

Magog Down Little Trees Barrow Site Report

On 4 May 2009 Archaeology RheeSearch carried out resistivity and Wenner array surveys in an area which had been recently cleared of vegetation on the bowl barrow on Magog Down. The necessary licence for the work had been obtained for a small portion of the scheduled site (SAM 24422).

Site coordinator: Lucy Evans for the Magog Trust

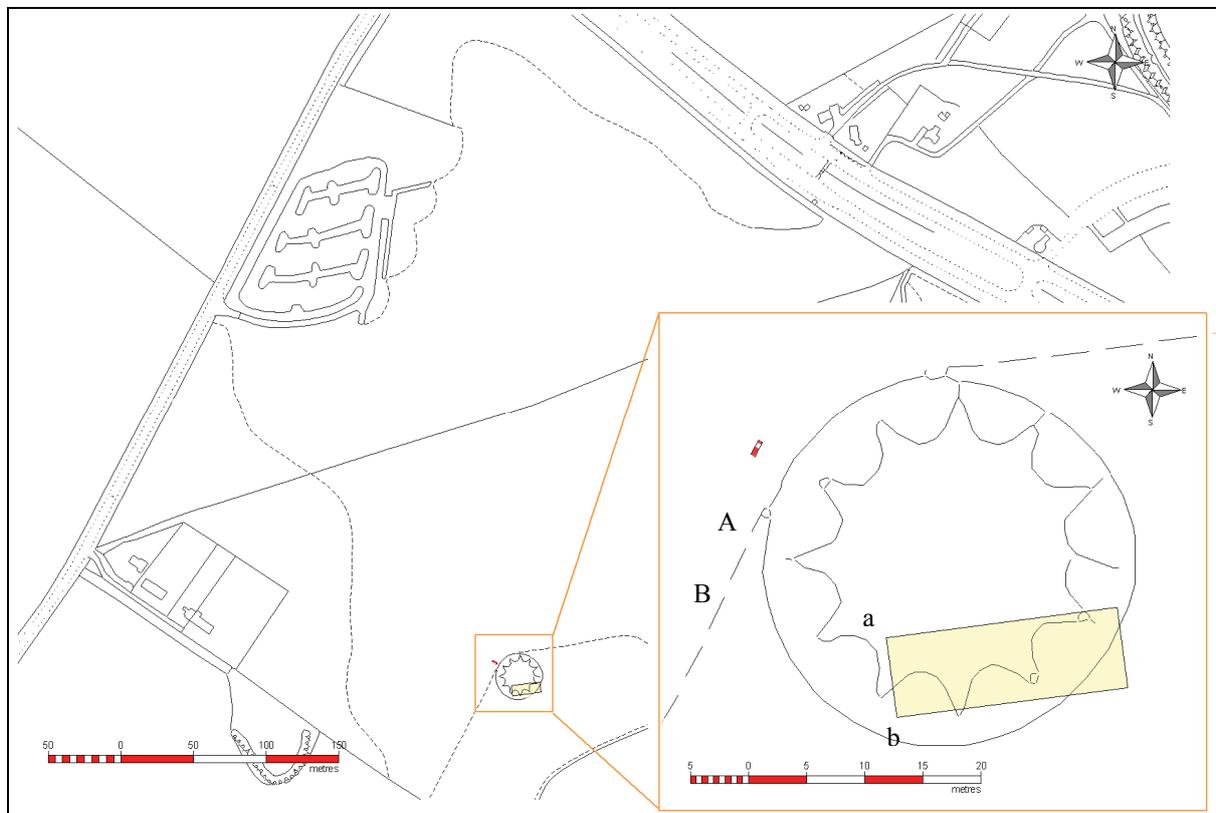
Site conditions: Hard relatively dry soil with roots remaining from clearance, some brambles remaining. Part level with clearance debris, part steeply sloped. Some light rain in previous 24 hours. Generally windy and overcast.

