LAND AT SHUTE CROSS
SHOBROOKE
MID DEVON
DEVON

RESULTS OF A GEOPHYSICAL SURVEY

*

South West Archaeology Ltd. report no. 180920

ARCHAEOLOGICAL SERVICES & HISTORIC BUILDING RECORDING
SOUTHWEST ARCHAEOLOGY

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Land at Shute Cross, Shobrooke, Mid Devon, Devon

Results of a Geophysical Survey

By P. Bonvoisin
Report Version FINAL
20th September 2018

Work undertaken by SWARCH for Acorus
On Behalf of J D Ayre & Partners (the Clients)

SUMMARY

South West Archaeology Ltd. (SWARCH) was commissioned to undertake a geophysical survey for land at Shute Cross, Shobrooke, Devon, as part of the pre-application works required for the development of a poultry building and proposed temporary dwelling.

The proposed site is located along the southern edge of the parish of Shobrooke, Devon. The wider area includes a wide variety of archaeological sites and assets from a range of periods, including; a flint findpspot and multiple prehistoric earthworks mostly south of the site. The large field in which the site is located was previously subdivided into multiple enclosures clearly based upon medieval strip fields.

The geophysical survey indentified multiple features that tie in with the boundaries shown on the historic mapping, as well as multiple linear anomaly groups. The form and alignment of these features suggests that they represent elements of the historic agricultural landscape, including possible ridge and furrow; and demonstrate the usage of the strip fields, corresponding with the tithe map. A single cut feature is also present towards the centre of the site; the strength of the response may indicate that this was a geothermal response, perhaps an area of previous burning.

Despite the relatively low responses from the geophysical survey, multiple elements of the previous agricultural landscape have been indentified, including possible elements of the medieval landscape. Given the weak geophysical survey results but clear agricultural topography it seems appropriate for further mitigation to be in the form of a conditioned watching brief or planned evaluation informed by the results of the geophysical survey.

CONTENTS

LIST OF FIGURES

LIST OF TABLES

ACKNOWLEDGEMENTS

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J D AYRE& PARTNERS (THE CLIENTS)
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1.0 INTRODUCTION

LOCATION: LAND AT SHUTE CROSS
PARISH: SHOBROOKE
COUNTY: DEVON
NGR: SX 88966 99869
PLANNING NO. 18/01184/FUL
SWARCH REF. SSC18

1.1 PROJECT BACKGROUND

South West Archaeology Ltd. (SWARCH) was commissioned by Acorus (the agent) on behalf of J D Ayre & Partners (the client) to undertake a geophysical survey for land at Shute Cross, Shobrooke, Devon, as part of the pre-application works required for the development of a poultry building. This work was undertaken in accordance with best practice and CIfA guidelines.

1.2 TOPOGRAPHICAL AND GEOLOGICAL BACKGROUND

The site is located *c.* 5.4km east of Crediton and *c.*2.1km north-east of Newton St Cyres and the A377. The field in which the proposed site is located ranges from 60m Above Ordinance Datum (AOD) to 41m AOD on a south-east facing slope; the survey area ranges from *c.*48m AOD along the northern boundary down to 41m AOD. The soils of this area are the well drained gritty reddish loamy soils of the Crediton Association (SSEW 1983). The bedrock of this area is formed by the sandstones of the Shute Sandstone formation, the bedrock of the northern half of the field in which the site is situated in is formed by the breccia of the Newton St Cyres Breccia Formation (BGS 2018).

1.3 HISTORICAL AND ARCHAEOLOGICAL BACKGROUND

The proposed site is located along the southern edge of the parish of Shobrooke, in the hundred of West Budleigh, the deanery of Cadbury and the county of Devon (Lysons). Shute, meaning '*a steel slope*' comes from the old English *scȳte* (Watts). The settlement at Shute has likely medieval origins and Reichel (1903) notes that it first mentioned in 1244.

No archaeological works appear to have been carried out in the surrounding area but the number of local features demonstrates a high archaeological potential from the Prehistoric to Post-Medieval periods. Whilst there are no significant known features within the boundary of the proposed development site, cropmarks representing field boundaries and enclosure associated with Shute Farm (MDV121931). These are likely associated with the orchard plots shown on the 1841 tithe mapping. Multiple prehistoric features are also present, mostly to the south of the site including cropmarks showing possible enclosures and ring ditches (MDV50143, MDV29074, MDV121904, MDV56055, and MDV56056) and a barrow (MDV42786), as well as a flint blade find spot (MDV42997).

