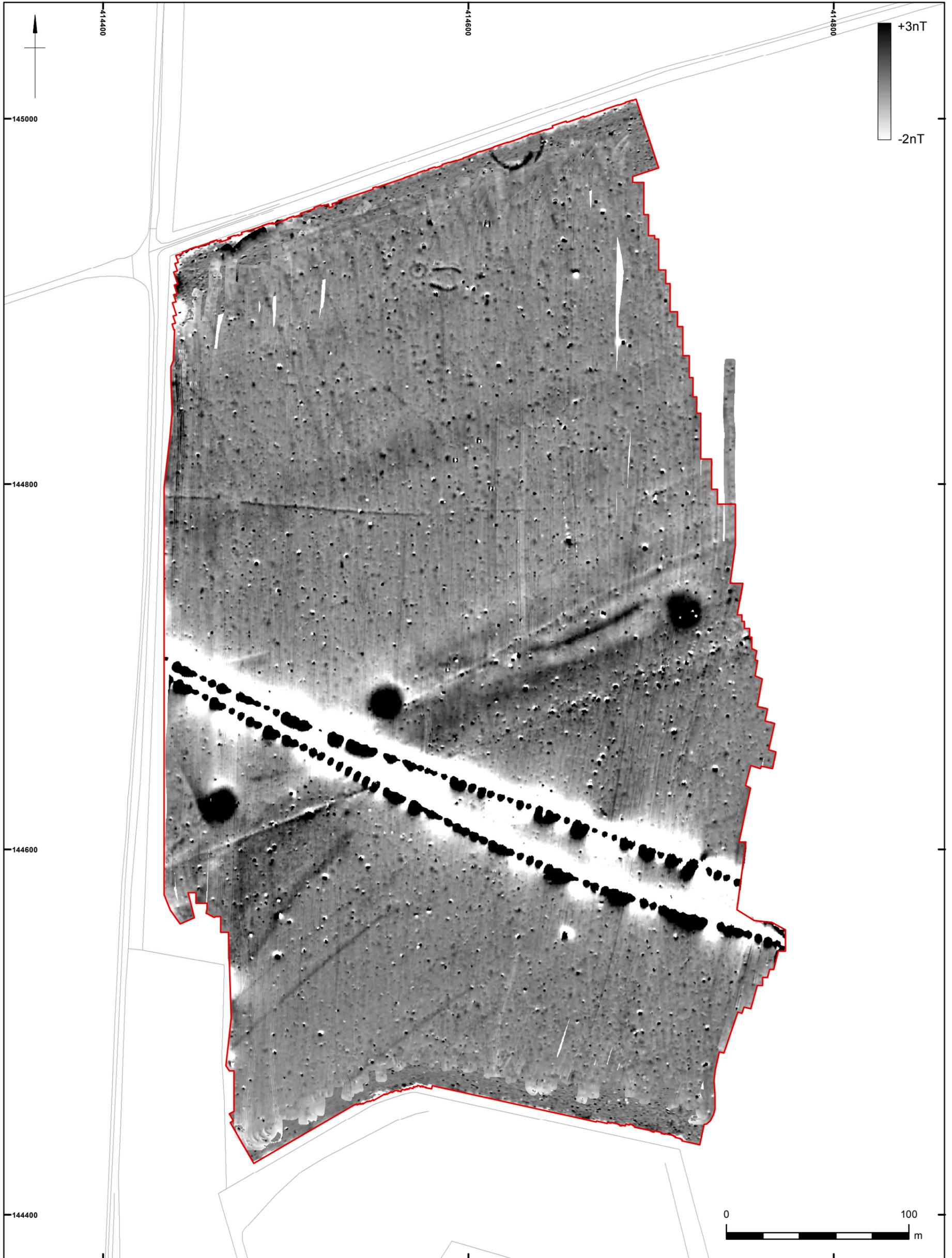
- Increased magnetic response – used for areas dominated by indistinct anomalies which may have some archaeological potential.
- Trend – used for low amplitude or indistinct linear anomalies.
- Superficial geology – used for diffuse edged spreads considered to relate to shallow geological deposits. They can be distinguished as areas of positive, negative or broad bipolar (positive and negative) anomalies.



