

LNCO18



PROJECT SWIFT, FARM PARK, NATURE AND OUTDOOR ACTIVITY, CENTRE, CULHAM, OXFORDSHIRE

GEOPHYSICAL SURVEY
PLANNING REF P17/S4416/FUL

commissioned by CgMs Heritage

July 2018

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PROJECT SUMMARY

Headland Archaeology (UK) Ltd undertook a geophysical (magnetometer) survey, covering approximately 24 hectares, in support of a planning application (P17/S4416/FUL) for a proposed farm park, nature and outdoor activity centre with associated parking facilities and infrastructure at Culham, Oxfordshire. The application site is located within a landscape of high archaeological potential with extensive cropmarks recorded on the Oxfordshire Historic Environment Record both within the site and in the surrounding landscape. Three distinct areas of archaeological activity have been identified by the geophysical survey, two of which comprise linear and curvilinear anomalies (soil-filled ditches), together forming systems of land division and enclosure within which seven ring-ditch anomalies suggestive of settlement activity have been identified. The third area of archaeological activity comprises an isolated ring-ditch, possibly a roundhouse. These areas broadly correspond to the cropmark data and are assessed as of high archaeological potential, probably locating later prehistoric and/or Roman activity as suggested in the Heritage Statement. The archaeological anomalies are largely confined to the margins of the geophysical survey area, with no anomalies of archaeological potential having been identified over the majority of the site. However, the recent application of green waste as soil conditioner over 40% of the survey area has resulted in a widespread elevated magnetic background against which any low magnitude anomalies of archaeological potential may be masked. For this reason, the archaeological potential across the affected areas remains uncertain. No green waste has been applied to the fields in the north and east of the site and here the archaeological potential is assessed as low to moderate.

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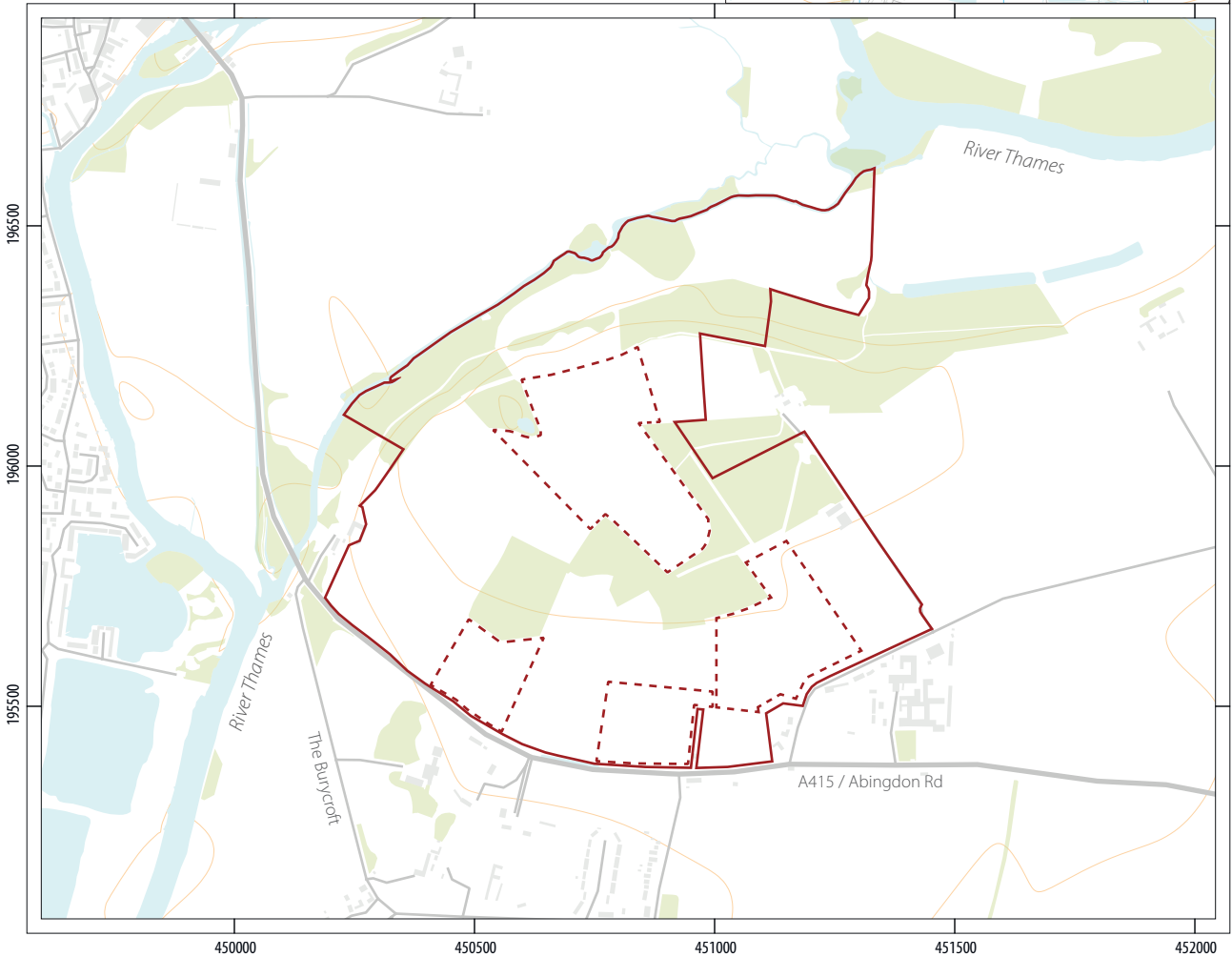
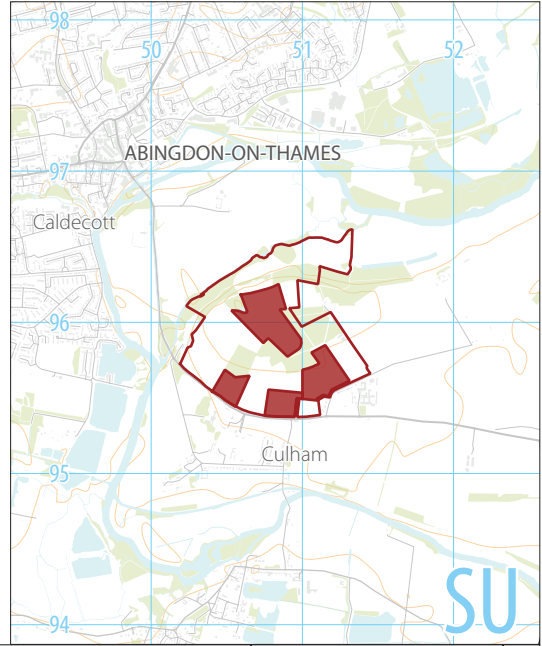
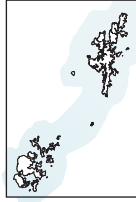
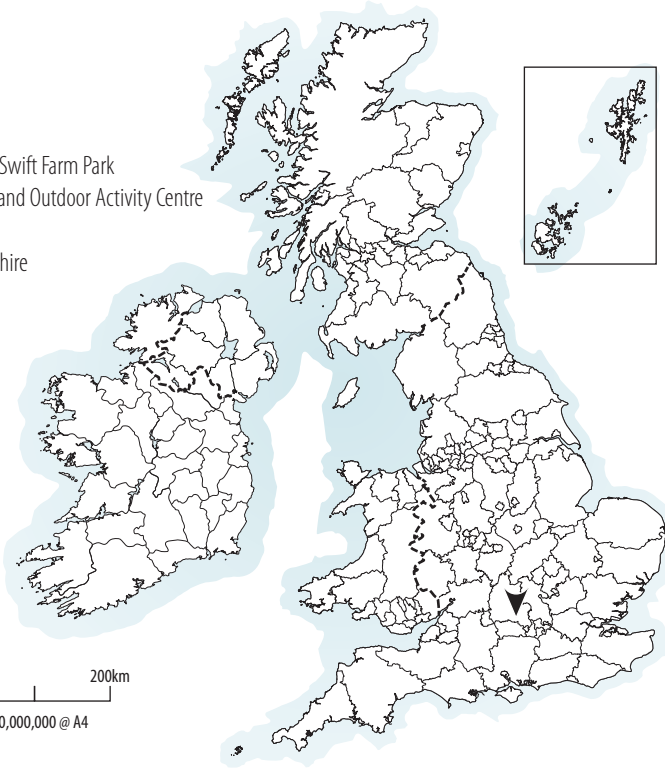
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Project Swift Farm Park
 Nature and Outdoor Activity Centre
 Culham
 Oxfordshire

0 200km
 1:10,000,000 @ A4



0 300m
 1:15,000 @ A4

— application boundary
 - - - geophysical survey area



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GEOPHYSICAL SURVEY

1 INTRODUCTION

Headland Archaeology (UK) Ltd was commissioned by CgMs Heritage (the Consultant), to undertake a geophysical (magnetometer) survey at Culham, Oxfordshire, where a farm park, nature and outdoor activity centre and associated parking facilities and infrastructure improvements are proposed. The survey has been requested in support of a planning application which has been submitted to South Oxfordshire District Council (P17/S4416/FUL). Discussions between the Client and the Archaeological Services Team at Oxfordshire County Council established that the geophysical survey should be undertaken within four geophysical survey areas (Area A – Area D; Illus 1).

The work was undertaken in accordance with a Written Scheme of Investigation for Geophysical Survey (RPS 2018) and in line with current best practice (Chartered Institute for Archaeologists 2014, English Heritage 2008).

The survey was carried out on the 25th and 26th of April 2018.

1.1 SITE LOCATION, TOPOGRAPHY AND LAND-USE

The application boundary comprises approximately 93 hectares of land which is bounded to the south by the A415 Abingdon Road and to the south-east by Thame Lane. The boundary to the north is formed by Swift Ditch – a channel linking to the River Thames at either end. On all other sides, the application boundary comprises farmland or woodland (see Illus 6).

The majority of the application boundary forms part of the plateau at the top of Culham Hill at 80m Above Ordnance Datum (AOD). The

land gradually falls to the south, south-east and south-west to the A415 Abingdon Road at 55m AOD and Thame Lane at 65m AOD.

At the time of the survey Area A and Area D (east) were fallow following a recent harvest, whereas Area B, Area C and Area D (west) contained a short cereal crop (see Illus 2–5).

1.2 GEOLOGY AND SOILS

The bedrock geology of the plateau of Culham Hill mainly comprises mudstones of the Gault formation, whilst the lower slopes in all directions are underlain by sandstone of the Lower Sandstone Group (see Illus 7). The northern part of the plateau is capped by a thin deposit of Pleistocene gravel – the Hanborough Gravel Member (NERC 2018).

The soils are mainly classified in the Soilscape 18 association, characterised as slowly permeable, seasonally wet loams and clays although across Area B and Area C the soils are classified in the Soilscape 7 association, characterised as freely draining, slightly acid but base-rich soils (Cranfield University 2018).

2 ARCHAEOLOGICAL BACKGROUND

A Heritage Statement (RPS 2017) has identified that:

There is the potential for archaeological features and material to be present within all the proposal site, although this potential is greatly reduced for the steep escarpment in the northern part. The lower slopes in the southern and south-western parts of the proposal site contain cropmarks indicating later prehistoric and/or Roman activity, and indeed a Roman cremation burial has been found here. This activity may extend onto the

2



3



4



ILLUS 2 Area A, looking north-west ILLUS 3 Area B, looking south ILLUS 4 Area C, looking south

plateau where a short-lived Civil War encampment is described in contemporary documentary sources. Lithic material of prehistoric date has been found on the surface in several places within the proposal site, indicating some level of activity from the Neolithic period onwards.

therefore, enable an assessment to be made of the impact of the proposed development on any sub-surface archaeological remains, if present.

The specific archaeological objectives of the geophysical survey were:

- › to provide information about the nature and possible interpretation of any magnetic anomalies identified;
- › to, therefore, model the presence/absence and extent of any buried archaeological features; and
- › to prepare a report summarising the results of the survey.

3 AIMS, METHODOLOGY AND PRESENTATION

The general aim of the geophysical survey was to provide sufficient information to establish the presence/absence, character and extent of any archaeological remains within the survey area. This will,



ILLUS 5 Area D, looking north-west

3.1 MAGNETOMETER SURVEY

Magnetic survey methods rely on the ability of a variety of instruments to measure very small magnetic fields associated with buried archaeological remains. A feature such as a ditch, pit or kiln can act like a small magnet, or series of magnets, that produce distortions (anomalies) in the earth's magnetic field. In mapping these slight variations, detailed plans of sites can be obtained as buried features often produce reasonably characteristic anomaly shapes and strengths (Gaffney & Gater 2003). Further information on soil magnetism and the interpretation of magnetic anomalies is provided in Appendix 1.