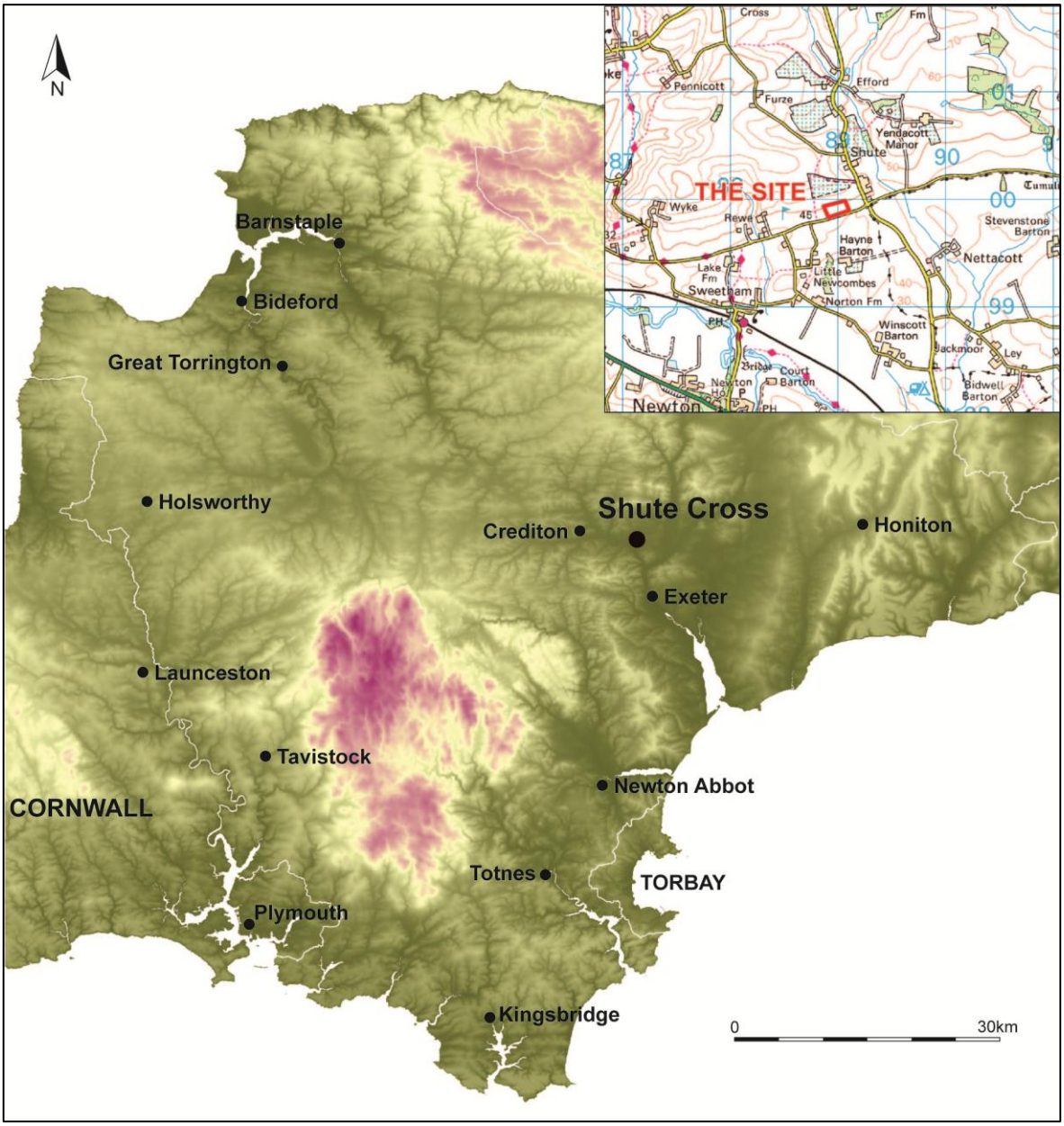

FIGURE 1: SITE LOCATION (THE SITE IS INDICATED).

1.4 CARTOGRAPHIC DEVELOPMENT

1.4.1 SHOBROOKE TITHE MAP AND APPORTIONMENT 1841

The approximate survey area is located on the tithe mapping, and shows that portions of plots 505, 507, 540 and 541 are contained within the site. These are all listed as arable, as are many of the surrounding plots. The long thin shape and curving nature of many of the fields indicate that they are likely based on medieval strip fields, further supported by the very sub-divided nature of land ownership still apparent in 1841 (see Figure 2 and Table 1).

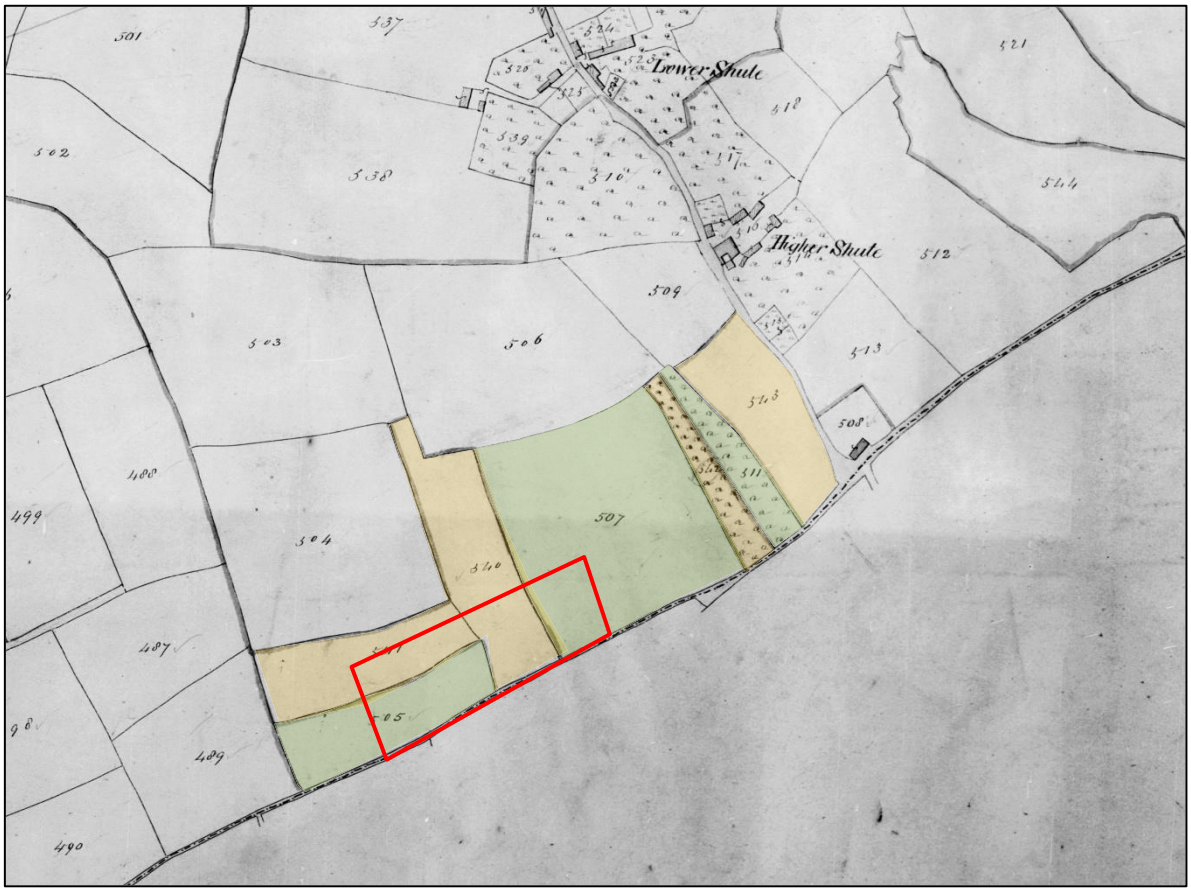

FIGURE 2: EXTRACT FROM THE 1841 SHOBROOKE TITHE MAP, THE APPROXIMATE LOCATION OF THE SITE IS INDICATED (GEN).

