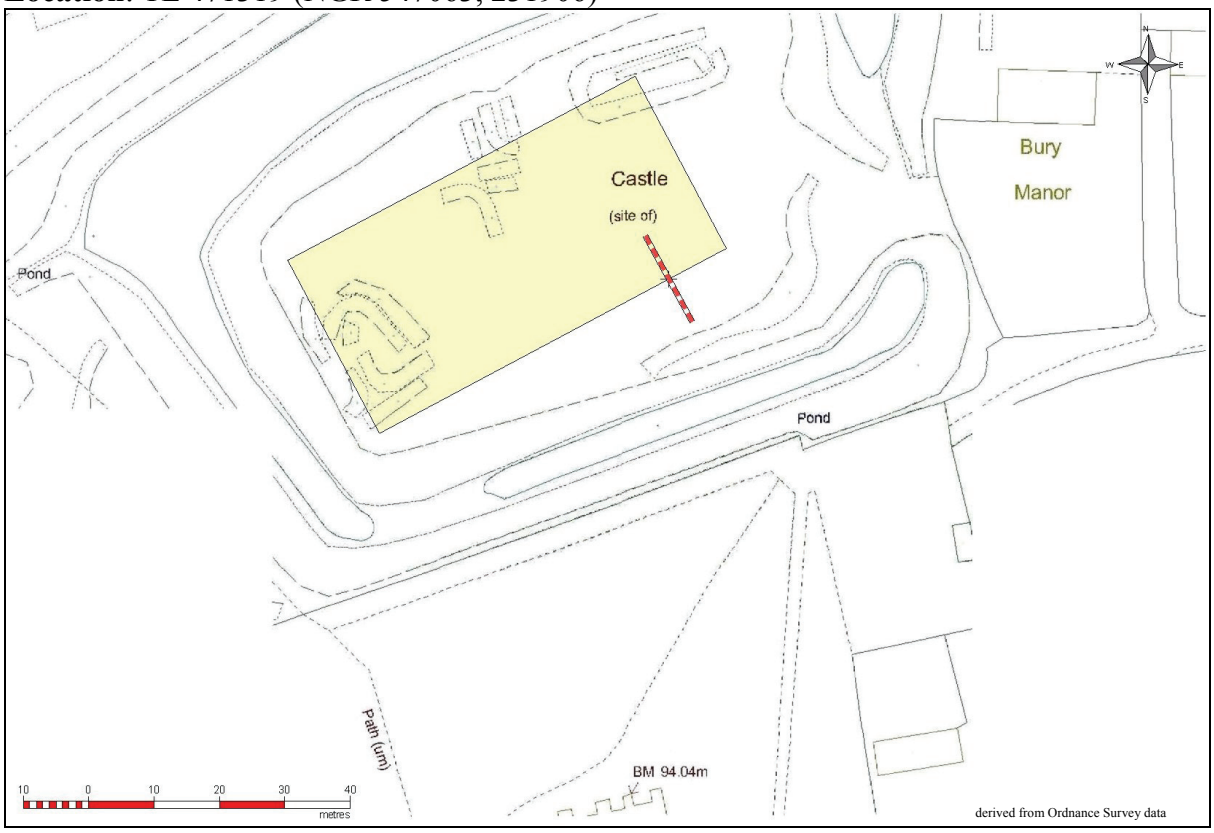
Clavering Castle Report

On 19 Oct 2008 Archaeology RheeSearch carried out resistance surveys at Clavering Castle, Essex to complement previous earthwork and magnetometer surveys.
Members participating: Brian Bridgland, Pat Davies, Ian Sanderson, Gill Shapland, Maureen Storey and Tony Storey.
Site coordinators: Jacqueline Cooper of the Clavering Landscape History Group.
Site conditions: Undulant surface of rough grass with low earthwork mounds.
Weather: Cool and damp.
Equipment: TRCIA 50cm twin probe; TRCIA Wenner (alpha)
Area covered: Resistivity two 30 m × 30 m grids
Wenner one 15 m @ 0.5 m spacing (zero S)

On the ground references: No suitable reference points were available inside the moat. References were therefore from points along the moatside fence on the S of the site taken from the gate post at the E end. All distances are in metres. Points A, B, C, and D were 10.95, 27.60, 67.21 and 75.55 respectively from the gate post. With the S edge of the survey area running from 0 W to 60 E; A60=35.30, B60=33.30, D13=25.70, E17=27.97. Wenner centre on S edge of survey area, 9 m from SE corner.

