

**Land at Stowell Farms
West Stowell
Wiltshire**

MAGNETOMETER SURVEY REPORT

for

Fowler Architecture and Planning

on behalf of

**The Lady Rothschild (1997)
Discretionary Settlement**

Kerry Donaldson & David Sabin

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ARCHAEOLOGICAL SURVEYS LTD

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Ordnance Survey Grid Reference – **SU 13403 63035 to SU 14916 60506**



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SUMMARY

Detailed magnetometry was carried out by Archaeological Surveys Ltd over the site of a proposed digestate lagoon and associated slurry pipeline at West Stowell in Wiltshire. The results demonstrate the presence of a number of anomalies towards the centre of the survey corridor that could relate to cut features with archaeological potential, possibly associated with the nearby Stanchester Roman building. A small number of linear anomalies to the south east could also be associated, but this is uncertain. A number of linear and discrete anomalies immediately south west of West Stowell Farm are not well defined, but could have archaeological potential. Elsewhere the anomalies are generally poorly defined and lack a coherent morphology and cannot be confidently interpreted as cut features.

1 INTRODUCTION

1.1 *Survey background*

- 1.1.1 Archaeological Surveys Ltd was commissioned by Fowler Architecture and Planning, on behalf of The Lady Rothschild (1997) Discretionary Fund, to undertake a magnetometer survey of an area of land at West Stowell, Wilcot near Pewsey in Wiltshire. The site has been outlined for a proposed development of a new digestate lagoon and slurry pipeline (Wiltshire Council planning application no: PL/2021/05781). The survey forms part of an archaeological assessment.
- 1.1.2 The geophysical survey was carried out in accordance with a Written Scheme of Investigation (WSI) produced by Archaeological Surveys (2021) and approved by Neil Adam, Assistant County Archaeologist for Wiltshire Council, prior to commencing the fieldwork.

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 so that they may be assessed prior to the construction of the digestate lagoon and associated pipeline. The methodology is considered an efficient and effective approach to archaeological prospection.
- 1.2.2 Geophysical survey can provide useful information on the archaeological potential of a site; however, the outcome of any survey relies on a number of factors and as a consequence results can vary. The success in meeting the aims and objectives of a survey is, therefore, often impossible to predetermine.

1.3 Standards, guidance and recommendations for the use of this report

- 1.3.1 The survey and report follow the recommendations set out by: European Archaeological Council (2015) *Guidelines for the Use of Geophysics in Archaeology*; 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) (updated 2020) *Standard and Guidance for Archaeological Geophysical Survey*.
- 1.3.2 Archaeological Surveys Ltd provide a detailed geophysical survey report and it is recommended that where possible the contents should be considered in full. The Summary provides a brief overview of the results with more detail available in the Discussion and/or Conclusion. The *List of anomalies* within the Results provides a detailed assessment of the anomalies within separate categories which can be useful in inferring a level of confidence to the interpretation. Quality and factors influencing the interpretation of anomalies is also set out within the results.
- 1.3.3 It is recommended that the full report should always be considered when using data and interpretation plots; where this is not possible, in the field for example, the abstraction and interpretation plots should retain their colour coding and be used with a corresponding legend.
- 1.3.4 Where targeting of anomalies by excavation is to be carried out, care should be taken to place trenches over solid lines or features visible on the abstraction and interpretation plots. Archaeological Surveys abstraction and interpretation avoids the use of dashed or dotted line formats, and broken or fragmented lines used in interpretive plots may well correspond closely with truncation of archaeological features.

1.4 Site location, description and survey conditions

- 1.4.1 The site is located between West Stowell Farm in the north at SU 13403 63035 and Sharcott Pennings Farm in the south at SU 14916 60506. The survey area covers approximately 14ha within 11 separate survey areas. Areas 1 and 2 in the north have been outlined for the digestate lagoon and new tree planting, with a c40m wide corridor centred on the pipeline location surveyed along the remaining route, see Figs 01 and 02.
- 1.4.2 Areas 1, 4, 6, 7 & 10 are under arable cultivation and contained low crop cover, stubble or were open soil. Areas 2, 3, 5, 8, 9 & 11 contained grass cover, either for grazing or mowing. The majority of the survey areas are flat or slope gently although Areas 8 – 10 cross more undulating land with a moderately steep north facing slope encountered within Area 10. Part of Area 8 was unsurveyable as it contains saplings and clumps of rushes, the area is low lying and poorly drained in places.
- 1.4.3 The ground conditions across the site were generally considered to be favourable for the collection of magnetometry data. Weather conditions during

the survey were mainly fine.

1.5 *Site history and archaeological potential*

1.5.1 A Heritage Impact Assessment has been prepared by Foundations Heritage (2021) which outlines that a number of medieval findspots and medieval earthworks are located at West Stowell with a number of Bronze Age items including an axe, palstave and spearhead also located in the area. To the south of West Stowell is the location of the partly excavated Stanchester Romano-British building, situated approximately 80m west of the pipeline. The pipeline route crosses under the Kennet and Avon Canal and earthworks to the south of this are recorded as possible medieval or post medieval water meadows.

1.6 *Geology and soils*

1.6.1 The underlying solid geology across the site is sandstone from the Upper Greensand Formation with overlying head deposits towards the southern part of the survey corridor (BGS, 2017). Surface observations within the southern part of Area 10 suggest the presence of an isolated zone of Clay-with-flints Formation. This zone is within an elevated part of the field.

1.6.2 The overlying soil across the survey area is from the Ardingdon association and is a typical argillic brown earth. It consists of a deep, well drained, fine and coarse loamy glauconitic soil (Soil Survey of England and Wales, 1983).

1.6.3 Magnetometry survey carried out across similar geology and soils has produced variable results as they are often associated with low magnetic contrast and low levels of magnetic susceptibility (Linford, Linford & Payne, 2013) (Hardwick & Payne, 2014). However, cut features of archaeological potential may be located where human activity has altered the magnetic characteristics of the soil sufficiently. Higher levels of soil magnetic susceptibility may be present towards the southern end of the corridor (Areas 10 & 11) due to the presence of unmapped Clay-with-flints deposits.

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 thermoremanence (also known as thermoremanence) are factors associated with the formation of localised fields.

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). Additional details are set out in 2.2 below and within Appendix A.

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 (FGM650) spaced 0.5m apart with readings recorded at 20Hz. The cart is pushed at walking speed and not towed. Each sensor is not zeroed in the field as the vertical axis alignment is precisely fixed leaving sensor offsets that are removed during data processing. The fixing of the vertical alignment ensures the sensors are not unduly influenced by localised magnetic fields and that the vertical component of a magnetic anomaly is measured. The gradiometers have a measurement range of ± 8000 nT, although the recorded range is ± 3000 nT, and resolution is around 0.1nT. They are linked to a Leica GS10 RTK GNSS with data recorded by SENSYS MAGNETO®MXPDA software on a rugged PDA computer system.
- 2.2.2 Due to the fixed offsets within the fluxgate sensors, as a result of the manufacturing and tensioning process, the survey data do not provide a visually useful dataset until a zero median traverse algorithm is applied. It is recognised that this has the potential to affect some anomalies detrimentally by removing linear features orientated parallel to survey transects. However, this has not been noted as a particular problem with the system due to the high resolution data collection, generally long length of traverses and variability within the magnetic characteristics of a linear anomaly.
- 2.2.3 Data are collected along a series of parallel survey transects to achieve 100% coverage of the surveyable land. 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. 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).

2.2.4 Fluxgate sensors are highly sensitive to temperature change and this manifests as drift during the course of a survey. This can be particularly noticeable during the morning as temperatures rise and the equipment warms or cools. Sensor drift within the course of a traverse will appear as a line trending from negative to positive after processing with a zero median traverse algorithm. To remove the potential for temperature drift, data were collected after a 20 minute stabilisation period and traverses were limited to a time of generally <100s.

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. The software effectively allocates a geographic position for each data point and can compensate for fixed offsets present within the FGM650 sensors. The offsets are positive or negative values present on all fluxgate gradiometer sensors. Some systems use manual or electronic balancing to effectively zero the sensors; however, this is a short term measure that is prone to drift through temperature changes and vibration and can easily be incorrectly set due to localised magnetic fields. The FGM650 sensors are very accurately aligned to the vertical magnetic gradient and are highly stable showing negligible drift on long traverses. The offset values are removed using TerraSurveyor software.

2.3.2 Survey tracks are analysed and georeferenced raw data (UTM Z30N) are then exported in ASCII format for further analysis and display within TerraSurveyor. The removal of the offset values (compensation) of the sensors is also carried out in TerraSurveyor using a zero median traverse function. Data are then considered to be minimally processed. Note: without the zero median traverse function it is not possible to create a meaningful data plot as all sensors have a different offset value. 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 The minimally processed data are collected between limits of $\pm 3000\text{nT}$ and clipped for display at $\pm 2\text{nT}$. Data are interpolated to a resolution of effectively 0.5m between tracks and 0.15m along each survey track.

2.3.4 Additional data processing has been carried out for Areas 1, 2, 3 & 11 in the form of high pass filtering. This effectively removes low frequency variation along a traverse that has been caused by large magnetic bodies, cultivation or rapid temperature change.

2.3.5 Additional data processing has been carried out for Areas 4, 5, 6, 7, 9 & 10 in the form of low pass filtering. This effectively removes high frequency variation along a traverse that has been caused by uneven ground and associated vibration. Data treated to additional processing have been compared to

unprocessed data to ensure that no significant anomalies have been removed.

- 2.3.6 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 processing.
- 2.3.7 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. With regard to the Sensys MXPDA, minimally processed data are considered by the manufacturer to be data that are compensated by SENSYS MAGNETO DLMGPS software, see 2.3.1 and 2.3.2. Note: traceplots are not considered to be appropriate as they do not provide an accurate or useful assessment of the magnetic anomalies due to the very high density of data collection. In addition, traceplots cannot be meaningfully plotted against base mapping and in areas of complexity traces may be lost or highly confused. Traceplots may be used to demonstrate characteristic magnetic profiles across discrete features where it is considered beneficial.
- 2.3.8 The raster images are combined with base mapping using ProgeCAD Professional 2021, creating DWG (2018) 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 GNSS, resection method, etc.
- 2.3.9 An abstraction and interpretation is drawn and plotted 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. Appendix E sets out CAD layer names with colour and graphic content for each interpretation category, see 3.3.
- 2.3.10 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.
- 2.3.11 The abstraction and interpretation procedure has been supported by analysis of a digital terrain model plot derived from the Environment Agency's LiDAR data. Shaded relief plots and contours are created using Surfer 15 (Azimuth:135, Altitude:45, Z factor:10), (Fig 17).
- 2.3.12 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 11 survey areas covering approximately 14ha.
- 3.1.2 Magnetic anomalies located can be generally classified as positive linear and discrete positive responses of archaeological potential, positive and negative anomalies of an uncertain origin, anomalies associated with land management, linear anomalies of an agricultural origin, areas of magnetic debris and disturbance, strong discrete dipolar anomalies relating to ferrous objects and strong multiple dipolar linear anomalies relating to buried services or pipelines.
- 3.1.3 Anomalies located within each survey area have been numbered and are described in 3.4 to 3.14 below with subsequent discussion in Section 4.

3.2 Statement of data quality and factors influencing the interpretation of anomalies

- 3.2.1 Data are considered representative of the magnetic anomalies present within the site. There are no significant defects within the dataset.
- 3.2.2 Anomalies generally appear to have low contrast and this is likely to relate to generally low levels of magnetic susceptibility within the soils and subsoils. However, anomalies of archaeological potential were located, as well as weak cultivation marks, and it is, therefore, possible for anthropogenic activity to create enhanced magnetic susceptibility along the survey corridor. A possible unmapped zone of Clay-with-flints Formation in the southern part of Area 10 would infer higher levels of magnetic susceptibility towards the southern end of the survey corridor within Areas 10 & 11.
- 3.2.3 Due to the nature of corridor surveys, interpretation is limited where the full extent of anomalies has not been recorded.

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 general explanation of the characteristics of the magnetic anomalies is set out for each category in order to justify interpretation, see Table 1.

Interpretation category	Description and origin of anomalies
Anomalies with archaeological potential	Anomalies have the characteristics (mainly morphological) of a range of archaeological features such as pits, ring ditches, enclosures, etc. The category is used where there is a high level of confidence which may be due to additional supporting information where morphology is unclear or uncharacteristic.
Anomalies with an uncertain origin	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</u>

	features, but equally relatively modern features, geological/pedological features and agricultural features should be considered. Morphology may be unclear or uncharacteristic and there may be a lack of additional supporting information. 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.
Anomalies relating to land management	Anomalies are mainly linear and may be indicative of the magnetically enhanced fill of cut features (i.e. ditches). 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 ceramic land drains.
Anomalies with an agricultural origin	The anomalies are often linear and form a series of parallel responses or are parallel to extant land boundaries. Where the response is broad, former ridge and furrow is likely; narrow response is often related to modern ploughing. This category <u>does not include</u> agricultural features of early date or considered to be of archaeological potential (e.g. animal stockades, enclosures, farmsteads, etc).
Anomalies associated with magnetic debris	Magnetic debris often appears as areas containing many small dipolar anomalies that may range from weak to very strong in magnitude. They often occur where there has been dumping or ground make-up and are related to magnetically thermoremanent materials such as brick or tile or other small fragments of ferrous material. This type of response is occasionally associated with kilns, furnace structures, hearths and nail spreads from former wooden structures or rooves 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.
Anomalies with a modern origin	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 these 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 adjacent to strong magnetic sources. Buried services may produce characteristic multiple dipolar anomalies dependant upon their construction.
Anomalies with a natural origin	Naturally formed magnetic anomalies are caused by localised variability in the magnetic susceptibility of soils, subsoils and other drift or solid geologies. Anomalies may be amorphous, linear or curvilinear and may appear 'fluvial' or discrete; the latter are <u>almost impossible to distinguish from pit-like anomalies with an anthropogenic origin</u> . Fluvial, glacial and periglacial processes may be responsible for their formation within drift material and subsoil. Igneous and metamorphic activity can lead to anomalies within more solid geology.