TABLE 1: EXTRACT FROM THE SHOBROOKE TITHE APPORTIONMENT OF 1841. THE SITE OCCUPIES THE PLOTS HIGHLIGHTED.

Landowner	Occupier	Farm name	Plot number	Plot name	Usage
John Brown, John Tickell (lessee)	William Godfrey	Higher Shute	504	Broad Yale	Arable
			505	**Long Yale**	
			507	**Home Meadow**	
			511	South Park Orchard	Orchard
Arthur Abbott Esquire	Hellier Philip	Lower Shute	**540**	**Long Yale**	Arable
			541	**Inside Yale**	
			542	South Park Orchard	Orchard
			543	South Park	Pasture

1.4.2 OS FIRST & SECOND EDITION MAPS, 1888 AND 1907

The majority of the field divisions within the site on the tithe map have been removed by 1888, with the orchards to the west of the site also being removed. The roughly north-south boundary that was the western boundary of field 540 remains but all other interior field divisions that were within the proposed site boundary were removed. These substantive changes likely represent a rationalisationaison of ownership. No changes that affect the proposed development site have been undertaken between the 1st and 2nd edition Ordinance Survey maps, with the interior boundary bisecting the site having been removed since the early 20th century, leaving the field open as it remains today.

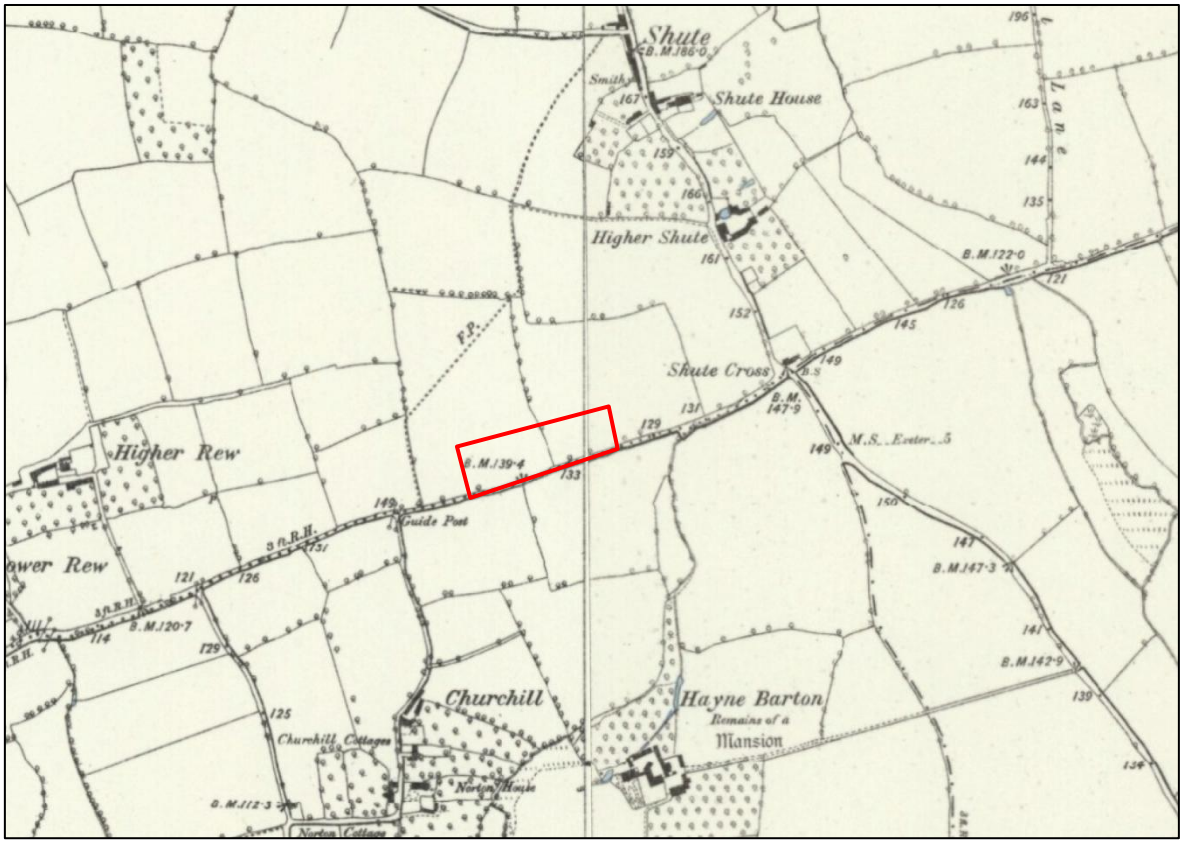

FIGURE 3: EXTRACT FROM THE OS FIRST EDITION 6" MAP OF 1888. THE APPROXIMATE LOCATION OF THE SITE IS INDICATED (DHC).