The survey was undertaken using four Bartington Grad601 sensors mounted at 1m intervals (1m traverse interval) onto a rigid carrying frame. The system was programmed to take readings at a frequency of 10Hz (allowing for a 10–15cm sample interval) on roaming traverses (swaths) 4m apart. These readings were stored on an external weatherproof laptop and later downloaded for processing and interpretation. The system was linked to a Trimble R8s Real Time Kinetic (RTK) differential Global Positioning System (dGPS) outputting in NMEA mode to ensure a high positional accuracy for each data point.

MLGrad601 and MultiGrad601 (Geomar Software Inc.) software was used to collect and export the data. Terrasurveyor V3.0.32.4 (DWConsulting) software was used to process and present the data.

3.2 REPORTING

A general site location plan is shown in Illus 1 at a scale of 1:15,000. Illus 2–5 are site condition photographs. Illus 6 is a 1:7,500 survey location plan showing the direction of survey as GPS swaths. Illus 7 shows the NMP cropmark and geology data (NERC 2018), at a scale of 1:4,000. Detailed data plots of the fully processed data, with accompanying interpretative plots are produced, also at 1:4,000, as Illus 8 and 9. Large-scale, fully processed (greyscale) data, minimally processed data (XY traceplot) and accompanying interpretative plots are presented at a scale of 1:2,000 in Illus 10–18 inclusive with more detailed plots (1:1,000) of the areas of archaeological activity (AAA) shown in Illus 19–27 inclusive.

Technical information on the equipment used, data processing and magnetic survey methodology is given in Appendix 1. Appendix 2 details the survey location information and Appendix 3 describes the composition and location of the site archive. Data processing details are presented in Appendix 4. A copy of the OASIS entry (Online Access to the Index of Archaeological Investigations) is reproduced in Appendix 5.

The survey methodology, report and any recommendations comply with the Written Scheme of Investigation (RPS 2018), guidelines outlined by Historic England (English Heritage 2008) and by the Chartered Institute for Archaeologists (Cifa 2014). All illustrations from Ordnance Survey mapping are reproduced with the permission of the controller of Her Majesty's Stationery Office (© Crown copyright).

The illustrations in this report have been produced following analysis of the data in 'raw' and processed formats and over a range of different display levels. All illustrations are presented to most suitably display and interpret the data from this site based on the experience and knowledge of management and reporting staff.

4 RESULTS AND DISCUSSION

The ground conditions were very good (Illus 2–5) and contributed to a high standard of data quality throughout.

The magnetic background differs clearly from a relatively uniform background across Area A and Area D (east) to a highly elevated and variable magnetic background across Area B, Area C and Area D (west). This elevated background is characteristic of the recent application of green waste as soil conditioner within these fields. Against these backgrounds numerous, linear and discrete anomalies have been identified and these are discussed below and cross-referenced to specific examples on the interpretive figures, where appropriate.

4.1 FERROUS ANOMALIES

Two high magnitude dipolar linear anomalies (SP1–2; Illus 10–12) are identified in the north of Area A. The anomalies locate buried water pipes servicing a reservoir in the north-west of the area. A third pipe is clearly visible as a dipolar linear anomaly (SP3; Illus 16–18) in the north-east of Area D.

Extensive spreads of high magnitude magnetic responses are recorded throughout Area B, Area C and Area D (west). These responses are characteristic of green waste which has been spread and mixed into the topsoil. This response is not fully understood but is thought to be caused by the presence of magnetic compounds in the soil created during decomposition processes, and also by frequent ferrous contaminants within the waste material. Against this background, it may not be possible to clearly distinguish any low magnitude anomalies of archaeological potential, if present, within the affected area. Whilst anomalies have been identified corresponding to cropmarks across Area B, no anomalies have been identified where linear cropmarks are recorded in Area C and it is possible that archaeological features may be masked against this background.

Localised broad areas of magnetic disturbance have been identified in the north-east of Area A and the north of Area D. The areas do not correspond to any upstanding features nor to any features on historical mapping. Both are thought to locate areas of modern dumping/tipping. Other areas of disturbance around the perimeter of the survey areas and along the field edges are due to ferrous material within the boundaries and a farm track at the north of Area A.

4.2 AGRICULTURAL ANOMALIES

Broad, slightly sinuous linear anomalies are recorded across Area A (Illus 10–12). These anomalies are characteristic of the medieval and post-medieval practice of ridge and furrow cultivation with the

striped appearance being due to the magnetic contrast between former ridges and the soil-filled furrows.

More closely-spaced linear trend anomalies throughout Area D (east) reflect recent ploughing (Illus 16–18). A single north/south trend within Area D (east) is typical of a land drain.

4.3 GEOLOGICAL ANOMALIES

Broad, low magnitude, magnetic variations are visible throughout Area A. These are thought to be caused by variations in the Hanborough Gravel deposit.

Elsewhere, discrete areas of magnetic enhancement are identified across Area A and Area D (east) which are thought to be due to localised variations in the soils.

4.4 ARCHAEOLOGICAL ANOMALIES

Unless specified all the linear anomalies described are likely to be due to soil filled cut features, such as ditches, forming clear patterns of enclosure and land division. With the variable magnetic background, it is difficult to confidently discriminate between discrete anomalies which may be due to archaeological features, such as pits, which may be indicative of occupational activity and those that are probably due to localised geological variation. For this reason, most of the discrete anomalies within enclosures have been ascribed a possible archaeological origin with those outside, except where the responses are particularly broad or high in magnitude, interpreted as of non-archaeological origin.

Three sites of clear archaeological potential have been identified within Area A, Area B and Area D (east). The sites have been termed areas of archaeological activity (AAA).

AAA1

AAA1 comprises a series of high magnitude linear and curvilinear anomalies in the north-west of Area A, centred at SU 5061 9603. The anomalies correspond closely to cropmarks recorded on the Oxfordshire HER and are due to soil-filled ditches, probably forming part of a larger network of features which extends north and westwards beyond the limit of the survey. A clear ring-ditch (RD1; Illus 19–21), measuring 13m in diameter, may locate a roundhouse.

AAA2

A series of east/west linear and rectilinear anomalies is clearly discernible across Area B despite the elevated magnetic background from the spreading of green waste (see Illus 22–24). The anomalies extend 161m north/south and at least 178m east/west and appear to extend beyond the limit of the survey on all sides. Two conjoined ring-ditches (RD2 and RD3; Illus 22–24) are clearly visible in the data, probably locating roundhouses, with parts of at least another four ring-ditches (RD4–RD7) suggested. Due to the presence of the green waste, it is considered highly likely that the archaeological remains within Area B are more extensive than is currently suggested by the geophysical survey.

AAA3

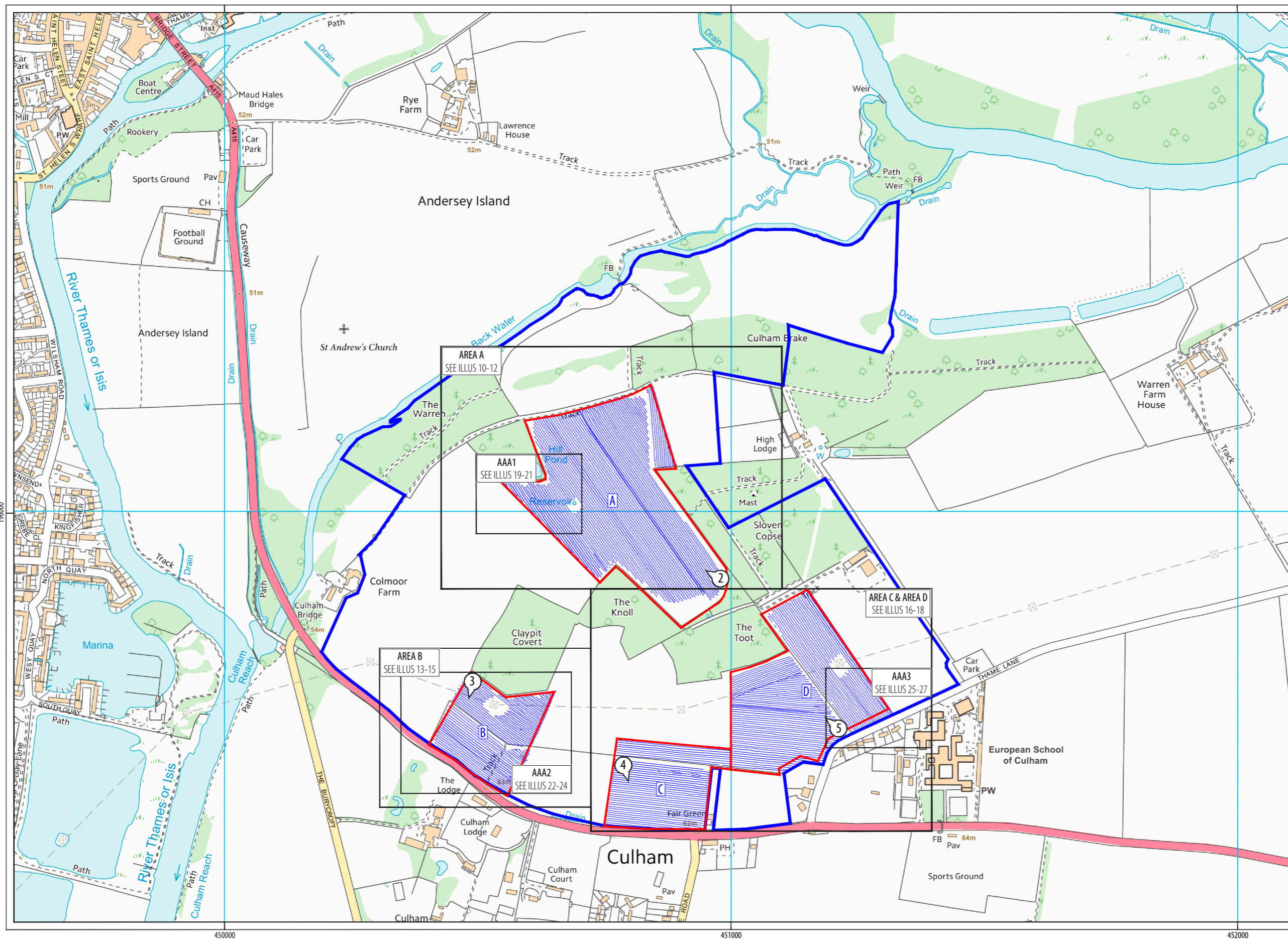
An isolated ring-ditch is identified in the south-east corner of Area D, centred at SU 5129 9561 (RD7; see Illus 25–27). The ring-ditch measures 13m in diameter, similar to those identified in AAA1 and AA2), and probably locates a roundhouse. Discrete areas of magnetic enhancement in the interior of the ring-ditch may be due to pits.

5 CONCLUSION

The survey has successfully evaluated the geophysical survey areas and has identified three distinct areas of archaeological activity. Two areas comprise linear and curvilinear anomalies (soil-filled ditches), together forming systems of land division and enclosure together with seven ring-ditches, probably locating roundhouses. The third area comprises an isolated ring-ditch, probably another roundhouse. These areas broadly correspond to the cropmark data and are assessed as of high archaeological potential, probably locating later prehistoric and/or Roman activity as suggested in the Heritage Statement. The archaeological anomalies are largely confined to the margins of the geophysical survey area, with no anomalies of archaeological potential having been identified over the majority of the site. However, the recent application of green waste as soil conditioner over 40% of the survey area has resulted in a widespread elevated magnetic background against which any low magnitude anomalies of archaeological potential may be masked. For this reason, the archaeological potential across the affected areas remains uncertain. No green waste has been applied to the fields in the north and east of the site and here the archaeological potential is assessed as low to moderate.

