

Between the Monuments: Geophysical Survey across the West Kennet Avenue Occupation Site (July 2012)

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Introduction

This report describes the results of the first stage of fieldwork to be undertaken as part of the 'Between the Monuments Project'. The aims of the project are to enhance understanding of the range of practices that constituted routine life and residence during the 4th to mid 2nd millennia BC within the Avebury landscape; their structure and tempo; their relationship to environmental regimes and natural constituents of the landscape (vegetation, streams, stone scatters, etc); their engagement with material resources; and the relationship between landscape inhabitation and monument creation. One key locale within the region through which a number of these issues can be investigated is the so-called 'West Kennet Avenue occupation site' (SU 108692), discovered during Alexander Keiller's excavation and restoration work on the line of the West Kennet Avenue in 1934 (Smith 1965, 210-6).

The 'occupation site' remains poorly characterised. It is perhaps best interpreted as a midden deposit, and one that, while beginning its formation during the later 4th millennium BC, continued to attract depositional activity into the late 3rd millennium BC (Pollard 2005). Whether that midden related to permanent/semi-permanent or periodic occupation is uncertain. Likewise its relationship to any phases of monument building within the region remain to be established; although it is clear that the bulk of the deposit and the majority of the pits located by Keiller belong to a pre-Avenue phase.

In an effort to shed light upon the midden material and scatter of pits and 'holes' sampled by Keiller a geophysical survey has been carried out across the area of his 'occupation site' covering the area between West Kennet Avenue stone pairs 27 and 32 (Smith 1965: figure 71) . The principle aims of the survey were twofold: first, to define the full extent of any surviving midden spread; second, to reveal any structural traces (such as the pits and 'holes' encountered by Keiller) that may be associated with the midden.

The survey

A 140 x 60m survey area was established (comprising a total of 21 x 20m survey grids) (Figure 1) and a soil resistance survey was carried out using a Geoscan RM15-D with a multiplexed 3 probe parallel twin array, giving a traverse and sampling interval of 0.5 and 1.0m respectively. All data was processed using the Geoplot 3 software suite and the survey grid was geo-referenced using survey-grade GPS. The results of the survey are presented below along with interpretation and discussion (Figures 2 – 6). When viewing the results please note that despite care being taken in the field to balance readings (to the nearest 0.1 Ohm) when moving remote probes, some minor edge effects are visible in the data; most likely a result of the wet conditions at the time of survey.