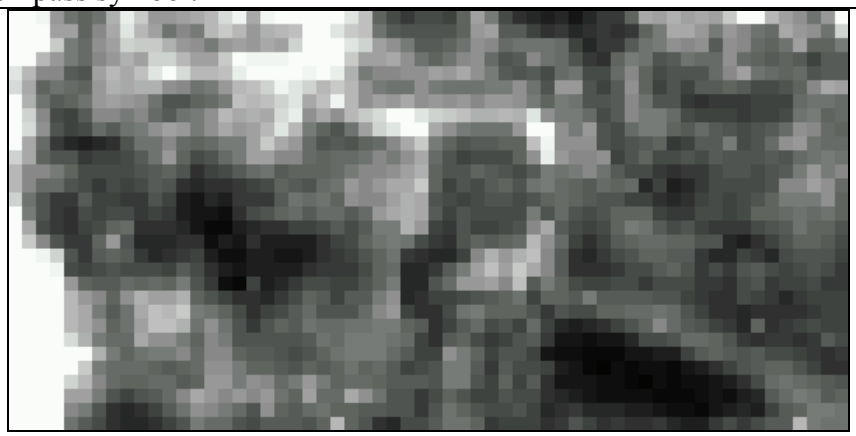
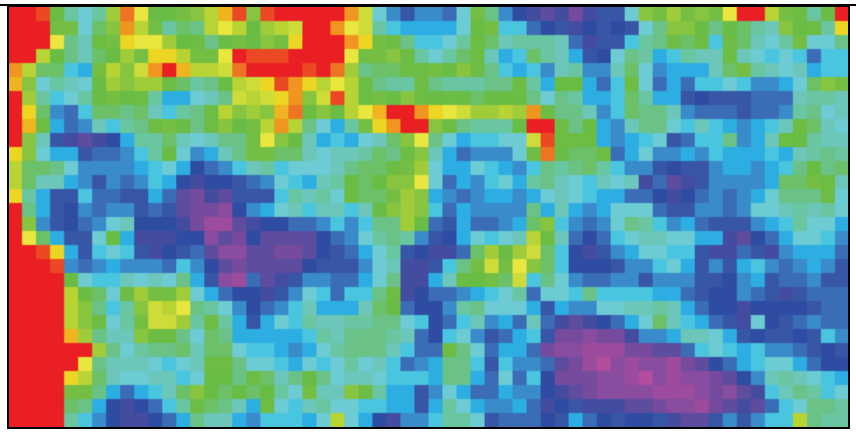
Location: TL 471319 (NGR 547063, 231906)

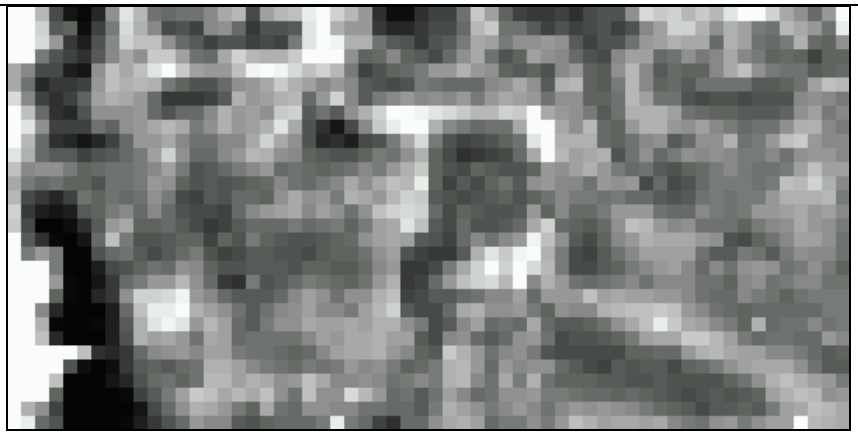


Location plan: The resistance survey area shown in yellow. The Wenner array survey is shown as a red line across the edge of the survey area.