6 REFERENCES

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- RPS 2018 *Project Swift Farm Park, Nature and Outdoor Activity Centre, Culham, Oxfordshire; Written Scheme of Investigation (WSI) for a programme of Geophysical Survey* [unpublished client report] RPS Ref JAC23418



- ▬ application boundary
- ▬ geophysical survey area
- ▨ GPS swaths
- Ⓜ location and direction of ILLUS 2-5



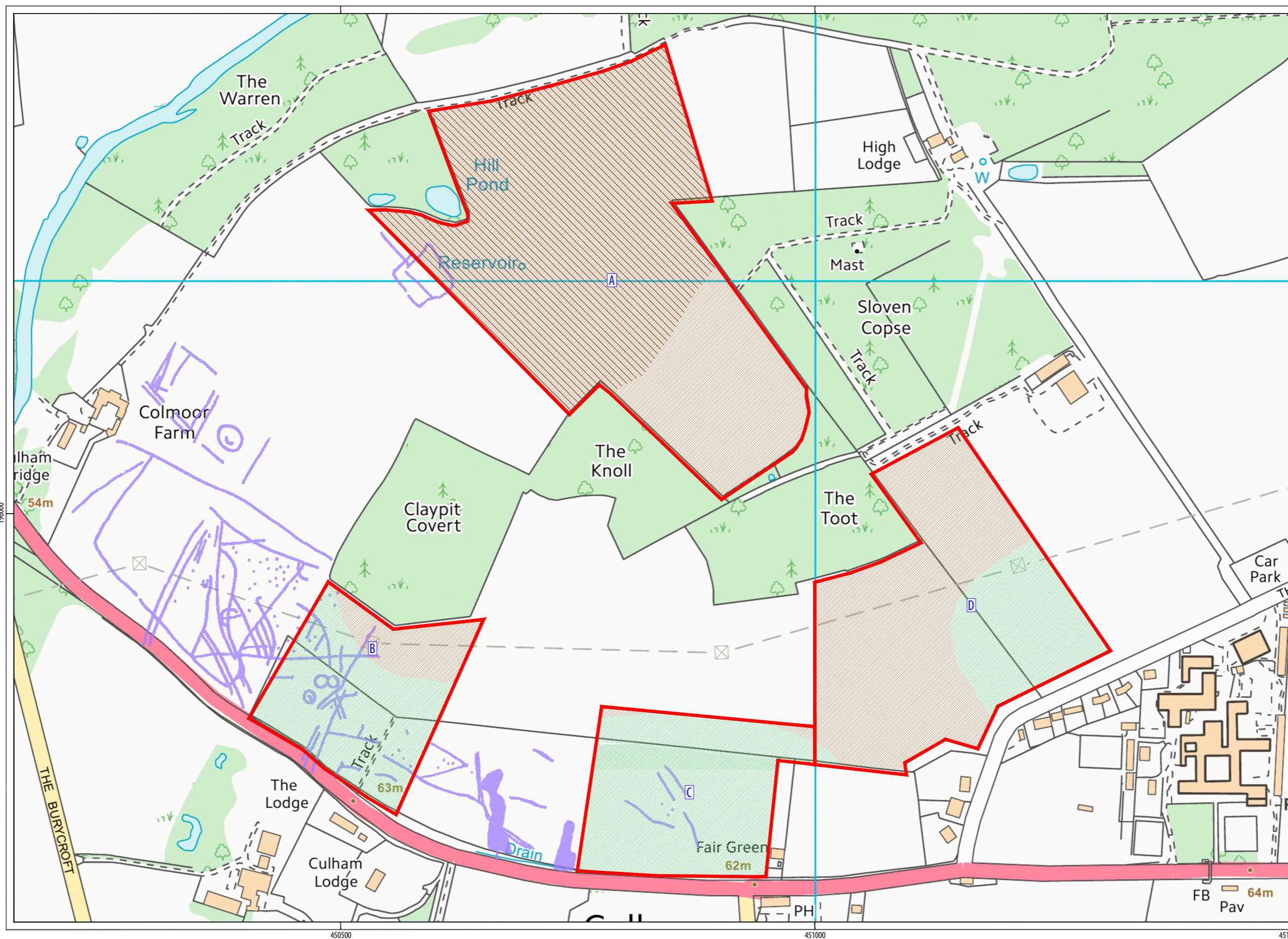
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ILLUS 6 Survey location showing GPS swaths (1:7,500)



- ▭ geophysical survey area
- NMP cropmark data
- BEDROCK GEOLOGY**
- Gault formation - mudstone
- Lower Greensand Group - sandstone
- SUPERFICIAL GEOLOGY**
- Hanborough Gravel Member - sand and gravel



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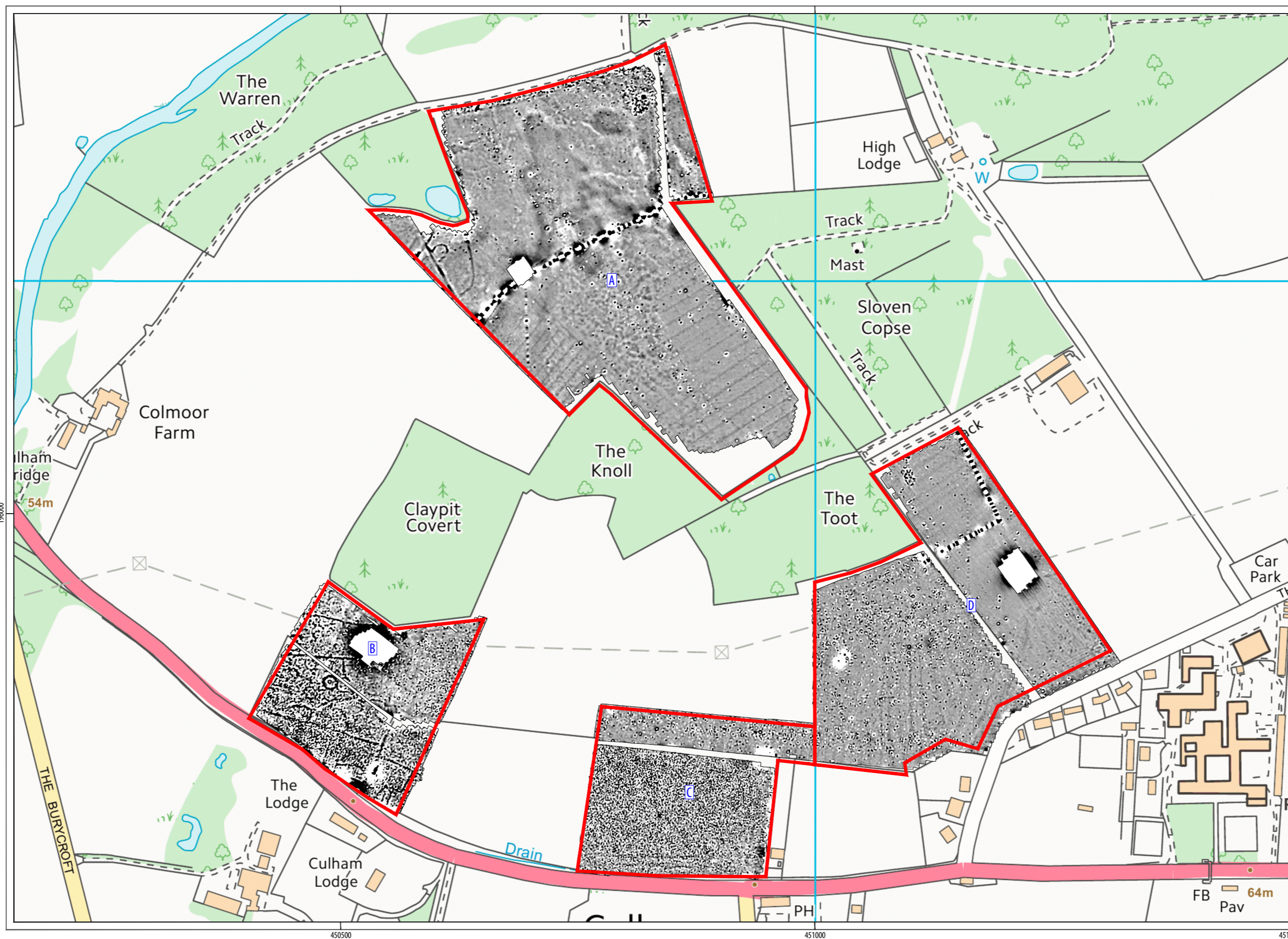
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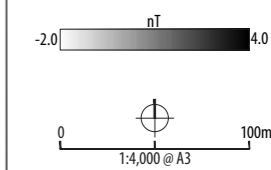
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ILLUS 7 Survey location showing cropmarks and geology data (1:4,000)



geophysical survey area



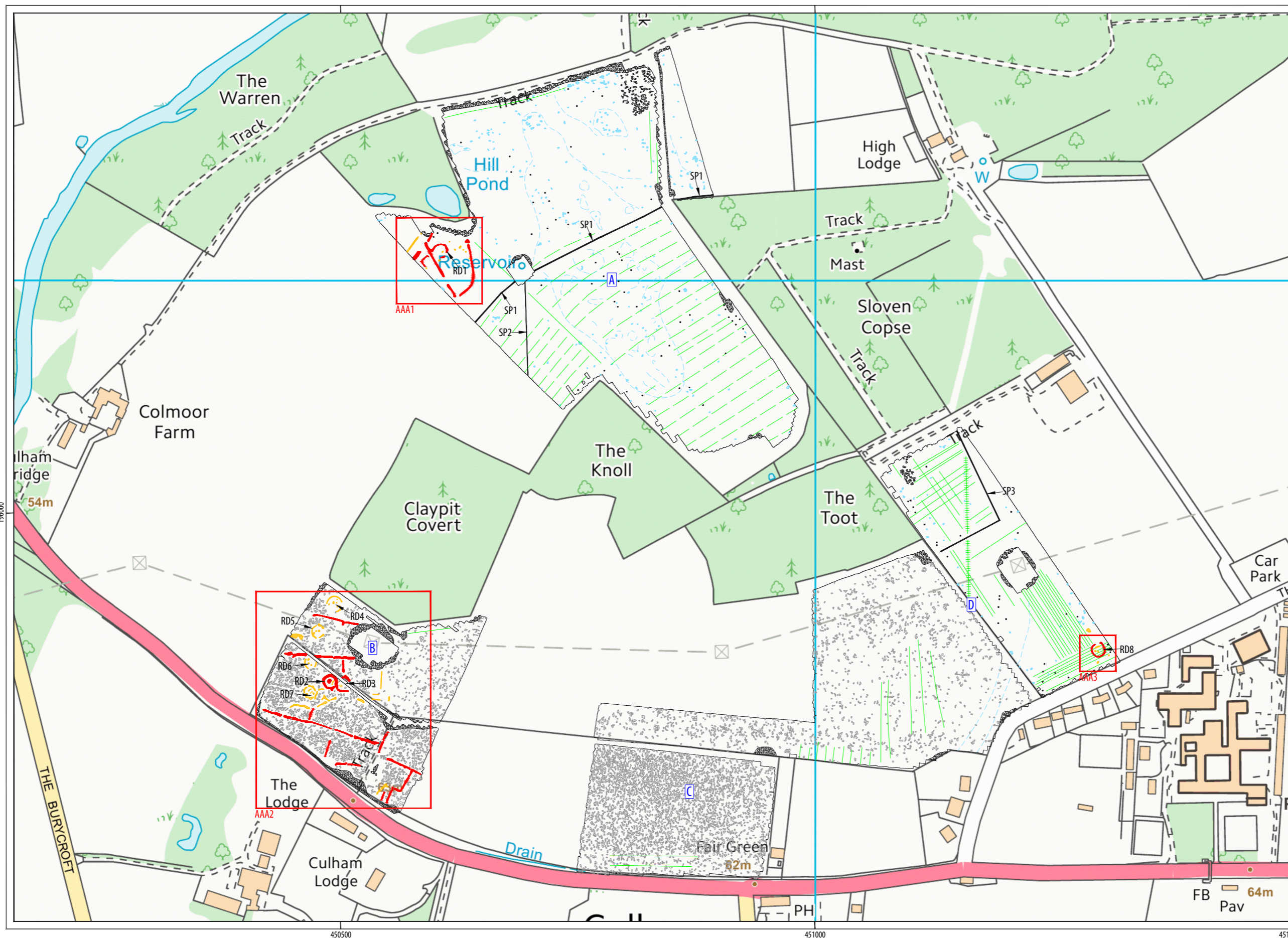
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ILLUS 8 Processed greyscale magnetometer data (1:4,000)



TYPE OF ANOMALY	INTERPRETATION
● dipolar isolated	ferrous material
● magnetic disturbance	ferrous material
● magnetic disturbance	green waste
— dipolar linear	service pipe
— linear trend	ridge and furrow
— linear trend	agricultural
— linear trend	field drain
— linear trend	geological variation
● magnetic enhancement	geology
● magnetic enhancement	archaeology?
● magnetic enhancement	archaeology

ABBREVIATIONS
 AAA area of archaeological activity
 SP service pipe
 RD ring-ditch