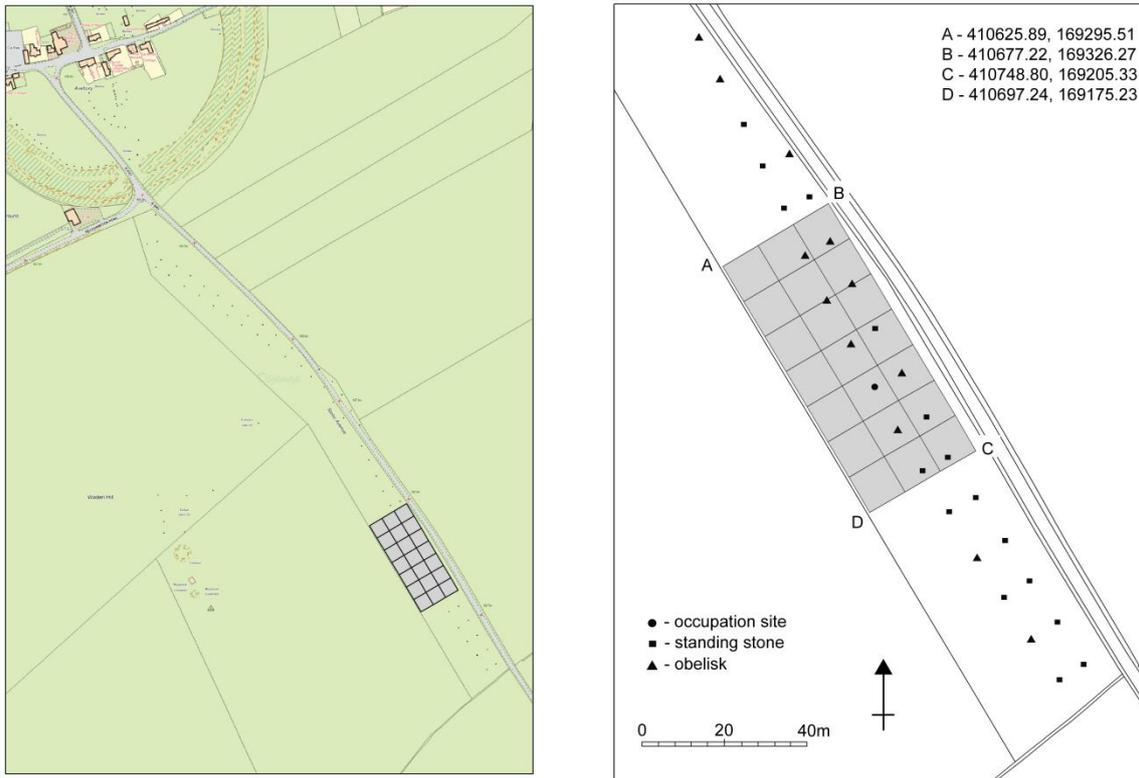


Figure 1 – location of the Survey area. Image incorporates data ©Crown Copyright/database right : An Ordnance Survey/EDINA supplied service

The results

The results of the survey are presented in Figure 2, where a number of features of interest are evident. A group of four discrete high resistance blobs mark the concrete rafts used by Keiller to support re-erected Avenue stones. Further evidence of Keiller's excavations can be seen in the southern portion of the survey area where the edges of his 1934 trenches ('cuttings') can clearly be seen (marked by broken-lines on the interpretation plot). An overlay of Keiller's cutting plan and the survey results can be seen in Figure 5. The striking chequer-board pattern (F) marks the location of Keiller's 100 x 20' trench extension (Smith 1965: figure 73) where the alternating high and low resistance zones indicate that a very distinctive back-filling strategy was adopted by Keiller's workmen in this area. Paralleling Keiller's trench edges and running the full length of the survey area is the modern pathway along the Avenue, showing up as a low resistance anomaly. A second broad, low-resistance linear anomaly (D) arcs northwards from anomaly F; this appears to correspond to a modern vehicle track clearly visible on current aerial imagery (Google Maps 2012 Imagery – accessed 30th July 2012).