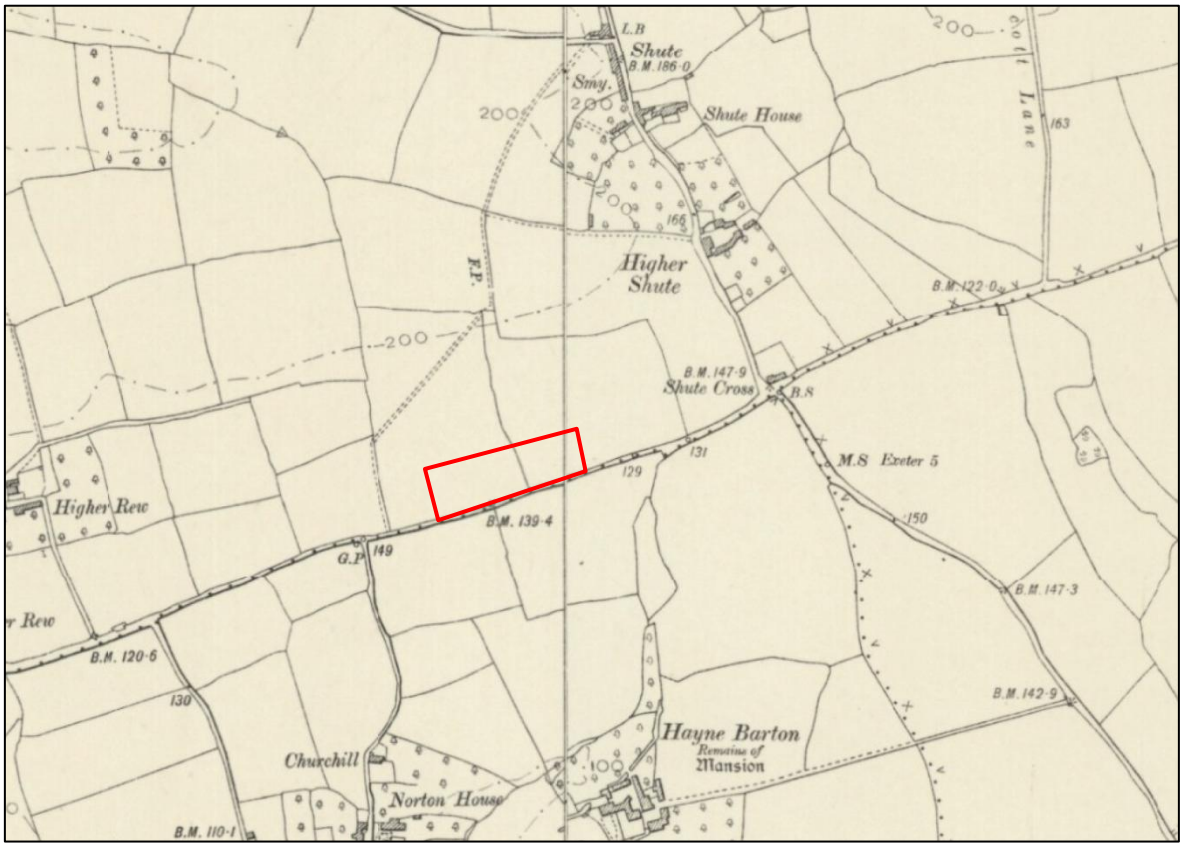

FIGURE 4: EXTRACT FROM THE SECOND EDITION OS 6" MAP OF 1907. THE APPROXIMATE LOCATION OF THE SIRE IS INDICATED (DHC).

1.5 METHODOLOGY

This work was undertaken in accordance with best practice. The cartographic assessment follows the guidance as outlined in: Standard and Guidance for Archaeological Desk-Based Assessment (CIfA 2014a) and Understanding Place: historic area assessments in a planning and development context (English Heritage 2012). The gradiometer survey follows the general guidance as outlined in: Geophysical Survey in Archaeological Field Evaluation (English Heritage 2008) and Standard and Guidance for Archaeological Geophysical Survey (CIfA 2014b).

2.0 GEOPHYSICAL SURVEY

2.1 INTRODUCTION

An area of *c.*1.4ha was the subject of a magnetometry (gradiometer) survey. The purpose of this survey was to identify and record magnetic anomalies within the proposed site. While identified anomalies may relate to archaeological deposits and structures the dimensions of recorded anomalies may not correspond directly with any associated features. The following discussion attempts to clarify and characterise the identified anomalies. The survey was undertaken on the 10th September 2018 by P. Bonvoisin; the survey data was processed by P. Bonvoisin.

2.2 METHODOLOGY

The gradiometer survey follows the general guidance as outlined in: *Geophysical Survey in Archaeological Field Evaluation* (English Heritage 2008) and *Standard and Guidance for Archaeological Geophysical Survey* (CIfA 2014b).

The survey was carried out using a twin-sensor fluxgate gradiometer (Bartington Grad601). These machines are sensitive to depths of up to 1.50m. The survey parameters were: sample intervals of 0.25m, traverse intervals of 1m, a zigzag traverse pattern, traverse orientation was circumstantial, grid squares of 30×30m. The gradiometer was adjusted ('zeroed') every 0.5-1ha. The survey grid was tied into the Ordnance Survey National Grid. The data was downloaded onto *Grad601 Version 3.16* and processed using *TerraSurveyor Version 3.0.33.6*. The primary data plots and analytical tools used in this analysis were *Shade* and *Metadata*. The details of the data processing are as follows:

Processes: Clip +/- 3SD; DeStripe all traverses, median. DeStagger of particular grids.
Details: 1.4334ha surveyed; Max. 115.57nT, Min. -197.79nT; Standard Deviation 13.16, mean -0.39nT, median 0.00nT.

2.3 SITE INSPECTION

The site of the proposed development is located along the southern boundary of a single large field which lies immediately to the west of Shute Cross. At the time of the survey the site was a recently cropped field, with the stubble from the crop remaining within the field. The survey area was open on three sides, with the southern side bounding against the hedge that made up the southern boundary of the site. A shallow ditch (likely mostly infilled) ran along the border of the field. The hedge and bank also contained occasional mature trees.

FIGURE 5: VIEW ALONG THE SOUTHERN BORDER OF THE SITE; VIEWED FROM THE EAST (NO SCALE).

FIGURE 6: VIEW ALONG THE SOUTHERN BOUNDARY OF THE SITE; VIEWED FROM THE WEST (NO SCALE).

2.4 RESULTS

Table 2 with the accompanying Figures 7-9 shows the analysis and interpretation of the geophysical survey data. Additional graphic images of the survey data and numbered grid locations can be found in Appendix 1.

TABLE 2: INTERPRETATION OF GRADIOMETER SURVEY DATA.

Anomaly Group	Class and Certainty	Form	Archaeological Characterisation	Comments
1	Weak negative to positive, probable	Fragmented linear	Historic field boundary	Indicative of a previous field boundary, a raised bank with ditches to either side. Response of *c.* -2.86nT to +2.33nT.
2	Weak negative to positive, probable	Linear	Historic field boundary	Indicative of a previous field boundary, a raised bank with ditches to either side. Response of *c.* -1.30nT to +1.43nT.
3	Weak negative to positive, probable	Linear	Historic field boundary	Indicative of a previous field boundary, a raised bank with ditches to either side. Response of *c.* -2.01nT to +2.19nT.
4	Moderate positive, probable	Fragmented linear	Agricultural topography	Indicative of previous agricultural activity, likely related to anomaly groups 5 and 7. Response of *c.* +0.43nT to +3.18nT.
5	Weak positive, possible	Linear	Agricultural topography	Indicative of previous agricultural activity, likely related to anomaly groups 4 and 7. Response of *c.* +0.42nT to +1.24nT.
6	Weak positive, possible	Linear	Agricultural topography	Indicative of previous agricultural activity, likely related to anomaly groups 2 and 3. Response of *c.* +0.49nT to +2.03nT.
7	Weak positive, possible	Curvi-linear	Agricultural topography	Indicative of previous agricultural activity, likely related to anomaly groups 4 and 5. Response of *c.* +0.35nT to +1.62nT.
8	Strong positive to weak negative, probable	Ovoid with border	Possible cut feature	Indicative of a possible cut feature such as a pit, the comparatively strong response might indicate a geothermal response. Response of *c.* -1.35nT to +9.51nT.
9	Weak negative, probable	Fragmented linear	Agricultural topography	Indicative of previous agricultural activity, likely related to anomaly group1 1. Response of *c.* -2.28nT to -0.50nT.