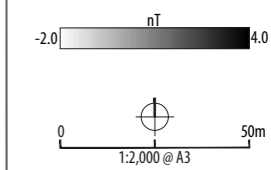
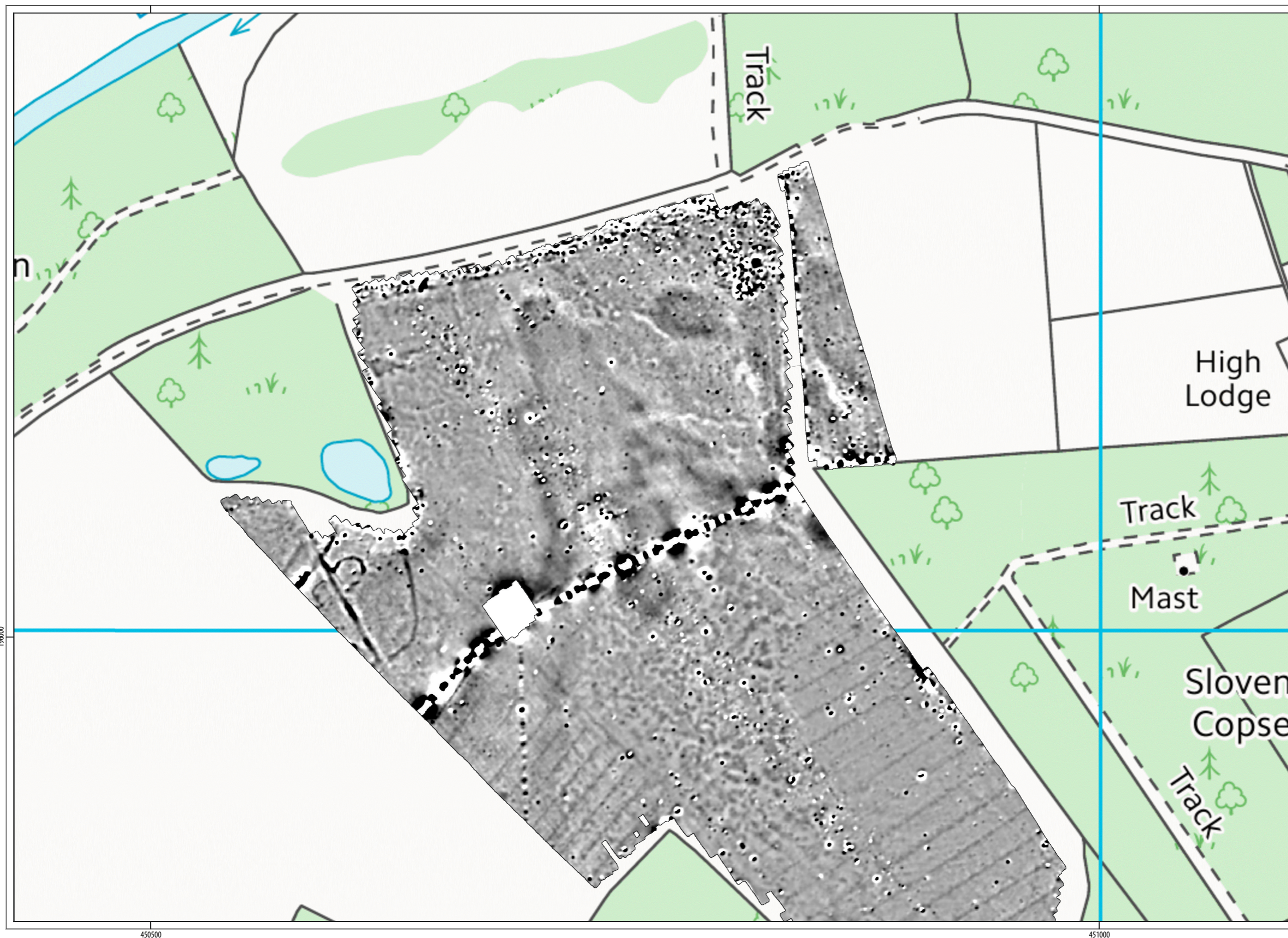


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ILLUS 9 Interpretation of magnetometer data (1:4,000)



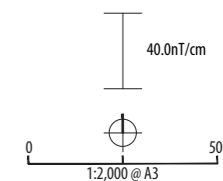
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ILLUS 10 Processed greyscale magnetometer data; Area A (1:2,000)

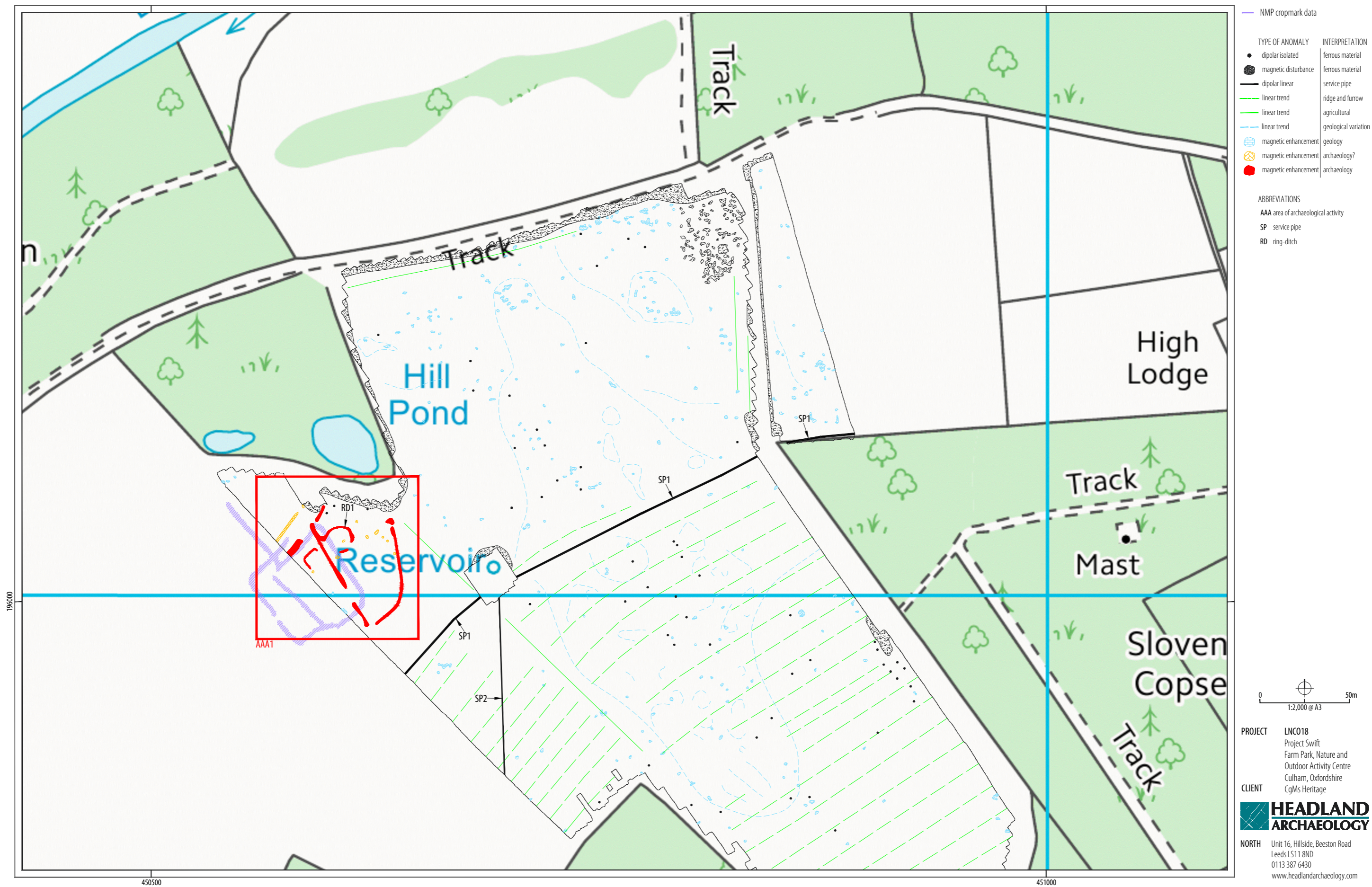


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ILLUS 11 XY trace plot of minimally processed magnetometer data; Area A (1:2,000)



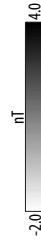
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ILLUS 12 Interpretation of magnetometer data; Area A (1:2,000)



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ILLUS 13 Processed greyscale magnetometer data; Area B (1:2,000)



ILLUS 14 XY trace plot of minimally processed magnetometer data; Area B (1:2,000)

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TYPE OF ANOMALY	INTERPRETATION
	ferrous material
	green waste
	agricultural
	archaeology?
	archaeology

ABBREVIATIONS

AAA area of archaeological activity

RD ring-ditch

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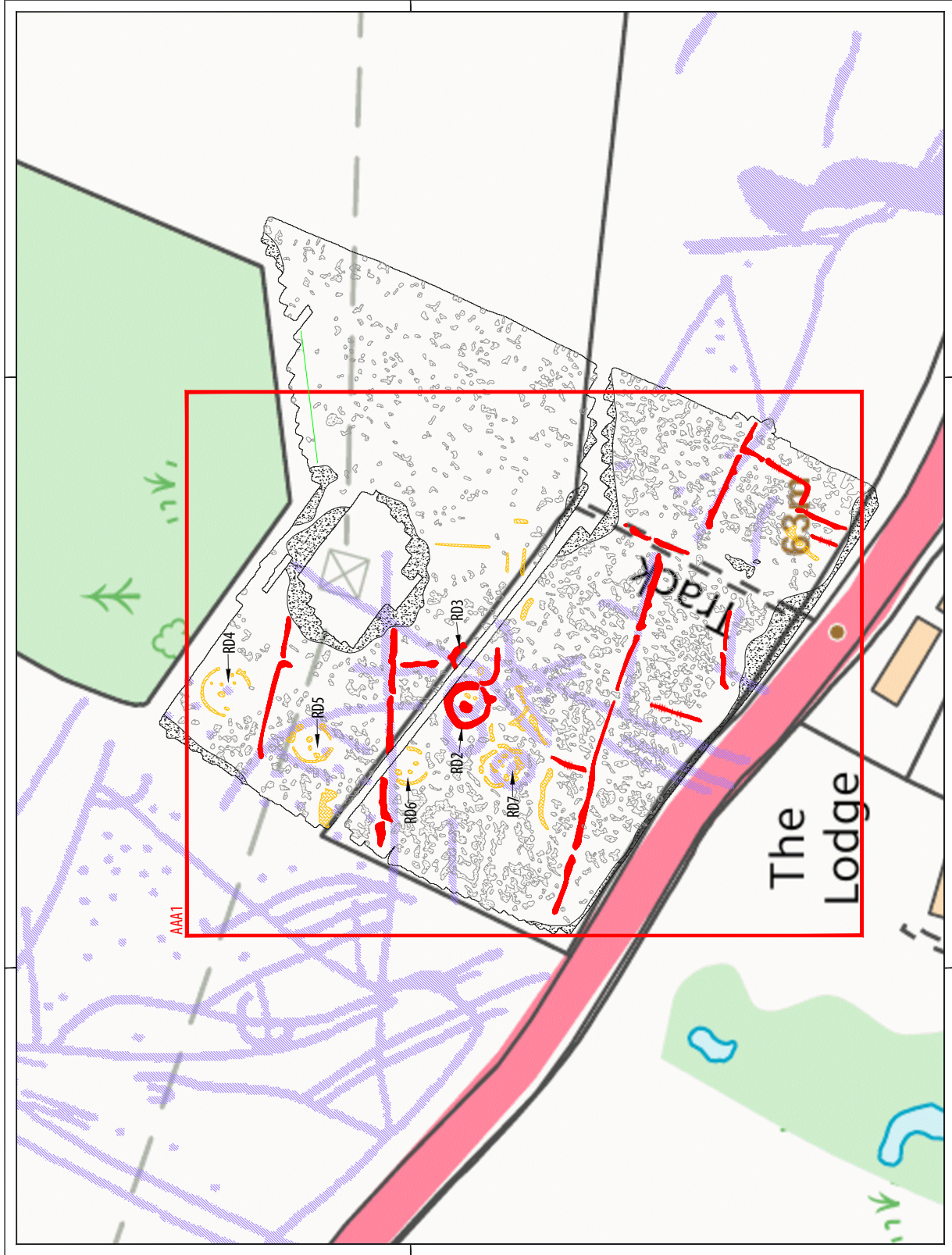


