

**LAND AT HIGHER LANE
MAWGAN-IN-MENEAGE
HELSTON
CORNWALL**

Results of a Geophysical Survey



South West Archaeology Ltd. report no. 211111



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Land at Higher Lane, Mawgan-in-Meneage, Helston, Cornwall

Results of a Geophysical Survey

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Work undertaken by SWARCH for Rhos Construction (The Client)

SUMMARY

This report presents the results of a geophysical survey carried out by South West Archaeology Ltd. (SWARCH) on Land at Higher Lane, Mawgan-in-Meneage, Helston, Cornwall as part of the planning submission for a proposed residential development.

The site comprises a sub-rectangular field orientated approximately north-west to south-east between Higher and Lower Lanes towards the southern end of the village of Mawgan. The site lies in an area with prehistoric origins, but which is largely medieval and post-medieval in date.

The survey identified four groups of anomalies, including: a historic double ditch and bank boundary removed during the later 20th century; a double ditch and bank boundary associated with a phase of the existing south-eastern site boundary; a possible pit or tree-throw; and two modern service features. Evidence of agricultural activity, metallic debris and ground disturbance were also identified.

The degree of preservation of the identified features appears to be poor. The majority of the anomaly responses are weak, with some intermittent and barely discernible from the background geology. This suggests that many of the identified features only survive to a shallow depth, their intermittent nature suggesting only partial survival. However, it is possible that additional, even more ephemeral features, are masked by the background geology.

The results of the geophysical survey would suggest that the archaeological potential for the site is low. The majority of the identified features relate to historic phases of field-system which are tentatively suggested as being medieval and post-medieval in date, though the presence of prehistoric activity in the surrounding area means that a prehistoric or Romano-British date cannot be ruled out.

Therefore, given the results of the geophysical survey, it is not thought that further archaeological mitigation would be particularly worthwhile in this instance.



November 2022

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1.0 INTRODUCTION

LOCATION:	LAND AT HIGHER LANE
PARISH:	MAWGAN-IN-MENEAGE
DISTRICT:	MENEAGE
COUNTY:	CORNWALL
CENTROID NGR:	SW 70472 24543
PLANNING REF:	PA22/07887
SWARCH REF:	MMHL22
OASIS REF:	SOUTHWES1-510910

1.1 PROJECT BACKGROUND

South West Archaeology Ltd. (SWARCH) was commissioned by Rhos Construction (The Client) to undertake a geophysical survey on Land at Higher Lane, Mawgan-in-Meneage, Helston, Cornwall as part of a planning submission for proposed residential development of the land. This work was undertaken in accordance with best practice and ClfA guidance in order to assess the potential impact of the proposed development and follows on from an Archaeological Desk-Based and Heritage Impact Assessment (SH 2022).

1.2 TOPOGRAPHICAL AND GEOLOGICAL BACKGROUND

The proposed site is located towards the southern end of the settlement of Mawgan-in-Meneage, c.5km south-east of Helston. The site comprises a sub-rectangular block of land c.670m south-west of the parish church and in between two areas of modern housing on a ridge between the Ponsontuel and Mawgan Creeks, at a height of approximately c.60m AOD. The soils of this area are the freely draining slightly acid loamy soils of Soilscape Group 6 (CSAI 2022). These overlie the sandstone and argillaceous rocks of the Portscatho Formation (BGS 2022).

1.3 HISTORICAL AND ARCHAEOLOGICAL BACKGROUND

Mawgan-in-Meneage, from a saint's name (*Mawan*) and the Cornish *manach* meaning 'monks enclosure' or *meneghy* ('sanctuary') (Padel 1985), is located in the parish of the same name and deanery and west division of the hundred of Kirrier. It is a pre-Domesday settlement first recorded in 1086 as *Scanctus Mawan*, belonging to King William and held by Britric. The manor of Mawgan belonged to the Bellots of Bochym before being purchased in 1713 by Sir Richard Vyvyan, Bart and remaining in the family through the 19th century. The site falls within land designated on the Historic Landscape Characterisation as: Medieval Farmland 'the agricultural heartland, with farming settlements documented before the 17th century....Either medieval or prehistoric origins'.

