

KCKH13/001



KILPECK CASTLE MOTTE, HEREFORD

Geophysical Survey

commissioned by Mann Williams

July 2013

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land at
Kilpeck Castle
Kilpeck
Herefordshire



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scale 1:2,000 @ A4



0 100m

Illus 1

Site location

KILPECK CASTLE MOTTE, HEREFORD

Geophysical Survey

Headland Archaeology Ltd was commissioned to undertake a Geophysical Survey within the motte of Kilpeck Castle (HSM714). The geophysical survey work was conducted in response to the necessity to secure the remaining upstanding walls of the shell keep.

The geophysical Survey was conducted on the 24th of May 2013 and identified that the top of the motte contains a series of anomalies that could represent evidence for structural remains, demonstrating the arrangement of previously unknown internal features relating to the development of Kilpeck Castle.

1 INTRODUCTION

Headland Archaeology Ltd was commissioned by Mann Williams, to undertake a Geophysical Survey of the area on top of the Motte at Kilpeck Castle (HSM714).

The geophysical survey work was carried out in response to recommendations following previous investigations to assess the ground conditions and stability of the surviving masonry (20th December 2012). The previous work involved the sinking of four boreholes and the hand-excavation of four small test pits by archaeological staff.

No features of archaeological significance were seen during the previous work; the sequence observed within the bore holes suggested a variable depth of topsoil (0.40m approx) over re-deposited natural subsoil formed the fabric of the motte. These deposits were shown to be undisturbed and to exceed 4 meters in depth in places.

The recommendation and method for securing the surviving upstanding masonry, requires that a series of ground anchors, attached to the masonry are sunk into the fabric of the motte, it was considered necessary to conduct a program of geophysical survey in order to assess the survival and significance of any archaeological remains within the area of the proposed ground works

2 LOCATION

The site is located approximately 7 miles southwest of Hereford, adjacent to Kilpeck Parish Church in the village of Kilpeck (see Fig 1). The centre of the site lies at National Grid reference SO 4442 3046.

