



Newnham Hall, Cambridge, Cambridgeshire Report

In January and February 2011 Archaeology RheeSearch Group carried out magnetometry and resistivity surveys on this site.

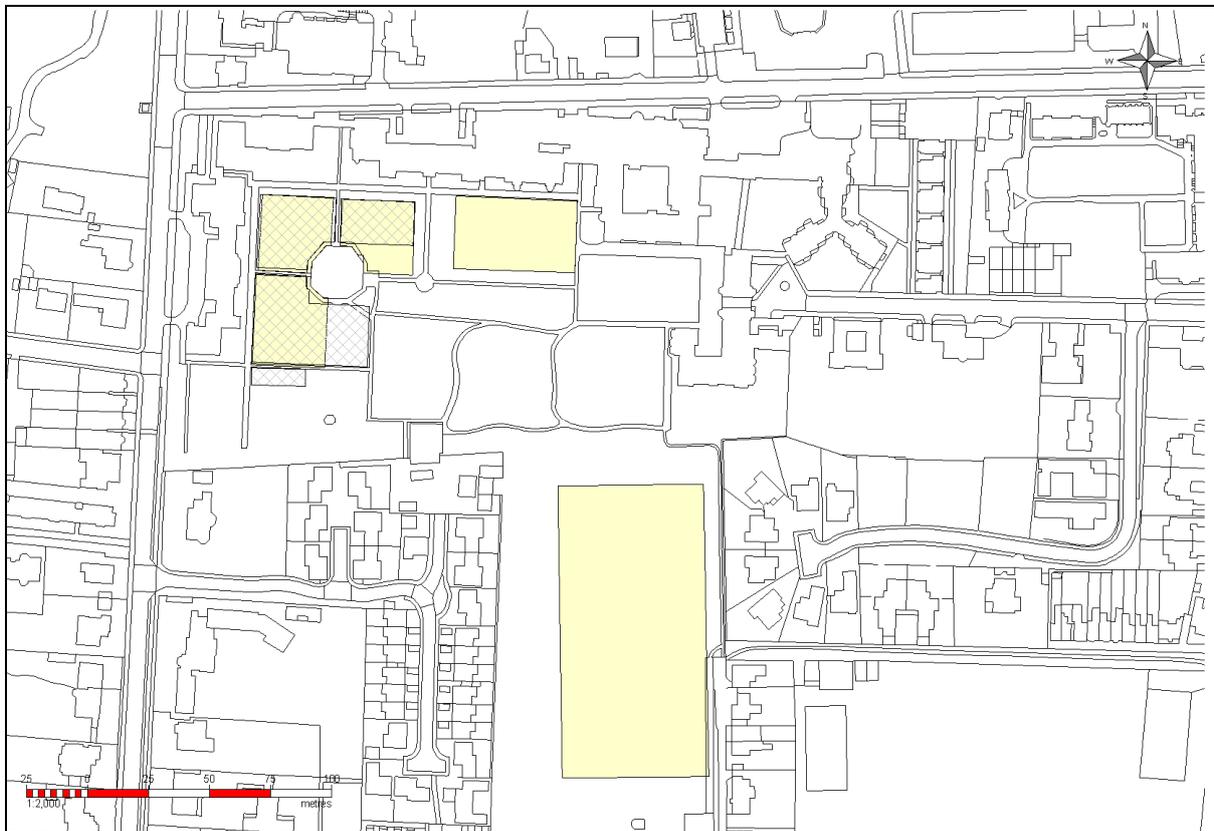
Members participating: Pat Davies, Brian Bridgland, Bruce Milner, Liz Livingstone, Ian Sanderson, Marc Davies, Gill Shapland, Maureen Storey and Tony Storey.

Site liaison: Catherine Hills.

Site conditions: Lawn and gardens with adjacent buildings. Metal edging to paths.
Sports field S part of E side surfaced driveway. Recent snow.

Equipment: Bartington 601 gradiometer; TRCIA 50 cm twin probe
Magnetometry readings: 8/m, 1 m separation.
Resistivity readings: 1 m interval, 1 m separation.
Raw data are available as separate appendices.

Location: TL441578, Newnham Hall, Cambridge, Cambs.