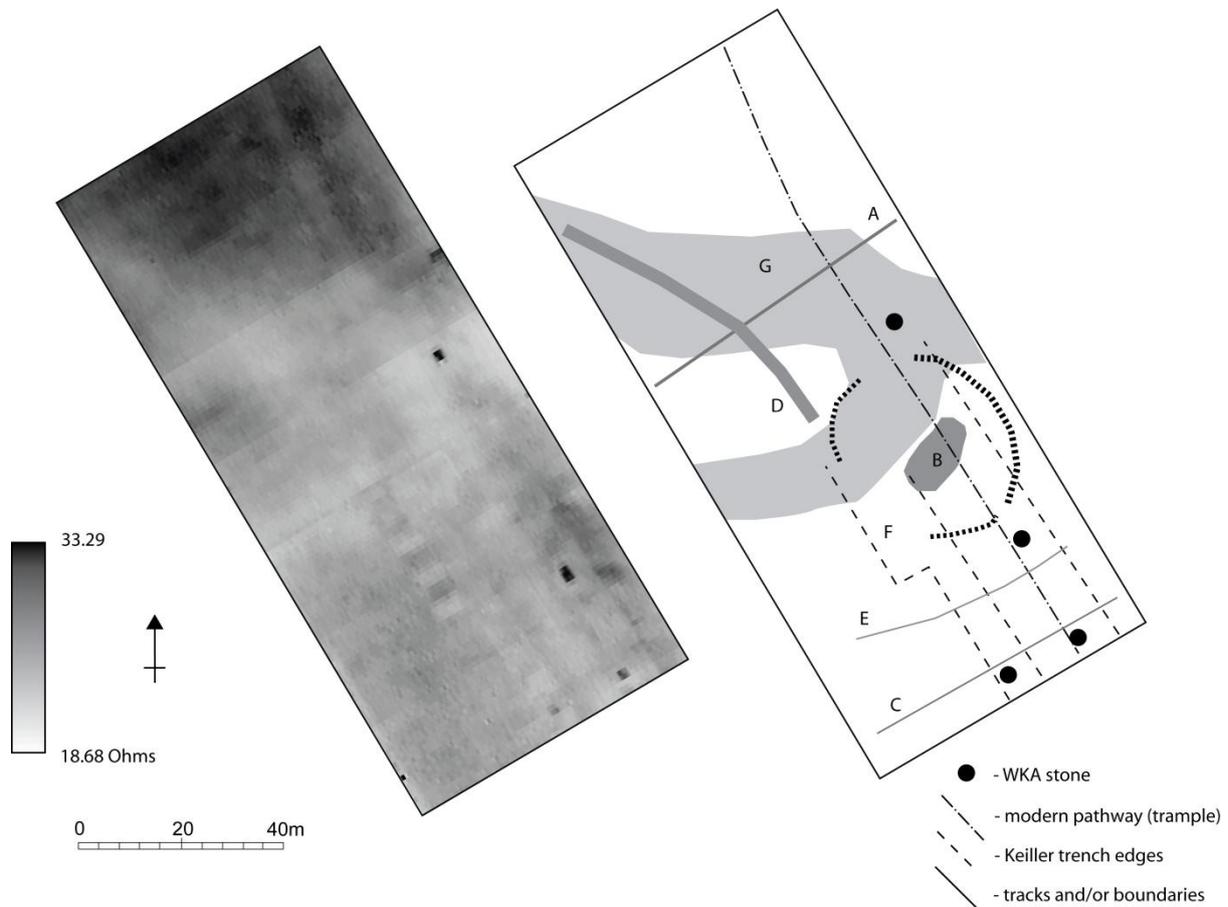


Figure 2 – the survey results (displaying +/- 3 standard deviations)

Crossing the survey area from east to west are a series of faint high-resistance linear features (A, C, E) which most likely correspond to former boundaries or pathways, presumably of post-medieval date (Stukeley, for example, depicts a linear feature (either a fence or path) crossing the Avenue line in this general area (Ucko *et al.* 1991: Plate 61)). The most recent of these is A which is marked by a distinct linear depression that aligns upon a gate at the eastern edge of the survey area.

Possible Prehistoric features

Looking to the midden area and related structural activity that prompted the survey, two features are of note. The first is a broad, reasonably well-defined area of low resistance (G) covering the central portion of the survey area, that could well indicate the presence of a buried deposit or spread of thicker colluvium. Second, and wholly unexpected, is the suggestion of a faint, roughly circular high-resistance anomaly straddling the line of the Avenue (indicated by a thick dotted arc on the interpretation plot) with an area of diffuse high-resistance inside its arc (B). In an attempt to shed more light upon these features, the raw survey data was filtered.

In Figure 3 a high-pass filter has been applied (radius = 10, uniform weighting) to emphasise smaller scale anomalies at the expense of broader background trends. The resulting plot confirms the veracity of the circular anomaly, the high-resistance band some 5m in thickness and describing a circle of maximum overall diameter of c. 41m. As to what this represents, Keiller's cutting

strategy in this area was resolutely linear and there is no evidence of any circular trenching that would have given rise to such as anomaly (Figure 5). The filtered data also serves to enhance anomaly B, which has a much more angular shape than was evident in the raw data. Careful comparison of the survey results and Keiller's cutting plan shows that B corresponds neatly with his cross-trench in this area (Figure 5) marking the location of this 1934 cutting.

