Foxton Dovecot Report

Archaeology RheeSearch has carried out magnetometer and resistance surveys on the dovecot field and school playing field in Foxton to try to determine if any subsurface building features are detectable. Surveys were carried out on 4 May 2009, 19 April 2009, 13 Jan 2005 and 16 April 2004.

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

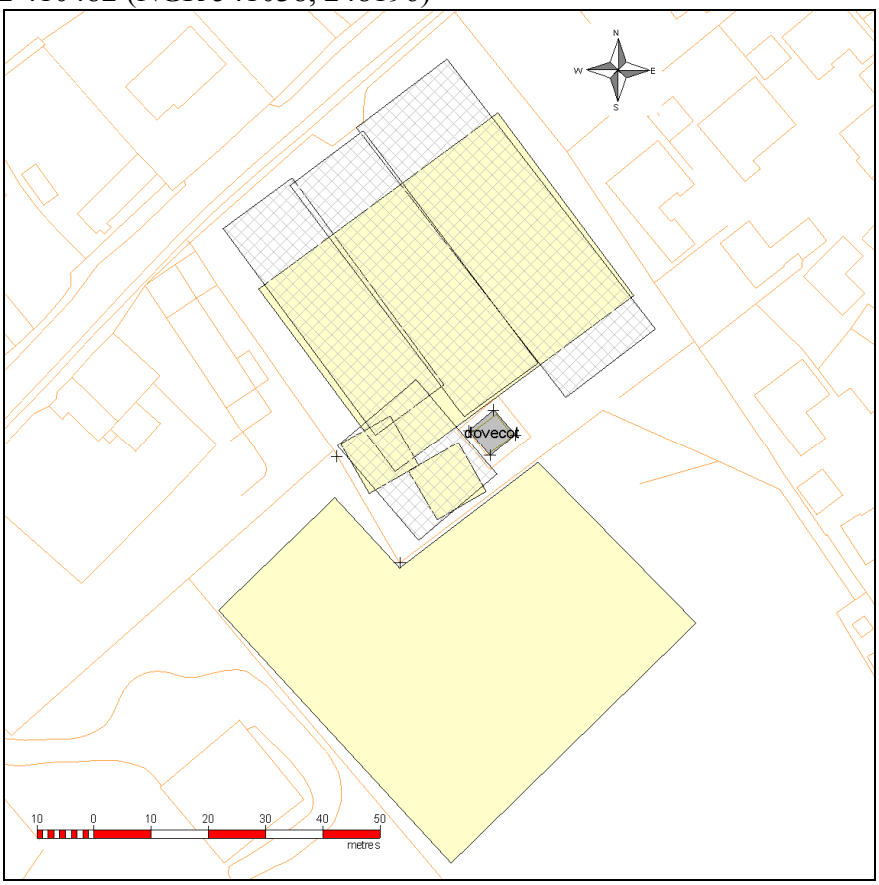
Site coordinator: Ian Sanderson

Site conditions: Rough grass with bramble at the sides, piles of cut vegetation and earthworks in the dovecot field. Close mown flat grass in school field. Wooden post and rail fencing with attached wire mesh. High metal security fencing along other parts of the school perimeter.

Equipment: TRCIA 50cm twin probe; Bartington Grad 601 magnetometer.

Area covered:	Magnetometry	four 30 m × 30 m grids
		four 20 m × 20 m grids
		two 10 m × 10 m grids
	Resistivity	one 22 m × 18 m grid
		three grids consolidated as one 51 m × 60 m grid
	Wenner array	four 30 probe sections at 25 cm spacing

Location: TL 410482 (NGR 541038, 248196)