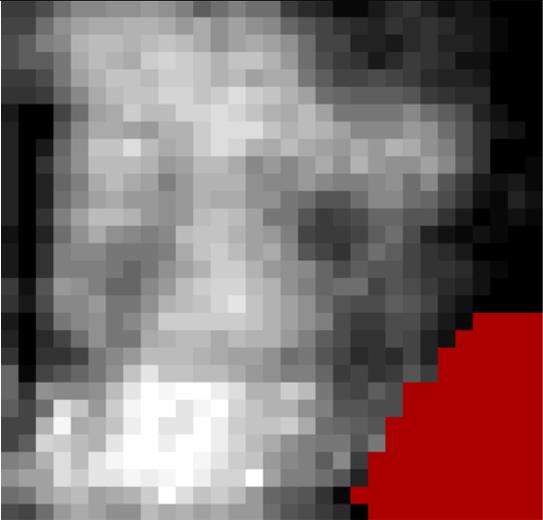
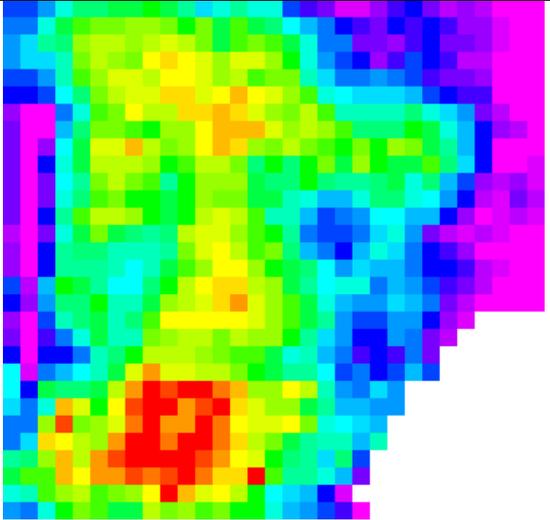
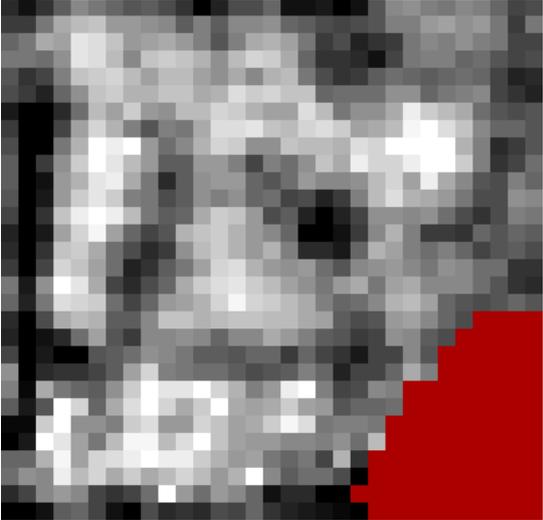
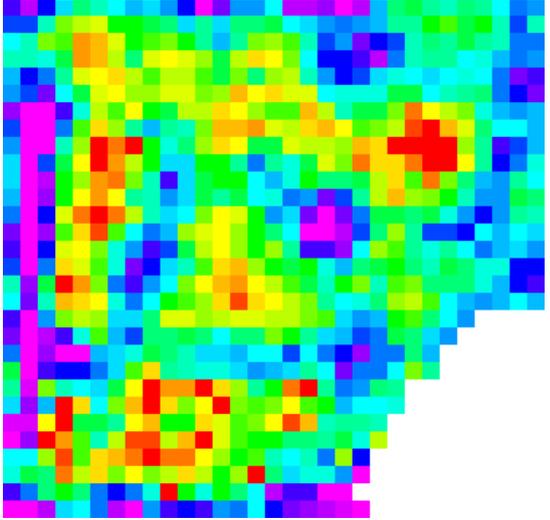


Location plan: Survey areas
(resistivity survey areas hatched, magnetometry areas solid)

Purpose of survey: A Saxon grave was discovered during the building of air raid shelters in 1939 which was subsequently excavated. No record of the exact position of that excavation has yet been discovered. The purpose of this survey was to determine if any subsurface features could be detected indicating the location of the air raid shelters, to help locate the site of excavation.

Results:

The images in this section are orientated for presentation. However, grid north is not markedly different from the top of the page except for the sports field images where the east side is to the top of the page. The images are not to a common scale.