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Site location and survey extents

Figure 1



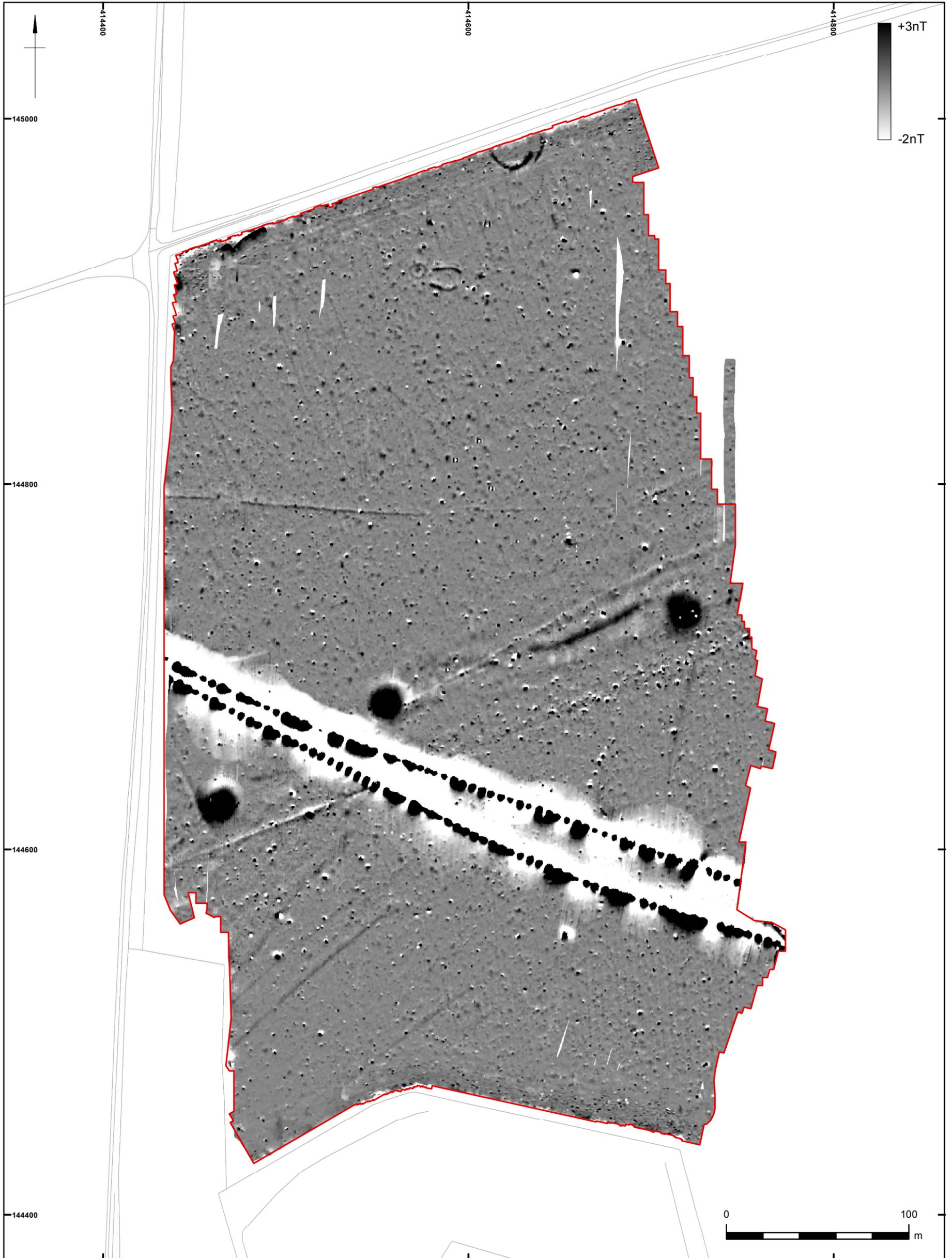

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Greyscale: minimally processed dataset