Equipment: TRCIA 50cm twin probe; TRCIA Wenner (alpha)

Area covered:

Resistivity	one 20 m × 7 m grid
Wenner	two arrays using 30 probes @ 0.25 m spacing

Location: TL 488529, Little Trees, Magog Down, Stapleford, Cambridgeshire.



Maps derived from Ordnance Survey data.

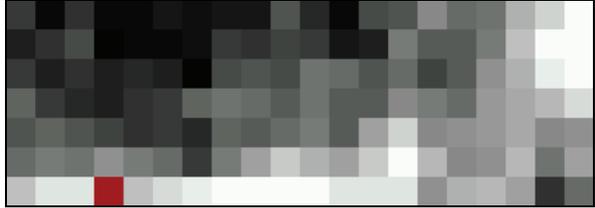
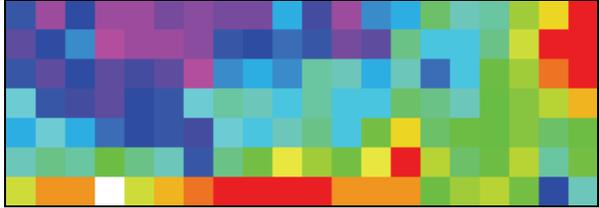
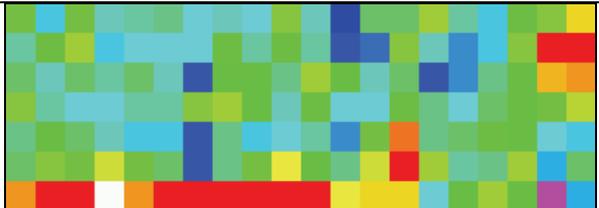
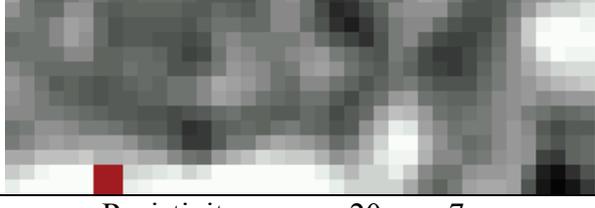
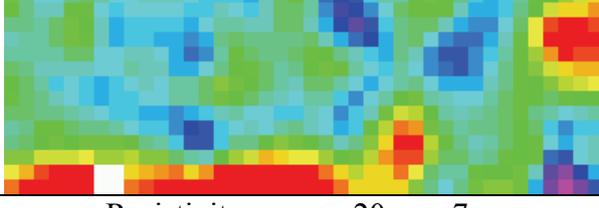
Location plan.

The nearest reliable reference features were over 250 m from the site. Consequently references were taken from nearby but essentially temporary features such as a bench and fence posts. On the ground reproducibility, as long as these remain in the same positions, should be achievable to within 10 cm. Locating these points with reference to the British National Grid (BNG) has been attempted by estimating the position of one of the reference points on an aerial photograph. BNG comparative accuracy is therefore estimated at no better than 2 m unless and until survey level GPS is utilised. The fence line shown on the plan above did not appear to match the current fence line.