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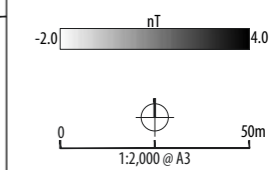
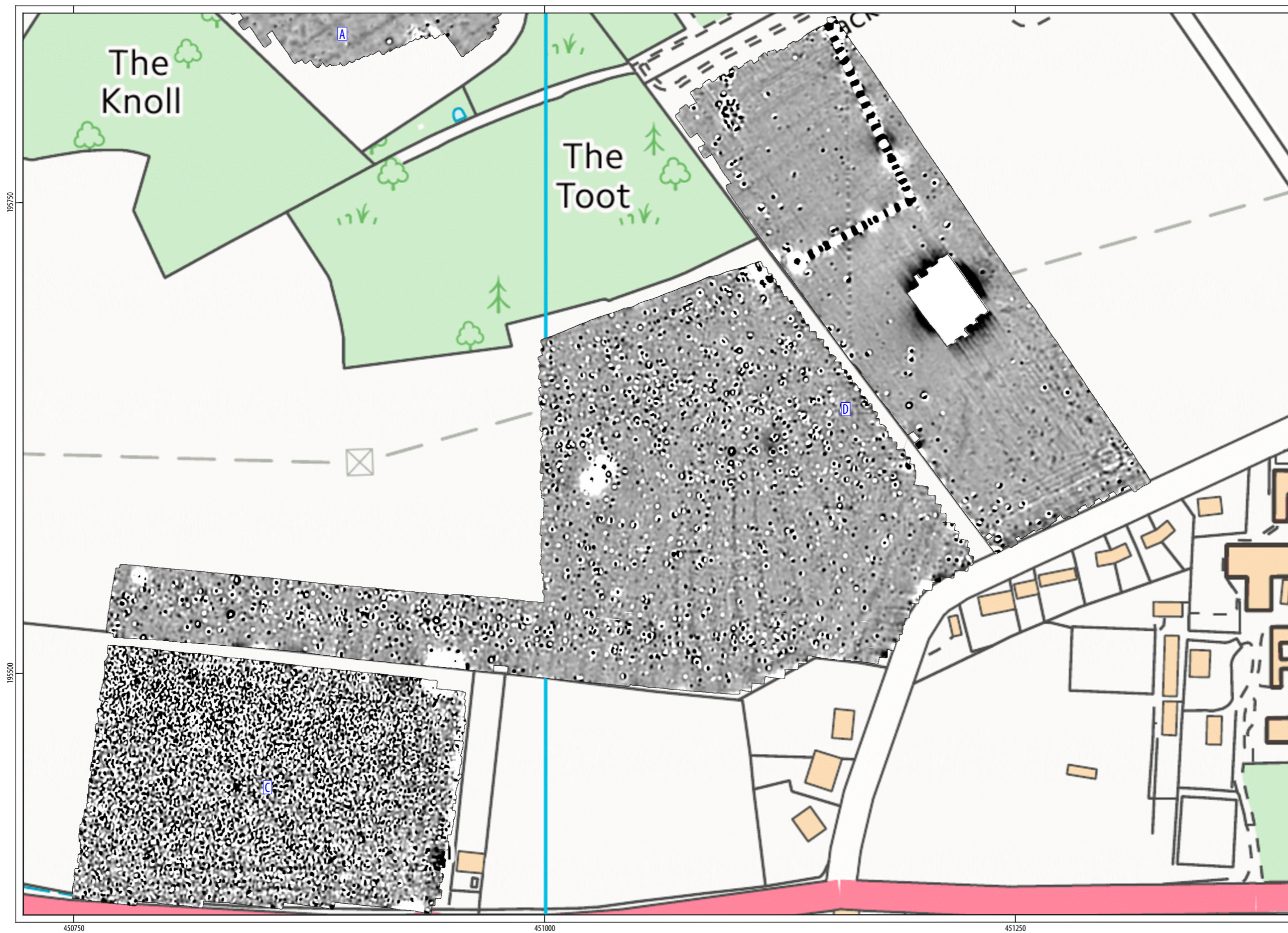
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ILLUS 15 Interpretation of magnetometer data; Area B (1:2,000)



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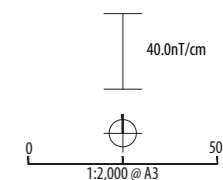
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ILLUS 16 Processed greyscale magnetometer data; Area C & Area D (1:2,000)

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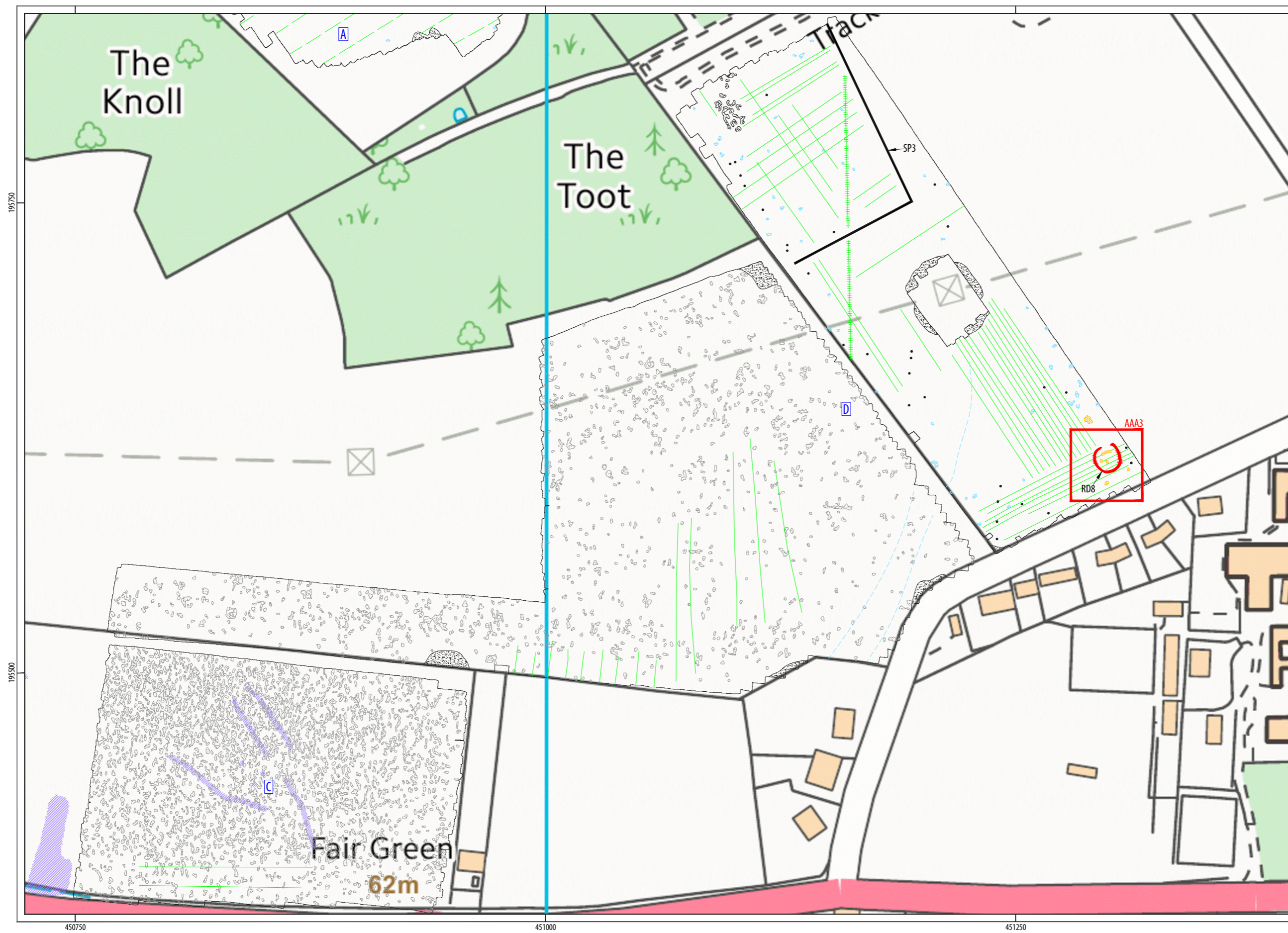
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ILLUS 17 XY trace plot of minimally processed magnetometer data; Area C & Area D (1:2,000)



NMP cropmark data

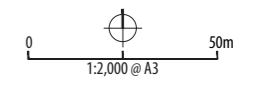
TYPE OF ANOMALY	INTERPRETATION
● dipolar isolated	ferrous material
● magnetic disturbance	ferrous material
● magnetic disturbance	green waste
— dipolar linear	service pipe
— linear trend	ridge and furrow
— linear trend	agricultural
— linear trend	field drain
— linear trend	geological variation
● magnetic enhancement	geology
● magnetic enhancement	archaeology?
● magnetic enhancement	archaeology

ABBREVIATIONS

AAA area of archaeological activity

SP service pipe

RD ring-ditch



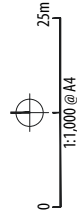
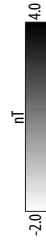
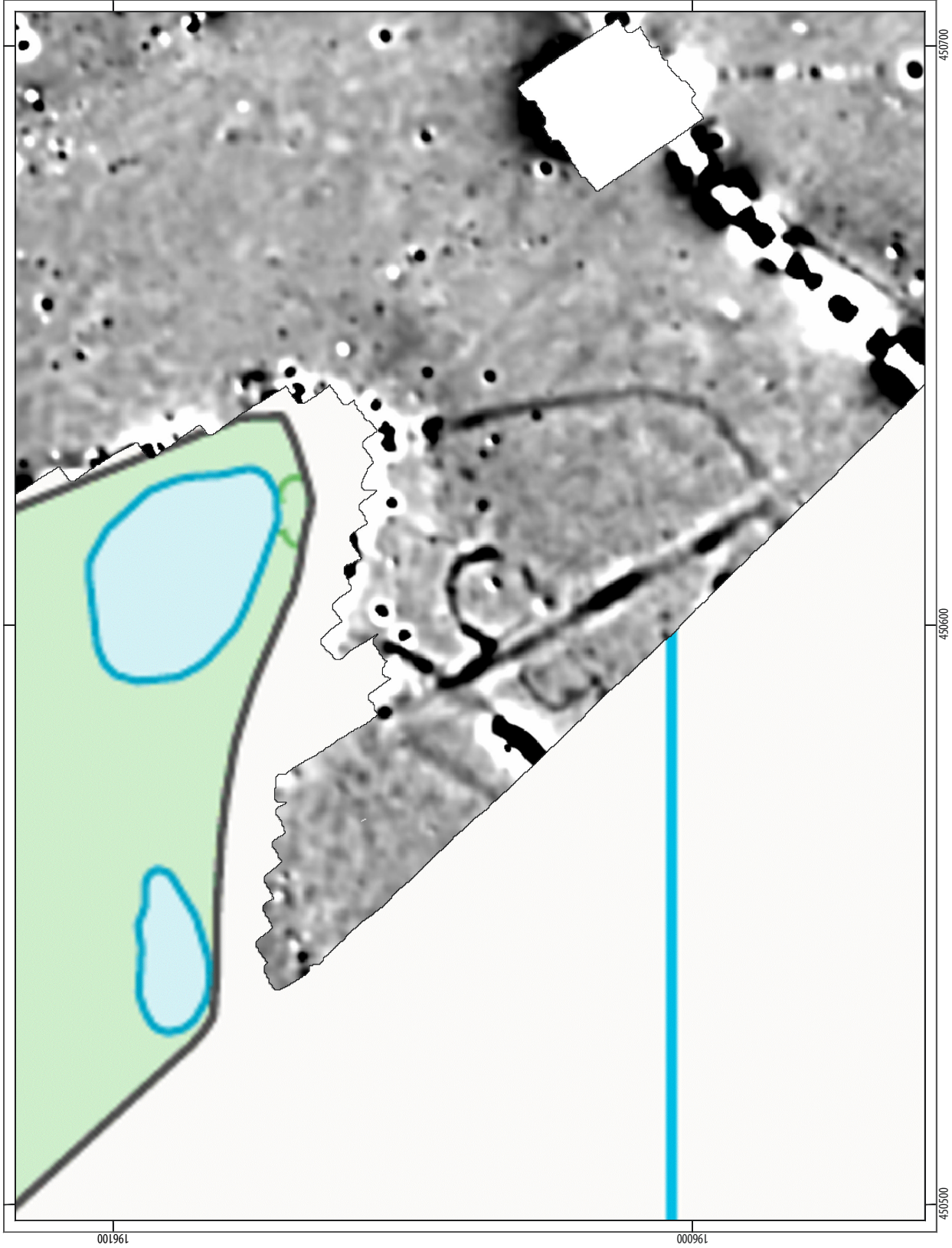
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ILLUS 18 Interpretation of magnetometer data; Area C & Area D (1:2,000)