		<p>Resistivity 31 m x 30 m NW lawn</p> <p>Raw data</p>
		<p>High pass filter 5</p>
<p>(black - low, white - high, red null)</p>	<p>(purple/blue - low, red - high, white null)</p>	

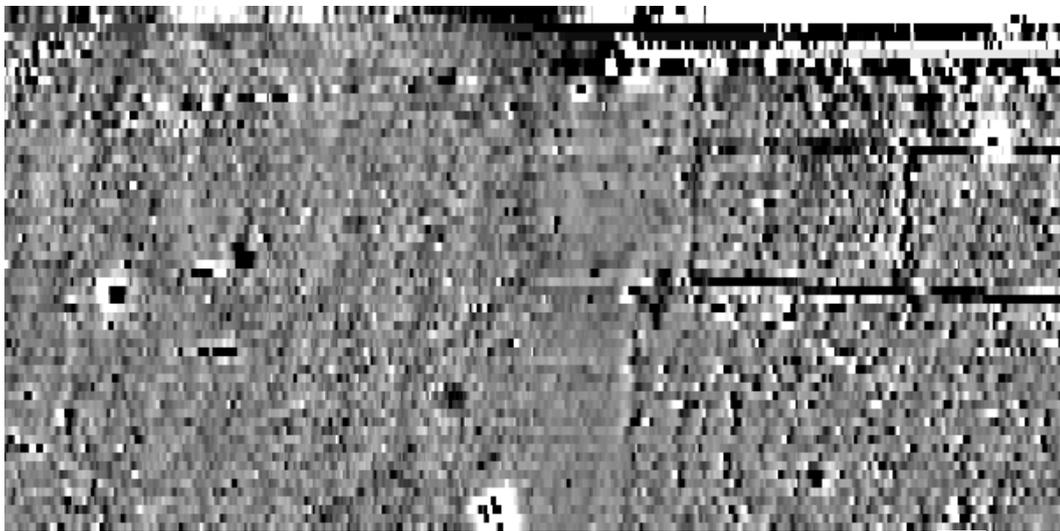


		Resistivity 47 m x 36 m SW lawn Raw data
		High pass filter 5
(black - low, white - high, red null)	(purple/blue - low, red - high, white null)	

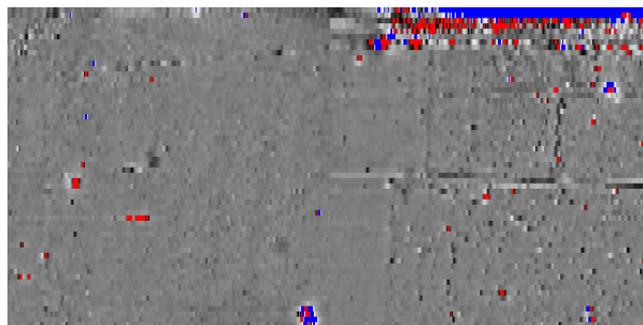
		Resistivity 30 m x 18 m NE lawn Raw data
		High pass filter 5
(black - low, white - high)	(purple/blue - low, red - high)	



		Resistivity 22 m x 7 m S lawn Raw data
		High pass filter 5
(black - low, white - high)		(purple/blue - low, red - high)



