



Wigmore Castle, Wigmore, Herefordshire

Report on Geophysical Survey, February 2024

Andrew Payne and Megan Clements



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HR6 9UB

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Summary

An earth resistance survey (0.15ha) was conducted within the lower inner bailey at Wigmore Castle, Wigmore, Herefordshire, to identify any significant sub-surface remains of the castle. The survey was requested by the English Heritage Trust to inform the re-instatement of visitor footpath routes to the upper shell keep that had fallen into disrepair since the site was taken into guardianship in the 1990s. Unfavourable site conditions only allowed partial coverage over the intended target areas, but the survey has suggested the presence of masonry building remains, a possible road corridor in the lower part of the inner bailey, and evidence for the survival of parts of the “Great Hall” on a raised platform adjacent to the base of the castle motte. The steep slopes of the motte were excluded for safety reasons due to the unfavourable topography and dense tree and vegetation cover.

Contributors

The geophysical fieldwork was conducted by Megan Clements and Andrew Payne.

Acknowledgements

The authors are grateful for the information on the site provided in advance of the fieldwork by colleagues from the English Heritage Trust. The cover image shows the area of vegetation clearance in the western and lower part of the inner bailey area with the mound of the motte crowned by a surviving masonry tower visible in the background to the north (photograph taken by Andrew Payne).

Archive location

The full digital project archive is held by the Geophysics Team, Historic England, Fort Cumberland, Fort Cumberland Road, Portsmouth, PO4 9LD.

Date of survey

The fieldwork was conducted between the 12th and 14th February 2024 and the report completed on 9th April 2024.

Contact details

Paul Linford, Geophysics Team Principal, Historic England, Fort Cumberland, Fort Cumberland Road, Southsea, Portsmouth, PO4 9LD. Tel: 02392 856761. Email: paul.linford@historicengland.org.uk.

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Introduction

An earth resistance survey was conducted over accessible areas within the curtain walls of the inner bailey and around the base of the motte of Wigmore Castle, Wigmore, Herefordshire. The survey was requested by the English Heritage Trust to identify any significant sub-surface remains and inform the planning of new visitor access routes across the inner bailey to the motte and shell keep located at the highest point of the site. The plans include installing new flights of steps to replace previous sets originally installed in the 1990s that have since fallen into disrepair. The work was agreed under the Shared Services Agreement and addresses Historic England corporate plan activity “5.2 Work with English Heritage Trust to support the National Collection”.

Wigmore Castle (National Heritage List for England 1178673 and 1001793) was one of many castles built close to the England-Wales border following the Norman Conquest (Curnow 1981; Remfry 1995; Shoesmith 1996; Remfry 2000). Founded in 1067 by William Fitz Osbern, it was a major centre of power for over 500 years held by the Mortimer family from about 1075 to 1425, before being passed to the Crown. The castle fell into ruin after the Civil War and remained untouched and neglected until the 1990s when English Heritage undertook conservation works with the aim of ensuring that the natural environment of the castle was also prioritised (Hoppen 1995). The conservation works also included two archaeological excavations that revealed evidence of timber-framed buildings arrayed along the inside of the curtain wall enclosing the inner bailey. Previous geophysical surveys were undertaken over the outer bailey in 1988 and 1998 (Redhead 1990; Payne 2007).

The castle lies at the eastern end of a long ridge descending from higher ground to the west overlooking the Vale of Wigmore to the north. The underlying geology consists of Paleozoic siltstones, shales, mudstones and limestones of the Silurian Wenlock formation overlain by fine silty soils of the Stanway (711a) and Yeld (572) associations (Soil Survey of England and Wales 1983; Geological Survey of Great Britain 1999). The site was constrained by dense vegetation and tree growth on the steeply sloping sides of the motte which prevented safe access for survey, but elsewhere in the inner bailey and around the south-east side of the motte sufficient vegetation clearance had taken place (Figure 1). The accessible survey areas were covered by rough grass following scrub clearance. Weather conditions during the fieldwork were dominated by lengthy periods of rain falling on already damp and muddy ground.