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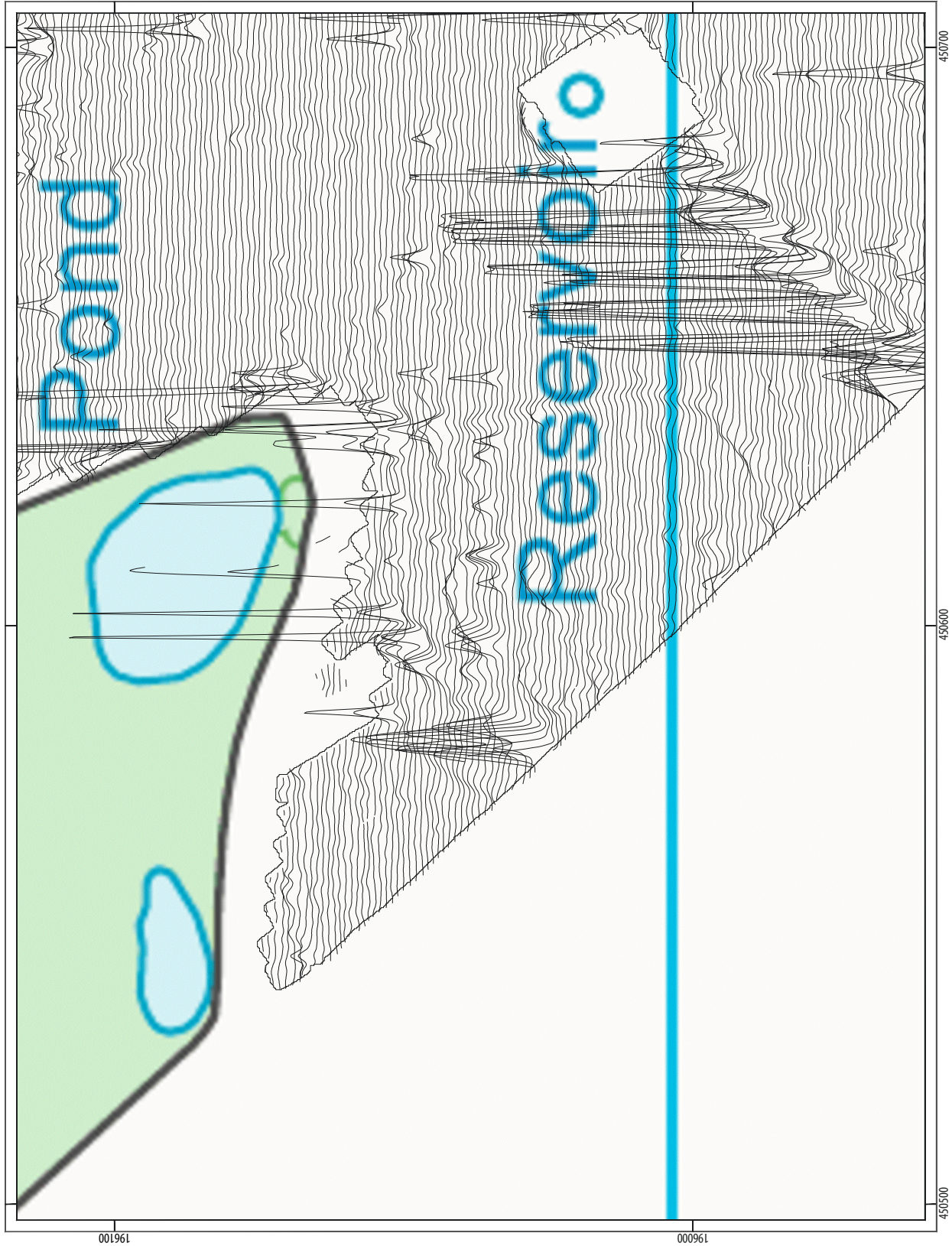
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ILLUS 19 Processed greyscale magnetometer data; AAA1 (1:1,000)

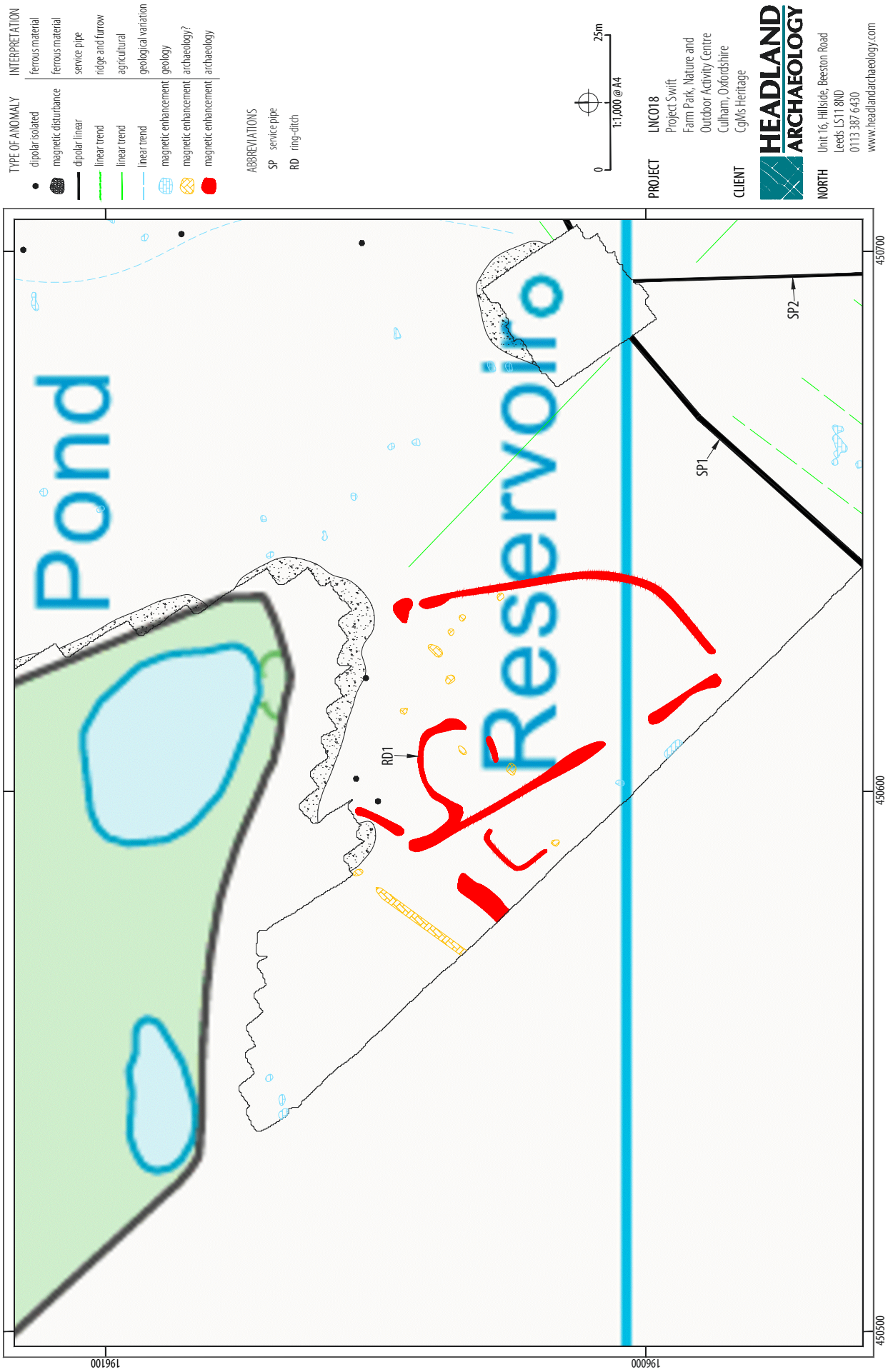


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ILLUS 20 XY trace plot of minimally processed magnetometer data; AAA1 (1:1,000)



ILLUS 21 Interpretation of magnetometer data; AAA1 (1:1,000)

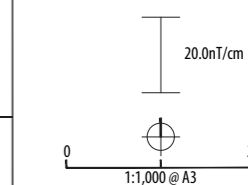
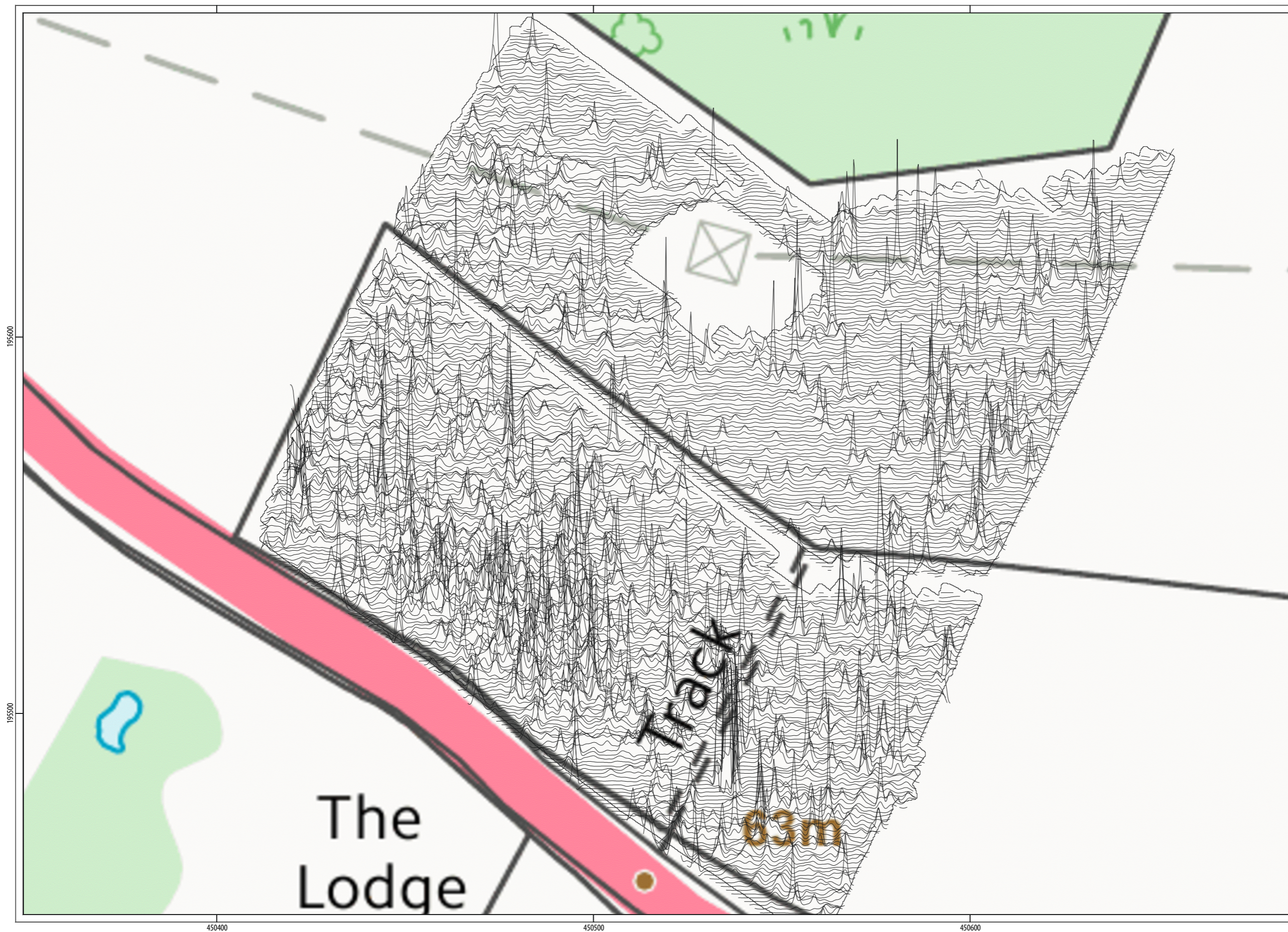