Missing from the data were any clear and unambiguous indications of further pits and 'holes' of the kind excavated by Keiller (Smith 1965: 210-16). This is evident in Figure 6, where the locations of the excavated examples have been overlain on the high-pass filtered survey data. This is not to argue that further features of this type do not exist, merely to note that given their relatively small size (less than a metre in maximum extent) they are effectively invisible to resistance survey at this spatial resolution.

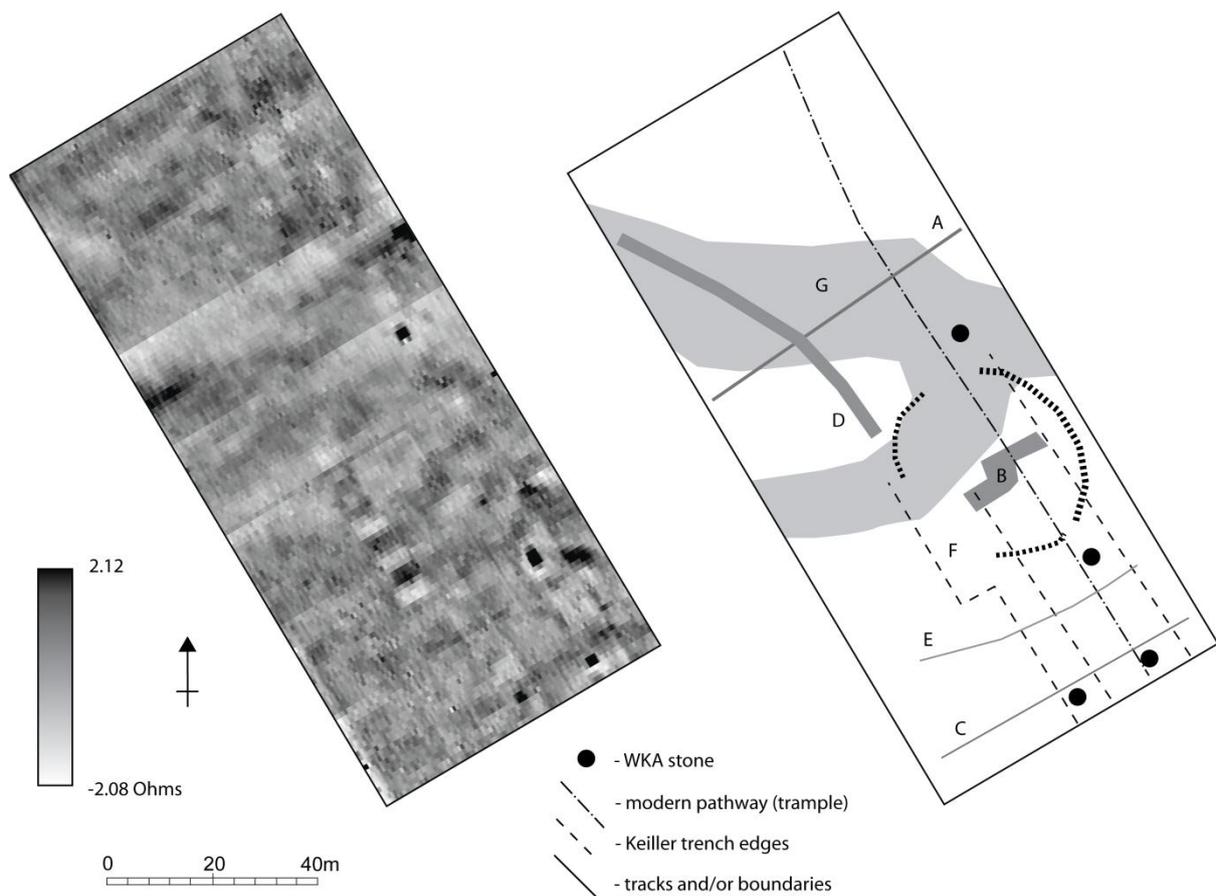


Figure 3 – data after High-Pass filtering

In order to look more clearly at the putative midden spread a low-pass filter (radius = 3, Gaussian weighting) was applied to remove smaller-scale detail in the hope of better delineating the low-resistance spread (G). The resulting plot (Figure 4) shows a broad (c.20m) low resistance band running approximately east west across the area (X) with a smaller, seemingly discrete elliptical anomaly to the south of it (Y). The latter, truncated by the northern edge of Keiller's extension appears to correspond to the area of maximum lithic density graphed by Smith (1965: Figure 73) and offers a plausible candidate for the midden spread. If this is the case then it raises questions

regarding the status of anomaly X and the possibility of much more extensive spreads in the immediate area.