The site lies in an area with prehistoric origins, with Neolithic settlements identified in the wider landscape, and more immediately of Bronze Age date at Higher Nansloe; though there is greater evidence for settlement during the Iron Age and Romano-British periods cropmarks suggesting possible settlement at Carleen, Halliggye, Nanseveyn, Roskymer Wood and Tregear. Much of the surrounding landscape, however, has origins in the medieval period, settlement at Mawgan (first recorded in 1086), Trevery (first recorded in 1300), Tregear (*Tregaer*, 1403) and Langweath (*Langwith*, 1469) all having origins during this period.

Only a small number of archaeological investigations have been carried out in the area, including: geophysical survey, evaluation and excavation at Caer Vallack & Gear Farm; archaeological watching brief at Gweek Round; and survey, excavation and watching brief at Halligye Fogou.

1.4 METHODOLOGY

The geophysical (gradiometer) survey was undertaken in accordance with current best practice and Cifa guidance; and follows the guidance outlined in *Geophysical Survey in Archaeological Field Evaluation* (English Heritage 2008b); *Standard and Guidance for Archaeological Geophysical Survey* (Cifa 2014b); *EAC Guidelines for the use of geophysics in Archaeology: Questions to Ask and Points to Consider* (Europae Archaeologiae Consilium/European Archaeological Council 2016).

'Archaeological geophysical survey uses non-intrusive and non-destructive techniques to determine the presence or absence of anomalies likely to be caused by archaeological features, structures or deposits, as far as reasonably possible, within a specified area or site on land, in the inter-tidal zone or underwater. Geophysical survey determines the presence of anomalies of archaeological potential through measurement of one or more physical properties of the subsurface.' (Standard and Guidance for Archaeological Geophysical Survey 2014).

The results of the survey will as far as possible inform on the presence or absence, character, extent and in some cases, apparent relative phasing of buried archaeology to inform a strategy to mitigate any threat to the archaeological resource.