Method

The survey covered the majority of the lower inner bailey including the area immediately inside the arched gatehouse entrance to the castle and the parts of the lower inner bailey lying either side of this main access corridor (Figure 1). Some areas were excluded adjacent to the curtain walls and mural towers that had been enclosed by picket fencing for safety and nature conservation purposes, and also where the vegetation cover was still too dense. An adjacent area situated at the base of the motte and close to the route of the current access path, before it begins the final steep ascent to the shell keep, was also partially accessible for survey due to a limited area of vegetation clearance. This area to the north in the upper part of the inner bailey contains a flat triangular-shaped platform interpreted as the site of the former “Great Hall” (Curnow 1981, 25) occupying an elevated position between the inner castle motte and the lower part of the inner bailey. To accommodate a workable survey grid arrangement this smaller area had to be surveyed on a separate grid alignment from the lower inner bailey (Figure 1).

Measurements were recorded over a series of 30m grids established with a Trimble R8s GNSS (Figure 1) using a Geoscan RM85 earth resistance meter, internal multiplexer, and a PA5 electrode frame in the Twin-Electrode configuration, to allow two separate surveys, with mobile electrode separations of 0.5m and 1.0m, to be collected simultaneously. The 0.5m electrode separation coverage was designed to detect near-surface anomalies in the upper 0.5m of the subsurface whilst the 1.0m separation survey allowed anomalies to a depth of about 1-1.25m to be detected. For the 0.5m electrode separation survey readings were taken at a density of 0.5m x 1.0m whilst for the 1.0m electrode separation survey they were taken at a density of 1.0m x 1.0m.

Extreme values caused by high contact resistance were suppressed using an adaptive thresholding median filter with radius 1m (Scollar *et al.* 1990). The results for the near-surface 0.5m electrode separation survey are depicted as a histogram equalised greyscale image in Figure 2 superimposed on the base OS mapping data. Figure 3 shows minimally processed data from both the 0.5m and 1.0m electrode separation surveys presented as trace plots (Figures 3(A) and 3(E)) with additional linear and histogram equalised greyscale images of the 0.5m electrode separation data initially treated with a 0.6m radius Gaussian low-pass filter for suppression of minor noise (Figures 3(B) and 3(C)) and minimally processed data in the case of the 1.0m separation data (Figures 3(F) and 3(G)). Also shown in Figure 3 are greyscale images of the 0.5m electrode separation dataset after further application of a Gaussian high-pass filter with a radius of 3.0m and a Gaussian low-pass filter with a radius of 0.6m (Figure 3(D)), together with greyscale images of the 1.0m electrode separation dataset after application of a Gaussian high-pass filter with a radius of 3.0m and a Gaussian low-pass filter with a radius of 1.0m (Figure 3(H)).

Results

A graphical summary of significant earth resistance anomalies [r1-14] discussed in the following text superimposed on the base OS mapping data is provided in Figure 4.

Lower inner bailey

General response

Background earth resistance readings are generally low over much of the inner bailey with no response over a raised area of ground in the east, possibly a spoil-heap resulting from a previous excavation (Brown 2002, 11, feature (j)). The low background resistance in the inner bailey could be related to the recent vegetation clearance that may have altered the moisture retention in the soil, although a lower resistance response (shown as lighter tones in the greyscale images) also occurs over areas that were previously free of vegetation including the current visitor pathways at [r1].

Significant anomalies

A well-defined, broad linear zone of very high resistance [r2] (shown in darker tones) is evident over a raised bank following the inner face of the curtain wall and the interspersed mural towers around the southern perimeter of the inner bailey. Anomaly [r2] may well represent deposits of masonry fallen from the main curtain wall. An approximately rectilinear area of higher resistance [r3] to the north-east may represent the footprint of a former building aligned parallel to the curtain wall, and follows the expected layout of buildings known from previous excavation (English Heritage 2024).

To the north of [r3] and on a similar alignment, a broad, possible roadway [r4], only weakly defined in places, is found between the main castle entrance gatehouse and a group of well-defined high resistance responses [r5] in the eastern part of the survey. An alternative interpretation of [r4] could also include a stone-lined drain, culvert or even a more modern service, but these seem unlikely given the form and extent of [r4]. The anomalies at [r5] may represent structural remains, of possible polygonal form, perhaps suggesting a tower occupying a more sloping and elevated position near the base of the motte.

Further concentrations of possible building rubble are found at [r6] and [r7] in the east of the inner bailey, with some indication of a rectilinear structure sharing a similar alignment with [r3] and [r4]. More irregular areas of high resistance response in the vicinity of [r6] might be the result of disturbance and backfilling of buried structures, but this is difficult to ascertain from the limited currently published excavation records (Shoemith 1997, 1998). There is a further high resistance area [r8] of unknown origin, only partially resolved in the north of the survey coverage.