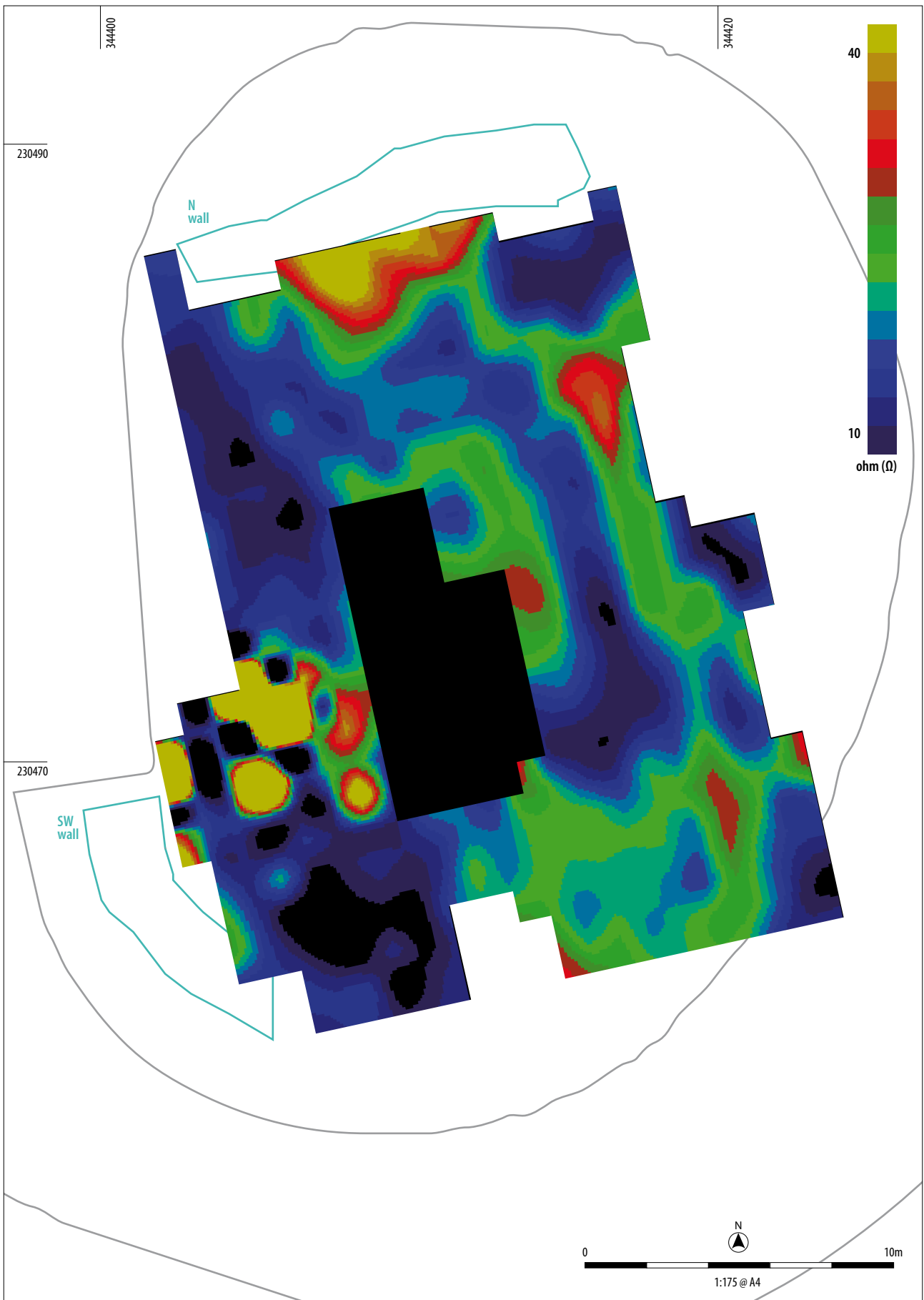
3 SITE TOPOGRAPHY AND GEOLOGY

The motte is roughly circular with a diameter of 49m at the base and a maximum height of 8.30m above the bottom of the ditch. It is surmounted by the remains of a polygonal, masonry shell-keep of which two large fragments remain towards the north and the south-west.

The local geology of the motte was documented during the recent archaeological evaluation (20th December 2012). The evaluation survey identified that the top of the motte consisted of a topsoil deposit of approximately 0.40m over a redposited natural that formed the main structure of the motte.

The borehole survey identified the redeposited natural to a depth of approximately 4m below the top of the motte before ground resistance curtailed the survey.

The wide area geology of the site consists of Raglan Mudstone formation, a siltstone and mudstone formed approximately 417 to 419 million years ago in the Silurian Period.



Illus 2

Shallow resistivity data





(<http://www.bgs.ac.uk/discoveringGeology/geologyOfBritain/viewer.html>).

4 BACKGROUND HISTORY

Kilpeck Castle is designated as a Scheduled Monument, featuring on the Heritage at Risk register as a high priority, (No. 1001716); a grade II listed building (No. 1301419) and recorded in the Herefordshire Sites and Monuments Record (HSM714).

The Castle is a medieval motte with the remains of a stone shell keep, and multiple bailey areas, located adjacent to a medieval church and earthworks of a planned settlement.

Situated on top of the motte the two large fragments of walling that remain, indicate that the final stone keep was polygonal in design. Within the north fragment of walling is a fireplace-recess with a segmental back of ashlar and a round flue; to the east are remains of a cross-wall, and there are two round drain-holes piercing the outer wall.

The south-west fragment has the remains of an ashlar-faced oven with the springing of an arch across the front; this oven was in the angle of a cross-wall and further north is a third drain-hole.

The motte is surrounded by a ditch that separates it from the kidney-shaped inner bailey to the east, and from an outer bank to the west. The bailey has an outer ditch and remains of a rampart at its north and south ends; there are slight traces of a causeway leading to the motte.

5 AIMS AND OBJECTIVES

The aims and objectives of the archaeological geophysical survey were to:

- identify any geophysical anomalies of possible archaeological origin within the specified survey area
- accurately locate these anomalies and present the findings in map form
- describe the anomalies and discuss their likely provenance in a written report
- recommend any further work (including other forms of geophysical survey if appropriate) likely to contribute to the mitigation of the impacts of the development on these features

6 METHOD

The survey was conducted to the highest professional standards as detailed in Geophysical Survey in Archaeological Field Evaluation, English Heritage Research and Professional Services Guideline No. 1, 2nd ed (English Heritage 2008) and The Use of Geophysical Techniques in Archaeological Evaluations, Institute of Field Archaeologists Paper, No. 6 (IfA 2002) and the DRAFT Standards and Guidance for Geophysical Survey, IfA Technical Paper (IfA, Pending Ratification).

All data provided by Headland Archaeology (UK) Ltd., has been treated in accordance with the guidelines laid out in Geophysical

Data in Archaeology: A Guide to Good Practice (AHDS Guides to Good Practice; Schmidt 2001).