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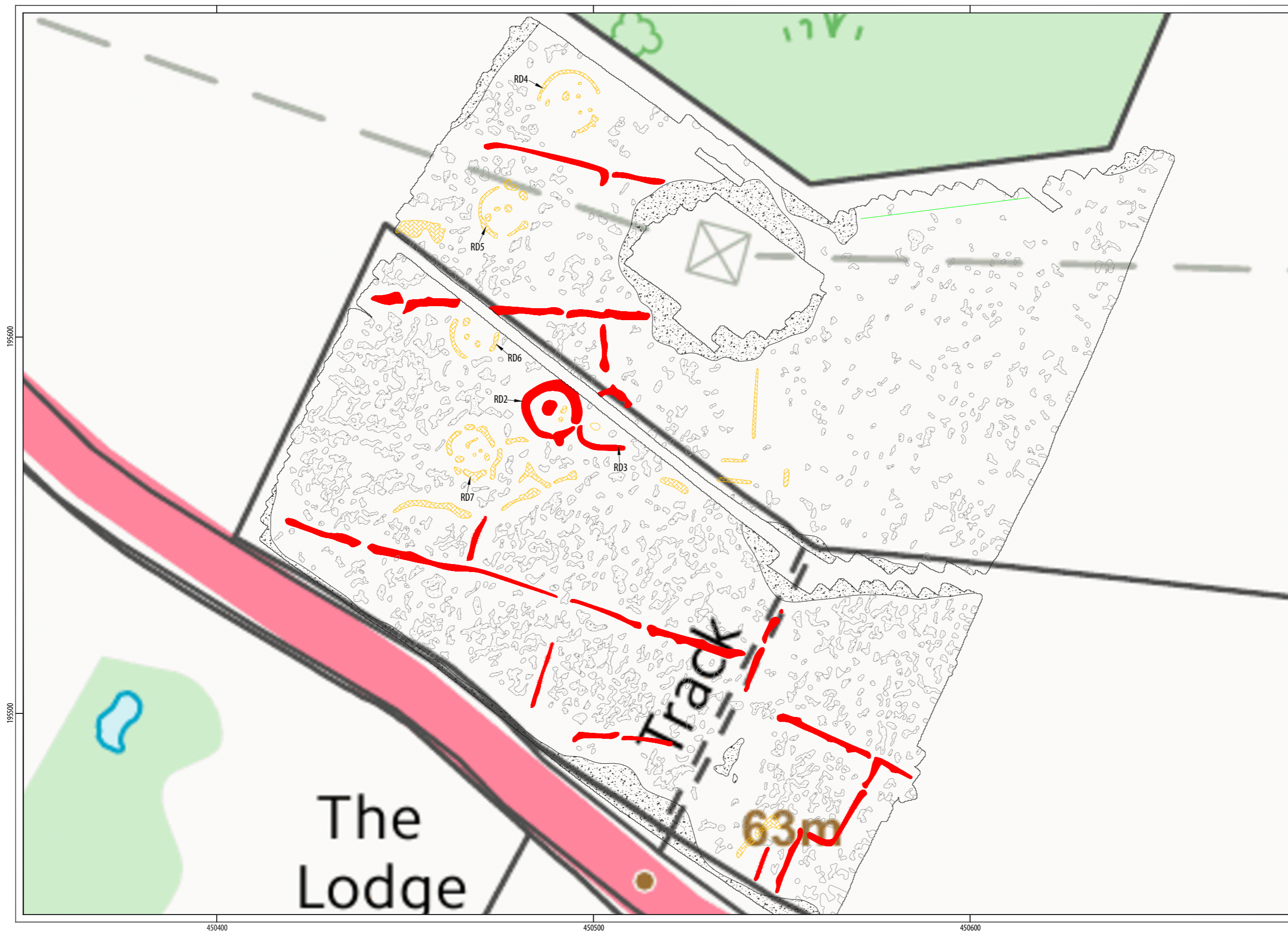


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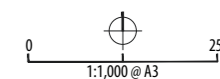
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TYPE OF ANOMALY	INTERPRETATION
	magnetic disturbance ferrous material
	magnetic disturbance green waste
	linear trend agricultural
	magnetic enhancement archaeology?
	magnetic enhancement archaeology

ABBREVIATIONS

RD ring-ditch

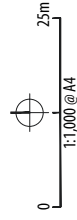
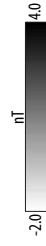
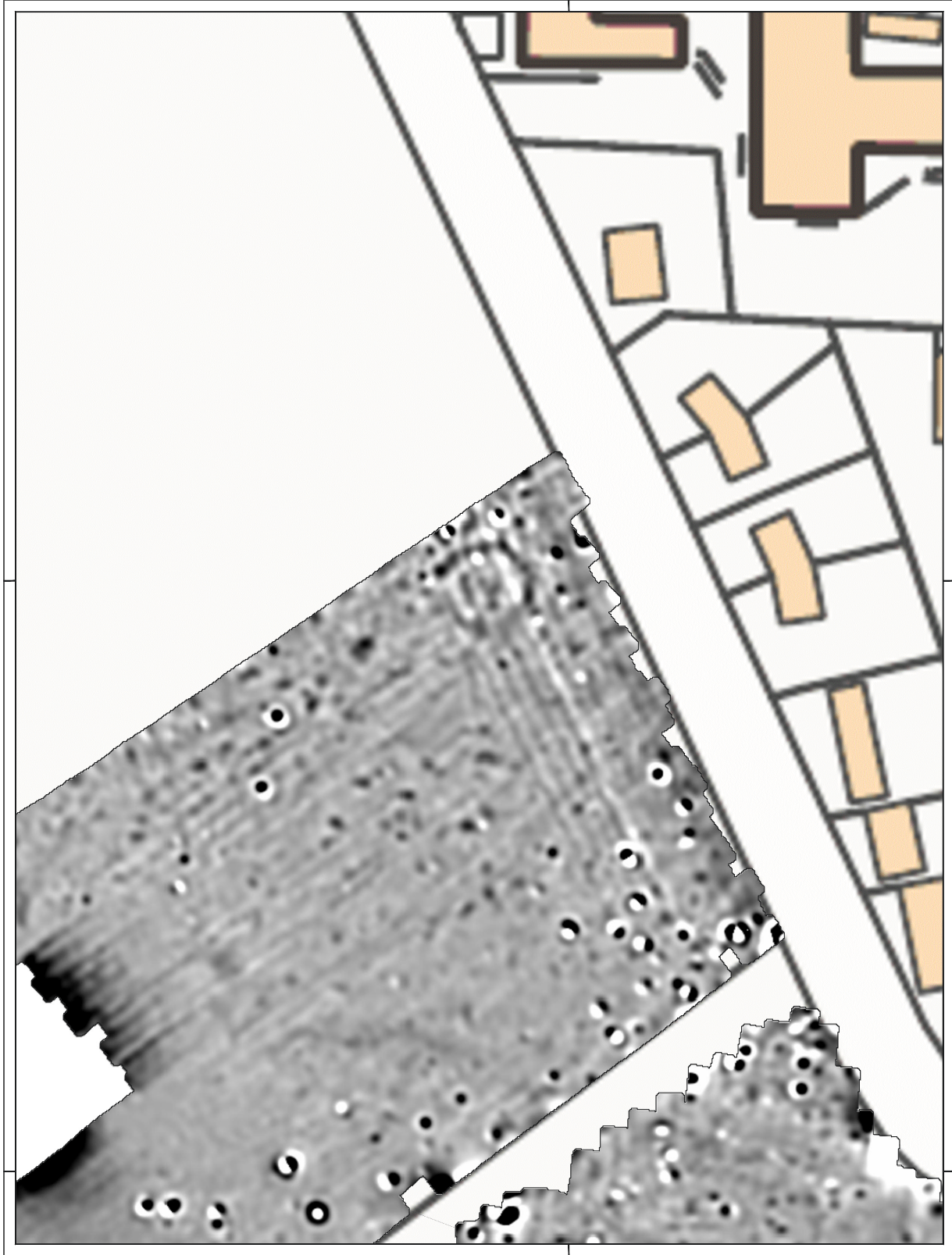


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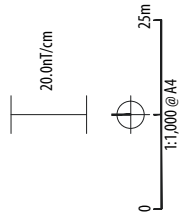
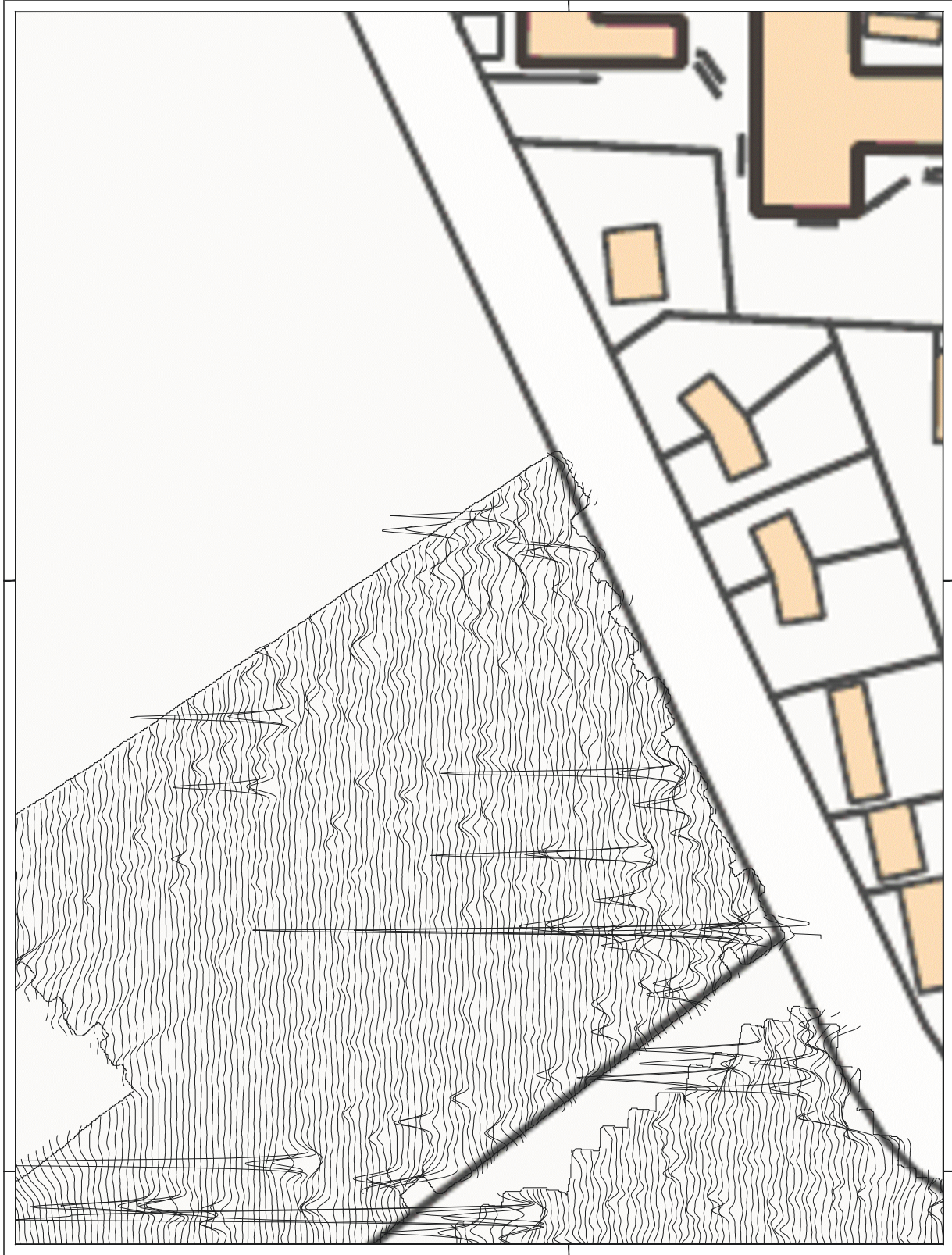
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ILLUS 25 Processed greyscale magnetometer data; AAA3 (1:1,000)



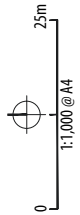
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ILLUS 26 XY trace plot of minimally processed magnetometer data; AAA3 (1:1,000)