Table 1: List and description of interpretation categories

3.4 Summary of anomalies – Area 1

Area between OS NGR 413403 163036 and 413455 162936, see Fig 03.

- 3.4.1 Area 1 contains a small number of short and very weakly positive linear anomalies and discrete anomalies. They lack a coherent morphology and cannot be confidently interpreted

3.5 Summary of anomalies – Area 2

Area between OS NGR 413480 162894 and 413529 162496, see Figs 03 & 04.

- 3.5.1 Area 2 contains a small number of discrete, pit-like responses and short,

positive anomalies. An area of magnetic enhancement in the southern part of the survey area could be associated with soil consolidation or storage of manure etc. adjacent to the field entrance. There is also a pipe or service extending across the northern part of the survey area and evidence for a formerly mapped land parcel which is associated with magnetic debris in the centre. Evidence for land drains has also been located in the southern part of the site.

3.6 *Summary of anomalies – Area 3*

Area between OS NGR 413516 162475 and 413501 162379, see Fig 04.

- 3.6.1 Area 3 contains ridge and furrow and a small number of positive and negative anomalies of uncertain origin at the south eastern corner. A T-shaped service or pipe extends within the survey area.

3.7 *Summary of anomalies - Area 4*

Area between OS NGR 413499 162346 and 413676 162090, see Figs 05 & 06.

Anomalies with an uncertain origin

(1) – The northern part of Area 4 contains a number of positive and negative responses, some of which may form rectilinear features. The anomalies are fragmented and not clearly defined, but it is possible that they relate to cut features with archaeological potential.

(2) – Weakly positive and negative linear anomalies and a discrete positive response are situated towards the centre of the survey area. While the discrete response could relate to a pit-like feature, it is not possible to determine if the linear anomalies also relate to cut features or if they are associated with agricultural activity.

(3) – A short, positive linear anomaly is situated at the southern end of the survey area. It is possible that it extends further south into Area 5, but this is uncertain.

Anomalies associated with land management

(4) – The centre of the survey area appears to be crossed by a ceramic land drain.

Anomalies associated with magnetic debris

(5) – Magnetic debris is located in the north eastern corner of the survey area, and it has partially obscured weaker anomalies.

3.8 Summary of anomalies - Area 5

Area between OS NGR 413687 162071 and 413932 161863, see Figs 07 & 08.

Anomalies of archaeological potential

(6) – Weakly positive rectilinear anomalies are located in the southern half of the survey area. Although they are very weak and poorly defined, given the rectilinear morphology and the location of Stanchester Roman building just to the south west, there is potential that they are associated.

(7) – A positive curvilinear anomaly appears to enclose a number of discrete responses. Situated on the edge of the survey corridor it is not fully defined, but such a response could relate to a ring ditch associated with a late prehistoric round house.

Anomalies with an uncertain origin

(8) – The survey area contains a number of weakly positive linear, rectilinear, curvilinear and discrete anomalies. They are generally very weak and do not have a clearly defined morphology, but it is possible that they relate to features with archaeological potential.

Anomalies associated with land management

(9) – An L-shaped positive rectilinear anomaly appears to relate to a boundary feature. The east to west part appears to correspond to a field boundary mapped between 1886 and 1956, although the mapped boundary may be more likely to be associated with the strong dipolar responses just to the south of the linear anomaly. An extension to the north of the western side would link it to the extant field corner just beyond the survey corridor and it is also parallel with a public footpath, mapped just to the west. The L-shaped anomaly appears to correspond to the inner edge of a low rectilinear earthwork seen on the LiDAR imagery and the features could be of some antiquity.

(10) – A positive linear anomaly in the northern part of Area 5 corresponds to the position of a formerly mapped field boundary.

3.9 Summary of anomalies - Area 6

Area between OS NGR 413944 161855, see Figs 09 & 10.

Anomalies with an uncertain origin

(11) – A number of positive linear and discrete anomalies are situated in the northern part of Area 6. Although they are generally short or fragmented, their response and morphology may indicate that they relate to cut features with archaeological potential.

(12) – Weakly positive linear anomalies lack a coherent morphology and cannot be interpreted as relating to cut features.

Anomalies associated with land management

(13) – A parallel negative and positive linear anomaly extends through the survey area and relates to a field boundary, mapped in 1842, but removed by 1886.

3.10 Summary of anomalies – Area 7

Area between OS NGR 414074 161732 and 414382 161435, see Figs 11 & 12.

3.10.1 Area 7 contains a small number of weakly positive linear anomalies and some could relate to agricultural activity. A land drain also crosses the survey area.

3.11 Summary of anomalies – Area 8

Area between OS NGR 414450 161369 and 414555 161300, see Figs 13 & 14.

3.11.1 Area 8 contains negative linear anomalies that are a response to extant drainage channels associated with water meadow earthworks.

3.12 Summary of anomalies – Area 9

Area between OS NGR 414563 161294 and 414726 161190, see Figs 13 & 14.

3.12.1 Area 9 contains magnetically variable amorphous responses that appear to relate to natural features on the west facing slope. Three parallel anomalies at the eastern end are likely to relate to land drainage.

3.13 Summary of anomalies – Area 10

Area between OS NGR 414749 161175 and 414899 160899, see Fig 15.

3.13.1 Area 10 contains a small number of positive anomalies that cannot be confidently interpreted. A group are situated towards the centre of the survey

area on the steep, north facing slope, and could be associated with natural features.

3.14 Summary of anomalies – Area 11

Area between OS NGR 414907 160854 and 414933 160531, see Fig 16.

Anomalies with an uncertain origin

(14) – The northern part of Area 11 is mapped as having underlying head deposits and there are a number of discrete, pit-like and a small number of linear anomalies within this part of the site. It is not clear if they are naturally formed features within the underlying head deposits, or if they have an archaeological origin.

Anomalies with an agricultural origin

(15) – Negative linear anomalies have been caused by agricultural activity.

Anomalies with a modern origin

(16 & 17) – Two strong, multiple dipolar, linear anomalies extend across the survey area. One along the northern edge (16) and one further south (17).

4 DISCUSSION

- 4.1.1 The geophysical survey was carried out within eleven separate survey areas and although the majority contain geophysical anomalies, only within one area can the anomalies be interpreted as of archaeological potential. There are a number of rectilinear, curvilinear and discrete anomalies (6 & 7) within Area 5 and although not clearly defined, they are located within a field that is recorded as the site of Stanchester Roman building and an association is likely. A boundary feature (9) corresponds to a low bank in the field and partially correlates with a formerly mapped field boundary, but it is possible that this is of some antiquity as it is parallel with the anomalies of archaeological potential. Other anomalies have been identified within Area 5, but they are generally very weak and poorly defined (8); however, they could also be of archaeological potential.
- 4.1.2 Within Area 6 to the south of Area 5 are a small number of positive linear and discrete responses (11), and although they are not fully defined, could relate to further cut features. Within Area 4 to the south west of West Stowell Farm there are a number of positive and negative linear anomalies (1), which although lack a coherent morphology, could have archaeological potential.

- 4.1.3 Towards the southern end of the survey corridor in Area 11, a cluster of discrete and short positive linear anomalies (14) could relate to cut features; however, they are situated on an area of head deposits and a natural origin is possible.

5 CONCLUSION

- 5.1.1 The results of the geophysical survey indicate the presence of a number of positive anomalies towards the centre of the survey corridor that could relate to cut features with archaeological potential. Although not well defined, they are situated close to the location of the Stanchester Roman building and could be associated. A small number of linear anomalies to the south could also relate to cut features, but this is not certain. Further north, to the south west of West Stowell are a number of linear, rectilinear and discrete responses, which although lack a well defined morphology, are situated close to the settlement which has medieval origins and an association is possible.
- 5.1.2 Elsewhere the anomalies are generally weak, short and poorly defined and cannot be confidently interpreted as cut features. To the south of the Kennet and Avon Canal, negative linear anomalies relate to extant ditches associated with water meadow features, and elsewhere anomalies appear to relate to natural features. Towards the southern end of the survey corridor, a number of discrete and short, positive linear anomalies have been located, but is not possible to determine if they are natural or anthropogenic in origin.

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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 magnetic field. The difference between the two sensors will relate to the strength of 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. Different ranges are applied to data in order to determine the most suitable for anomaly abstraction and display.

High Pass Filter

Removes low frequency anomalies within the data that are not considered to be archaeologically significant and may be natural in origin. A window passes over the data, the mean of all the data within the window is subtracted from the centre value. The size of the window is adjusted as is the weighting which may be uniform or Gaussian. The process is used to improve the visibility of anomalies of interest.

Low Pass Filter

Removes high frequency anomalies or 'noise' within datasets and provides a smoother output. A window passes over the data, the mean of all the data within the window is used to replace the centre value. The size of the window is adjusted as is the weighting. The process is used to improve the visibility of anomalies of interest.

Zero Median/Mean Traverse

The median (or mean) of data from 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 offset values of the gradiometer sensors. The process can remove archaeological features that run along a traverse but with the high resolution datasets created by the Sensys FGM650 sensors and the method of data collection this has not been a notable problem. In fact, the removal of offsets using software avoids carrying out a balancing procedure on site, which inevitably can never be done in magnetically clean conditions and results in improperly aligned fluxgate sensors and/or electronic adjustment values.

Appendix C – survey and data information

Area 1	4 High pass Uniform (median) filter: Window dia: 300 5 Clip from -2.00 to 2.00	X&Y Interval: 0.15 m Source GPS Points: Active: 535896, Recorded: 535896	
Filename: J882-mag-Area1-proc-hpf.xcp Instrument Type: Sensys DLMGPS Units: UTM Zone: 30U Survey corner coordinates (X/Y): OSGB36 Northwest corner: 413402.18, 163036.46m Southeast corner: 413497.43, 162931.16 m Direction of 1st Traverse: 90 deg Collection Method: Randomised Sensors: 5 Dummy Value: 32702 Dimensions Survey Size (meters): 95.3 m x 105 m X&Y Interval: 0.15 m Source GPS Points: Active: 141000, Recorded: 141000 Stats Max: 2.21 Min: -2.20 Std Dev: 0.51 Mean: 0.01 Median: 0.00 Composite Area: 1.003 ha Surveyed Area: 0.4918 ha PROGRAM Name: TerraSurveyorPre Version: 3.0.36.24 GPS based Proce5 1 Base Layer. 2 Unit Conversion Layer (Lat/Long to UTM). 3 DeStripe Median Traverse: 4 High pass Uniform (median) filter: Window dia: 200 5 Clip from -2.00 to 2.00	Filename: J882-mag-Area4-proc.xcp Northwest corner: 413473.34, 162357.67 m Southeast corner: 413697.74, 162088.57 m Dimensions Survey Size (meters): 224 m x 269 m X&Y Interval: 0.15 m Source GPS Points: Active: 468700, Recorded: 468700 Stats Max: 2.21 Min: -2.20 Std Dev: 0.77 Mean: 0.01 Median: 0.01 Composite Area: 6.0386 ha Surveyed Area: 1.4492 ha GPS based Proce4 1 Base Layer. 2 Unit Conversion Layer (Lat/Long to UTM). 3 DeStripe Median Traverse: 4 Clip from -2.00 to 2.00	Stats Max: 2.21 Min: -2.20 Std Dev: 0.50 Mean: 0.00 Median: 0.01 Composite Area: 11.083 ha Surveyed Area: 2.1767 ha GPS based Proce5 1 Base Layer. 2 Unit Conversion Layer (Lat/Long to UTM). 3 DeStripe Median Traverse: 4 Lo pass Uniform (median) filter: Window dia: 13 5 Clip from -2.00 to 2.00	
Area 2	Filename: J882-mag-Area2-proc.xcp Northwest corner: 413423.38, 162899.66 m Southeast corner: 413544.887, 162493.61 m Dimensions Survey Size (meters): 122 m x 406 m X&Y Interval: 0.15 m Source GPS Points: Active: 778293, Recorded: 778293 Stats Max: 2.21 Min: -2.20 Std Dev: 0.64 Mean: 0.00 Median: 0.02 Composite Area: 4.9335 ha Surveyed Area: 3.1256 ha GPS based Proce4 1 Base Layer. 2 Unit Conversion Layer (Lat/Long to UTM). 3 DeStripe Median Traverse: 4 Clip from -2.00 to 2.00	Area 5 Filename: J882-mag-Area5-proc-lpf.xcp Northwest corner: 413656.44, 162073.48 m Southeast corner: 413958.99, 161852.23 m Dimensions Survey Size (meters): 303 m x 221 m X&Y Interval: 0.15 m Source GPS Points: Active: 430052, Recorded: 430052 Stats Max: 2.21 Min: -2.20 Std Dev: 0.56 Mean: 0.01 Median: 0.00 Composite Area: 6.6939 ha Surveyed Area: 1.7551 ha GPS based Proce5 1 Base Layer. 2 Unit Conversion Layer (Lat/Long to UTM). 3 DeStripe Median Traverse: 4 Lo pass Uniform (median) filter: Window dia: 13 5 Clip from -2.00 to 2.00	Area 8 Filename: J882-mag-Area8-proc .xcp Northwest corner: 414445.51, 161390.25 m Southeast corner: 414576.16, 161299.80 m Dimensions Survey Size (meters): 131 m x 90.5 m X&Y Interval: 0.15 m Source GPS Points: Active: 110994, Recorded: 110994 Stats Max: 2.21 Min: -2.20 Std Dev: 0.70 Mean: 0.02 Median: 0.01 Composite Area: 1.1817 ha Surveyed Area: 0.4411 ha GPS based Proce4 1 Base Layer. 2 Unit Conversion Layer (Lat/Long to UTM). 3 DeStripe Median Traverse: 4 Clip from -2.00 to 2.00
Area 3	Filename: J882-mag-Area3-proc-hpf.xcp Northwest corner: 413483.63, 162485.23m Southeast corner: 413539.13, 162368.38 m Dimensions Survey Size (meters): 55.5 m x 117 m X&Y Interval: 0.15 m Source GPS Points: Active: 115700, Recorded: 115700 Stats Max: 2.21 Min: -2.20 Std Dev: 1.06 Mean: 0.00 Median: 0.02 Composite Area: 0.64852 ha Surveyed Area: 0.42723 ha GPS based Proce5 1 Base Layer. 2 Unit Conversion Layer (Lat/Long to UTM). 3 DeStripe Median Traverse:	Area 6 Filename: J882-mag-Area6-proc-lpf.xcp Northwest corner: 413922.83, 161864.79 m Southeast corner: 414084.23, 161720.79 m Dimensions Survey Size (meters): 161 m x 144 m X&Y Interval: 0.15 m Source GPS Points: Active: 230092, Recorded: 230092 Stats Max: 2.21 Min: -2.20 Std Dev: 0.45 Mean: 0.01 Median: 0.01 Composite Area: 2.3242 ha Surveyed Area: 0.8738 ha GPS based Proce5 1 Base Layer. 2 Unit Conversion Layer (Lat/Long to UTM). 3 DeStripe Median Traverse: 4 Lo pass Uniform (median) filter: Window dia: 13 5 Clip from -2.00 to 2.00	Area 9 Filename: J882-mag-Area9-proc-lpf.xcp Northwest corner: 414522.30, 161313.49 m Southeast corner: 414741.45, 161172.94 m Dimensions Survey Size (meters): 219 m x 141 m X&Y Interval: 0.15 m Source GPS Points: Active: 247800, Recorded: 247800 Stats Max: 2.21 Min: -2.20 Std Dev: 0.54 Mean: -0.02 Median: 0.00 Composite Area: 3.0802 ha Surveyed Area: 1.0399 ha GPS based Proce5 1 Base Layer. 2 Unit Conversion Layer (Lat/Long to UTM). 3 DeStripe Median Traverse: 4 Lo pass Uniform (median) filter: Window dia: 13 5 Clip from -2.00 to 2.00
Area 4	Filename: J882-mag-Area4-proc-hpf.xcp Northwest corner: 413473.34, 162357.67 m Southeast corner: 413697.74, 162088.57 m Dimensions Survey Size (meters): 224 m x 269 m X&Y Interval: 0.15 m Source GPS Points: Active: 468700, Recorded: 468700 Stats Max: 2.21 Min: -2.20 Std Dev: 0.77 Mean: 0.01 Median: 0.01 Composite Area: 6.0386 ha Surveyed Area: 1.4492 ha GPS based Proce4 1 Base Layer. 2 Unit Conversion Layer (Lat/Long to UTM). 3 DeStripe Median Traverse: 4 Clip from -2.00 to 2.00	Area 7 Filename: J882-mag-Area7-proc-lpf.xcp Northwest corner: 414055.05, 161748.73 m Southeast corner: 414391.35, 161419.18 m Dimensions Survey Size (meters): 336 m x 330 m	Area 10 Filename: J882-mag-Area10-proc-lpf.xcp Northwest corner: 414735.84, 161192.35 m Southeast corner: 414917.34, 160898.05 m Dimensions Survey Size (meters): 182 m x 294 m X&Y Interval: 0.15 m Source GPS Points: Active: 409392, Recorded: 409392 Stats Max: 2.21 Min: -2.20 Std Dev: 0.73 Mean: 0.01