Upper platform

A high resistance response [r9] suggests a continuation of the postulated “Great Hall” to the north, with a possible opposed wall found at [r10]. A narrow linear low-resistance anomaly [r11] is found orthogonal to [r9] and [r10] and may represent either a drainage or pipe-trench, but could also indicate remains of an archaeological intervention in this area as Barratt (1998) recorded a possible excavation trench to the north of the extant walling at [r9]. A broader, lower resistance response [r12] to the east of [r11] may represent stone robbing or some other form of ground disturbance. Higher resistance readings [r13] occur along the northern edge of the survey, where the ground rises to form the lower part of the motte, and could represent a response to the geology as the mound is believed to have been adapted from the natural topography of the ridgeline occupied by the castle. Further possible evidence for buildings is found in an area of high resistance in the eastern part of the survey coverage at [r14] and could represent a continuation of the masonry remains at [r5].

Conclusions

Despite limited access to the site, due to a combination of the steep terrain and overgrown vegetation in places, the earth resistance survey has successfully identified evidence for possible building remains and a roadway across the inner bailey. Some additional structural detail associated with the standing remains of the “Great Hall” building, located on the raised platform in the upper part of the inner bailey, has also potentially been revealed. Unfortunately, the slope of the motte mound and overgrown vegetation precluded any survey coverage to inform the location of new visitor access steps to the shell keep. Extended survey coverage, if considered useful, would require further vegetation clearance and suitable access arrangements for safe working over the steep sides of the motte mound.

List of Enclosed Figures

- Figure 1: Location of earth resistance survey grids superimposed over the base OS mapping data (1:750).
- Figure 2: Histogram equalised greyscale image of the 0.5m electrode separation earth resistance data superimposed over the base OS mapping data (1:750).
- Figure 3: (A) Trace plot, (B) linear greyscale image and (C) histogram equalised greyscale image of the 0.5m mobile electrode separation earth resistance data together after with (D) linear greyscale image following the application of a high-pass filter. The trace plot is minimally processed data while the data displayed in (B), (C) and (D) is slightly smoothed using a low-pass filter. Images (E), (F), (G) and (H) show the similar representations for the 1.0m mobile electrode separation earth resistance data (1:750).
- Figure 4: Graphical summary of significant earth resistance anomalies superimposed over the base OS mapping data (1:750).