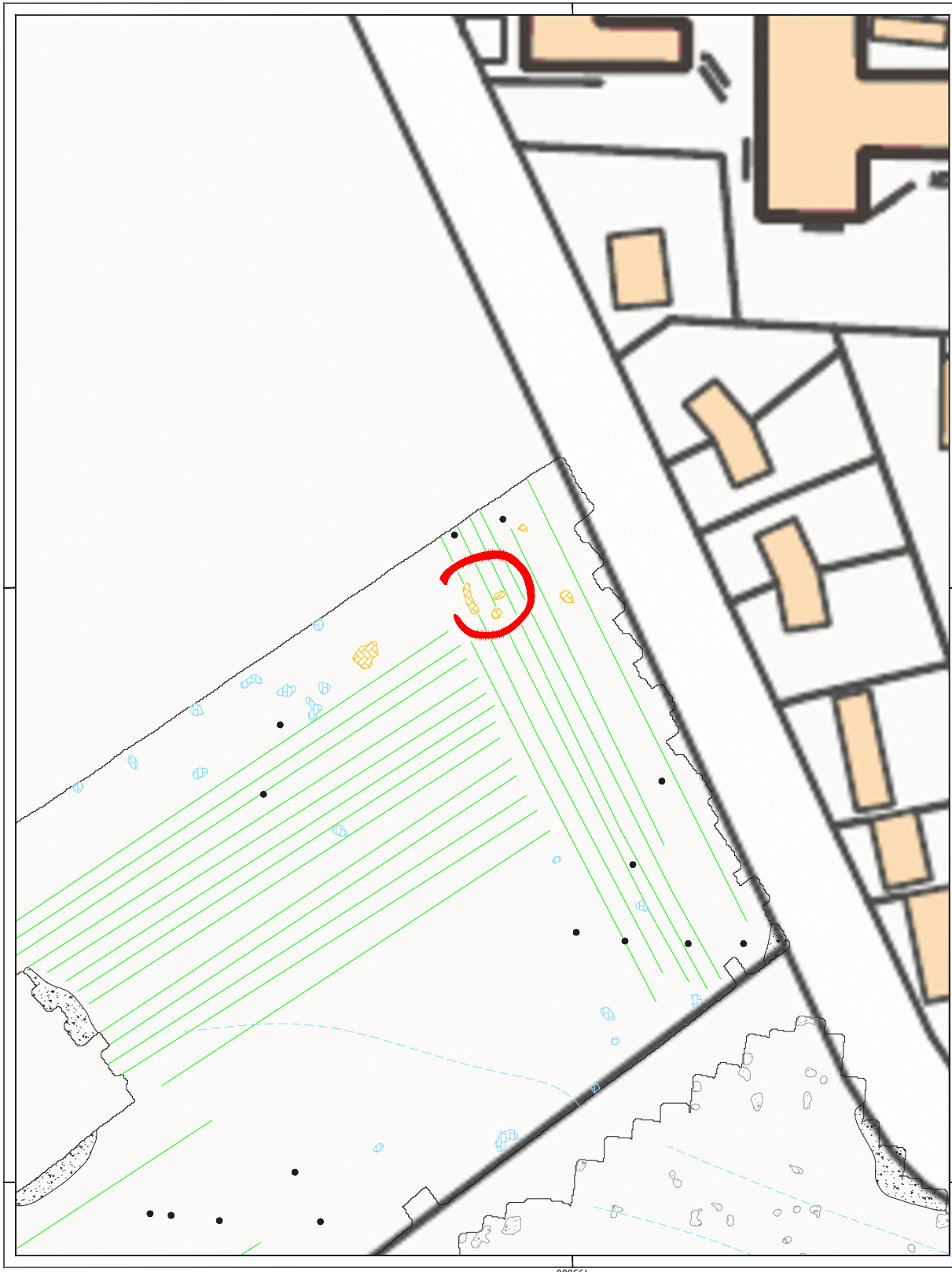
TYPE OF ANOMALY	INTERPRETATION
•	dipolar isolated
●	ferrous material
●	ferrous material
●	green waste
—	magnetic disturbance
—	agricultural
—	geological variation
—	linear trend
—	linear trend
—	magnetic enhancement
—	geology
—	magnetic enhancement
—	archaeology?
—	magnetic enhancement
—	archaeology



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ILLUS 27 Interpretation of magnetometer data; AAA3 (1:1,000)

7 APPENDICES

APPENDIX 1 MAGNETOMETER SURVEY

Magnetic susceptibility and soil magnetism

Iron makes up about 6% of the earth's crust and is mostly present in soils and rocks as minerals such as maghaemite and haematite. These minerals have a weak, measurable magnetic property termed magnetic susceptibility. Human activities can redistribute these minerals and change (enhance) others into more magnetic forms so that by measuring the magnetic susceptibility of the topsoil, areas, where human occupation or settlement has occurred, can be identified by virtue of the attendant increase (enhancement) in magnetic susceptibility. If the enhanced material subsequently comes to fill features, such as ditches or pits, localised isolated and linear magnetic anomalies can result whose presence can be detected by a magnetometer (fluxgate gradiometer).

In general, it is the contrast between the magnetic susceptibility of deposits filling cut features, such as ditches or pits, and the magnetic susceptibility of topsoils, subsoils and rocks into which these features have been cut, which causes the most recognisable responses. This is primarily because there is a tendency for magnetic ferrous compounds to become concentrated in the topsoil, thereby making it more magnetic than the subsoil or the bedrock. Linear features cut into the subsoil or geology, such as ditches, that have been silted up or have been backfilled with topsoil will therefore usually produce a positive magnetic response relative to the background soil levels. Discrete feature, such as pits, can also be detected.

The magnetic susceptibility of a soil can also be enhanced by the application of heat. This effect can lead to the detection of features such as hearths, kilns or areas of burning.

Types of magnetic anomaly

In the majority of instances, anomalies are termed 'positive'. This means that they have a positive magnetic value relative to the magnetic background on any given site. However, some features can manifest themselves as 'negative' anomalies that, conversely, means that the response is negative relative to the mean magnetic background.

Where it is not possible to give a probable cause of an observed anomaly a '?' is appended.

It should be noted that anomalies interpreted as modern in origin might be caused by features that are present in the topsoil or upper layers of the subsoil. Removal of soil to an archaeological or natural layer can, therefore, remove the feature causing the anomaly.

The types of response mentioned above can be divided into five main categories that are used in the graphical interpretation of the magnetic data:

Isolated dipolar anomalies (iron spikes) These responses are typically caused by ferrous material either on the surface or in the topsoil. They cause a rapid variation in the magnetic response giving a characteristic 'spiky' trace. Although ferrous archaeological artefacts could produce this type of response, unless there is supporting evidence for an archaeological interpretation, little emphasis is normally given to such anomalies, as modern ferrous objects are common on rural sites, often being present as a consequence of manuring.

Areas of magnetic disturbance These responses can have several causes often being associated with burnt material, such as slag waste or brick rubble or other strongly magnetised/fired material. Ferrous structures such as pylons, mesh or barbed wire fencing and buried pipes can also cause the same disturbed response. A modern origin is usually assumed unless there is other supporting information.

Linear trend This is usually a weak or broad linear anomaly of unknown cause or date. These anomalies are often caused by agricultural activity, either ploughing or land drains being a common cause.

Areas of magnetic enhancement/positive isolated anomalies Areas of enhanced response are characterised by a general increase in the magnetic background over a localised area whilst discrete anomalies are manifest by an increased response (sometimes only visible on an XY trace plot) on two or three successive traverses. In neither instance is there the intense dipolar response characteristic exhibited by an area of magnetic disturbance or of an 'iron spike' anomaly (see above). These anomalies can be caused by infilled discrete archaeological features such as pits or post-holes or by kilns. They can also be caused by pedological variations or by natural infilled features on certain geologies. Ferrous material in the subsoil can also give a similar response. It can often, therefore, be very difficult to establish an anthropogenic origin without intrusive investigation or other supporting information.

Linear and curvilinear anomalies Such anomalies have a variety of origins. They may be caused by agricultural practice (recent ploughing trends, earlier ridge and furrow regimes or land drains), natural geomorphological features such as palaeochannels or by infilled archaeological ditches.

APPENDIX 2 SURVEY LOCATION INFORMATION

An initial survey base station was established using a Trimble VRS differential Global Positioning System (dGPS). The magnetometer data was georeferenced using a Trimble RTK differential Global Positioning System (Trimble R8s model).

Temporary sight markers were laid out using a Trimble VRS differential Global Positioning System (Trimble R8s model) to guide the operator and ensure full coverage. The accuracy of this dGPS equipment is better than 0.01m.

The survey data were then superimposed onto a base map provided by the client to produce the displayed block locations. However, it should be noted that Ordnance Survey positional accuracy for digital map data has an error of 0.5m for urban and floodplain areas, 1.0m for rural areas and 2.5m for mountain and moorland areas. This potential error must be considered if coordinates are measured off hard copies of the mapping rather than using the digital coordinates.

Headland Archaeology cannot accept responsibility for errors of fact or opinion resulting from data supplied by a third party.

APPENDIX 3 GEOPHYSICAL SURVEY ARCHIVE

The geophysical archive comprises an archive disk containing the raw data in XYZ format, a raster image of each greyscale plot with associated world file, and a PDF of the report.

The project will be archived in-house in accordance with recent good practice guidelines (http://guides.archaeologydataservice.ac.uk/g2gp/Geophysics_3). The data will be stored in an indexed archive and migrated to new formats when necessary.

APPENDIX 4 DATA PROCESSING

The gradiometer data has been presented in this report in processed greyscale and minimally processed XY trace plot format.

Data collected using RTK GPS-based methods cannot be produced without minimal processing of the data. The minimally processed data has been interpolated to project the data onto a regular grid and de-striped to correct for slight variations in instrument calibration drift and any other artificial data.

A high pass filter has been applied to the greyscale plots to remove low frequency anomalies (relating to survey tracks and modern agricultural features) in order to maximise the clarity and interpretability of the archaeological anomalies.

The data has also been clipped to remove extreme values and to improve data contrast.

APPENDIX 5 OASIS DATA COLLECTION FORM: ENGLAND

OASIS ID: *headland5-321152*

Project details	
Project name	Project Swift, Farm Park, Nature and Outdoor Activity Centre, Culham Geophysical Survey
Short description of the project	Headland Archaeology (UK) Ltd undertook a geophysical (magnetometer) survey, covering approximately 24 hectares, in support of a planning application (P17/S4416/FUL) for a proposed farm park, nature and outdoor activity centre with associated parking facilities and infrastructure at Culham, Oxfordshire. The application site is located within a landscape of high archaeological potential with extensive cropmarks recorded on the Oxfordshire Historic Environment Record both within the site and in the surrounding landscape. Three distinct areas of archaeological activity have been identified by the geophysical survey, two of which comprise linear and curvilinear anomalies (soil-filled ditches), together forming systems of land division and enclosure within which seven ring-ditch anomalies suggestive of settlement activity have been identified. The third area of archaeological activity comprises an isolated ring-ditch, possibly a round house. These areas broadly correspond to the cropmark data and are assessed as of high archaeological potential, probably locating later prehistoric and/or Roman activity as suggested in the Heritage Statement. The archaeological anomalies are largely confined to the margins of the geophysical survey area, with no anomalies of archaeological potential having been identified over the majority of the site. However, the recent application of green waste as soil conditioner over 40% of the survey area has resulted in a widespread elevated magnetic background against which any low magnitude anomalies of archaeological potential may be masked. For this reason, the archaeological potential across the affected areas remains uncertain. No green waste has been applied to the fields in the north and east of the site and here the archaeological potential is assessed as low to moderate.
Project dates	Start: 25-04-2018 End: 26-04-2018
Previous/future work	Not known / Not known
Any associated project reference codes	P17/S4416/FUL - Planning Application No.
Any associated project reference codes	LNC018 - Sitecode
Type of project	Field evaluation
Site status	None
Current Land use	Cultivated Land 4 - Character Undetermined
Monument type	N/A None
Monument type	N/A None
Significant Finds	N/A None
Significant Finds	N/A None
Methods & techniques	"Geophysical Survey"
Development type	Rural commercial
Prompt	National Planning Policy Framework - NPPF
Position in the planning process	Between deposition of an application and determination
Solid geology (other)	Gault formation, Lower Sandstone Group
Drift geology (other)	Hanborough Gravel
Techniques	Magnetometry
Project location	
Country	England
Site location	OXFORDSHIRE SOUTH OXFORDSHIRE CULHAM Project Swift, Farm Park, Nature and Outdoor Activity Centre, Culham
Study area	24 Hectares
Site coordinates	SU 5084 9585 51.658667558527 -1.264939380244 51 39 31 N 001 15 53 W Polygon
Project creators	
Name of Organisation	Headland Archaeology
Project brief originator	Headland Archaeology

Project design originator	Headland Archaeology
Project director/manager	Harrison, S
Project supervisor	Bishop, R
Type of sponsor/funding body	Developer
Project archives	
Physical Archive Exists?	No
Digital Archive recipient	ADS
Digital Contents	"other"
Digital Media available	"GIS","Geophysics","Images vector","Spreadsheets"
Paper Archive Exists?	No
Project bibliography 1	
Publication type	Grey literature (unpublished document/manuscript)
Title	Project Swift, Farm Park, Nature and Outdoor Activity Centre, Culham, Oxfordshire: Geophysical Survey
Author(s)/Editor(s)	Harrison, D.
Date	2018
Issuer or publisher	Headland Archaeology
Place of issue or publication	Edinburgh
Description	A4 glue bound report and PDF/A
Entered by	Sam Harrison (sam.harrison@headlandarchaeology.com)
Entered on	29 June 2018



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