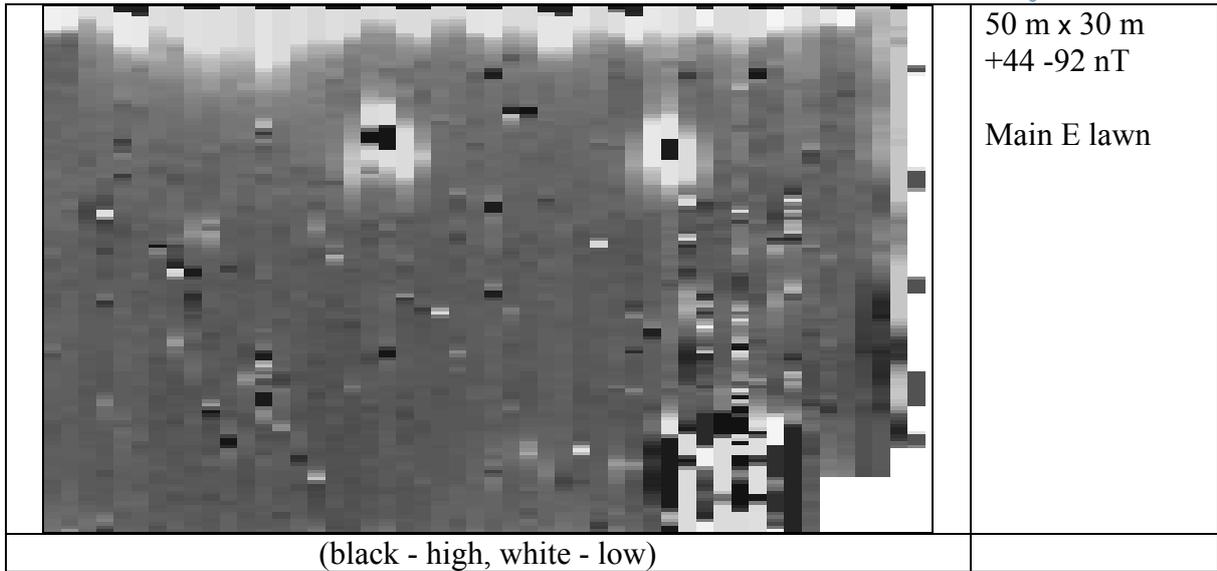
N ←

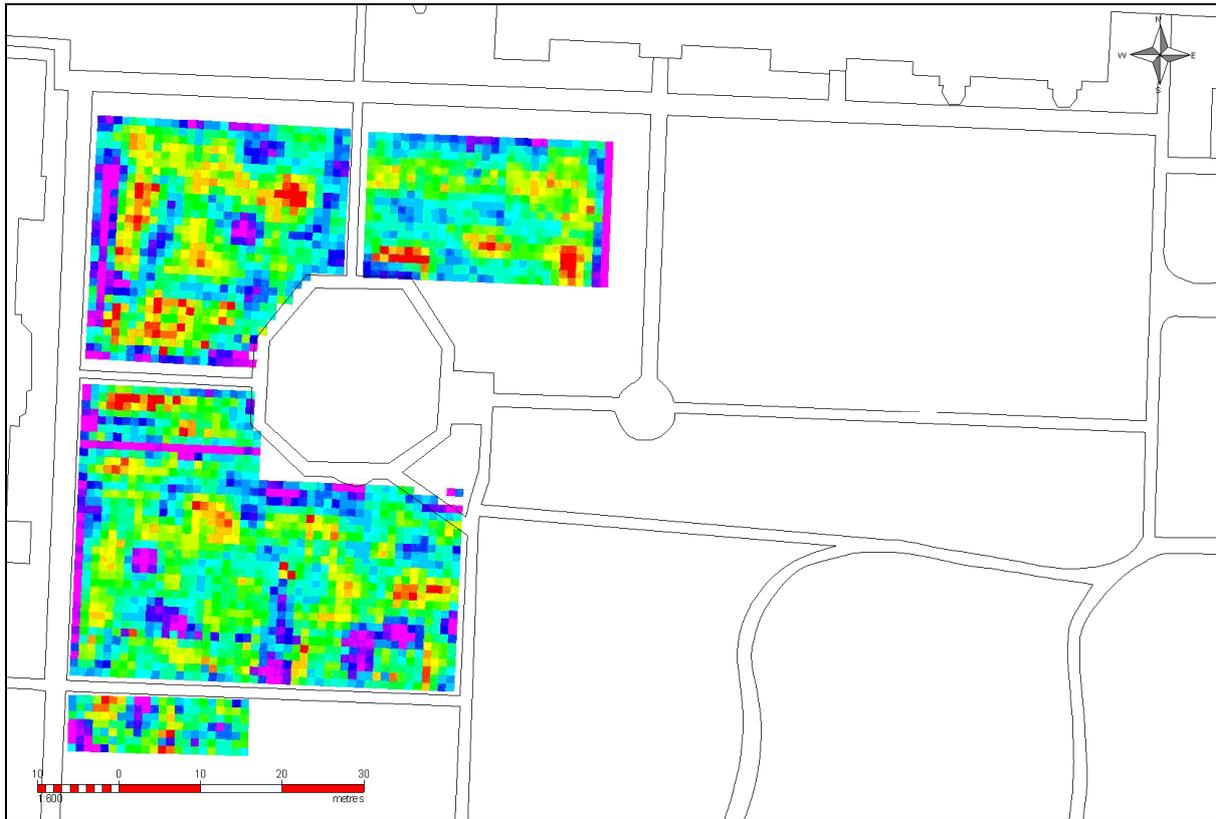


Sports field magnetometry 120 m x 60 m range ± 9 nT
 (black - high, white - low; peaks image ± 100 nT)