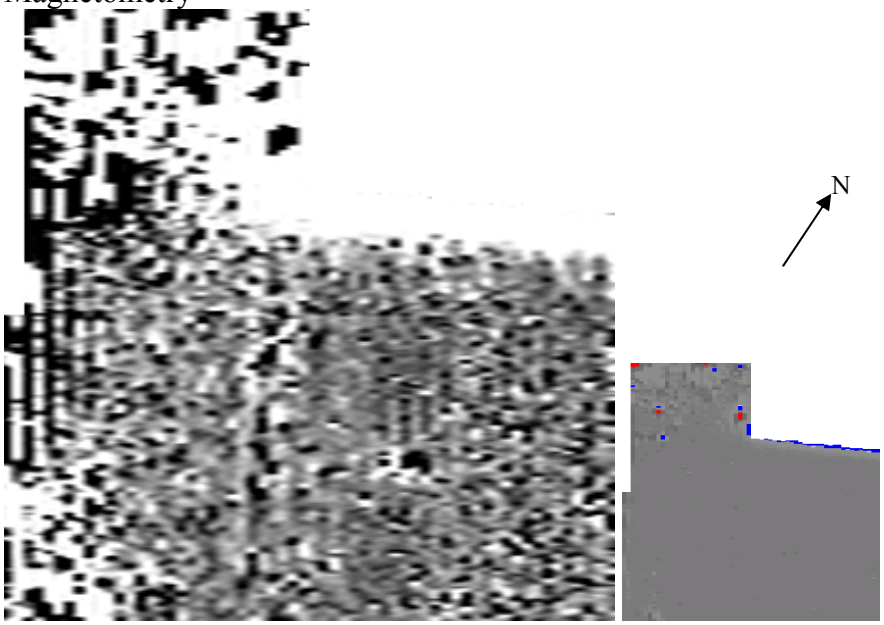


Location plan: The magnetometry survey areas are shown in yellow and the resistance survey areas are shown as hatched.

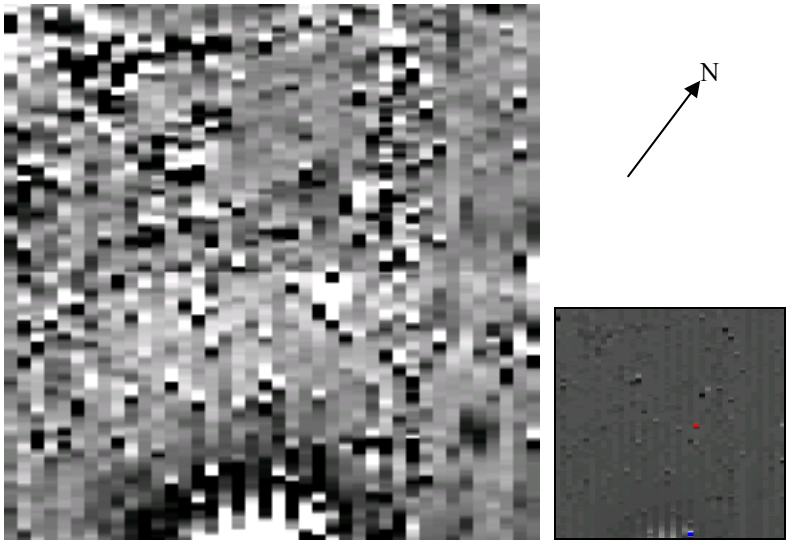
Purpose of survey: To locate any subsurface structures.

Results:
The images in this section are individually scaled and orientated for presentation.

Magnetometry

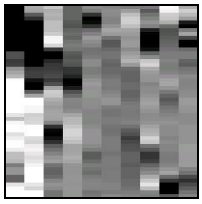


Magnetometry survey in the school field, 60 m × 60 m (position of over range signals shown in reduced image).



Magnetometry survey in the dovecot field, 40 m × 40 m (position of over range signals shown in reduced image).

Dovecot to bottom centre



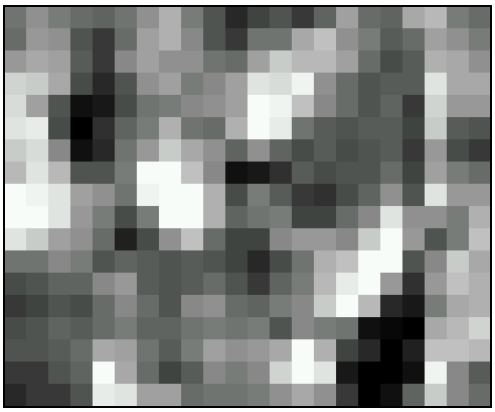
West survey area

Magnetometry survey in the dovecot field, 10 m × 10 m.