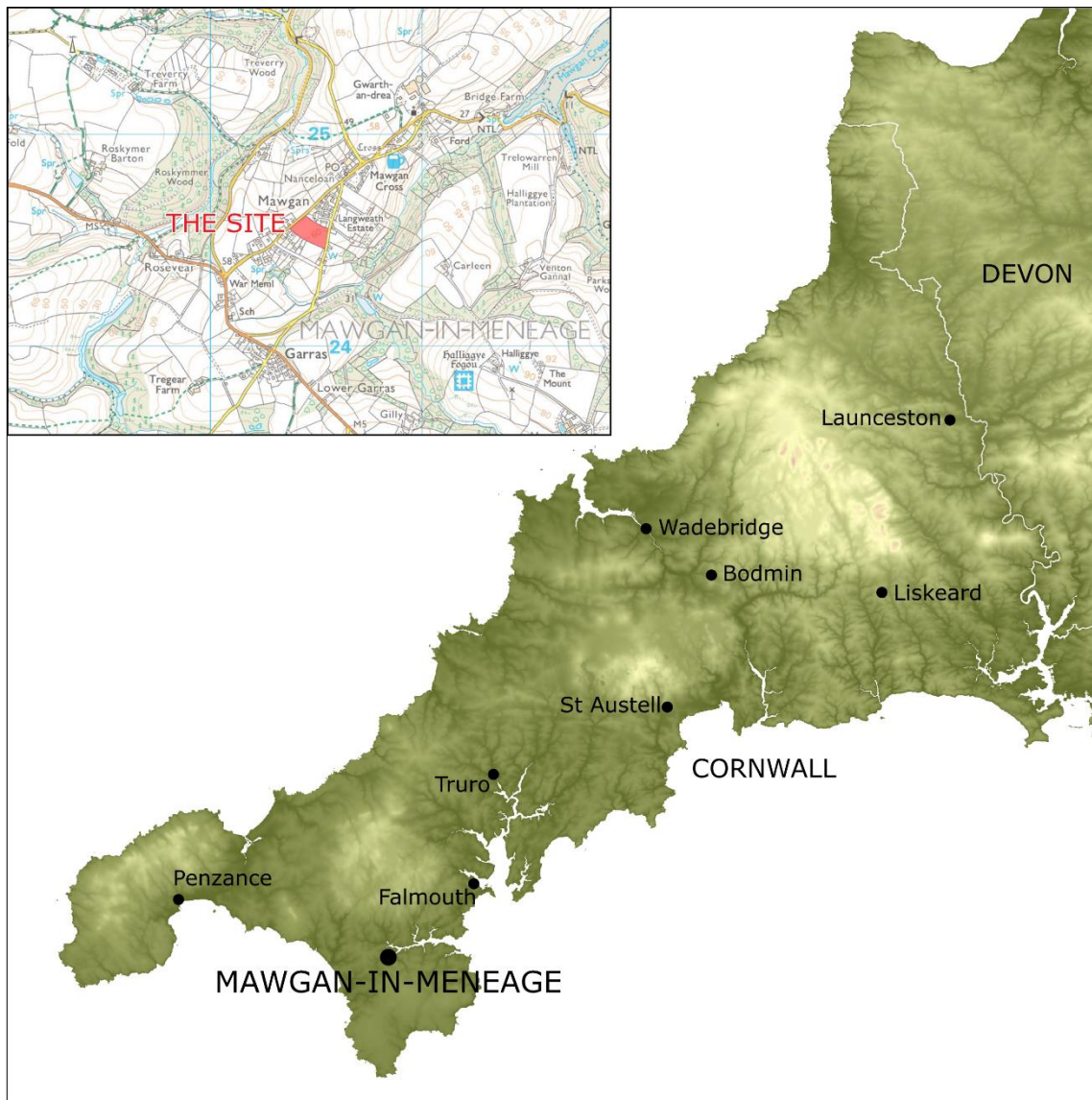


FIGURE 1: SITE LOCATION (THE SITE IS INDICATED).

2.0 GEOPHYSICAL SURVEY

2.1 INTRODUCTION

An area of c.1.5ha 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 4th November 2022 by P. Bonvoisin; the survey data was processed by P. Bonvoisin. Additional graphic images of the survey data and numbered grid locations can be found in Appendix 1; and supporting photographs for the site inspection can be seen in Appendix 2.

2.2 SITE INSPECTION

The site comprises a sub-rectangular field orientated approximately north-west to south-east between Higher and Lower Lanes towards the southern end of the village of Mawgan. At the time of survey, the field had been cleared of agricultural crops with moderate length grass growing. The largely flat field is bordered to the north-west by Higher Lane; the south-east by Lower Lane; and to both the north-east and north-west by residential development. The field is bounded by overgrown stone-faced hedgebanks.

A partially buried water pipe was identified running across the site, though its alignment was unclear.



FIGURE 2: F1, VIEW ACROSS THE SURVEY AREA; VIEWED FROM THE NORTH-WEST (NO SCALE).

2.3 METHODOLOGY

The gradiometer survey follows the general guidance as outlined in: *EAC Guidelines for the use of geophysics in Archaeology: Questions to Ask and Points to Consider* (Europae Archaeologiae Consilium/European Archaeological Council 2016) and *Standard and Guidance for Archaeological Geophysical Survey* (ClfA 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- and set out using a Leica CS15 GNSS Rover GPS. The data was downloaded onto *Grad601 Version 3.16* and processed using *TerraSurveyor Version 3.0.36.0*. 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 +/- 1SD; removes extreme data point values.

DeStripe all traverses, median; used to equalise underlying differences between grids (potentially caused by instrument drift or orientation, directional effects inherent in magnetic instrument, or differences in instrument set up during survey e.g. using two gradiometers).

DeStagger selected grids, all traverses out- and inbound by 0.25m to 0.50m; reduces staggering effects within data derived from zig-zag collection method.

TABLE 1: SURVEY DETAILS (UN-ADJUSTED)

Field	Area Surveyed (ha)	Max (nT)	Min (nT)	Standard Deviation (nT)	Mean (nT)	Median (nT)
1	1.4037	147.29	-190.12	11.39	-0.10	0.00

2.4 RESULTS

Table 2 with the accompanying Figures 3-4 show the analyses and interpretation of the geophysical survey data.

TABLE 2: INTERPRETATION OF GRADIOMETER SURVEY DATA.