Median: 0.00
 Composite Area: 5.3415 ha
 Surveyed Area: 1.4463 ha
 GPS based Process
 1 Base Layer.
 2 Unit Conversion Layer (Lat/Long to UTM).
 3 DeStripe Median Traverse:
 4 Clip from -2.00 to 2.00
 5 Lo pass Uniform (median) filter: Window dia: 13

Area 11
 Filename: J882-mag-Area11-proc-hpf.xcp

Northwest corner: 414881.38, 160868.20 m
 Southeast corner: 414952.33, 160501.15 m
 Dimensions
 Survey Size (meters): 71 m x 367 m
 X&Y Interval: 0.15 m
 Source GPS Points: Active: 410690, Recorded: 410690
 Stats
 Max: 2.21
 Min: -2.20
 Std Dev: 0.80
 Mean: 0.00

Median: 0.00
 Composite Area: 2.6042 ha
 Surveyed Area: 1.4377 ha
 GPS based Process
 1 Base Layer.
 2 Unit Conversion Layer (Lat/Long to UTM).
 3 DeStripe Median Traverse:
 4 High pass Uniform (median) filter: Window dia: 300
 5 Clip from -2.00 to 2.00

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 PDF copy will be supplied to the Wiltshire Historic Environment Record with greyscale images and abstraction layers made available on request. The report will also be uploaded to the Online Access to the Index of archaeological investigations (OASIS).









Archive contents:

File type	Naming scheme	Description
Data	J882-mag-[area number/name].asc J882-mag-[area number/name].xcp J882-mag-[area number/name]-proc.xcp	Raw data as ASCII CSV TerraSurveyor raw data TerraSurveyor minimally processed data
Graphics	J882-mag-[area number/name]-proc.tif	Image in TIF format
Drawing	J882-[version number].dwg	CAD file in 2018 dwg format
Report	J882 report.odt	Report text in LibreOffice odt format

Table 2: Archive metadata

Appendix E – CAD layers for abstraction and interpretation plots

The table below sets out Archaeological Surveys Ltd CAD layer names with associated colours and graphical content. Where CAD files are available layers may be extracted for further CAD/GIS use. Note: hatched polygon boundaries are contained within layers with the RGB colour code 254, 255, 255 (near white) in order to prevent their visibility.

Report sub-heading and associated CAD layer names	Colour with RGB index	Layer content
Anomalies with archaeological potential		
AS-ABST MAG POS DISCRETE ARCHAEOLOGY	 Red 255,0,0	Solid donut, point or polygon (solid)
AS-ABST MAG POS LINEAR ARCHAEOLOGY	 Red 255,0,0	Polyline or polygon (solid)
Anomalies with an uncertain origin		
AS-ABST MAG POS LINEAR UNCERTAIN	 255,127,0	Line, polyline or polygon (solid)
AS-ABST MAG NEG LINEAR UNCERTAIN	 Blue 0,0,255	Line, polyline or polygon (solid)
AS-ABST MAG POS DISCRETE UNCERTAIN	 255,127,0	Solid donut, point or polygon (solid)
AS-ABST MAG POS UNCERTAIN	 255,127,0	Polygon (cross hatched ANSI37)
Anomalies relating to land management		
AS-ABST MAG BOUNDARY	 127,0,0	Line, polyline or polygon (solid or cross hatched ANSI37)
AS-ABST MAG LAND DRAIN	 Cyan 0,255,255	Line or polyline

Anomalies with an agricultural origin			
AS-ABST MAG AGRICULTURAL		Green 0,255,0	Line or polyline
AS-ABST MAG RIDGE AND FURROW		0,127,63	Line, polyline or polygon (cross hatched ANSI37)
Anomalies associated with magnetic debris			
AS-ABST MAG DEBRIS		132, 132, 132	Polygon (cross hatched ANSI37)
AS-ABST MAG STRONG DIPOLAR		132, 132, 132	Solid donut, point or polygon (solid)
Anomalies with a modern origin			
AS-ABST MAG DISTURBANCE		132, 132, 132	Polygon (hatched ANSI31)
AS-ABST MAG SERVICE		132, 132, 132	Line or polyline
Anomalies with a natural origin			
AS-ABST MAG NATURAL FEATURES		Yellow 255,255,0	Polygon (cross hatched ANSI37)

Table 3: CAD layering

Appendix F – copyright and intellectual property

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**Geophysical Survey
Land at Stowell Farms
West Stowell
Wiltshire**

Map of survey area



● Survey location

Site between OS NGR
SU 13403 63035 & SU 14916 60506

SCALE 1:25 000



SCALE TRUE AT AS



Survey location

**Geophysical Survey
Land at Stowell Farms
West Stowell
Wiltshire**

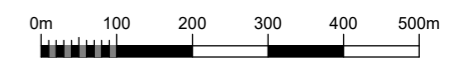
Referencing information

Referencing grid to OSGB36 datum at 200m intervals

● 414200 161600

— Survey tracks

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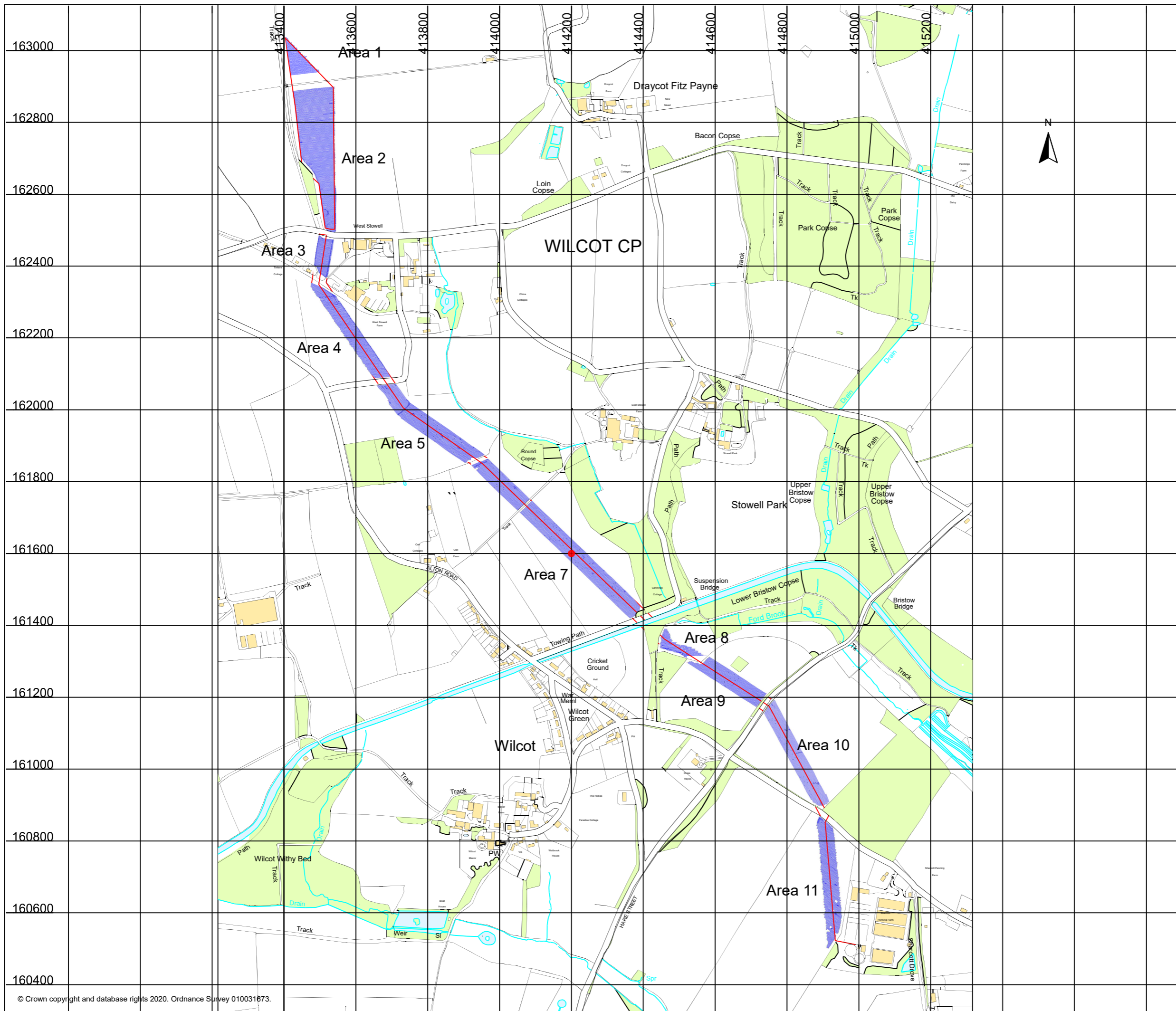


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KTD








CHECKED BY
DJS

FIG 02

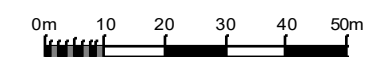


**Geophysical Survey
Land at Stowell Farms
West Stowell
Wiltshire**

Greyscale plot of processed magnetometer data & abstraction & interpretation of magnetic anomalies - Areas 1 & 2 north

-  Positive linear anomaly - of uncertain origin
-  Negative linear anomaly - of uncertain origin
-  Linear anomaly - of agricultural origin
-  Discrete positive response - possible pit-like feature
-  Magnetic disturbance from ferrous material
-  Strong multiple dipolar linear anomaly - pipeline / cable / service
-  Strong dipolar anomaly - ferrous object