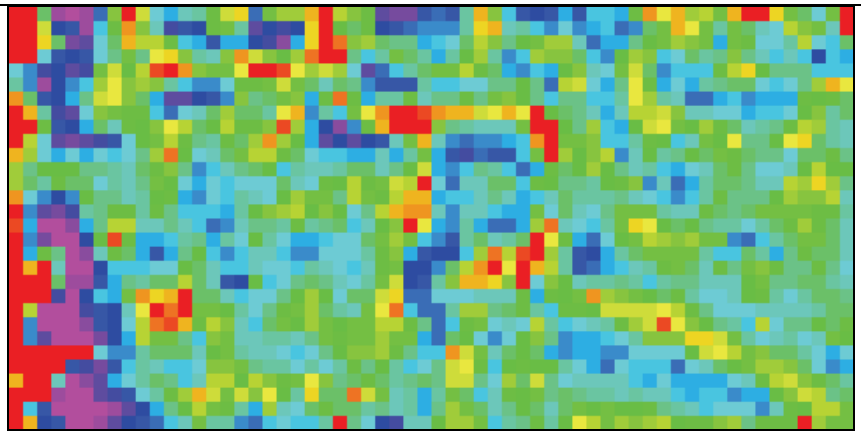
Purpose of survey: To locate and determine resistance anomalies.

Results:
Most of the images in this section are orientated for ease of presentation. The bearing with respect to grid north may be determined by reference to the location plan where there is no compass symbol.

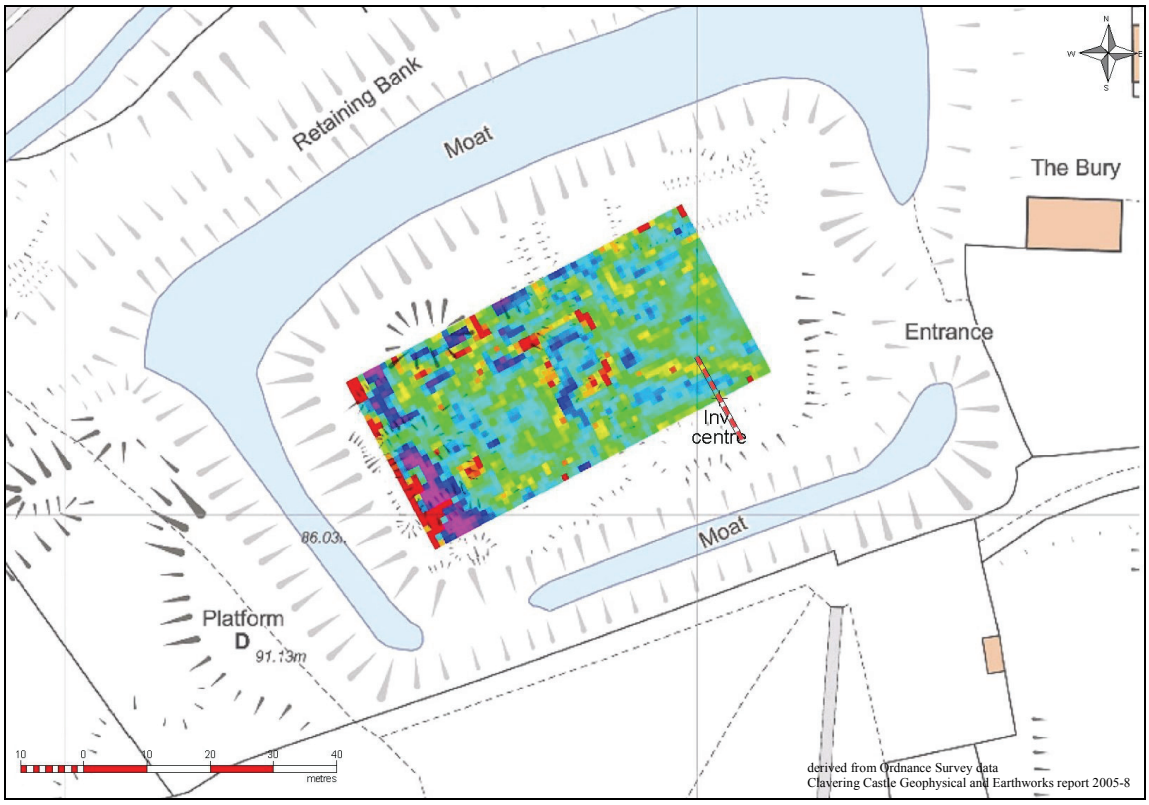
	Resistivity survey, 60 m × 30 m. Raw data in greyscale where white is high resistance and black is low resistance.
	Resistivity survey, 60 m × 30 m. Raw data in 'rainbow' scale where red is high resistance and blue is low resistance.