Anomaly Group	Class and Certainty	Form	Archaeological Characterisation	Comments
F1				
1	Weak positive with associated negative, probable	Linear	Historic boundary – double ditch & bank	Indicative of cut and in-filled features such as ditches flanking central banked/compacted material typical of traditional Cornish hedgebank construction. Orientated approximately north-east to south-west. Depicted on historic mapping. Responses of between -6.86nT to -0.10nT and +0.06nT to +7.91nT.
2	Weak positive with associated negative, possible	Linear	Boundary – double ditch & bank	Indicative of cut and in-filled features such as ditches flanking central banked/compacted material typical of traditional Cornish hedgebank construction. Orientated approximately north-east to south-west. Responses of between -7.13nT to -0.11nT and +0.20nT to +9.82nT.
3	Weak positive, possible	Discrete	Pit or tree-throw	Indicative of a cut and in-filled feature such as pit. Weaker response may indicate a natural feature such as a pit. Responses of between +0.91nT and +15.50nT.
4	Very strong bipolar, probable	Linear	Modern service	Indicative of a buried modern service. Orientated approximately north-east to south-west. Responses of between -190.12nT and +147.29nT.
	Strong dipolar (mixed response)	Discrete	Ferrous anomaly	Indicative of metallic object. Responses of between c./-102nT.
	Strong bipolar (mixed response)	Irregular	Modern disturbance	Indicative of disturbed ground and disturbance caused by proximity to metallic fences and debris. Responses of between c./-112nT.

2.5 DISCUSSION

The survey identified four groups of anomalies, including: ditch and/or bank features associated with the phases of the existing field-system; a possible pit; and two modern services. Anomalies associated with agricultural activity, metallic debris and ground disturbance were also identified.

The general response variation across the site was between $\pm 2nT$ with occasional clear background geological variation up to $\pm 5nT$. The response strength of probable archaeological activity was low (typically between $\pm 10nT$). The weak responses of many of the anomalies indicates that the majority are only likely to survive to a shallow depth.

The anomaly groups identified include: a historic double ditch and bank boundary removed during the later 20th century (Group 1); a further possible double ditch and bank boundary associated with a phase of the existing south-eastern site boundary (Group 2); a possible pit or tree-throw (Group 3) and two modern service features, one a partially buried water pipe (Group 4).

2.6 ARCHAEOLOGICAL POTENTIAL

Whilst none of the identified features can at this stage be dated, the surrounding historic field-pattern is characterized as medieval farmland with either medieval or prehistoric origins, the surviving boundaries of which are represented in the gently curving elements of the existing field-system. Elements of this had gone out of use by the middle of the 19th century and it is possible that some of the identified features formed part of this system, the boundary associated with the Group 1 anomalies continuing in use into the 20th century. The other boundary feature (Group 2) is probably of a similar date, reflecting a phase of boundary alteration shifting to its current position.

Modern disturbance has occurred across the north-western edge of the site, a buried modern service running parallel to the hedge/road boundary across the site (Group 4). This is likely to be associated with the modern housing built to either side of the site.

The degree of preservation of the identified features appears to be poor. The majority of the anomaly responses are weak, with some intermittent and barely discernible from the background geology. This suggests that many of the identified features only survive to a shallow depth, their intermittent nature suggesting only partial survival. However, it is possible that additional, even more ephemeral features, are masked by the background geology.

The results of the geophysical survey would suggest that the archaeological potential for the site is *low*. The majority of the identified features relate to historic phases of field-system which are tentatively suggested as being medieval and post-medieval in date, though the presence of prehistoric activity in the surrounding area means that a prehistoric or Romano-British date cannot be ruled out.