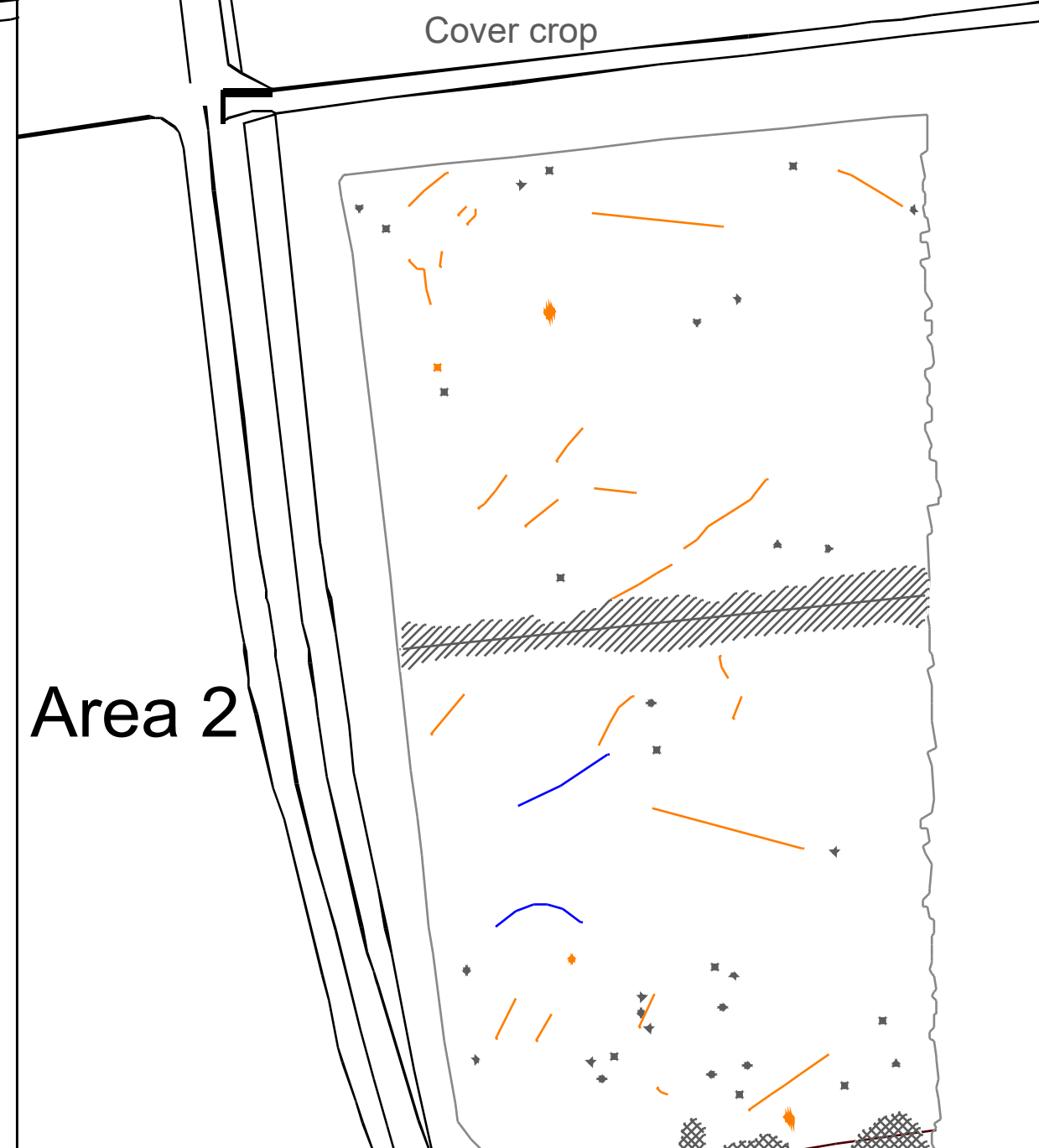
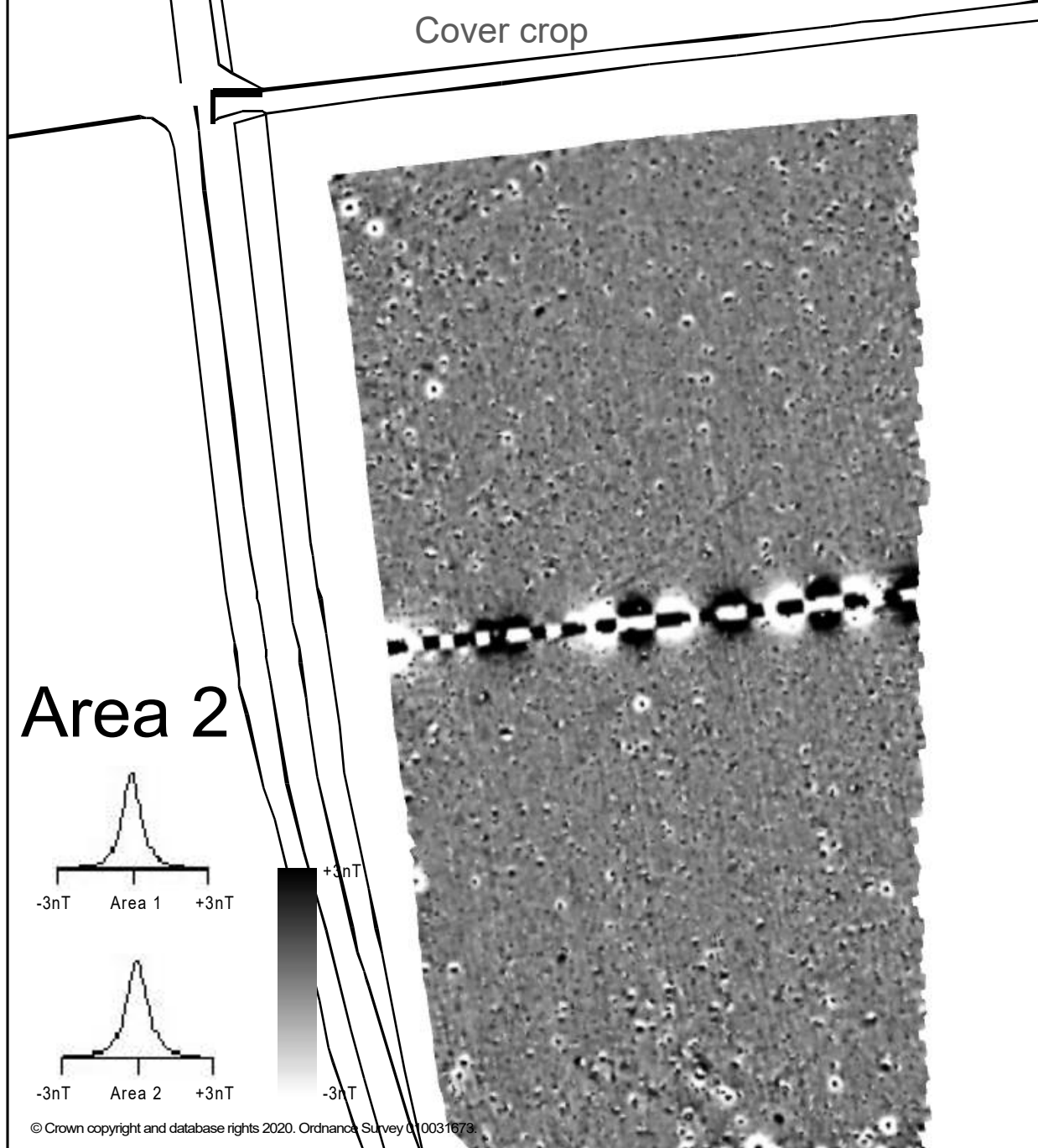
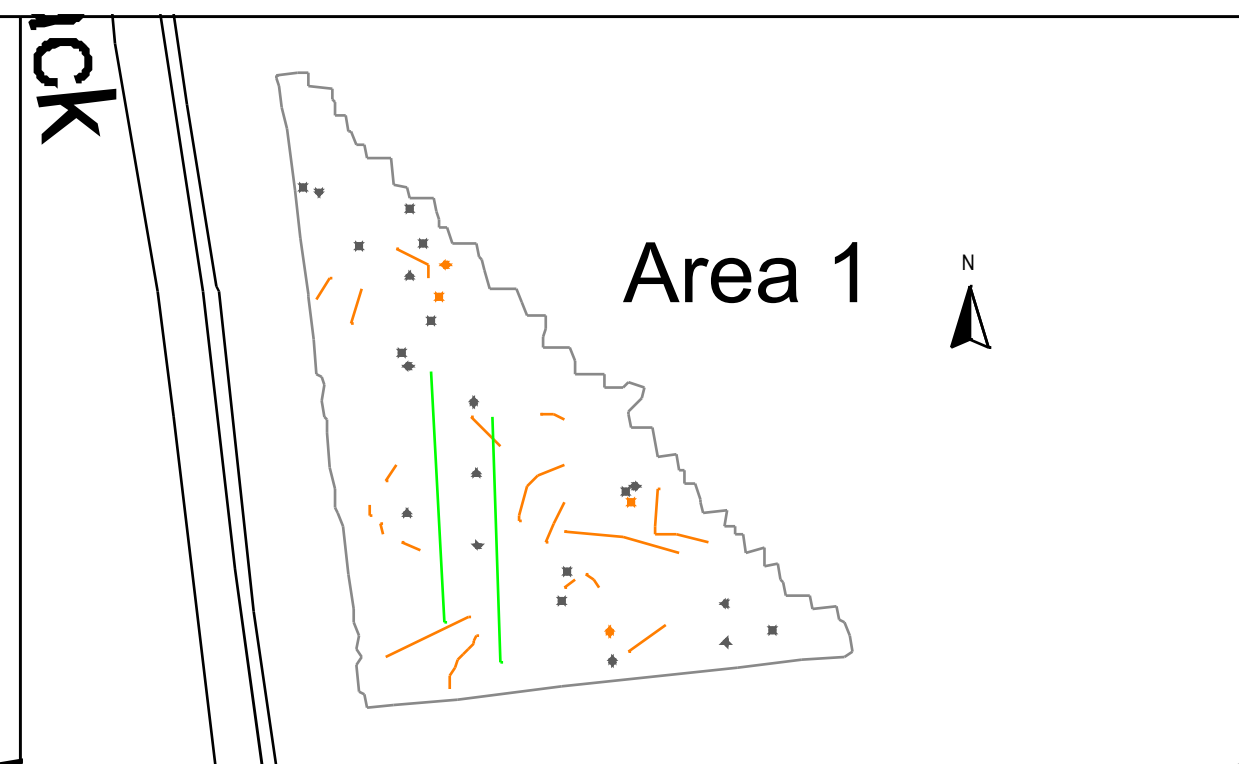
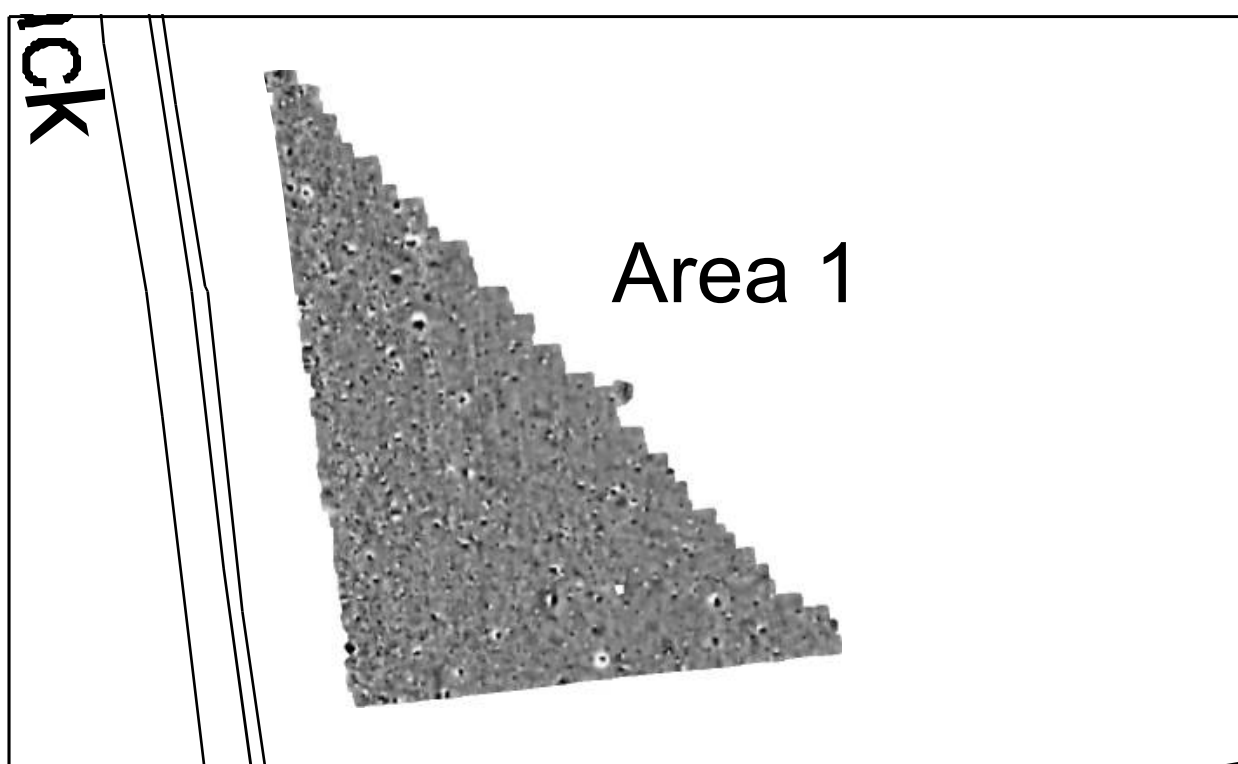
SCALE 1:1250



KTD

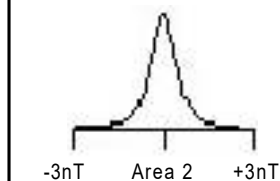
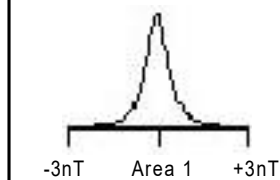
DJS