2.5 DISCUSSION

The survey identified nine groups of anomalies most of which relate to historic field boundaries or agricultural activity. The survey indicates that modern services run along the southern boundary of the site, ploughing may have impacted any buried archaeological resource. One possible cut feature and multiple linear anomalies associated with historic field boundaries were identified in the survey.

The generally weak responses of anomalies recorded in this analysis may indicate a poor zero affecting the survey equipment, or the impact of the local geology on the survey results. The strength of the magnetic disturbance and possible utility along the southern boundary may also affect the magnitude of the anomaly groups.

Groups 1, 2 and 3 (*c.*-2.9nt to +2.3nT) are weak to moderate negative linears with positive borders; these readings are indicative of a bank with narrow ditches to either side and are

characteristic of an old field boundary. These linears and fragmented linears corresponds to this historic field boundaries visible on the 1841 tithe map as well as anomaly group 2 corresponding to a boundary visible on the 1st and 2nd Ordinance Survey edition mapping which appears to be a continuation of the same boundary. Anomaly groups 1 and 3 have a clearer response than anomaly group 2; group 2 was removed at a later date and this response indicates that the removal of the boundary was more thorough.

Groups 4, 5 and 7 (*c.* +0.4nT to +3.2nT) are weak to moderate positive linears. Due to their form and orientation anomaly groups 4 and 5 are likely associated. Anomaly group 7 is a possible continuation of group 4 but due to its curve follows a different axis. Anomaly groups 4 and 5 are indicative of agricultural topography, and may be associated with agricultural practices similar to those that form ridge and furrow.

Group 6 (+0.5nT to +2.0nT) is indicative of ridge and furrow or similar agricultural topography; the parallel positioning with anomaly group 2 suggests that this feature represents agricultural topography within the strip field outlined by anomaly groups 2 and 3.

Group 8 (-1.4nT to +9.5nT) presents a relatively strong response in comparison to the generally weak response of archaeologically significant features within the site; because of this the response can be considered strong. Is indicative of a cut feature with raised ground surrounding it but the strength of the response may indicate some modern feature such as a geothermal response.

Group 9 (-2.3nT to -0.5nT) is indicative of a ridge or raised ground, and may indicate a previous bank or boundary, likely associated with anomaly group 1 due to its location and orientation.

Multiple Di-Polar anomalies are present across the site; there is some concentration close to anomaly group 2 which is expected with the relevant field boundary only being removed since the early 20th century. Across the rest of the site the Di-Polar anomalies are spread in an amorphous pattern. Magnetic disturbance is also present within the site, mostly concentrated along the southern boundary of the site. This corresponds with the shallow ditch that was present along the hedge line; the strength of the response also suggests that a utility or similar modern feature may run along the southern boundary of the site.