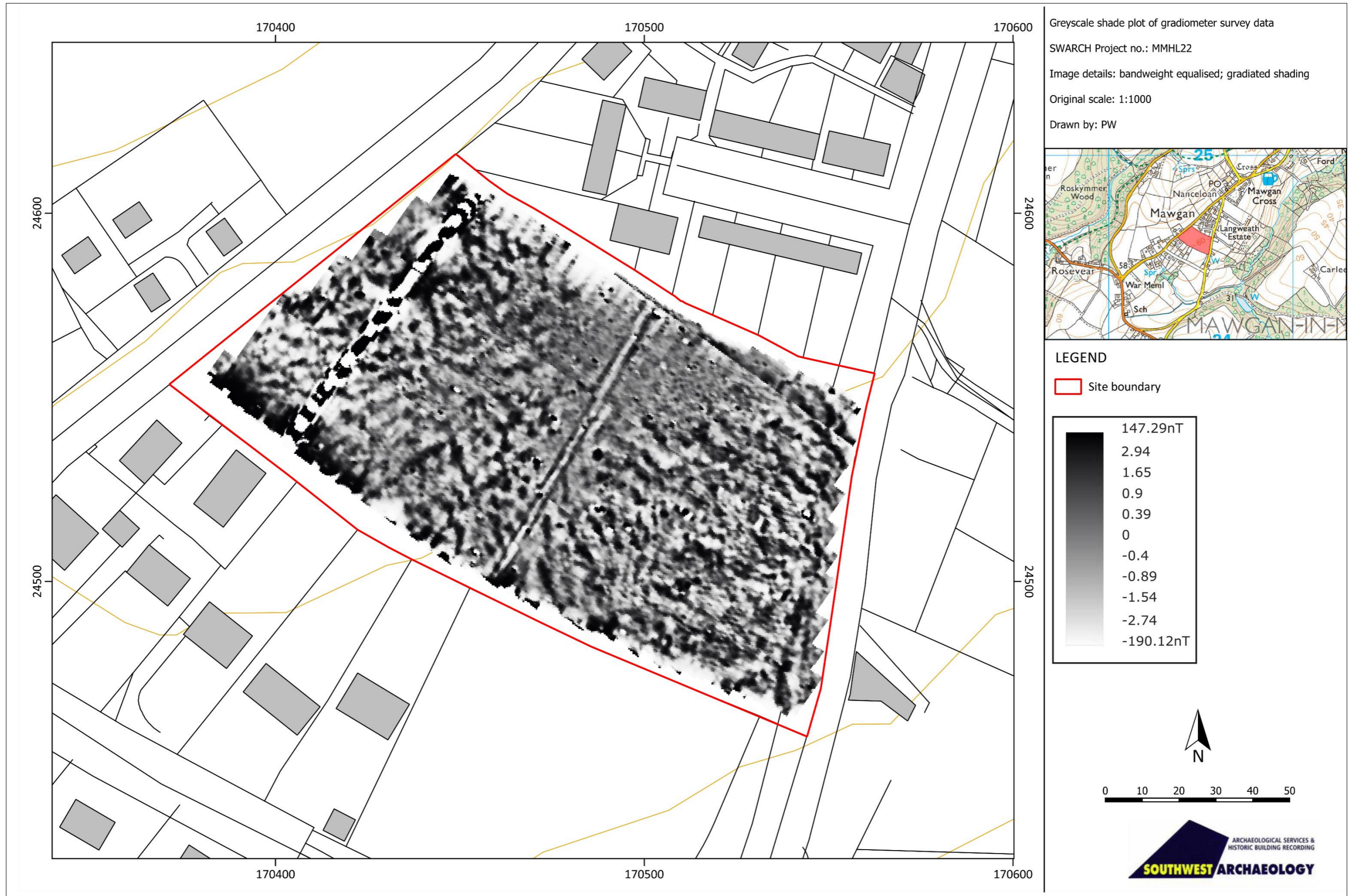