FIG 03



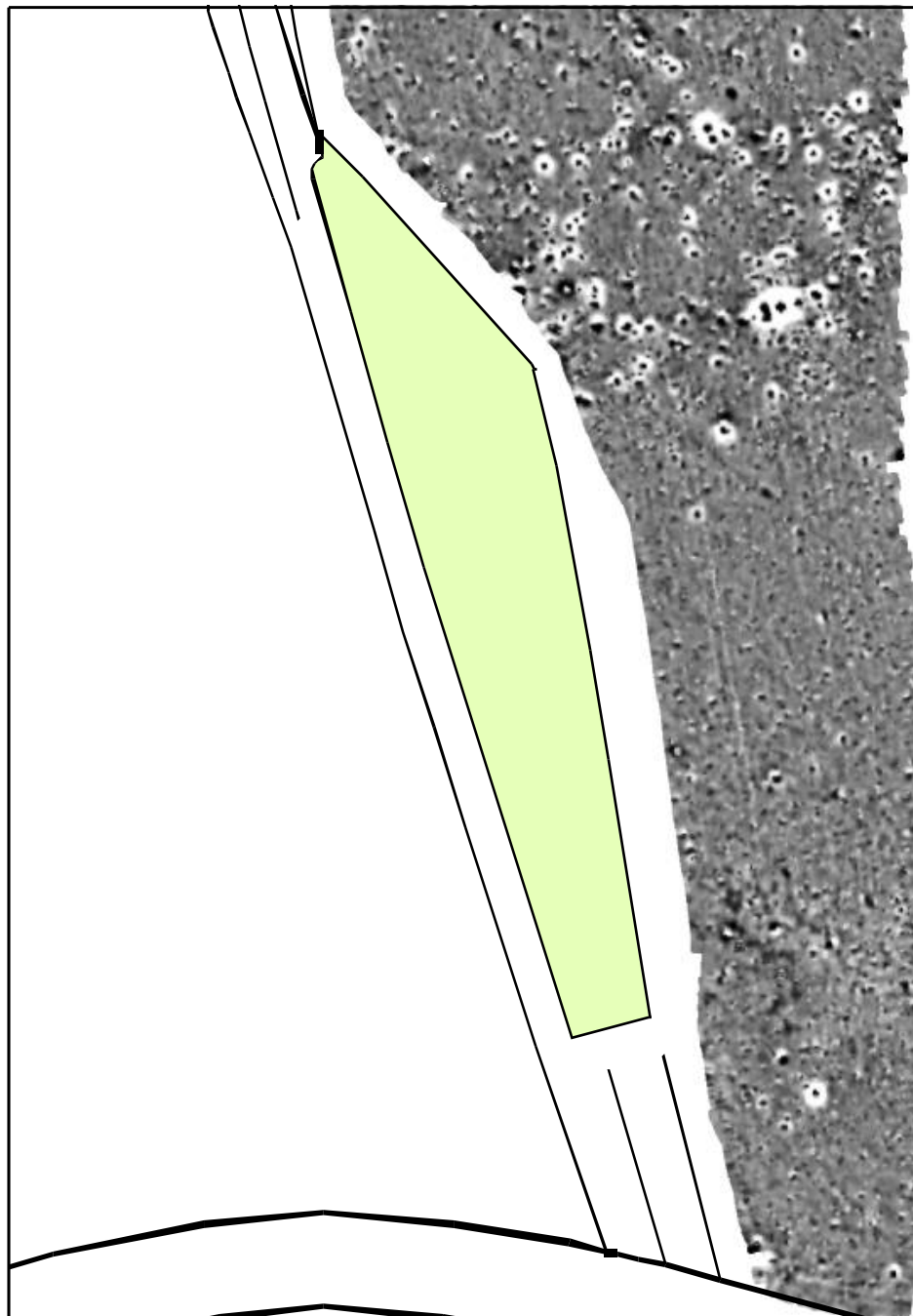
Area 2

Area 2

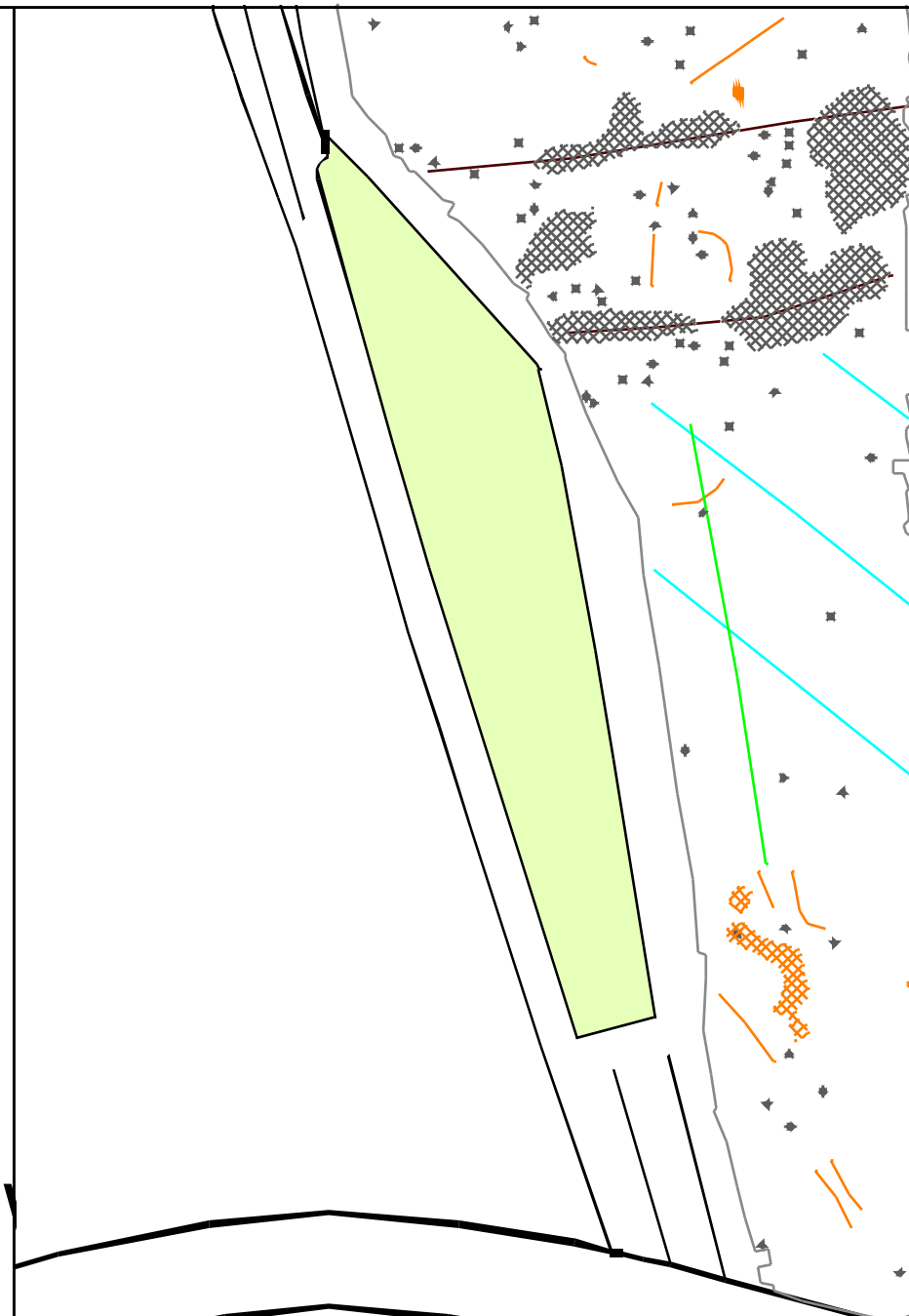


**Geophysical Survey
Land at Stowell Farms
West Stowell
Wiltshire**











Greyscale plot of processed magnetometer data & abstraction & interpretation of magnetic anomalies - Areas 2 south & 3

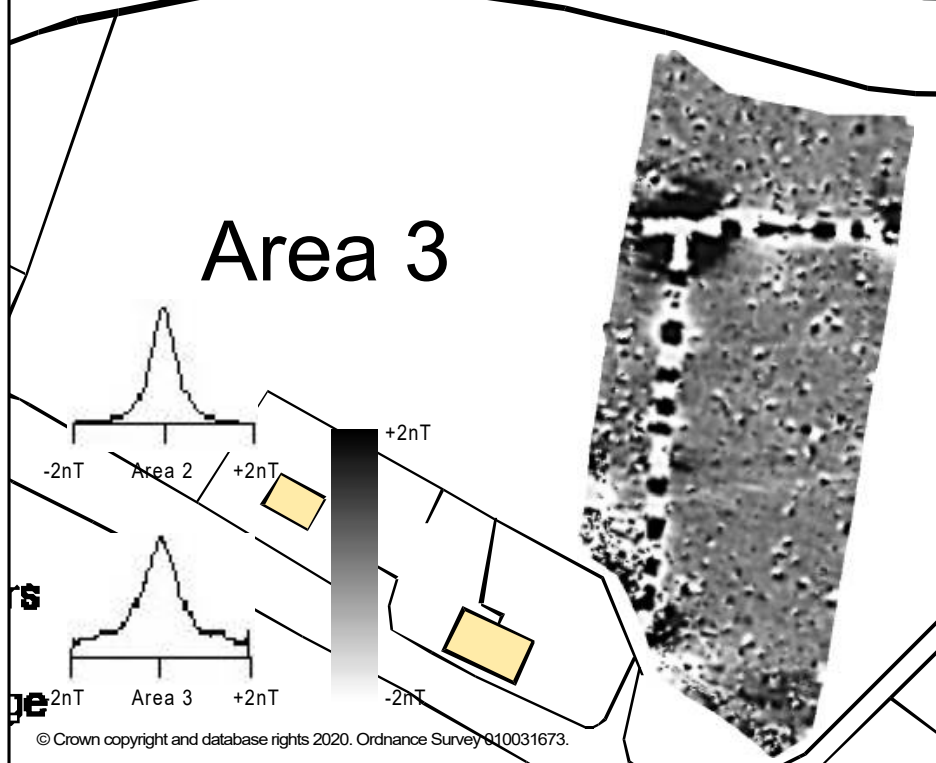


Area 2

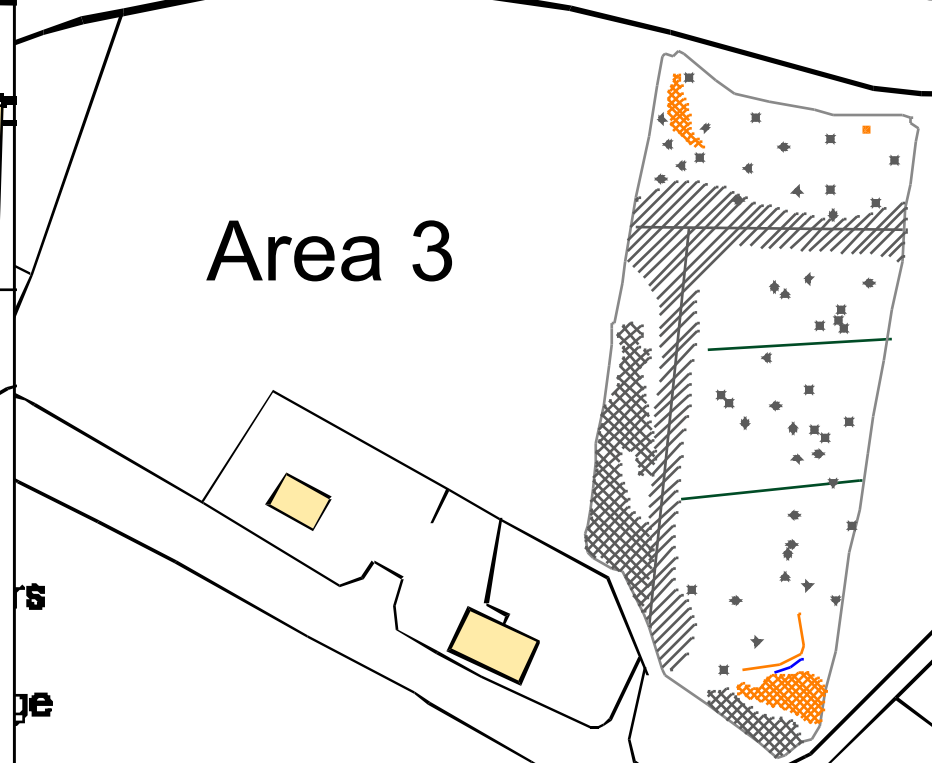


Area 2

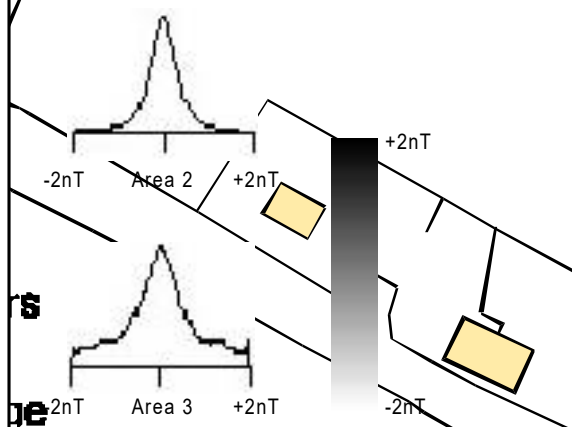
-  Positive linear anomaly - possible ditch-like feature
-  Linear anomaly - of agricultural origin
-  Positive/weak multiple dipolar linear anomaly - possible land drain
-  Positive linear anomaly - former field boundary
-  Discrete positive response - possible pit-like feature
-  Positive anomaly - magnetically enhanced material
-  Magnetic debris - spread of magnetically thermoremanent/ferrous material
-  Magnetic disturbance from ferrous material
-  Strong multiple dipolar linear anomaly - pipeline / cable / service
-  Strong dipolar anomaly - ferrous object



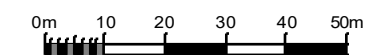
Area 3



Area 3



SCALE 1:1250



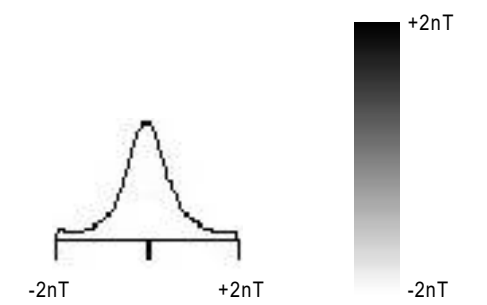
KTD

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FIG 04

Geophysical Survey
Land at Stowell Farms
West Stowell
Wiltshire

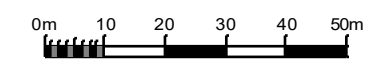
Greyscale plot of processed
magnetometer data - Area 4