6.1 THE SURVEY

The geophysical survey was undertaken using a RM15 (Geoscan) resistivity meter and a PA5 electrode array over an area of approximately 25m x 35m with data collection points 1m apart on 1m spaced traverses.

At each location, data was collected as 2 x 0.5m mobile electrode spacing and 1 x

1m mobile electrode spacing using a MX15 multiplexer (0.5m – which sees to about 0.75m depth, and 1m spaced – which sees to about 1-1.5m depth).

The resistance of sedimentary rocks, such as sandstone, of which the remaining upstanding walls of Kilpeck Castle are constructed from, is approximately 30-100000 Ohm/m (Bell 1975). Therefore, Resistivity survey was considered an appropriate method for identifying stone built foundations/walls and cut features within the area of the motte.

6.2 DATA PROCESSING

The Raw data from the survey was transferred via custom designed Headland Archaeology data capture software; due to the method of data capture employed during the resistivity survey, no processing of the results was necessary.

Copies of the report and the data archive created during the course of the survey will be made available to the curator, English Heritage and OASIS.

7 RESULTS

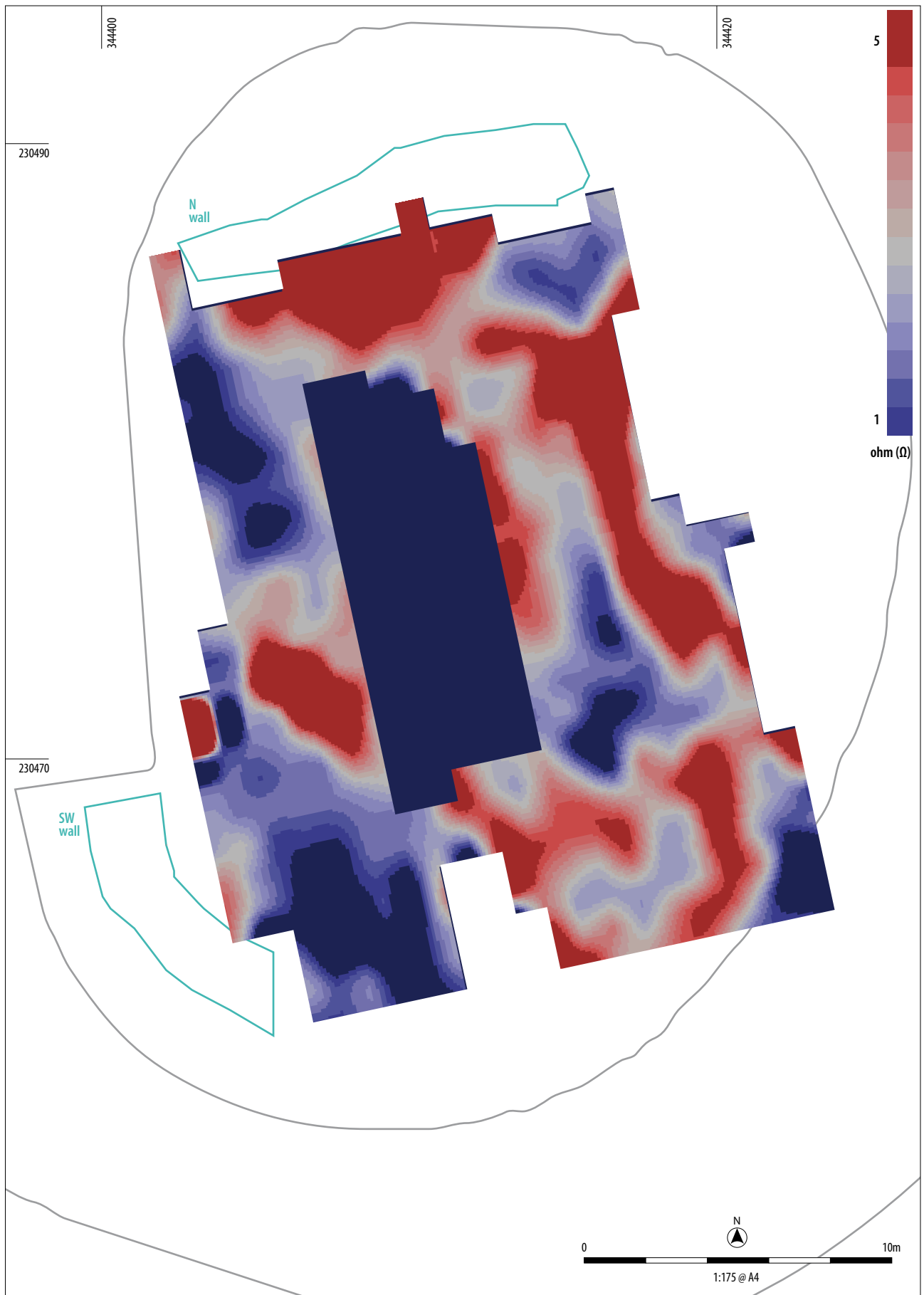
7.1 CASTLE MOTTE

The method of data collection and multiplex probe arrangement involved in the resistivity survey allows the captured results to be divided into two sections, that of shallow readings up to 0.75m and deeper readings up to approximately 1.15m.

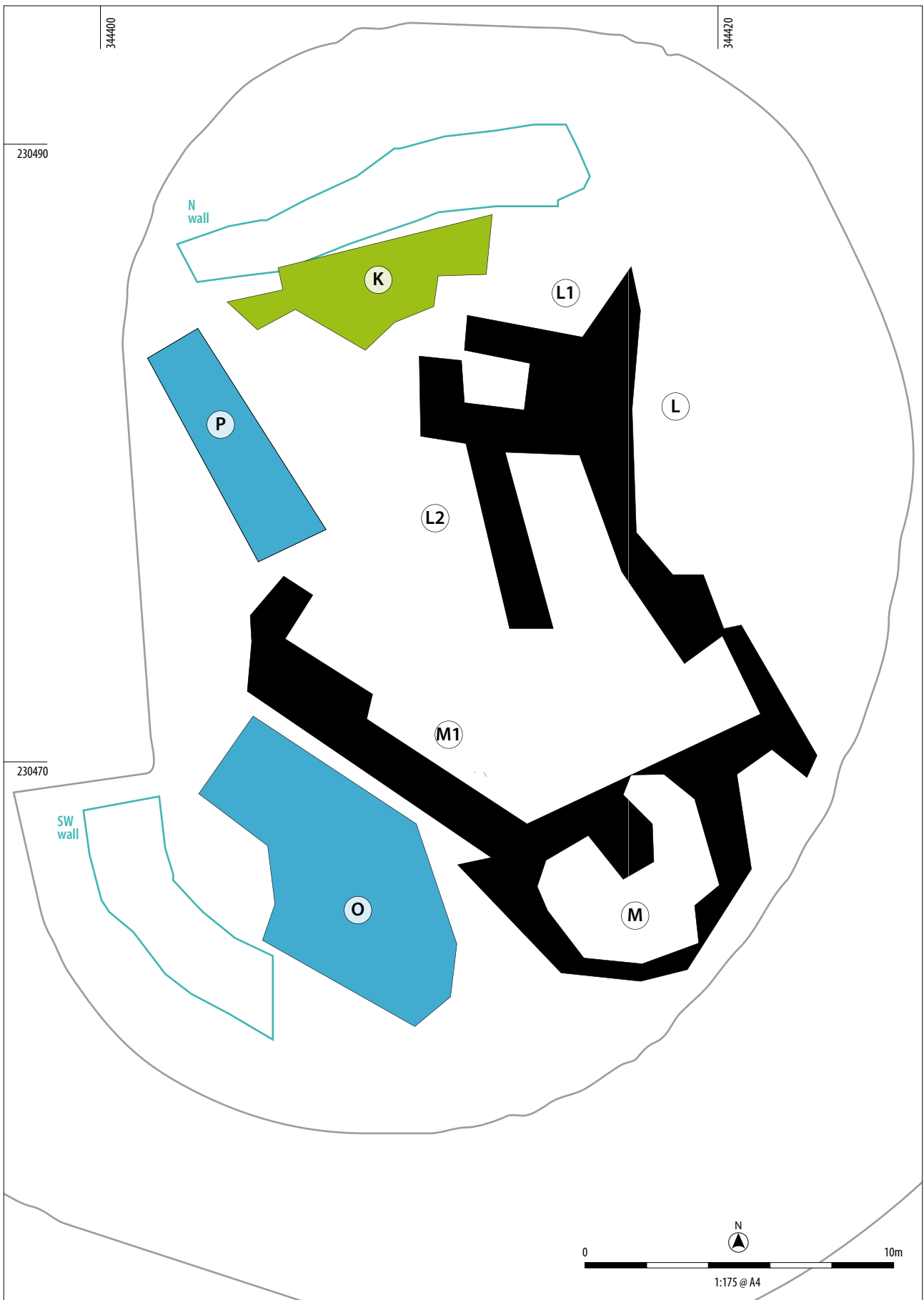
7.2 SHALLOW READINGS

Within the center of the keep a rectangular anomaly (A) was identified, aligned approximately north south the anomaly measured approximately 7.5m by 4m. The anomaly could represent major root disturbance as surveying within this area is inhibited by the location of three hawthorn trees, however, the apparent straight sides and the evidence for stone within close proximity to the surface indicate that the area possibly contains structural remains.