East survey area

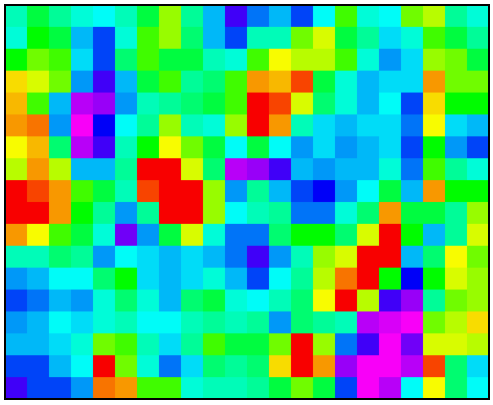
Magnetometry survey in the dovecot field, 10 m × 10 m.

Resistivity



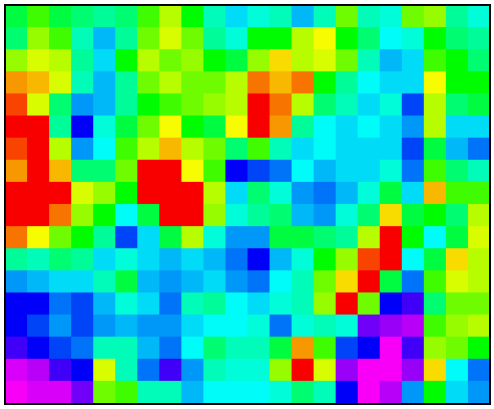
N

Resistivity survey,
22 m × 18 m.
Noise filtered data in greyscale where white is high resistance and black is low resistance.



N

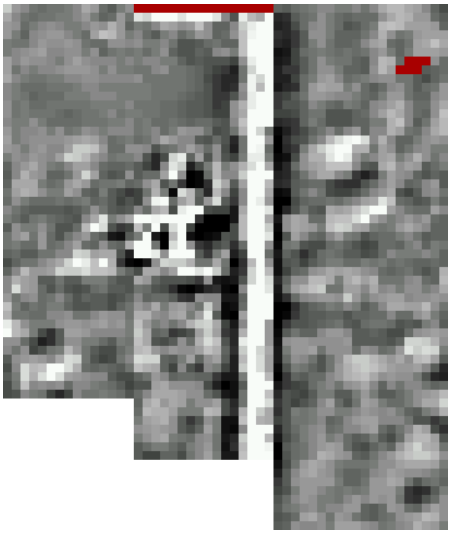
Resistivity survey,
22 m × 18 m.
Noise filtered data in 'rainbow' scale where red is high resistance and purple is low resistance.



N

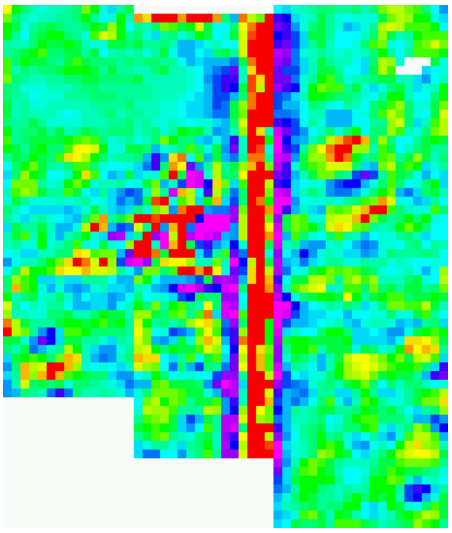
Resistivity survey,
22 m × 18 m.
Raw data in 'rainbow' scale where red is high resistance and purple is low resistance.

The resistivity results below have been normalised and adjusted to compensate for a slight difference in alignment between the grids to allow a noise filtration process to be applied to these data as a whole.