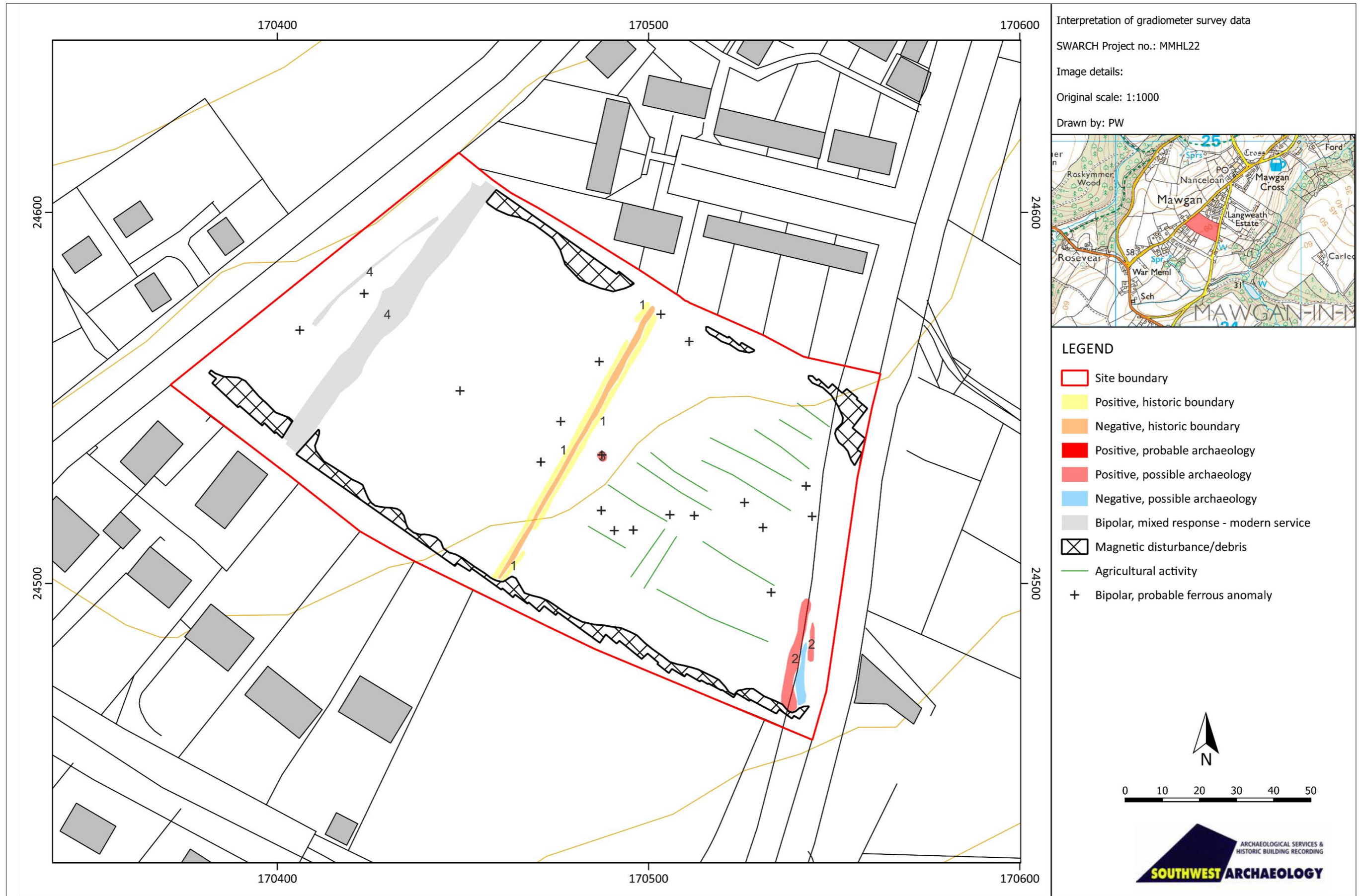