Towards the east of anomaly (A), a linear anomaly was recorded, approximately 12m in length and varying between 1m and 4m in width (B), and appeared to be connected to a series of small linear anomalies possibly representing wall lines (G and I).



Illus 4
Deep resistivity data



Illus 5

Interpretation of deep survey data

Headland Archaeology

Towards the north of the motte, and abutting the upstanding wall, an area of high resistance was recorded (C) possibly representing an area of rubble, and measuring approximately 6.5m by 2.5m. Within close proximity to the north wall footing rubble/flattened stones can be observed breaking the ground surface.

Anomaly (D) also possibly represents an area of rubble, this time measuring approximately 6.5m by 5.5m. The topography within this area is affected by landslip and the anomaly may represent the remains of collapsed wall rubble.

Located towards the south of (D) an anomaly of low resistance (E) that was seen in both deep and shallow readings may represent the remains of a backfilled cellar (approximately 4.5m by 2.5m).

Anomaly (F), measures 7.5m by 7.5 m and shares an external alignment with the upstanding masonry of the original shell keep, it is also interesting to note that the anomaly exhibits low resistance readings that might suggest an internal area/room within a structure. One interpretation might be that within this area are the remains of the shell keep as well as walls forming internal structures attached to the outer wall.

A series of small linear anomalies (G, H, I and J) with approximate widths of 0.5m and with varying lengths and alignments could represent internal walls. Grouping H, J and I together, the anomalies may in fact form a single room (7.50m by 6.00m) projecting from the upstanding north wall and partially filled or covered by the anomaly (C).

7.3 DEEP READINGS

Located against the upstanding north wall, anomaly (K), measuring approximately 8.00m by 4.00m, possibly represents a continuation of the rubble spread (C) only at a greater depth. However, the overall spread pattern of the resistance readings does not appear to be constrained by anomalies H and I suggesting that it may not actually relate to anomaly (C).

Following a similar alignment to anomaly (B), anomaly (L) may indicate the phased development of the internal arrangement of accommodation within the shell keep. The majority of anomaly (L) aligns north south, measuring approximately 12m in length the anomaly takes on a slight curving appearance compared to (B), and differs from (C) in the form of a projecting structure at the northern end forming a hollow rectangle (L1, 5.5m by 4.5m) with a small projecting anomaly also aligned north south (L2, 6m by 1m)

The overall pattern and location of anomaly (M) suggests that there is an association with anomaly (E). However, the general alignment of anomaly (M) differs slightly from (E) and may indicate an earlier phase of construction of the shell keep's internal arrangements or represents the lower level of construction for anomaly (E).

Anomaly (M) also varies through the attachment of a linear anomaly aligned north west-south east. Measuring approximately 12m in length with a maximum width of 1.8m, anomaly (M1) mirrors the internal angle of the shell keep's external wall. The occurrence of this anomaly (M1) was not observed in the shallow resistivity readings, lending credence to the indication that this area of the motte may contain evidence for earlier phase's of construction.

Confined by anomaly (M1) and the upstanding masonry of the south wall an area of low resistance (O), may indicate an area of cellarge. Measuring approximately 10m by 5m, the spread of (O) is large than (J) suggesting that (J) may be part of the infill of (O).

A linear anomaly identified towards the north of the motte, (P), measures approximately 2m by 10m. It is possible that (P) also represents an area of cellarge, although its straightness could also suggest that this represents the remains of a backfilled trench of unknown origin or date.

8 CONCLUSION

The resistivity data demonstrated that the top of the motte contains a clear pattern of anomalies that could represent the evidence for structural remains indicating the arrangement of previously unidentified internal areas and backfilled cut features relating to the development of Kilpeck Castle.

The method of data collection has allowed the area to be investigated at varying depths, the results from both sets of survey data indicate evidence for more than one phase of construction within the area of the motte.

The survey has identified possible structural anomalies that may be affected by the proposed design for the ground anchoring of the upstanding masonry of the shell keep at Kilpeck Castle. Further investigations are likely to be required to confirm the levels at which such structures occur.



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