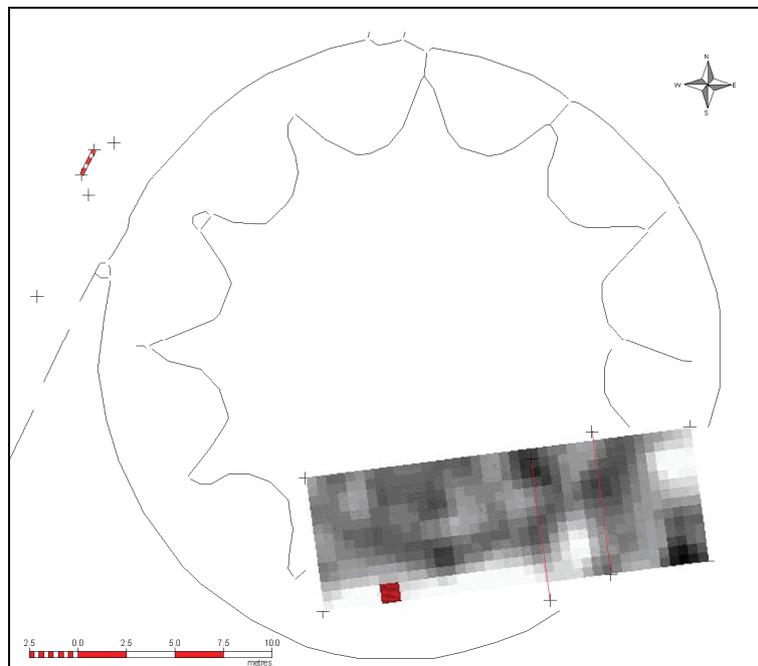
On the ground references were taken from the two fence posts 6.7 m (A) and 12.9 m (B) S of the S end of the bench. Where a & b are 7 m apart at the W end of the survey, Aa=16.75, Ab=22.10, Ba=17.10, Bb =20.60 (m).

Purpose of survey: To provide information to enable a fence to be erected with minimal impact on any underlying archaeology.

Results: orientated for presentation
Raw data are available as a separate appendix.

		Raw data
		Filter level 3
		Filter level 3 interpolated
Resistivity survey, 20 m × 7 m (White is high resistance, black is low, red is null.)	Resistivity survey, 20 m × 7 m (Red is high resistance, purple is low, white is null.)	

The single null reading in the results reflects the position of a tree within the survey area.

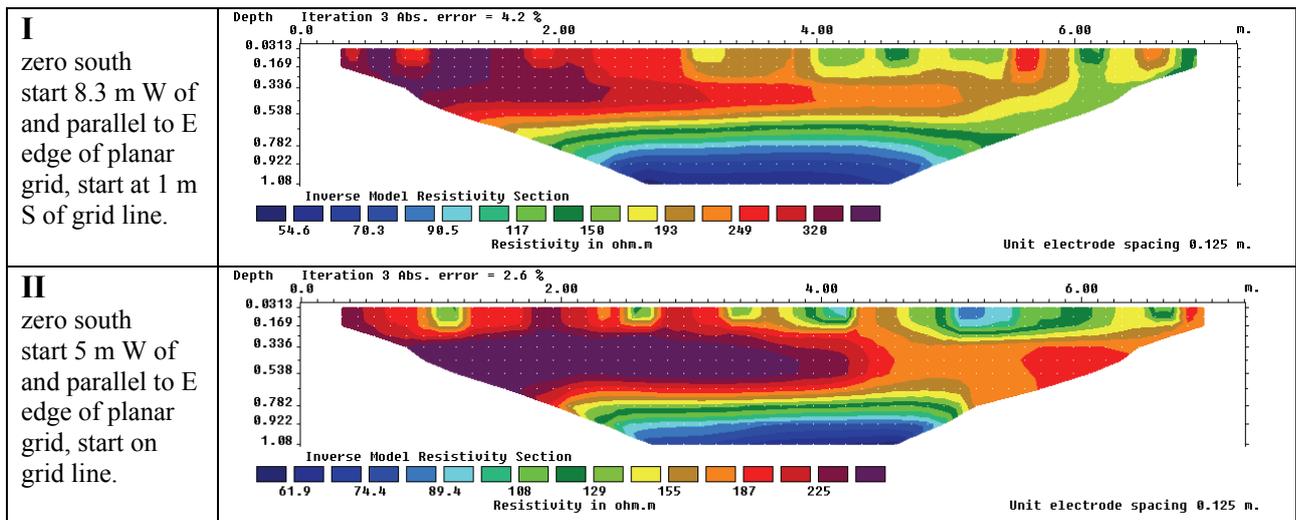


Location of Wenner array surveys (red lines): 5 m and 8.3 m from and parallel to the E side of the resistivity planar survey. In each case the survey was started from the S.