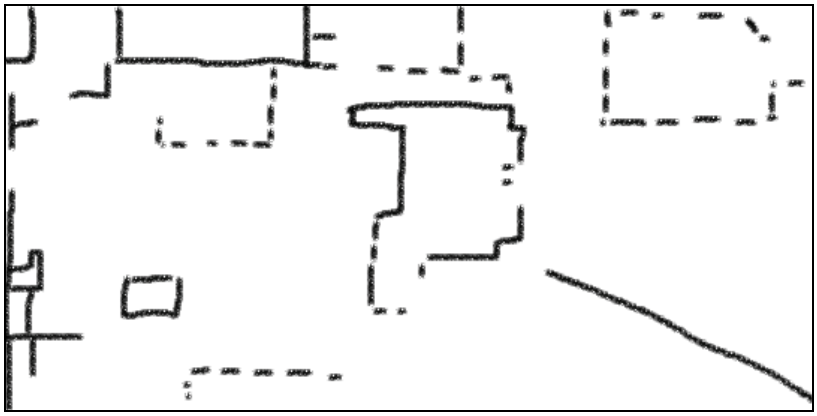
Resistivity survey, 60 m × 30 m. Noise filtered data in greyscale where white is high resistance and black is low resistance.



Resistivity survey, 60 m × 30 m. Noise filtered data in 'rainbow' scale where red is high resistance and blue is low resistance.



Resistivity results superimposed on earthwork survey.