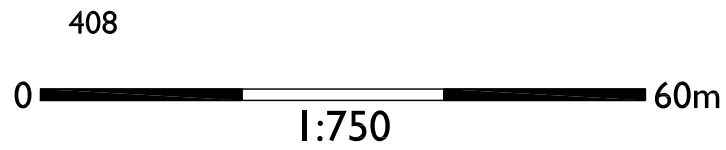
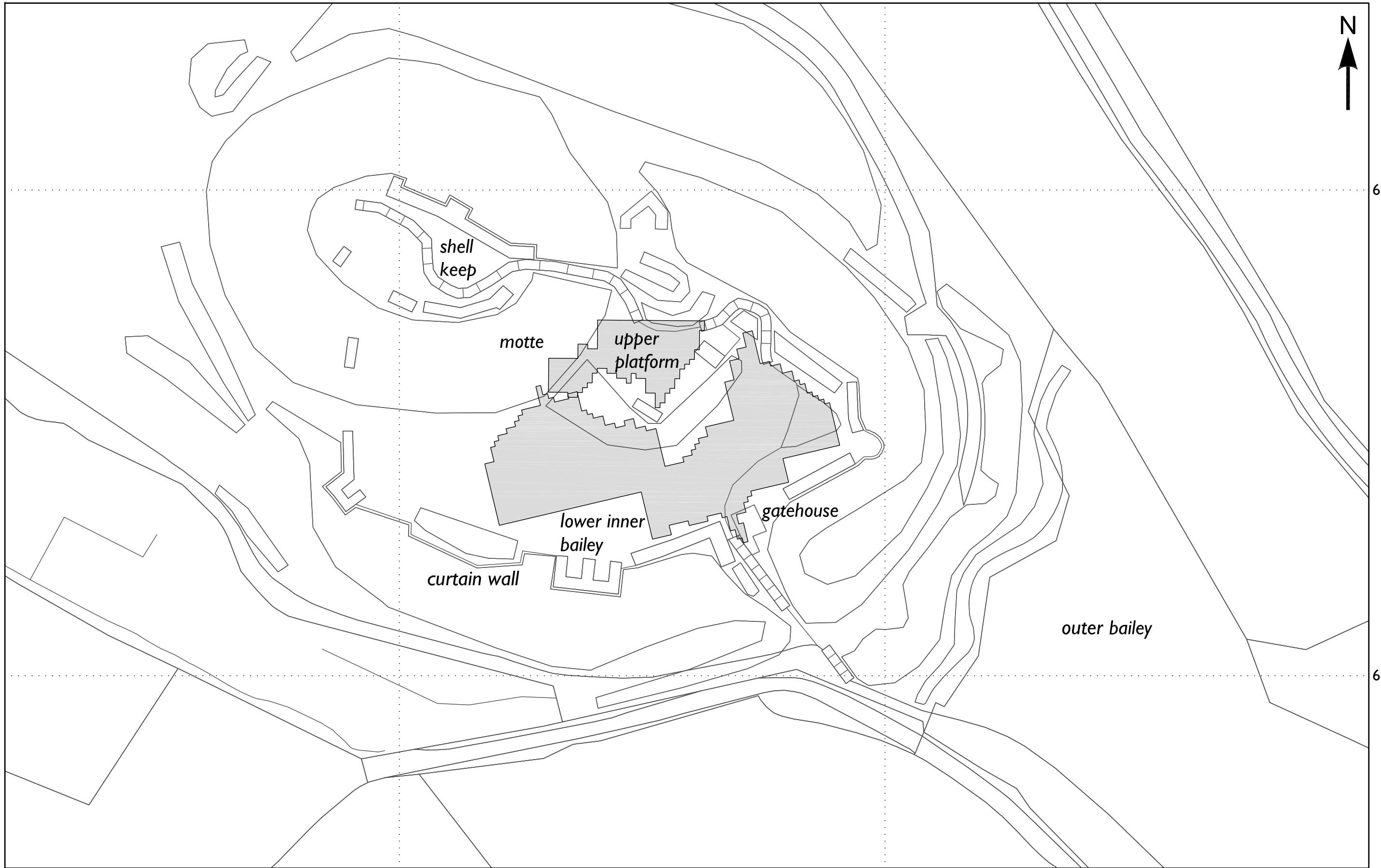
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WIGMORE CASTLE, WIGMORE, HEREFORDSHIRE