Figure 2



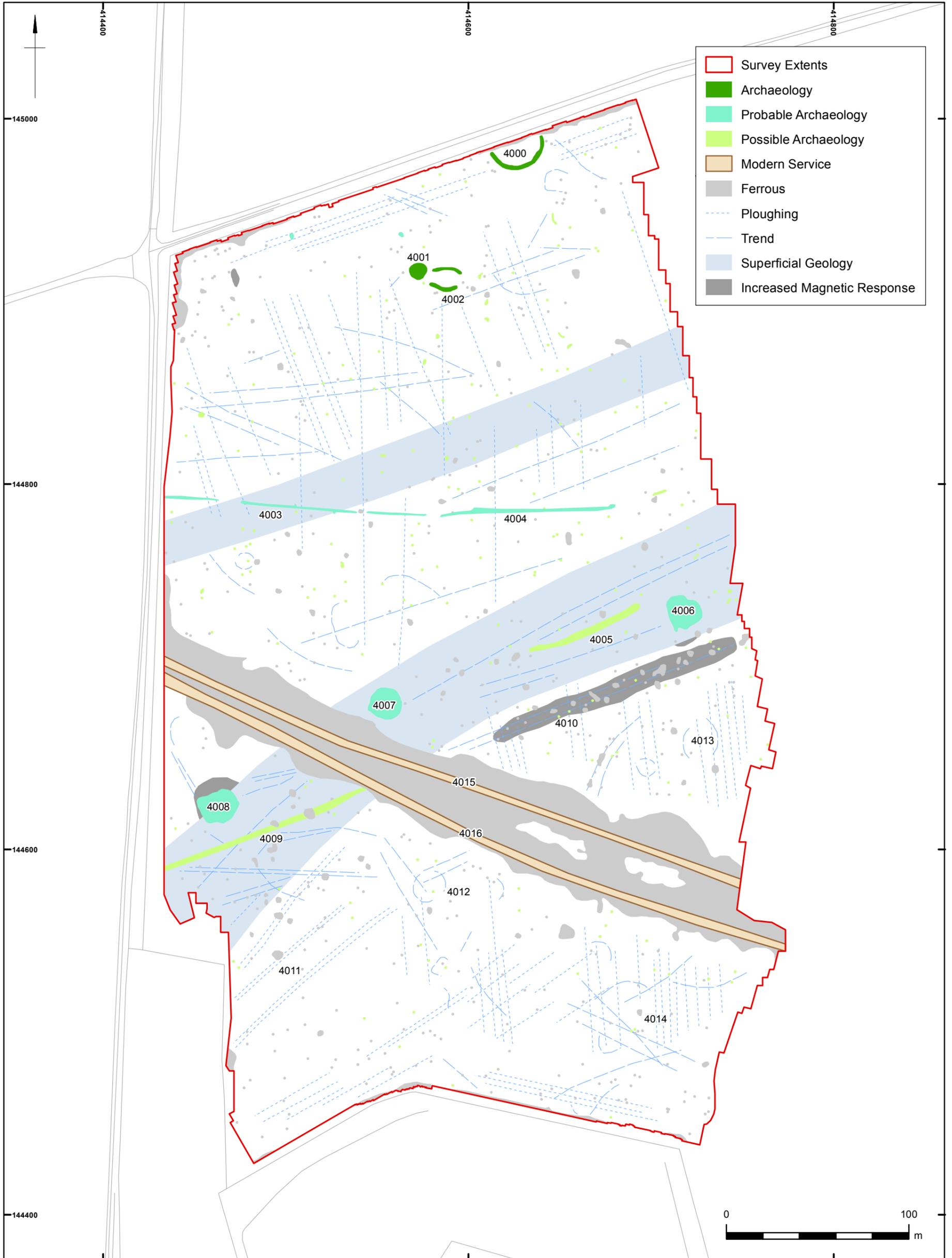
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Greyscale: filtered dataset

Figure 3



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