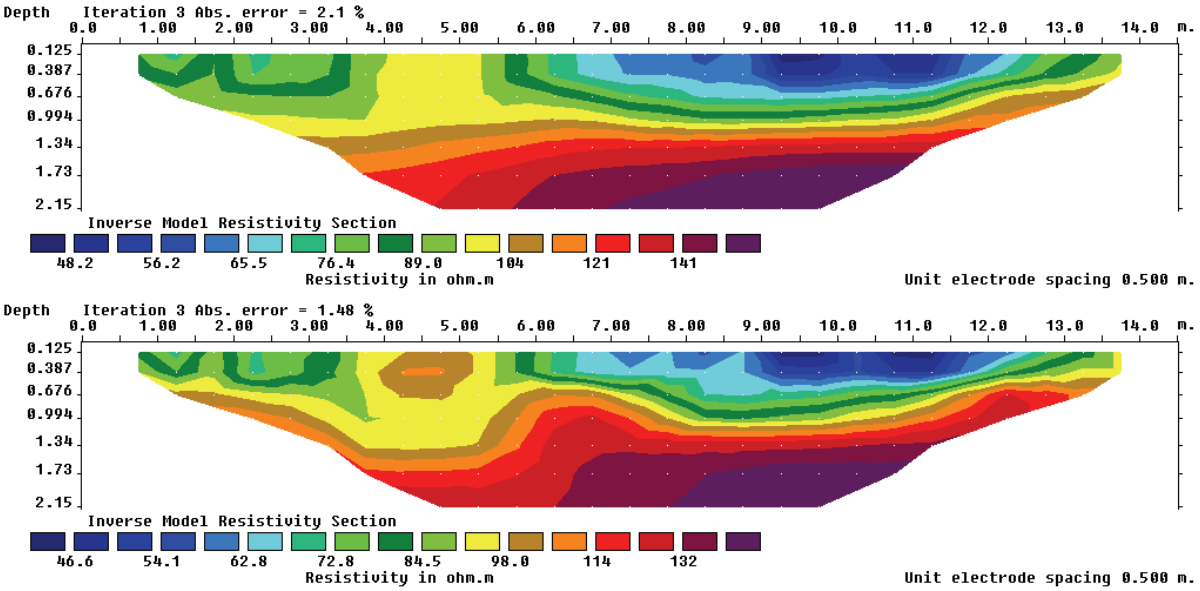


Possible feature lines.

Resistivity results show a square of high resistance values in the centre of the survey area with a line of high resistance from its SE corner. This square encloses a matching square of low resistance values which then extends towards the SW. The line of high resistance to the SE is bracketed by lines of low resistance on either side. Part of a rectilinear high resistance feature is apparent in the NW. An interrupted strong line of high resistance values occurs along the W edge of the survey with a matching region of particularly low values.

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 the measurement points, the greater the depth of the determination. The image generated is a model derived from the recorded data, and may be varied by the mathematical factors used in the model. The images below illustrate two variations of the model.



The vertical section suggests a 1 m wide anomaly about 1 m deep with lower resistance values on the N side of the section.

Discussion:
Usually with resistivity survey results it is possible simply to pick out high or low resistance patterns suggesting foundations or ditches with some robbed out foundations showing as low resistance links. In these results the construction seems to interfere with drainage on the site causing soil moisture, recorded as low resistance values, to accumulate around the high resistance features leading to a 'negative' pattern which in places suggests that a robbed out high resistance feature should be to one side.

The foundations of an approximately 10 m square structure are in the centre of the survey area. The width of the foundations detected varied between about 1 and 3 m. The structure probably had a metalled approach from the SE. It may have been linked to other rectangular structures to the NW and N, although to the N the evidence is less clear. A distinct region of low resistance values suggests that the central square feature may have also extended a little to the SW, but that this part has been robbed out.
Given the proximity of the steep fall to the moat, the high resistance values on the W suggest that this may be part of a perimeter wall with residues of structures built against it. It is only in this area that the earthworks match the resistance survey. This suggests that the earthworks generally relate to a later phase of activity on the site than that detected by this survey. This discrepancy is particularly noticeable in that the track from the centre (directed to the E end of the S moat) is crossed by an earthwork. It may also account for the lack of a distinct resistance pattern in the NE corner where there is a clear rectilinear earthwork.
The structure in the NW corner suggests that some residual walls have been used to define a pit.
The location of a Wenner array survey is usually selected on the basis of resistivity results. Unfortunately there was insufficient time to process the resistivity survey results prior to the Wenner survey, so a site was chosen on the basis of a minor earthwork to minimise the effect of surface undulation on a model that essentially assumes a planar surface. The results suggest that the earthwork defines an anomaly about 1 m wide and 1 m deep. It may contain a region of slightly higher resistance. The anomaly is probably a robbed out trench.

Conclusion:
The resistivity survey identified the foundations of a central structure and some peripheral structures.

Technical note
No site survey was carried out in conjunction with the geophysical survey and reference points were established using the churchyard fence. This fence was essentially straight as far as the E gate and just beyond at the time, unfortunately the available base maps including that kindly provided from the earlier studies, show that this fence has been realigned. The positional accuracy of the resistivity survey in relation to previously recorded features is therefore of the order of ±1 m. In relation to the on the ground reference points accuracy should be less than 10 cm.

Dr Ian Sanderson 2008