Location of earth resistance survey, February 2024

SO4069

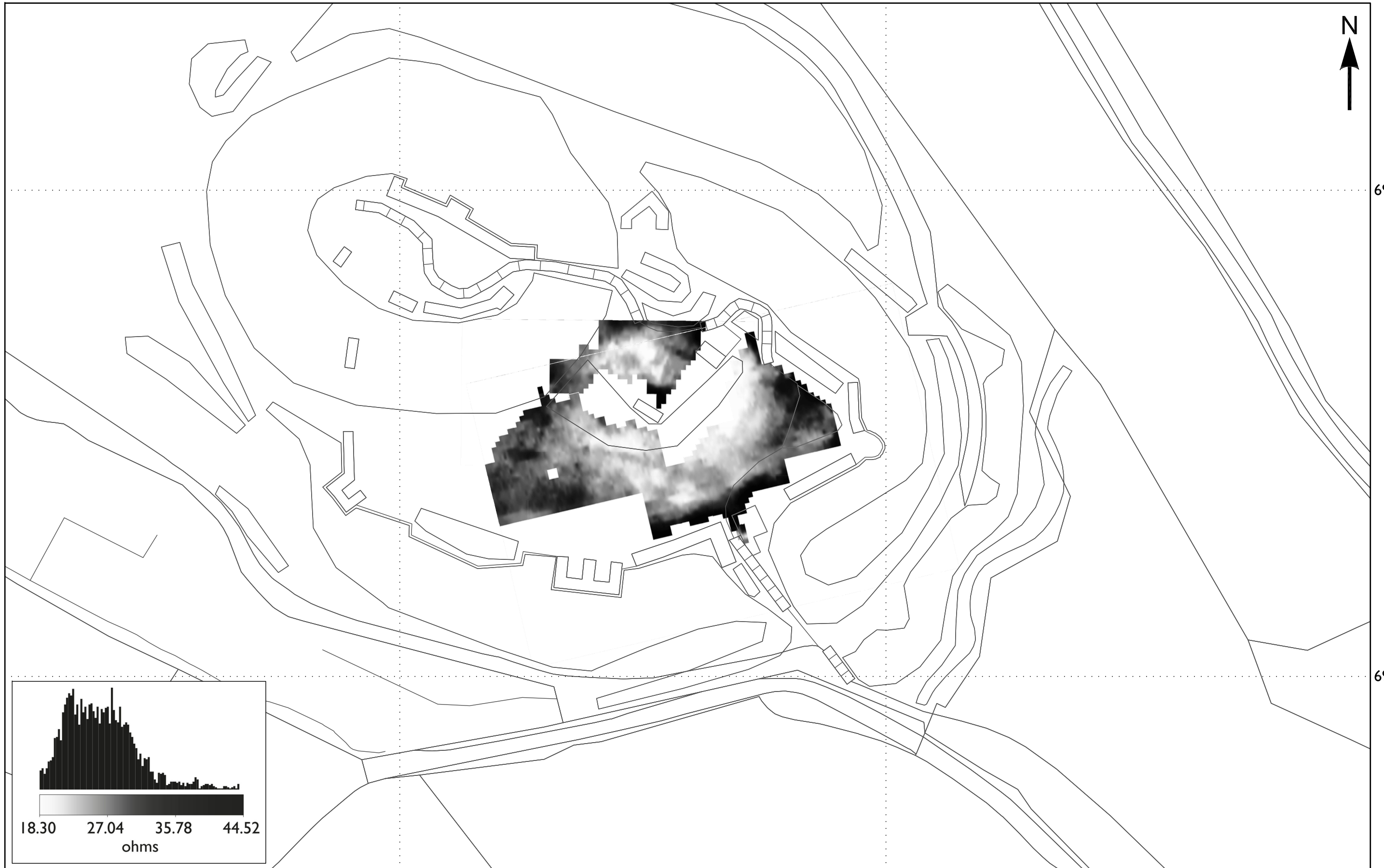


Earth resistance survey areas

WIGMORE CASTLE, WIGMORE, HEREFORDSHIRE

Location of earth resistance survey, February 2024

SO4069



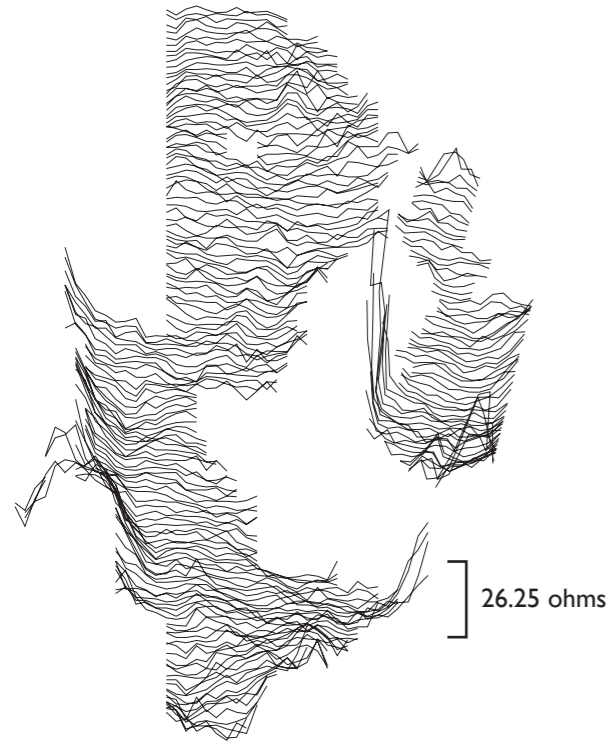
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WIGMORE CASTLE, WIGMORE, HEREFORDSHIRE