Area 4

West Stowell
Farm

SCALE 1:1250










KTD

DJS

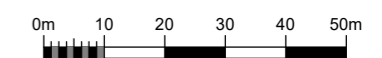
FIG 05

**Geophysical Survey
Land at Stowell Farms
West Stowell
Wiltshire**

**Abstraction and interpretation of
magnetic anomalies - Area 4**

-  Positive linear anomaly - possible ditch-like feature
-  Negative linear anomaly - material of low magnetic susceptibility
-  Weak, multiple dipolar linear anomaly - land drain
-  Discrete positive response - possible pit-like feature
-  Magnetic debris - spread of magnetically thermoremanent/ferrous material
-  Magnetic disturbance from ferrous material
-  Strong dipolar anomaly - ferrous object

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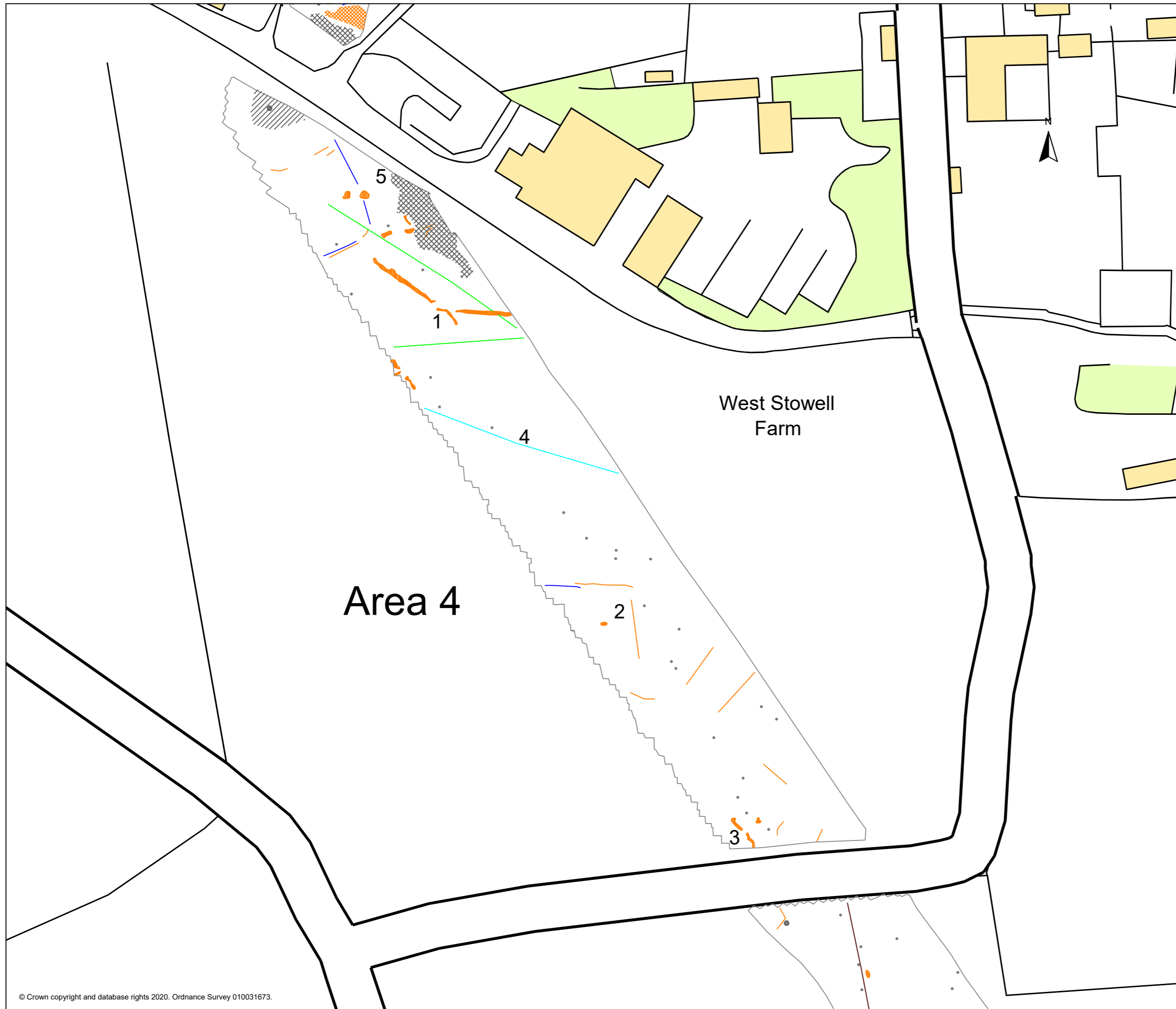


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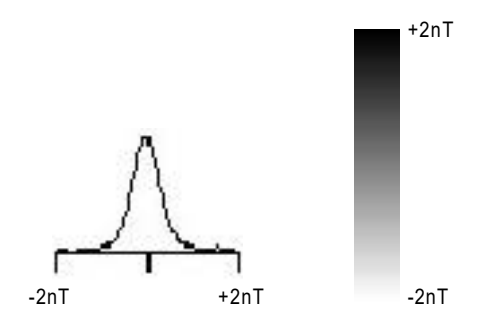
CHECKED BY
DJS

FIG 06



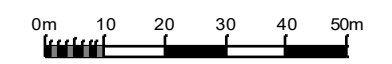
Geophysical Survey
Land at Stowell Farms
West Stowell
Wiltshire

Greyscale plot of processed
magnetometer data - Area 5



Area 5

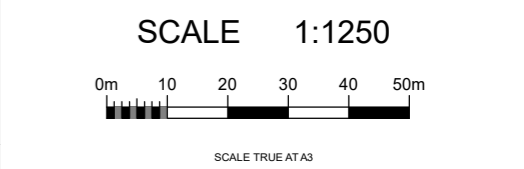
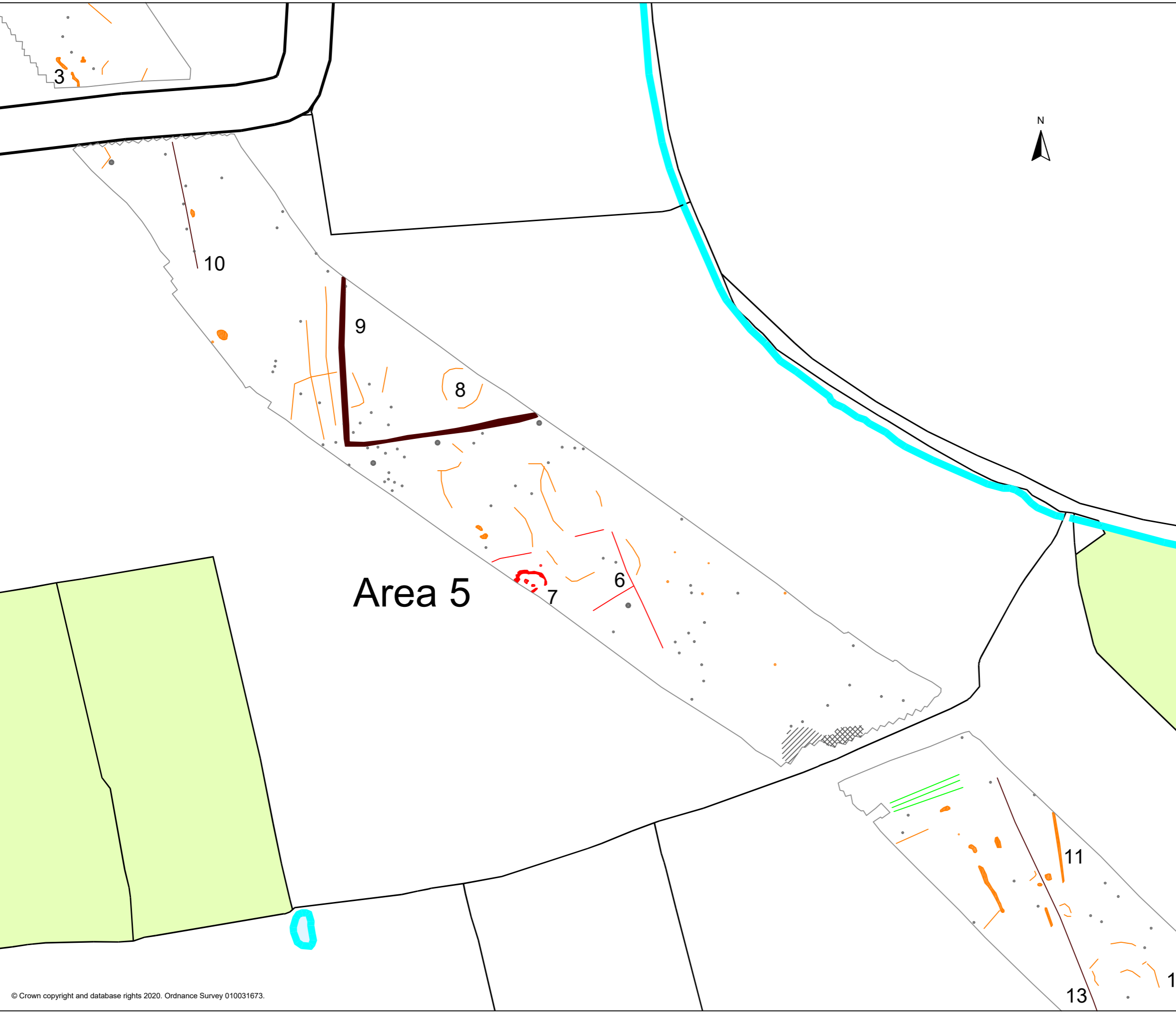
SCALE 1:1250



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Wiltshire**

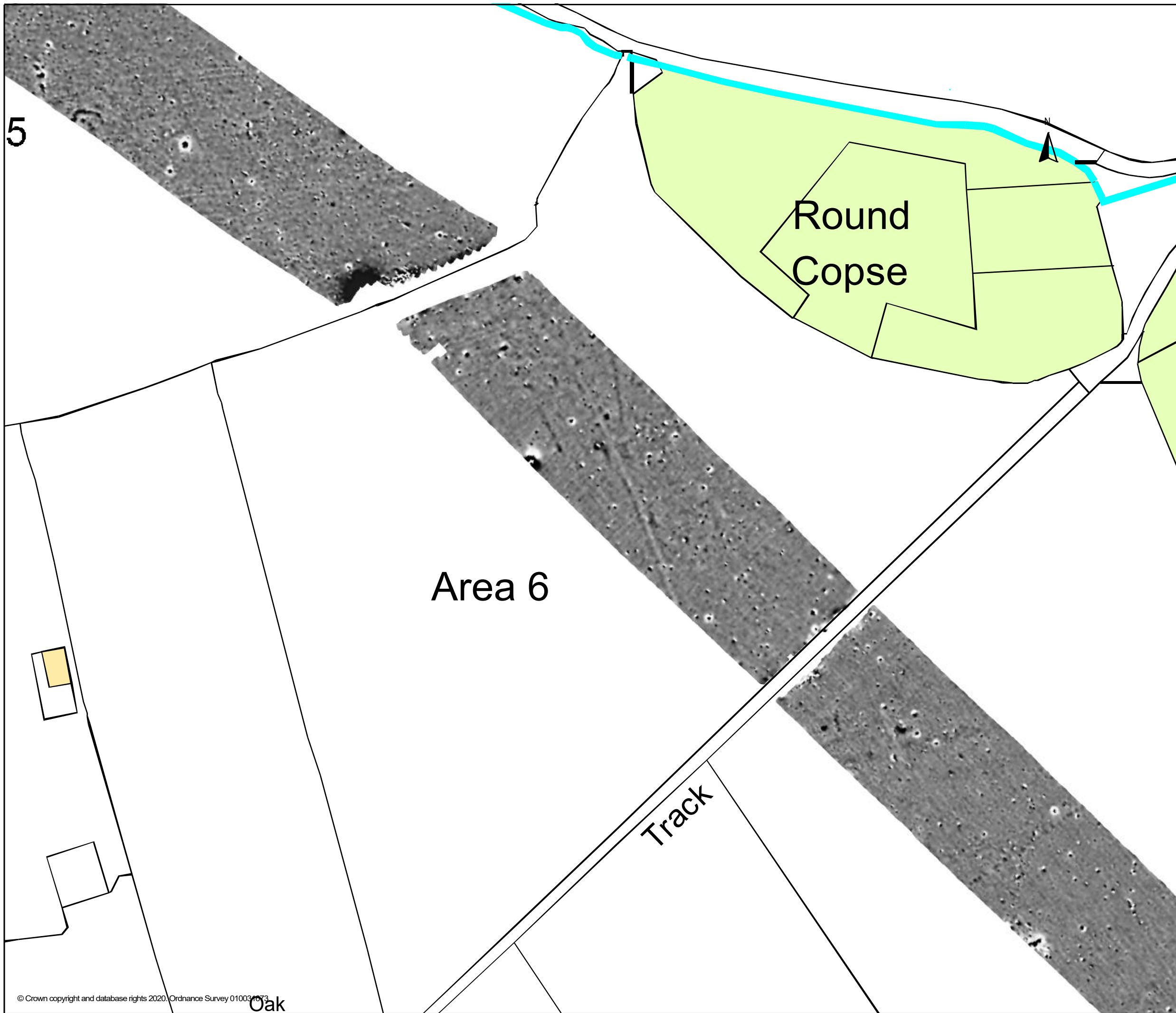
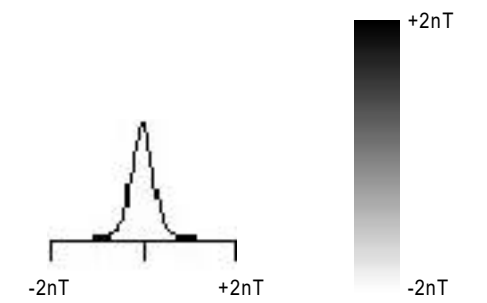
**Abstraction and interpretation of
magnetic anomalies - Area 5**