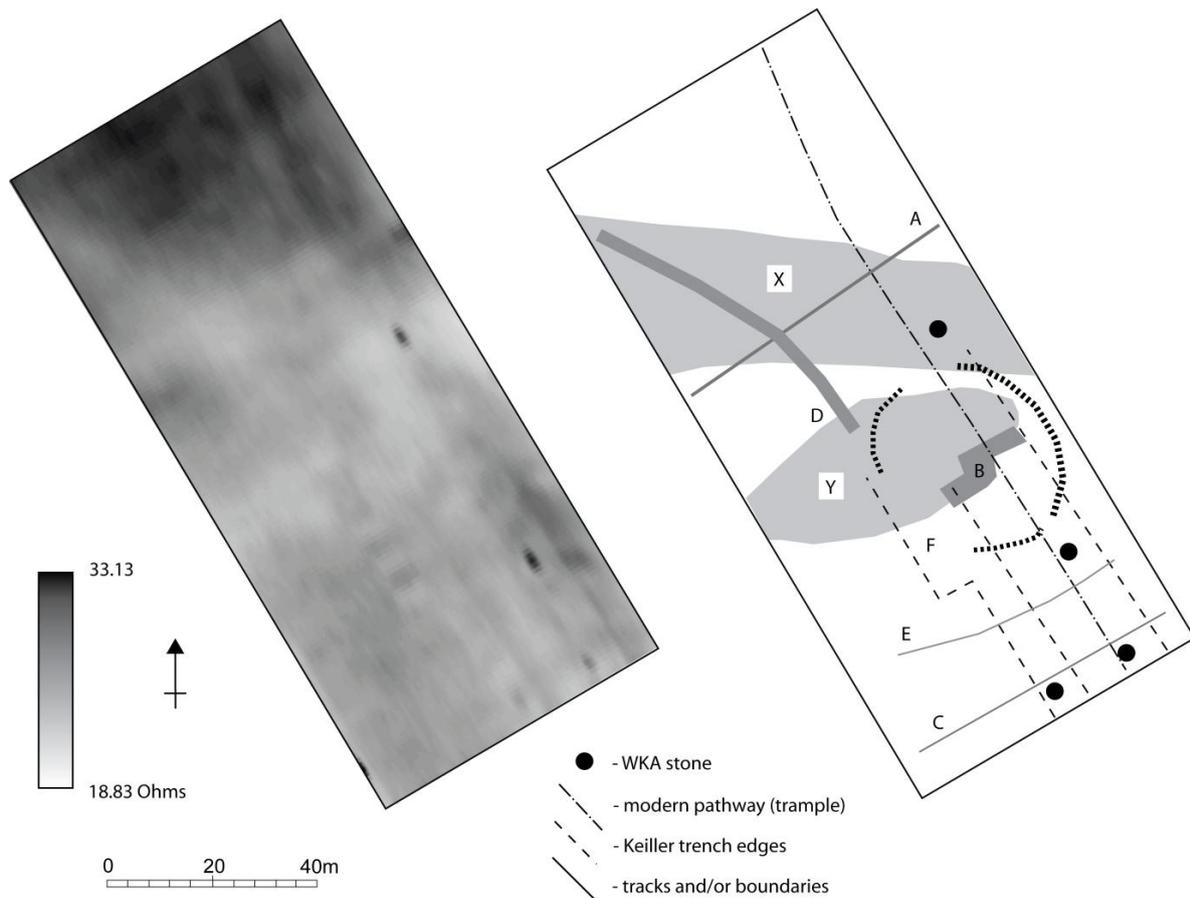


Figure 4 – data after Low-Pass filtering

Discussion

The value of soil resistance survey in the investigation of the Avebury landscape has once again been confirmed (see also Ucko *et al.* 1991 and Gillings *et al.* 2008). The survey has revealed a number of features of interest, linked to the campaign of excavation and restoration carried out by Keiller in 1934, and, more excitingly the middle/late Neolithic activity sampled by those excavations.

Looking to the original aims of the work, a clear candidate for the midden spread sampled by Keiller has been delineated, corresponding to a discrete elliptical spread running approximately east-west across the survey area (Y). The presence of a further band to the north (X) has also raised the possibility that this is not an isolated deposit. The existence of a previously unrecorded circular feature, bisected by the line of the West Kennet Avenue and Keiller's linear cuttings that faithfully followed it, is of particular interest. Although clearly crossed by both of Keiller's parallel cuttings, there is no mention of any matching feature in the published account (Smith 1965). This may argue for a geological origin though the regularity and diameter of the feature (the c.40m having resonance with both the Sanctuary and Faulkner's Circles) and its placement relative to the Avenue line are highly suggestive. As noted by Smith (1965: 210) this area comprised Coombe rock, rich in clay-filled solution features and it may well be that a feature of this scale was simply

not identified; particularly if the goal was to recognise and excavate relatively small, discrete pits and stone-holes.