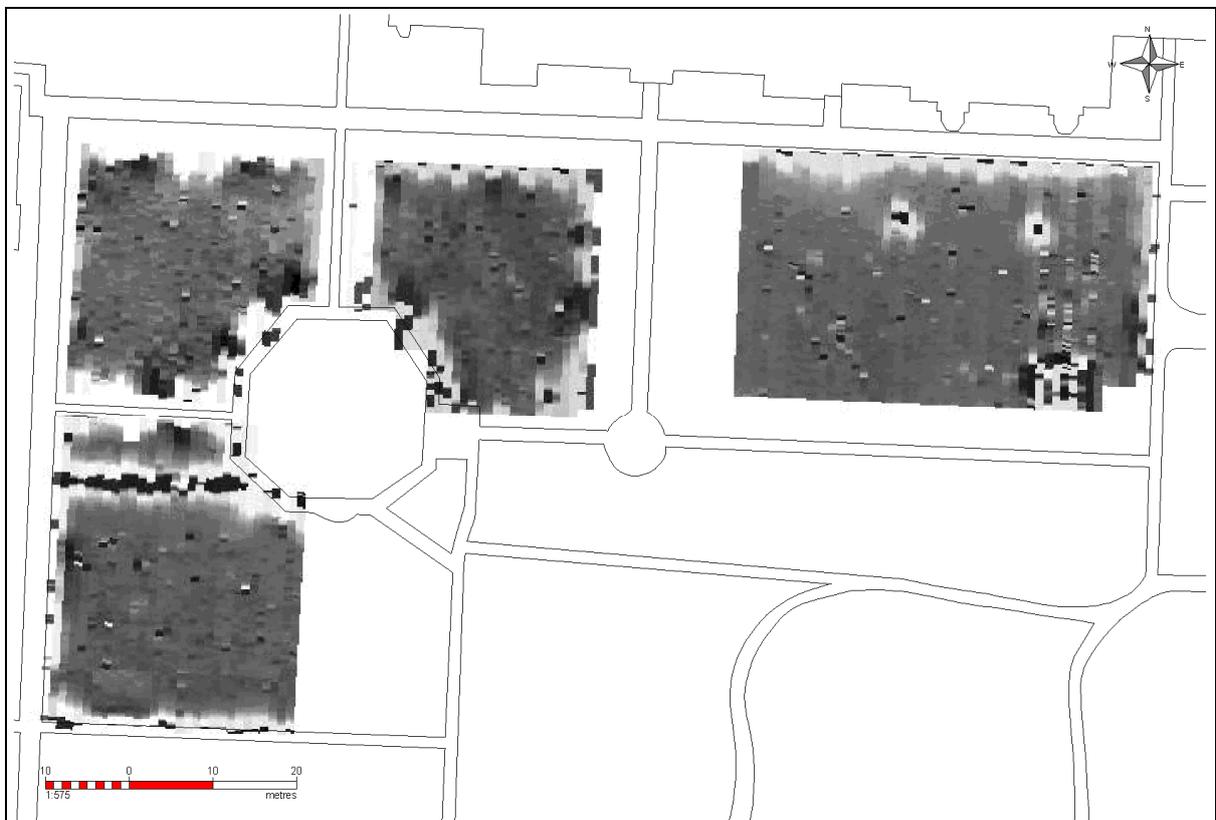
Some of the following images have been cropped, the grid dimensions given may therefore be approximate.

		<p>Magnetometry 30 m x 30 m +15 -45 nT NW lawn</p>
		<p>30 m x 30 m +32 -68 nT NE lawn</p>
		<p>30 m x 37 m +29 -100 nT SW lawn</p>