FIGURE 3: SHADE PLOT OF THE GRADIOMETER SURVEY DATA; BAND WEIGHT EQUALIZED, GRADIATED SHADING.



3.0 CONCLUSION

The site comprises a sub-rectangular field orientated approximately north-west to south-east between Higher and Lower Lanes towards the southern end of the village of Mawgan. The site lies in an area with prehistoric origins, but which is largely medieval and post-medieval in date.

The survey identified four groups of anomalies, including: a historic double ditch and bank boundary removed during the later 20th century; a double ditch and bank boundary associated with a phase of the existing south-eastern site boundary; a possible pit or tree-throw; and two modern service features. Evidence of agricultural activity, metallic debris and ground disturbance were also identified.

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Therefore, given the results of the geophysical survey, it is not thought that further archaeological mitigation would be particularly worthwhile in this instance.

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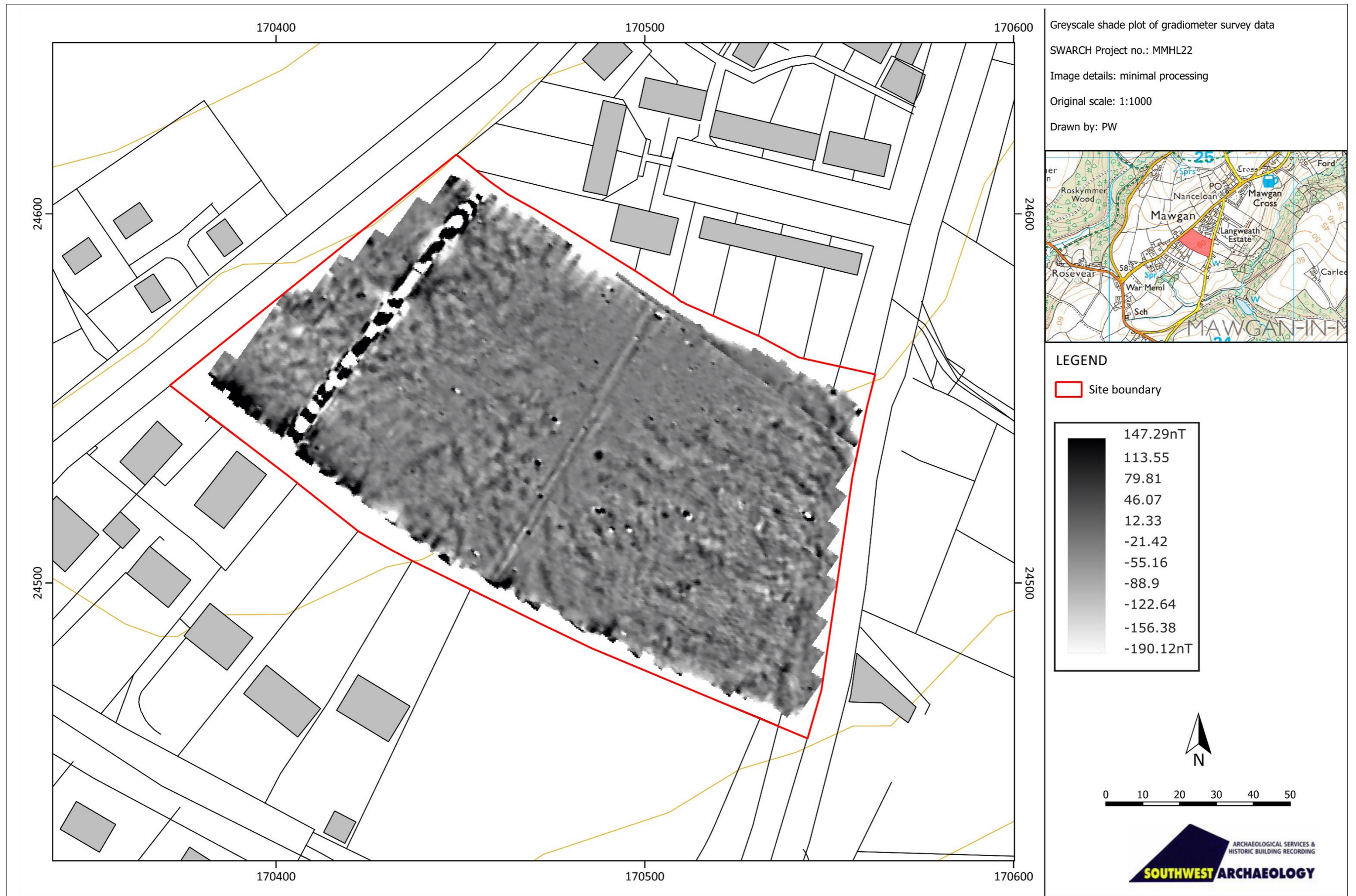
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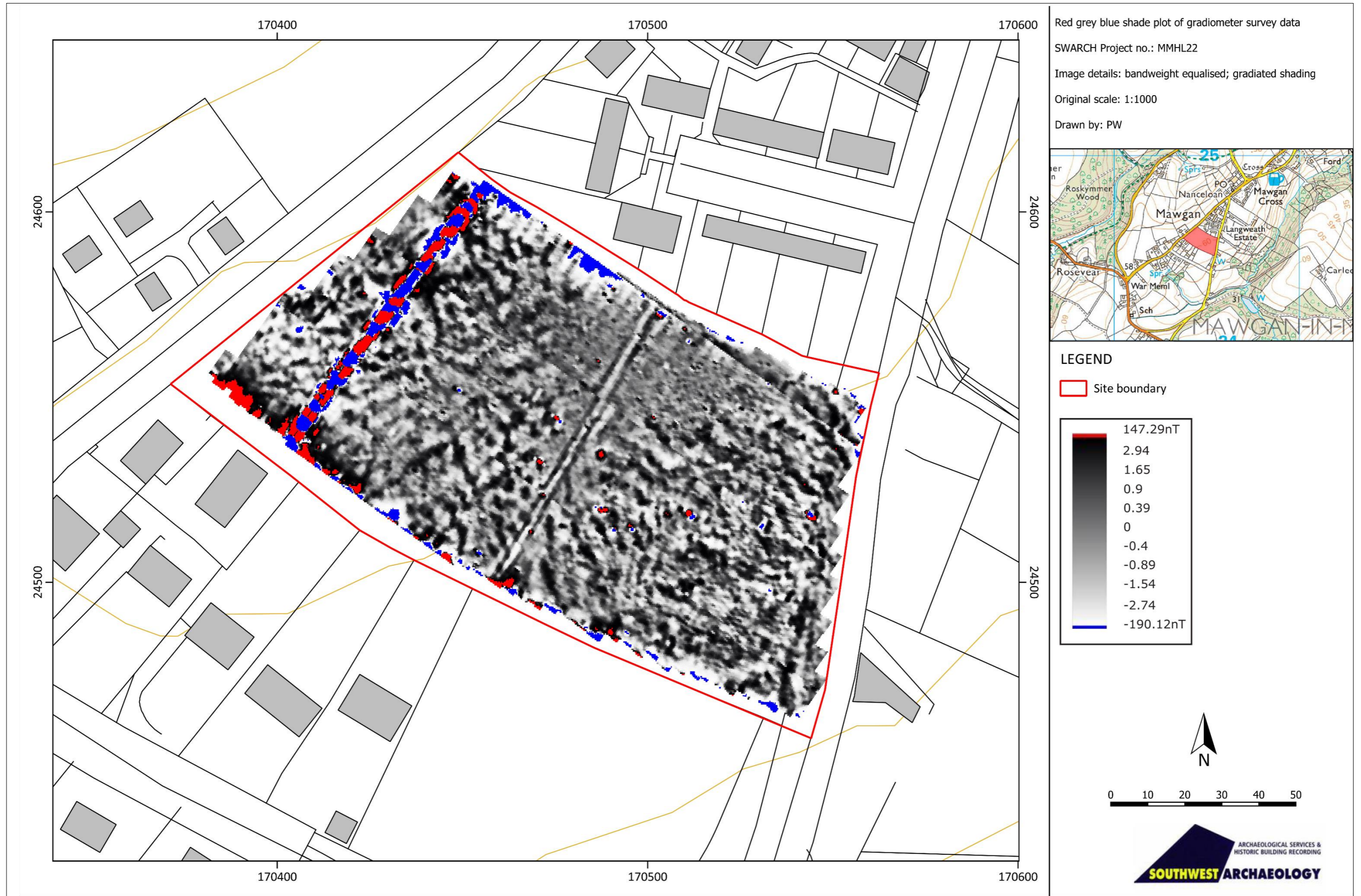
APPENDIX 1: ADDITIONAL GRAPHICAL IMAGES OF THE GRADIOMETER SURVEY



1. GEOPHYSICAL SURVEY GRID LOCATION AND NUMBERING.



2. SHADE PLOT OF GRADIOMETER SURVEY DATA; MINIMAL PROCESSING.



3. RED-GREY-BLUE SHADE PLOT OF GRADIOMETER SURVEY DATA; BAND WEIGHT EQUALIZED, GRADIATED SHADING.

APPENDIX 2: SUPPORTING PHOTOGRAPHS



1. F1, VIEW ALONG THE NORTH-EASTERN BOUNDARY; VIEWED FROM THE WEST-NORTH-WEST (NO SCALE).



2. F1, VIEW ACROSS THE SITE; VIEWED FROM THE NORTH (NO SCALE).



3. F1, VIEW ALONG THE NORTH-WESTERN BOUNDARY; VIEWED FROM THE NORTH-EAST (NO SCALE).



4. F1, DETAIL OF THE PARTIALLY BURIED WATER PIPE; VIEWED FROM THE NORTH-WEST (NO SCALE).



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