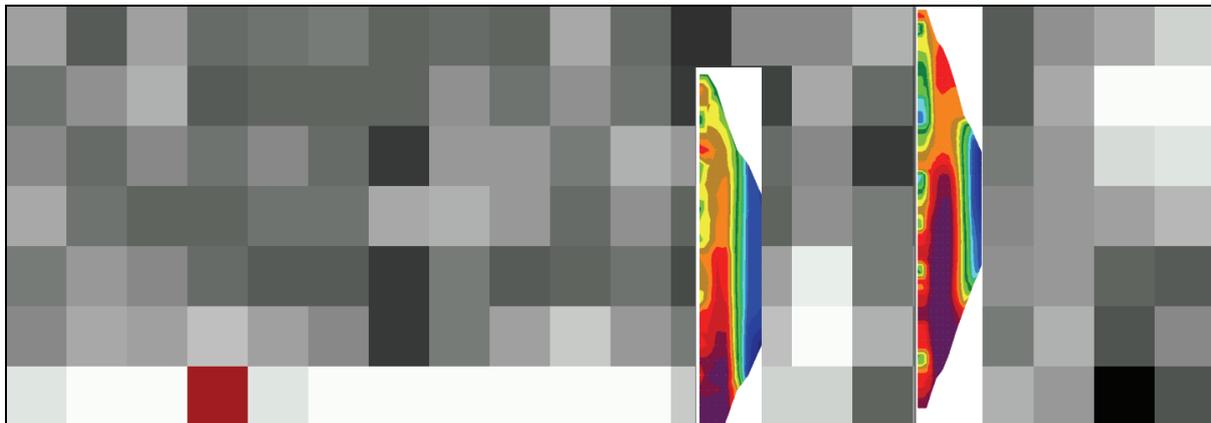
Wenner array models

This technique utilises a series of ground resistance measurements along a line with equal but progressively increasing separation between the measurements: the greater the separation between measurement points, the greater the depth of the determination. The images generated are models derived from the recorded data, and can be influenced by a variety of mathematical constraints.

The images below for sections I and II have been processed with model parameters RRYYN (refined). The refined adjustment is recommended in the presence of higher levels of surface variation and is a form of interpolation using a theoretical electrode spacing half of the actual. An explanation of the of the adjustment parameters is beyond the scope of this report but may be found within the Res2DInv program and notes available from www.geoelectrical.com.



Wenner array models.



Superimposition of Wenner array results on the planar resistivity survey, with the ground surface along the line of the survey.



Discussion

Although it would have been preferable to survey a larger area in order to improve pattern recognition, the results showed, after filtering the data, a clear low resistance curved feature.

Along the S edge of the survey area there was a line of markedly high resistance. This was probably due to the steep falling away of the ground surface on that side and the soil moisture reduction caused by adjacent and intrusive trees.

The Wenner array data suggest that the curved feature is a shallow (circa 25 cm) relatively flat bottomed ditch about 1.5 m wide positioned towards the inside of the curve of the responses obtained with the planar survey. However, the topography of the site with a steep bank from old quarrying close to the S edge of the planar survey may be influential. The dark (highest resistivity) areas in the vertical sections could represent a moisture permeable layer which has dried due to exposure of that layer on the S side. The dried areas continue until the layer is interrupted by the moisture retentive ditch fill. The ditch may therefore be about 50 cm deep rather than the 25 cm suggested above. The apparent 25 cm layer being due to vegetation utilising the moisture retentive properties of the ditch fill.

There were other high and low resistance anomalies within the planar survey but recent clearance of trees and other vegetation, and constraints on the size of the survey area preclude attempts at interpretation.

Conclusion

Despite the small area and poor operational conditions on the site, a curved segment of ditch was located. Vertical sections suggest a cross section but have been affected by previous usage of the site.