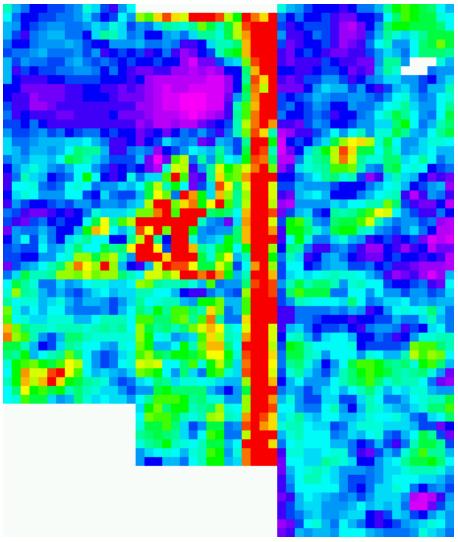
N

Resistivity survey,
51 m × 60 m.
Noise filtered data in greyscale where white is high resistance and black is low resistance
Red represents null values.



N

Resistivity survey,
51 m × 60 m.
Noise filtered data in 'rainbow' scale where red is high resistance and purple is low resistance. White represents null values.

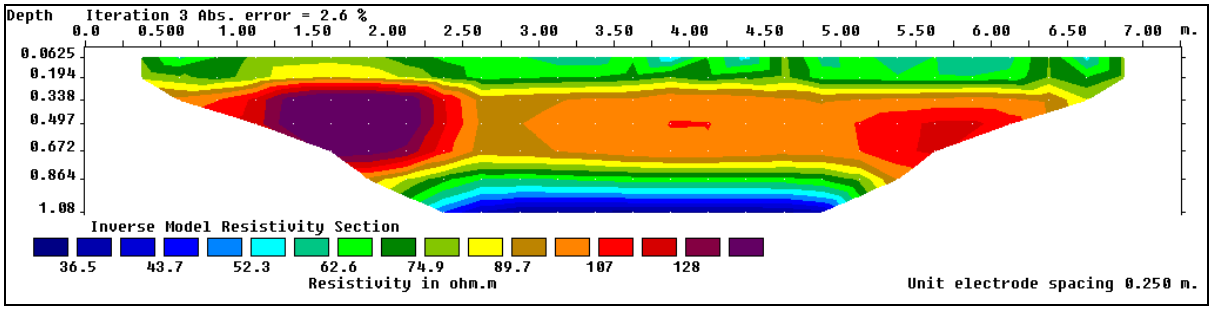


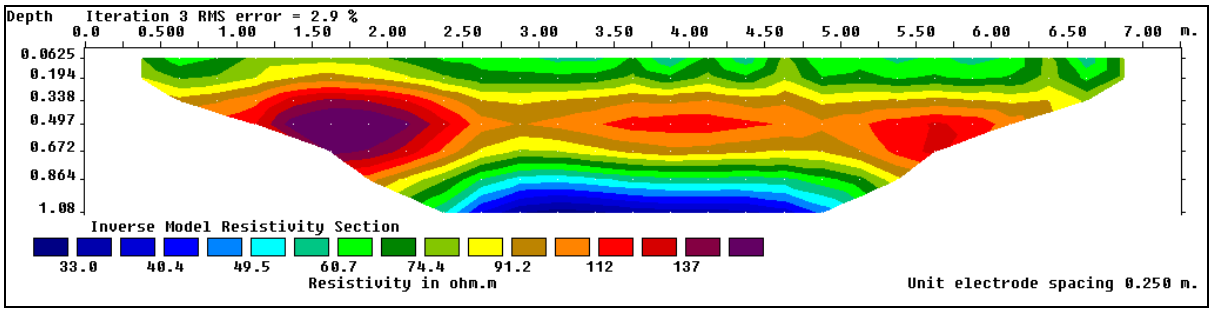
N

Resistivity survey,
51 m × 60 m.
Raw data in 'rainbow' scale where red is high resistance and purple is low resistance. White represents null values.