- Positive linear anomaly - cut feature of archaeological potential
- Positive linear anomaly - possible ditch-like feature
- Positive linear anomaly - former field boundary
- Discrete positive response - cut feature of archaeological potential
- Discrete positive response - possible pit-like feature
- ⊗ Magnetic debris - spread of magnetically thermoremanent/ferrous material
- ⊘ Magnetic disturbance from ferrous material
- Strong dipolar anomaly - ferrous object



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Greyscale plot of minimally
processed magnetometer data -
Area 6



5

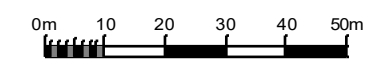
Area 6

Round
Copse

Track

Oak

SCALE 1:1250



KTD

DJS

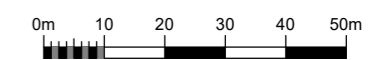
FIG 09

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Abstraction and interpretation of
magnetic anomalies - Area 6

- Positive linear anomaly - possible ditch-like feature
- Linear anomaly - of agricultural origin
- Positive linear anomaly - former field boundary
- Discrete positive response - possible pit-like feature
- Strong dipolar anomaly - ferrous object

SCALE 1:1250

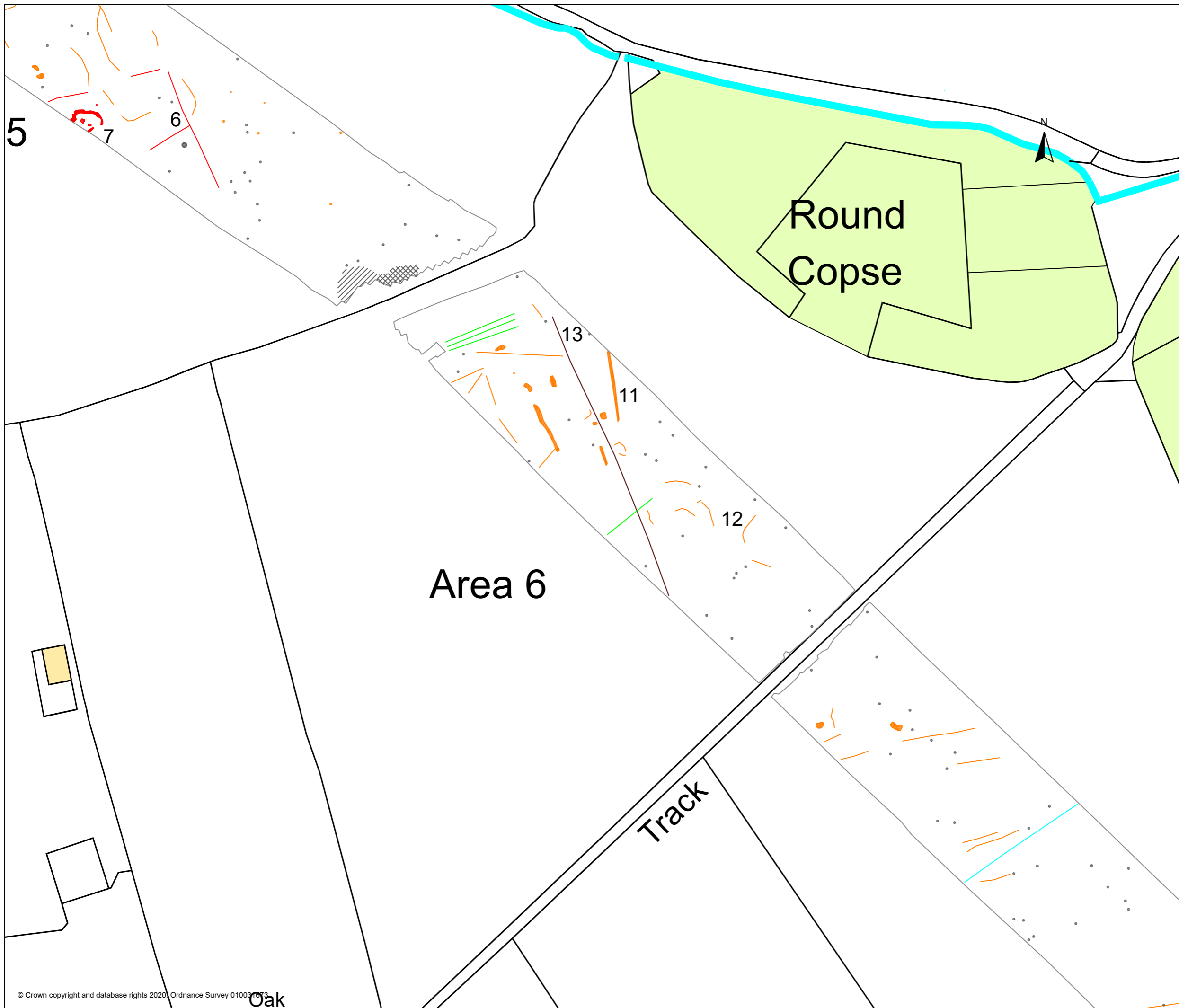


SCALE TRUE AT A3

DRAWN BY
KTD

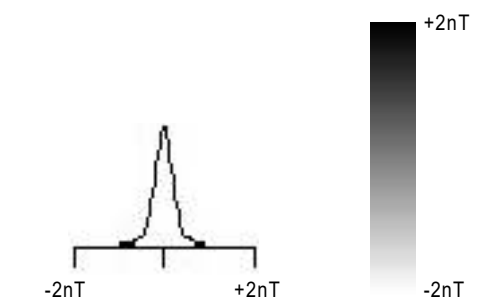
CHECKED BY
DJS

FIG 10



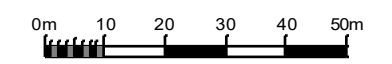
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Wiltshire**

**Greyscale plot of processed
magnetometer data - Area 7**



Area 7

SCALE 1:1250







KTD

DJS

FIG 11

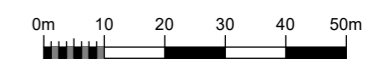
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**Abstraction and interpretation of
magnetic anomalies - Area 7**

-  Positive linear anomaly - of uncertain origin
-  Weak multiple dipolar linear anomaly - possible land drain
-  Discrete positive response - possible pit-like feature
-  Strong dipolar anomaly - ferrous object

Area 7

SCALE 1:1250



SCALE TRUE AT A3

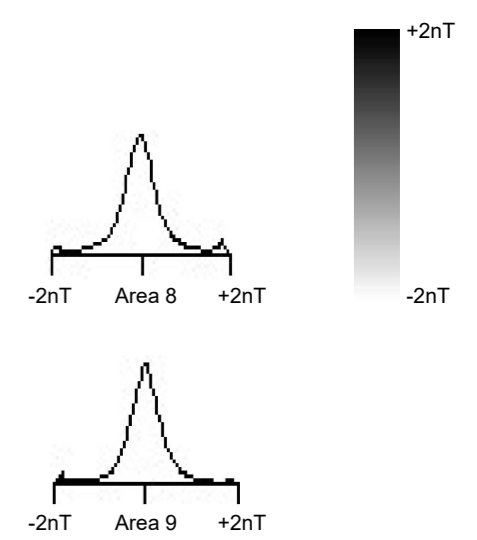
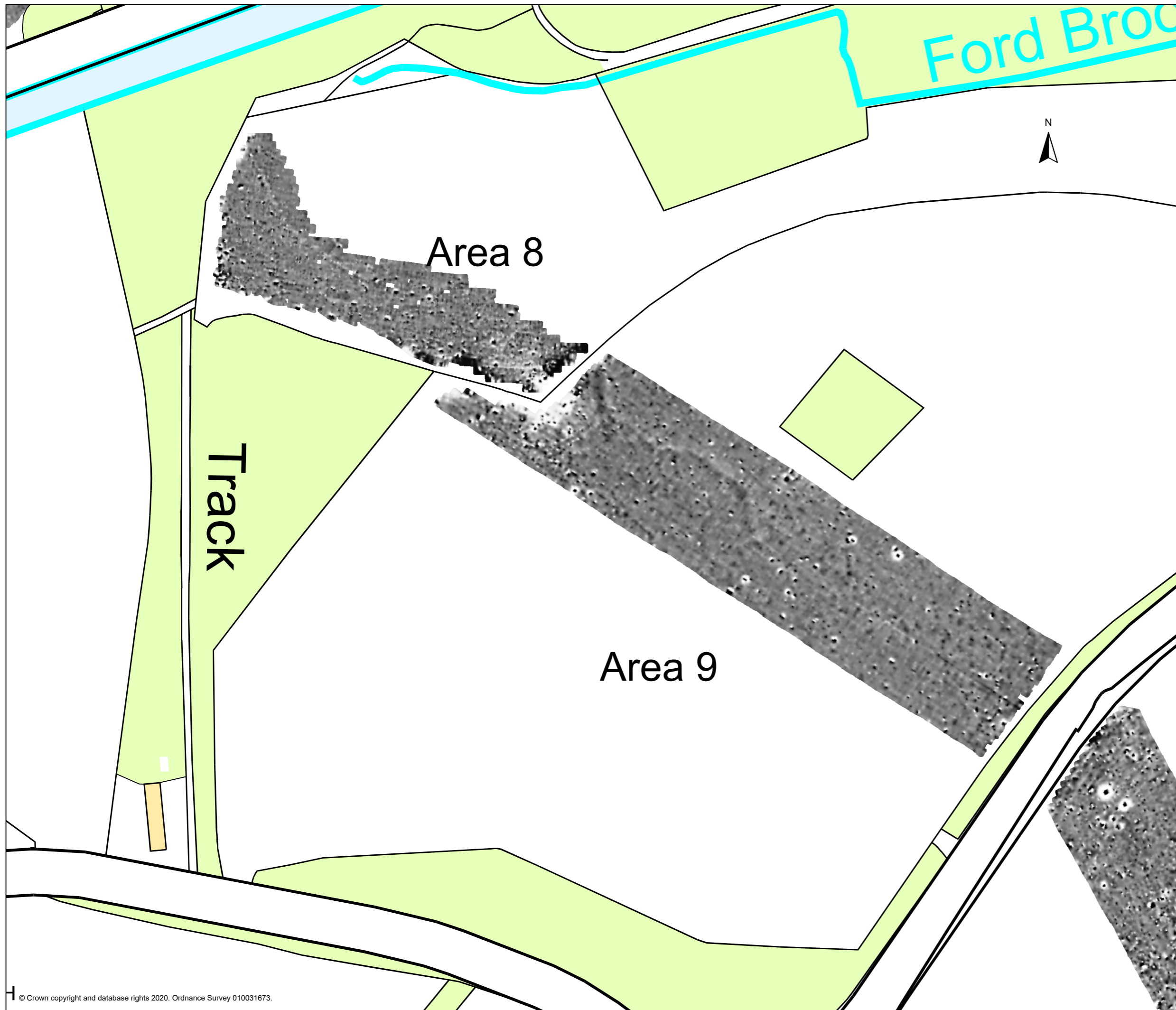
DRAWN BY
KTD

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DJS

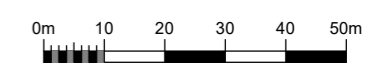
FIG 12

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Greyscale plot of processed
magnetometer data - Areas 8 & 9









SCALE 1:1250



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**Abstraction and interpretation of
magnetic anomalies - Areas 8 & 9**

-  Negative linear anomaly - extant water meadow feature
-  Weak multiple dipolar linear anomaly - possible land drain
-  Linear anomaly - of agricultural origin
-  Variable magnetic response - of natural origin
-  Magnetic disturbance from ferrous material
-  Strong dipolar anomaly - ferrous object

SCALE 1:1250

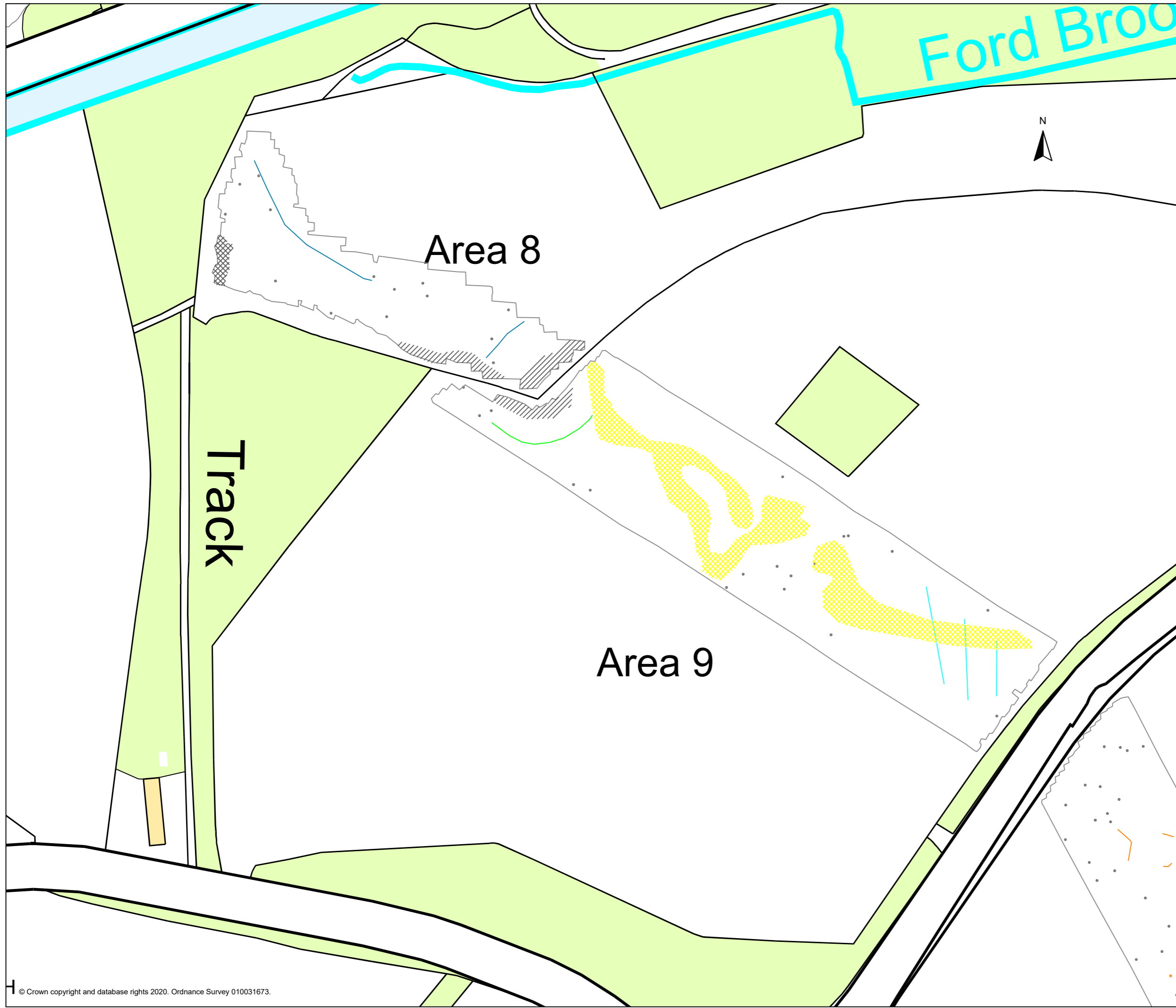


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FIG 14



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Greyscale plot of processed
magnetometer data & abstraction
& interpretation of magnetic
anomalies - Area 10