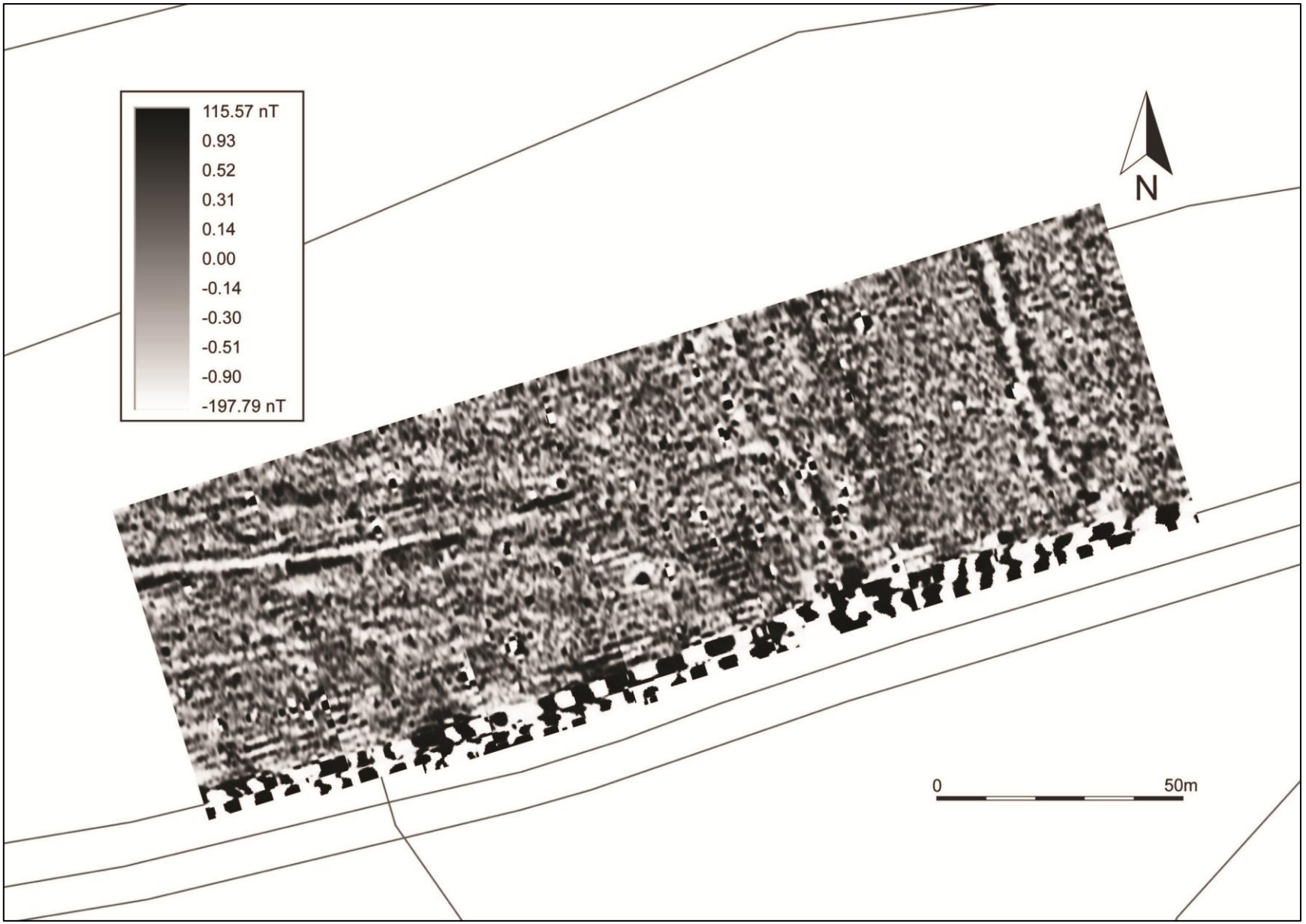

FIGURE 7: SHADE PLOT OF GRADIOMETER SURVEY DATA; BANDWEIGHT EQUALISED.

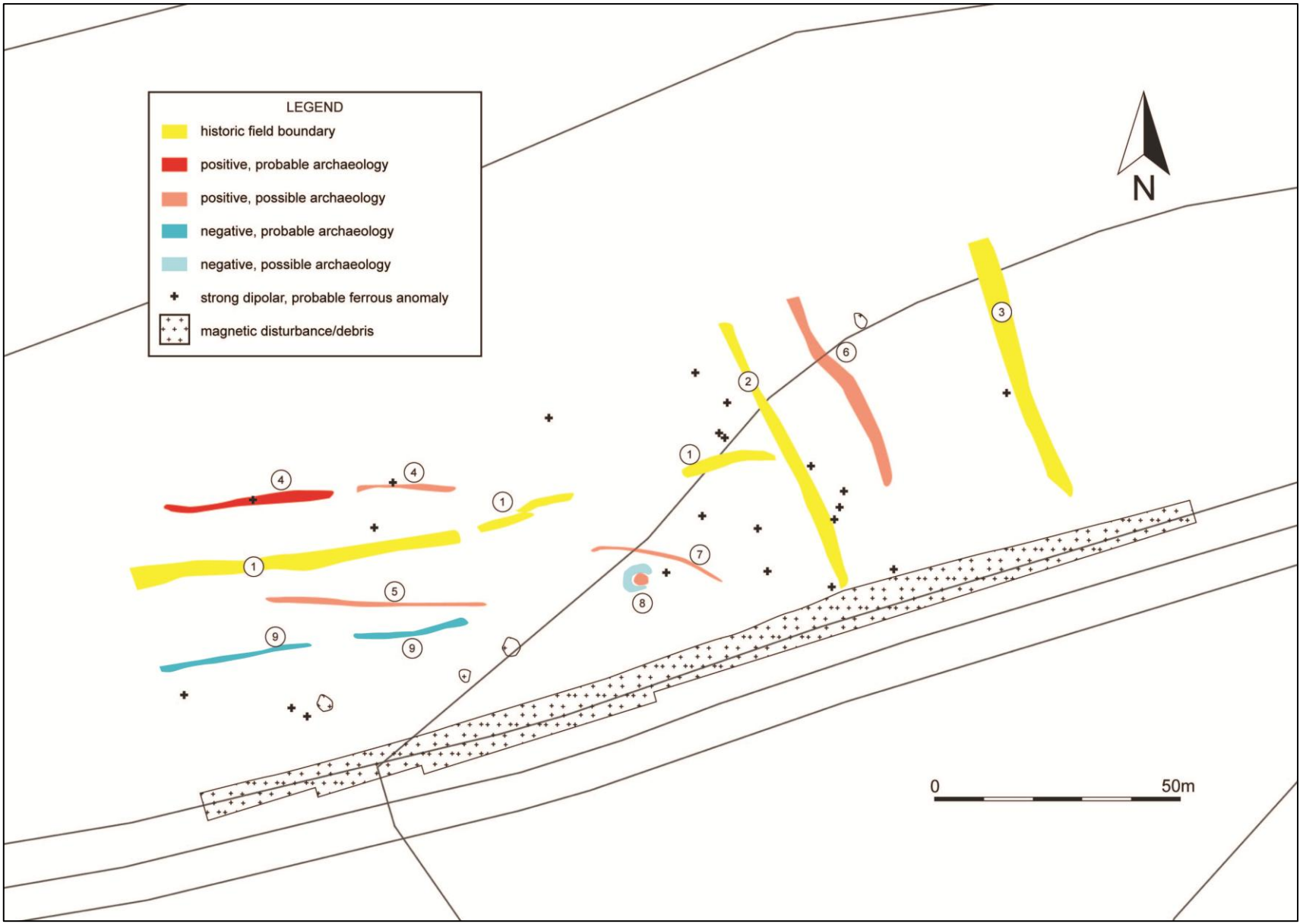

FIGURE 8: INTERPRETATION OF GRADIOMETER SURVEY DATA.

FIGURE 9: INTERPRETATION OF GRADIOMETER SURVEY DATA OVERLYING 1841 SHOBROOKE TITHE MAPPING.

3.0 CONCLUSION

The proposed site is located along the southern edge of the parish of Shobrooke, Devon. The wider area includes a wide variety of archaeological sites and assets from a range of periods, including; a flint findpspot and multiple prehistoric earthworks mostly south of the site. The large field in which the site is located was previously subdivided into multiple enclosures clearly based upon medieval strip fields.

The geophysical survey indentified multiple features that tie in with the boundaries shown on the historic mapping, as well as multiple linear anomaly groups. The form and alignment of these features suggests that they represent elements of the historic agricultural landscape, including possible ridge and furrow; and demonstrate the usage of the strip fields, corresponding with the tithe map. A single cut feature is also present towards the centre of the site; the strength of the response may indicate that this was a geothermal response, perhaps an area of previous burning.

Despite the relatively low responses from the geophysical survey, multiple elements of the previous agricultural landscape have been indentified, including possible elements of the medieval landscape. Given the weak geophysical survey results but clear agricultural topography it seems appropriate for further mitigation to be in the form of a conditioned watching brief or planned evaluation informed by the results of the geophysical survey.