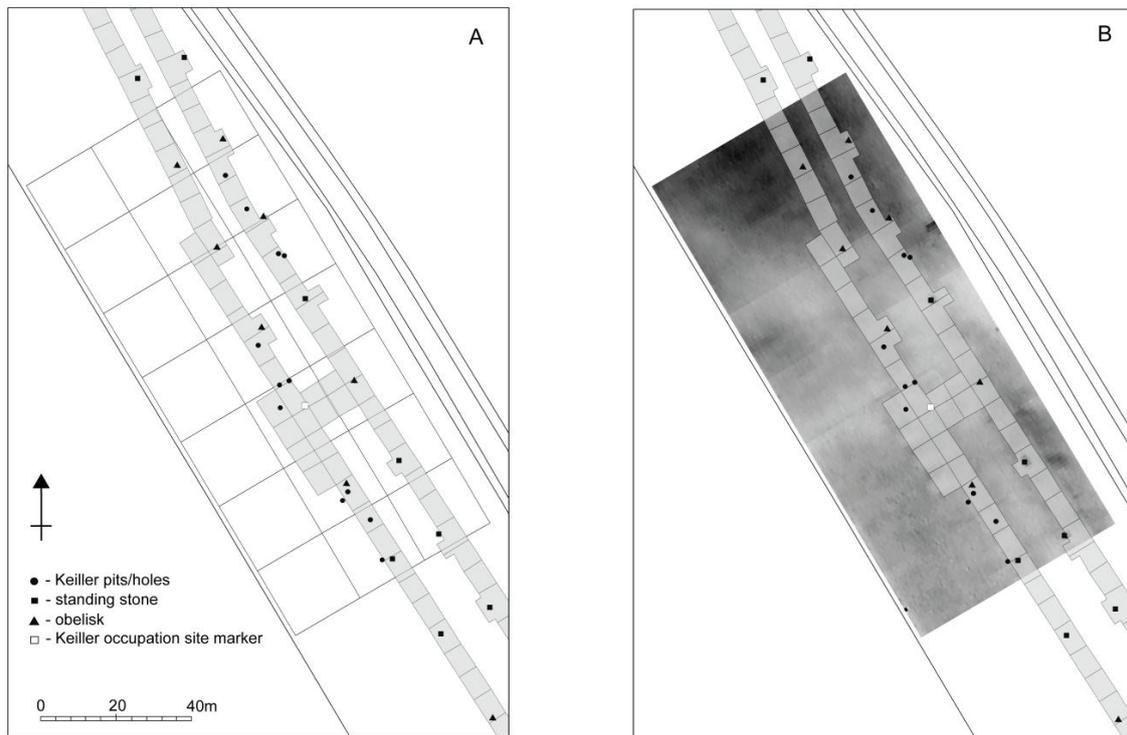


Figure 5 – Location of Keiller cuttings (A) and relationship to survey data (B)

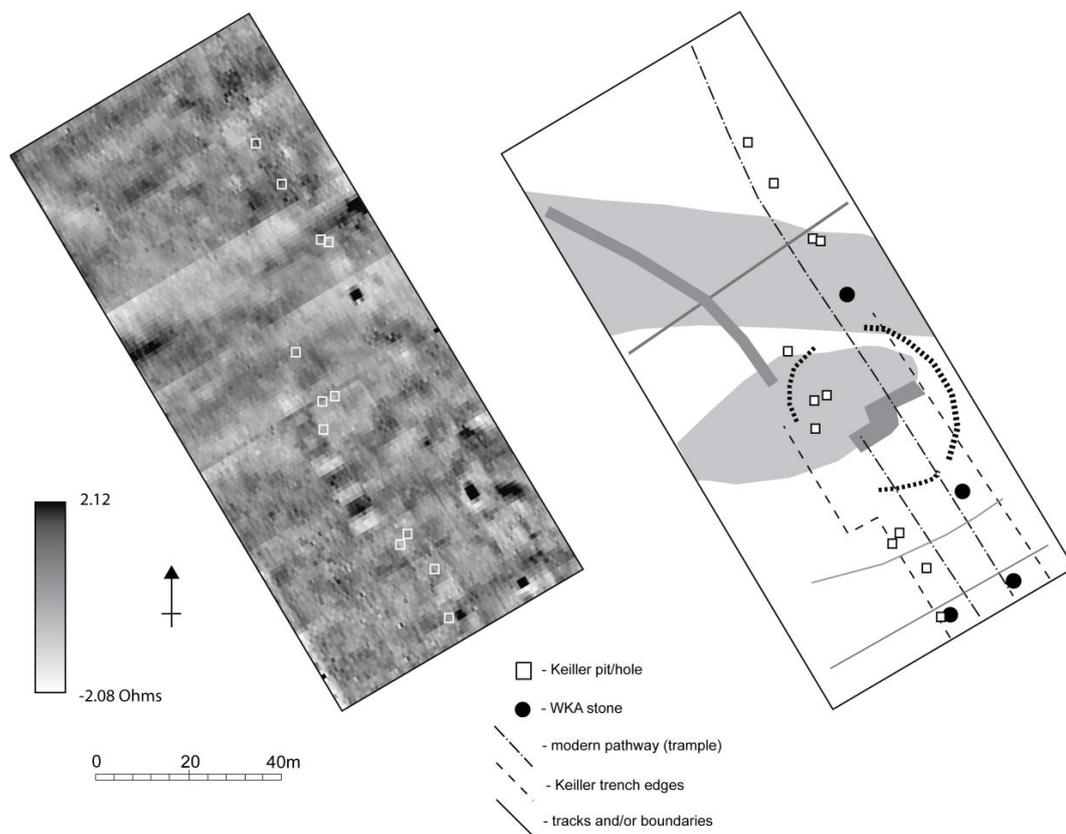


Figure 6 – Location of the Keiller excavated pits and holes

Having identified a number of features of interest in the area, the next stage will be to ground-truth the results through excavation.

Acknowledgements

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