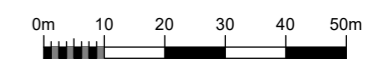
- Positive linear anomaly - of uncertain origin
- Discrete positive response - possible pit-like feature
- Strong dipolar anomaly - ferrous object
- Magnetic debris - spread of magnetically thermoremnant/ferrous material



Area 10

Area 10

SCALE 1:1250

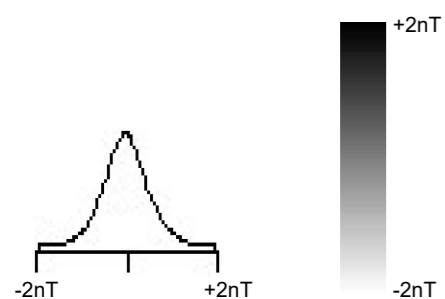


SCALE TRUE AT A3

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DJS

FIG 15

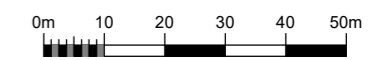


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**Greyscale plot of processed
magnetometer data & abstraction
& interpretation of magnetic
anomalies - Area 11**

-  Positive linear anomaly - possible ditch-like feature
-  Linear anomaly - of agricultural origin
-  Discrete positive response - possible pit-like feature
-  Magnetic debris - spread of magnetically thermoremnant/ferrous material
-  Magnetic disturbance from ferrous material
-  Strong multiple dipolar linear anomaly - pipeline / cable / service
-  Strong dipolar anomaly - ferrous object

SCALE 1:1250



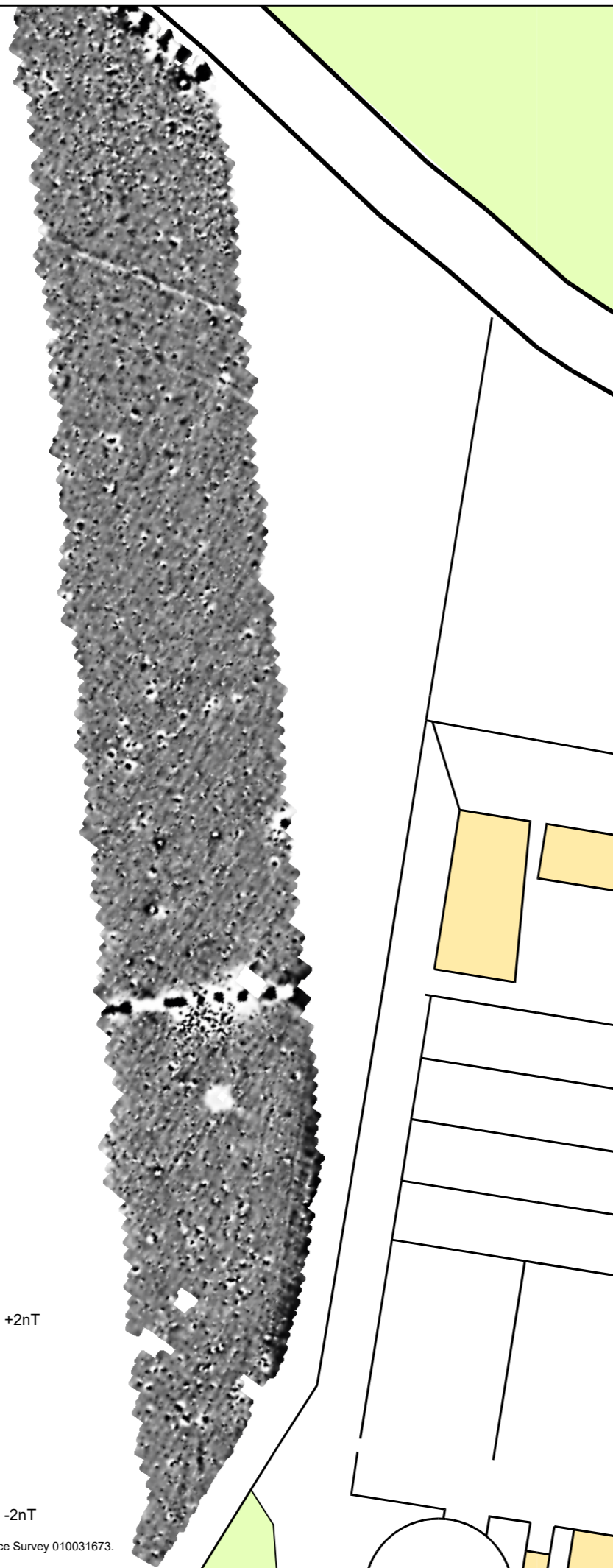
SCALE TRUE AT A3

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KTD

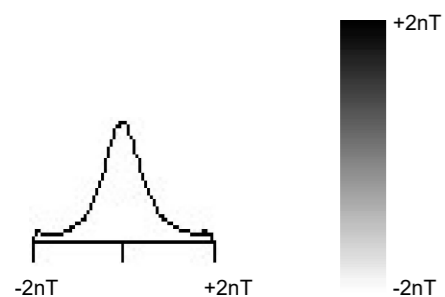
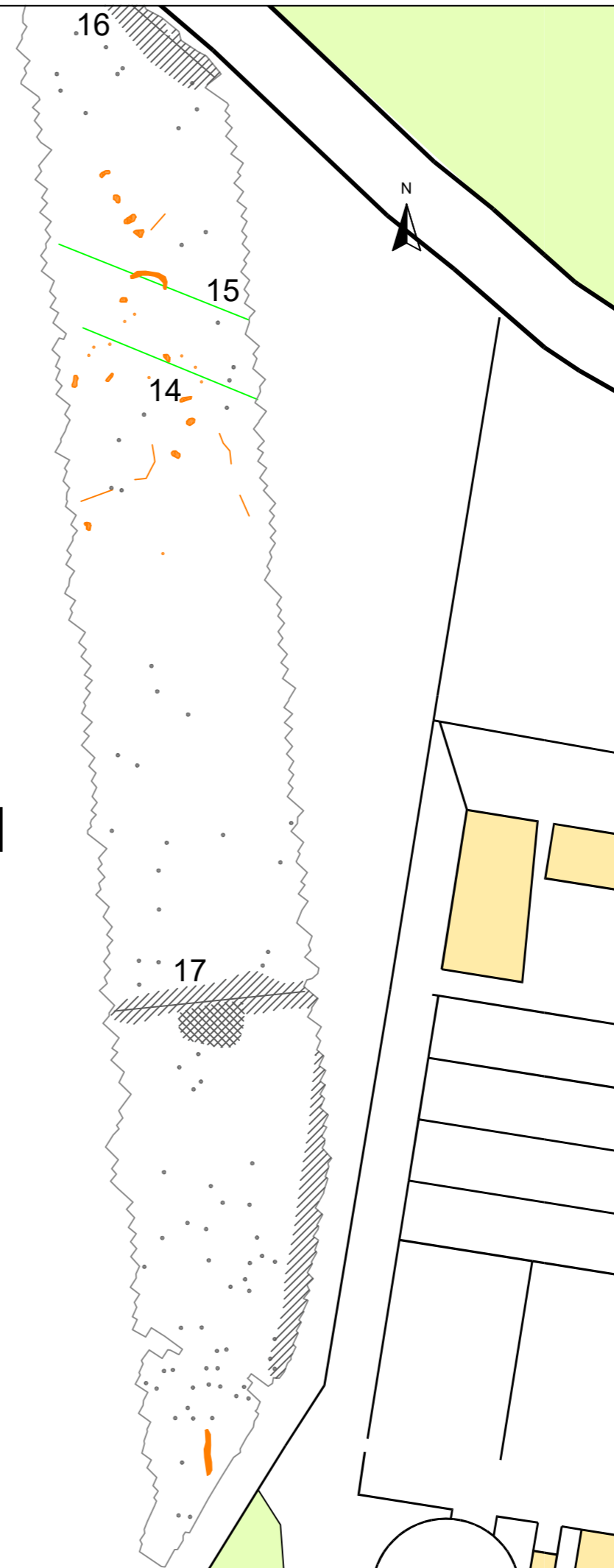
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FIG 16

Area 11



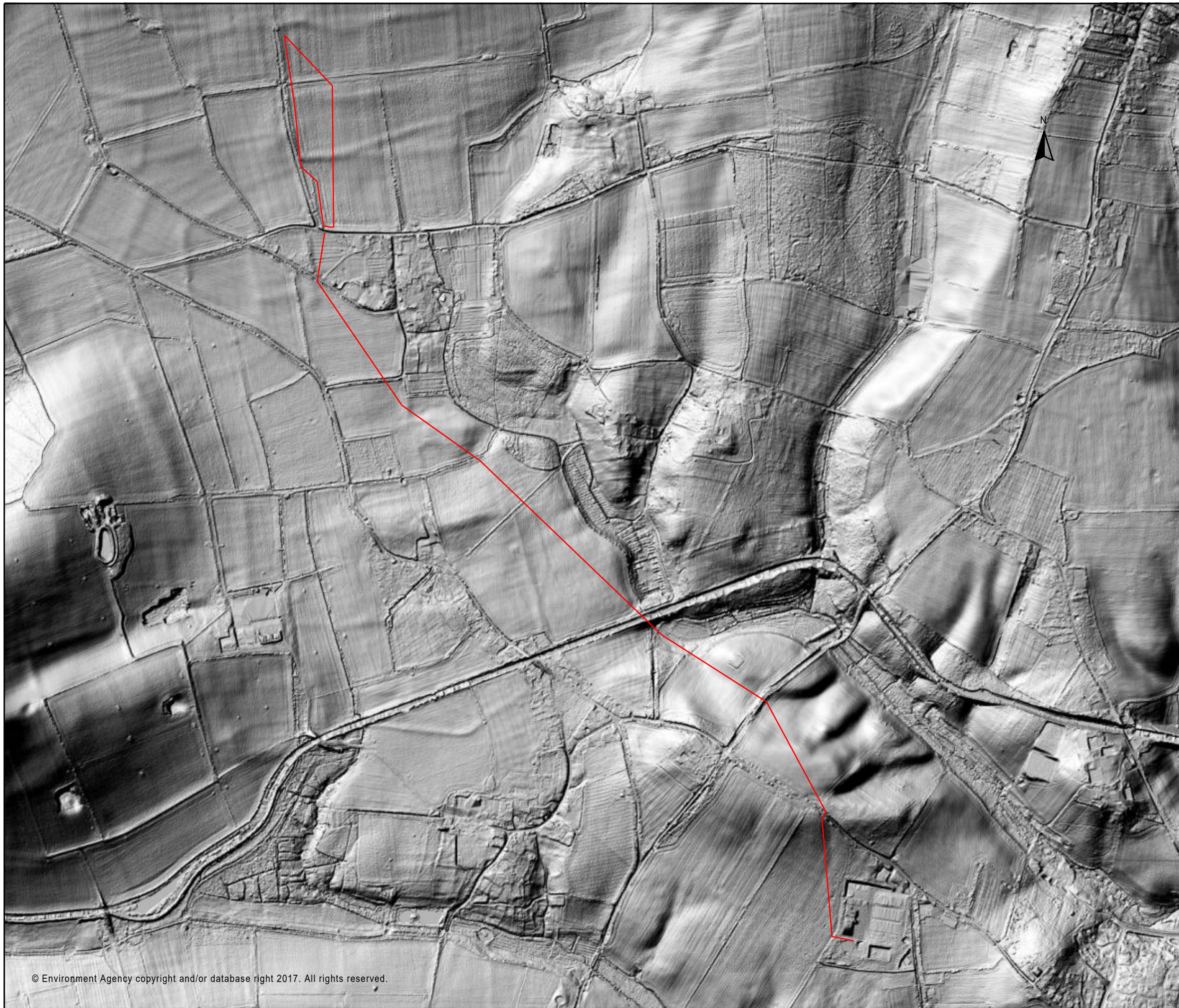
Area 11



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Digital Terrain Model

Derived from Environment Agency's
LiDAR data 1m resolution



SCALE 1:10 000