4.0 BIBLIOGRAPHY & REFERENCES

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1883 OS 6" map (surveyed 1888)
1907 OS 6" map (surveyed 1906)

APPENDIX 1: ADDITIONAL GRAPHICAL IMAGES OF THE GRADIOMETER SURVEY

FIGURE 10: GEOPHYSICAL SURVEY GRID LOCATION AND NUMBERING.

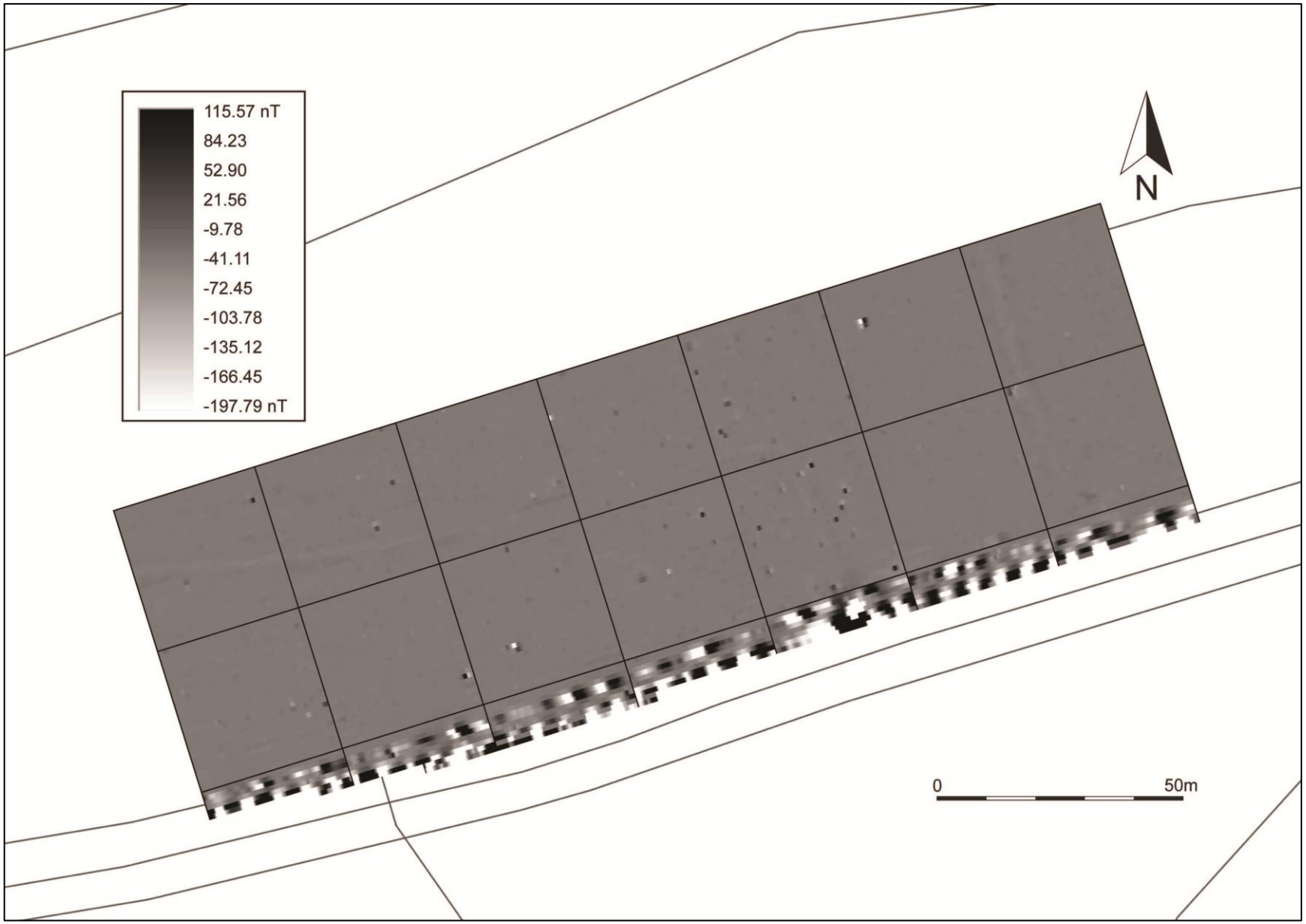

FIGURE 11: SHADE PLOT OF GRADIOMETER SURVEY DATA; MINIMAL PROCESSING.