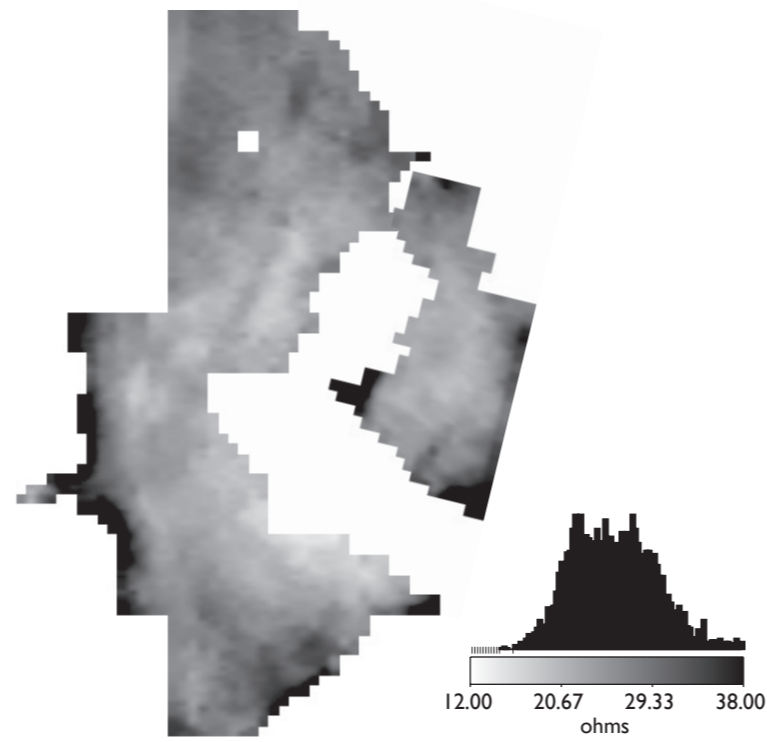
Earth resistance survey, February 2024

0.5m mobile electrode separation data

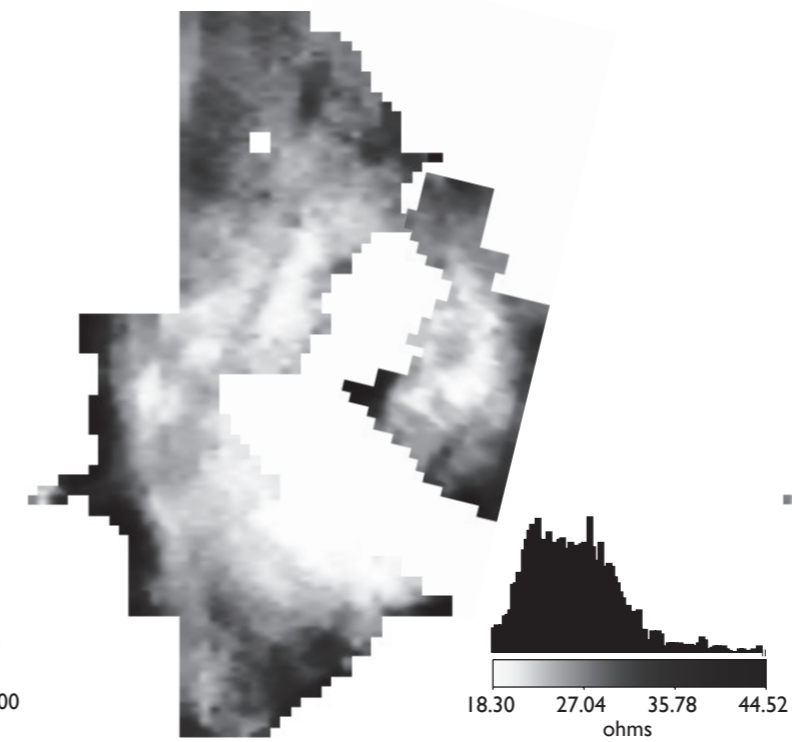
(A) Trace plot of minimally processed data



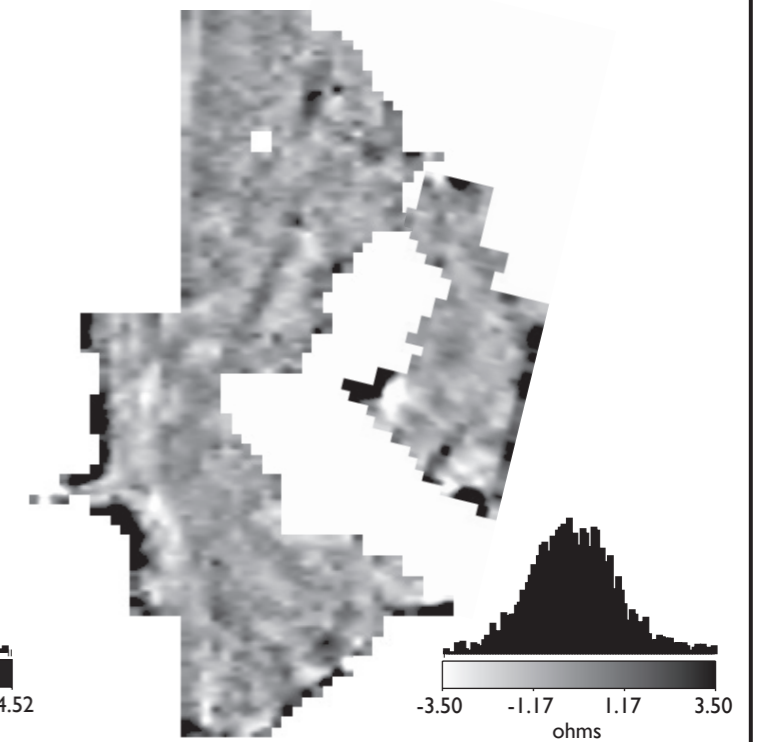
(B) Linear greyscale image of minimally processed data