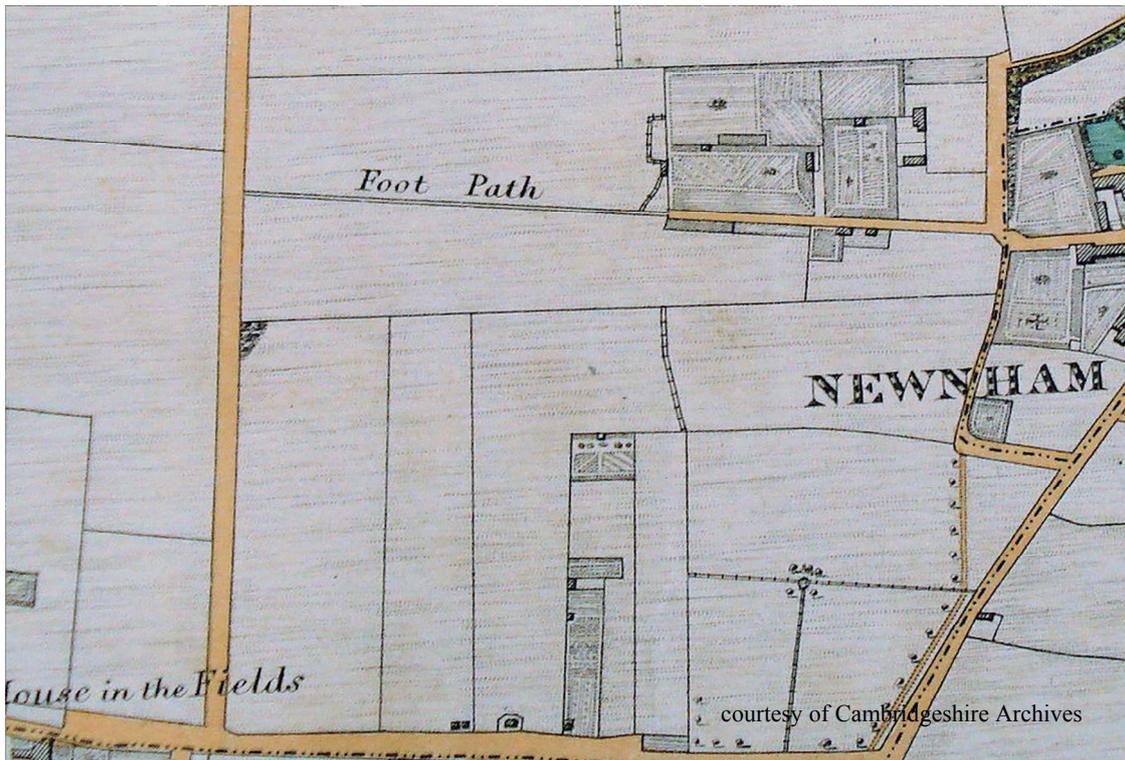




Lawn resistivity results in context



Lawn magnetometry results in context



Baker map of Cambridge 1821



OS 1886 map of Cambridge



Resistivity

The resistivity results gave a complex pattern of responses reflecting the intensive management of the lawns during the last century. The main distinct feature is the low resistance line parallel and S of the path in the SW lawn. A high resistance rectilinear feature was detected in the NW lawn.

Magnetometry

This site was not particularly suitable for magnetometry due to the high levels of interference and the extensive use of metal edging to the paths, the overall result of which was to obscure the weaker signals characteristic of archaeological features.

The sports field site gave the best results with a series of linear features in the SE corner and suggestions of a wide access track running EW across the centre. More subtle features are visible in the N part of the field, particularly one line adjacent to three high response spots, but again the background noise compromises the definition of the features.

The lawn sites were all badly affected by the magnetic background. The images above show only the strongest signals. There is a linear feature parallel to and S of the path shown on the SW lawn site characteristic of an iron pipe, and on the largest E lawn there are two particularly high spots and an area in the SE corner characteristic of building debris.

Discussion:

The linear feature running parallel to and S of the present path in the SW lawn shows in both the magnetometry and resistivity results. This is almost certainly an iron pipe with a bedding promoting the accumulation of moisture from the surrounding soil. There are indications of a higher resistivity band along the N edge which may represent the metalling of a footpath shown on the Baker map of 1821 (as well as on the inclosure map and later OS maps of the site). The low resistance values along some of the edges of the resistivity results could be due to path salting given that this survey was conducted not long after a period of frost and snow. Higher concentrations of salts in the soil increase conductivity and therefore reduce electrical resistance. The rectilinear feature in the NW lawn is characteristic of building foundations.

The overall aim of locating the sites of air raid shelters was not achieved, which is not surprising given that they were fairly shallow structures in an area that has had extensive disturbance. The resistance data presented does give a series of potential targets for exploratory digs when used with reminiscences of the site, but without knowing how the site was restored it is impossible to determine whether those targets should be high or low values. On the whole low resistance targets would seem to be best, on the basis that if all the structural material was removed and infilling was primarily with the covering earth before reseeded the lawn, then the subsoil would contain more moisture retentive humus.

The features clearly detected on the sports field would seem to correspond to the boundaries of the 19th century pleasure gardens shown on the Baker and OS maps, although suggestions of earlier activities are discernible in the N part of this site. The strong response half way down on the W edge of the survey does not correspond with a glass house shown on the 1886 OS map of the site but may represent a similar structure.