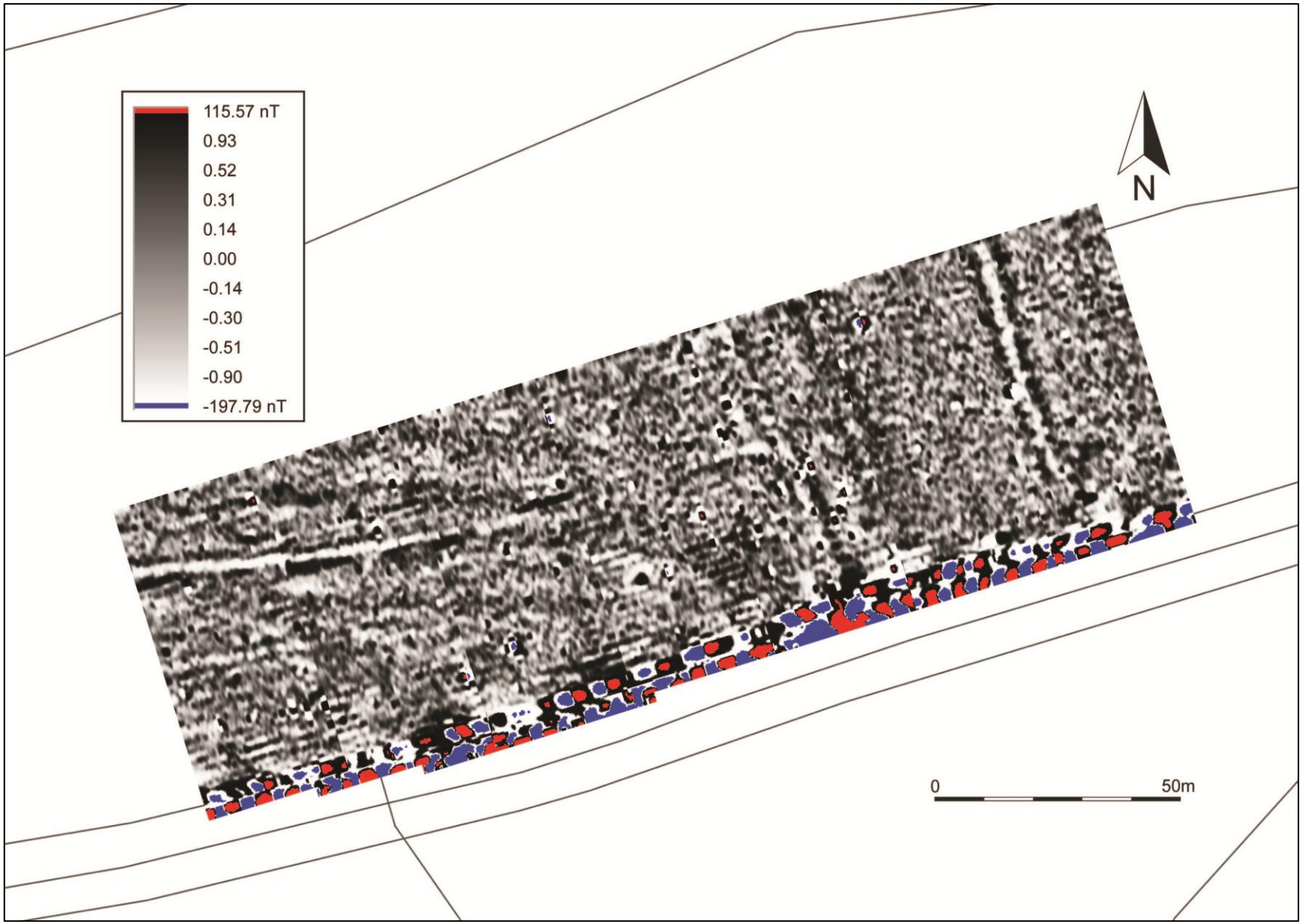

FIGURE 12: RED GREYSCALE BLUE SHADE PLOT OF GRADIOMETER SURVEY DATA; BAND WEIGHT EQUALISED; GRADIATED SHADING.

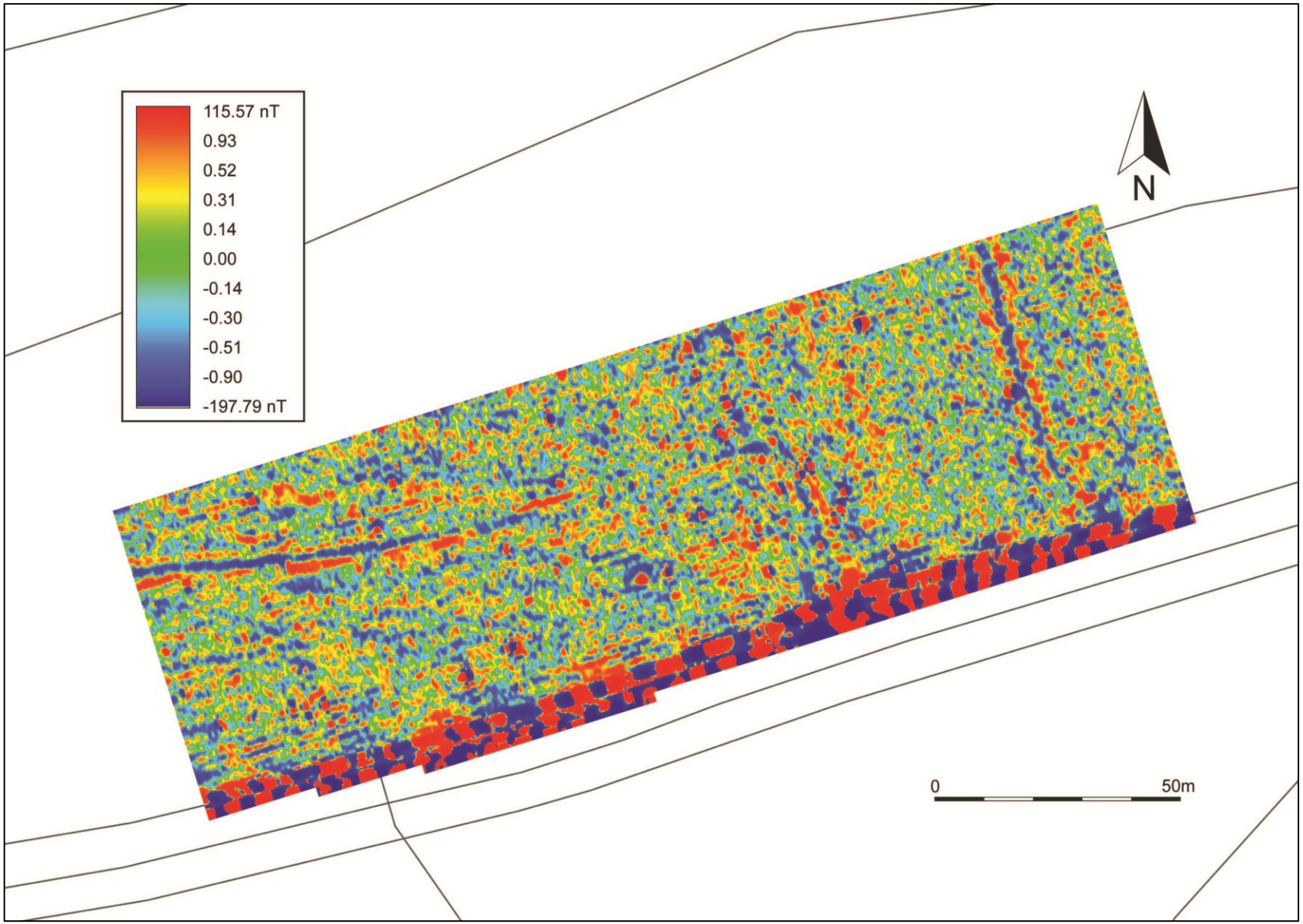

FIGURE 13: RED-BLUE-GREEN (2) SHADE PLOT OF GRADIOMETER SURVEY DATA; BAND WEIGHT EQUALISED; GRADIATED SHADING.

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