(C) Histogram equalised greyscale image of minimally processed data

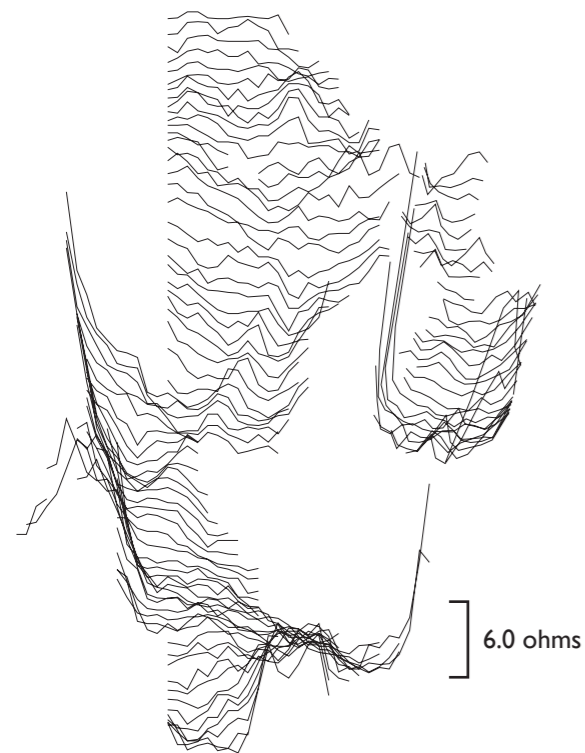


(D) Linear greyscale image of high-pass filtered data

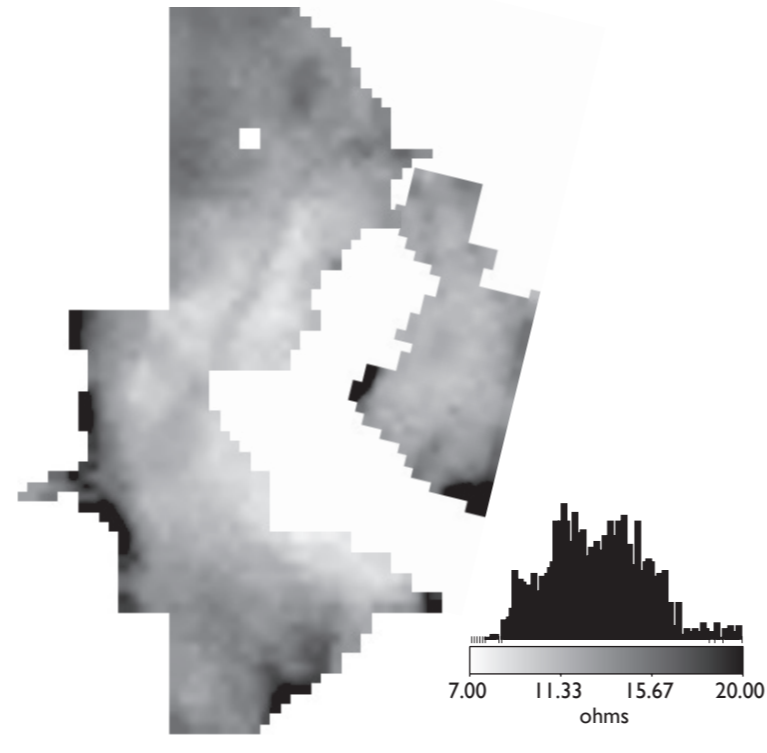


1.0m mobile electrode separation data

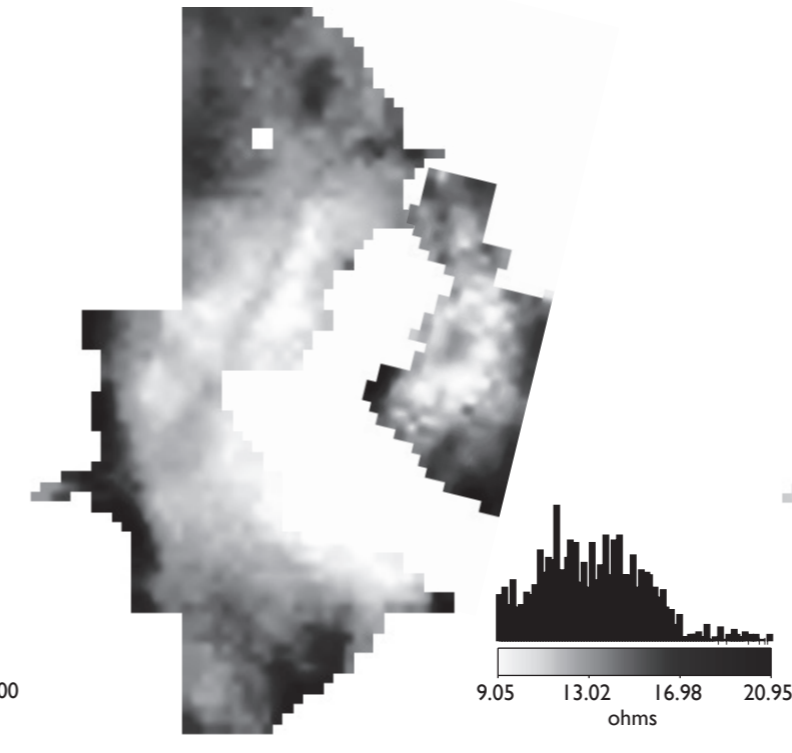
(E) Trace plot of minimally processed data



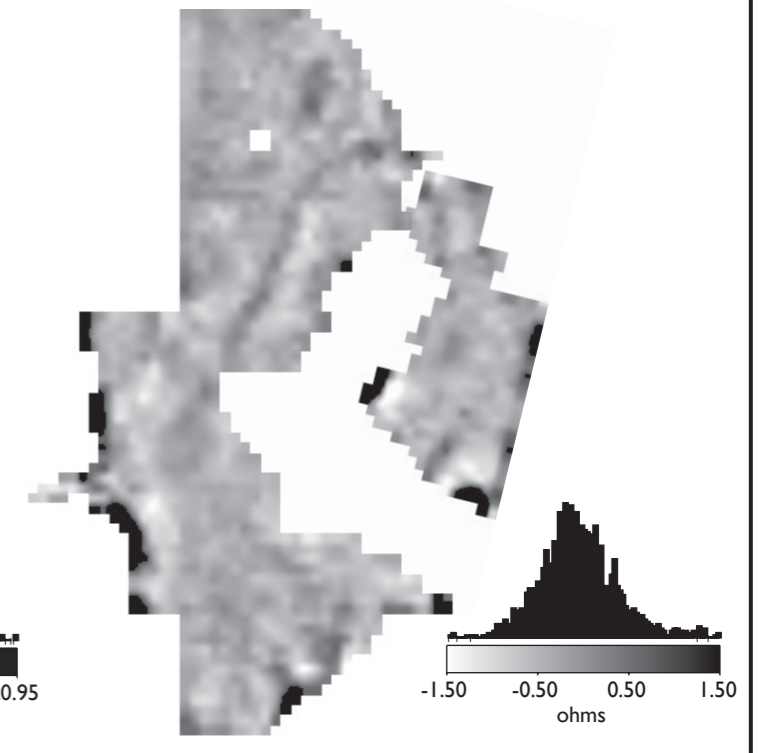
(F) Linear greyscale image of minimally processed data



(G) Histogram equalised greyscale image of minimally processed data



(H) Linear greyscale image of high-pass filtered data



0 60m

1:750

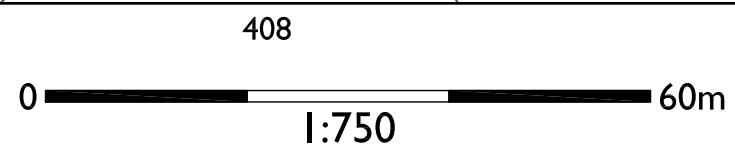
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Graphical summary of significant earth resistance anomalies, February 2024

SO4069



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 very high resistance  high resistance  low resistance



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