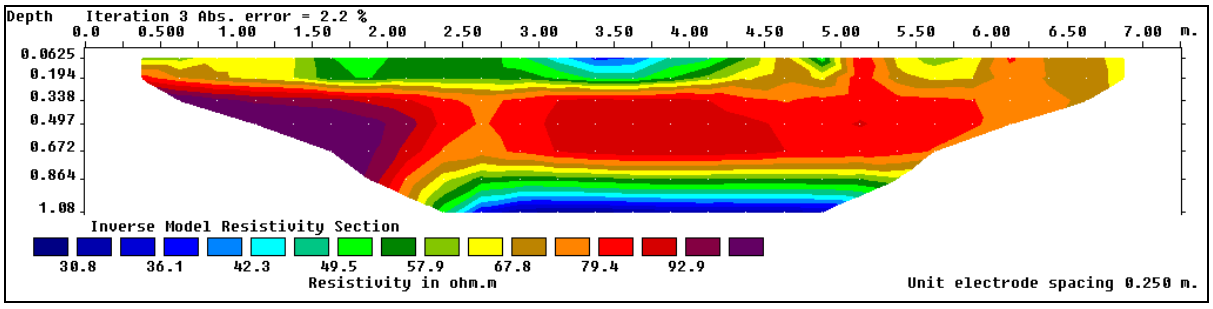
Wenner array surveys

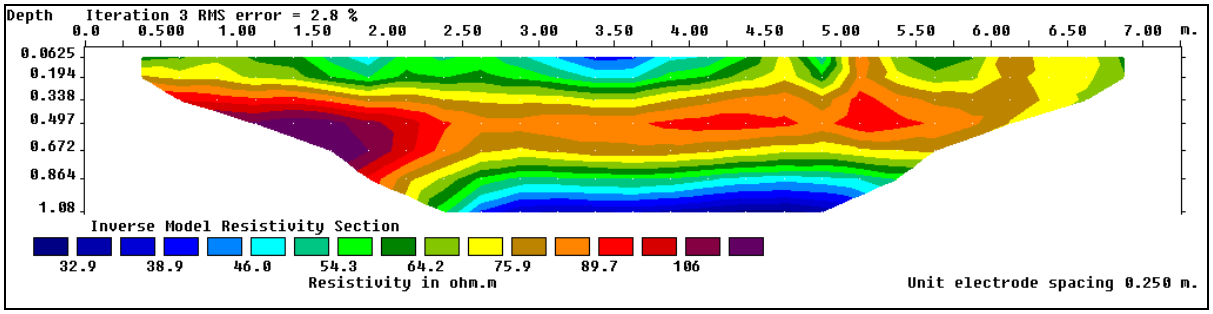
Two images are shown for each survey. The top image in each case illustrates the result of applying model RRYYN, the bottom image uses model SSYYN on the same raw data.
The locations of the surveys are given by the image following.



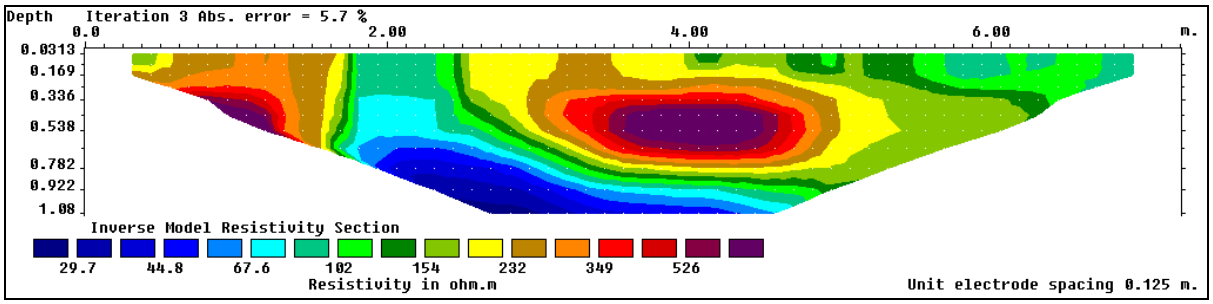


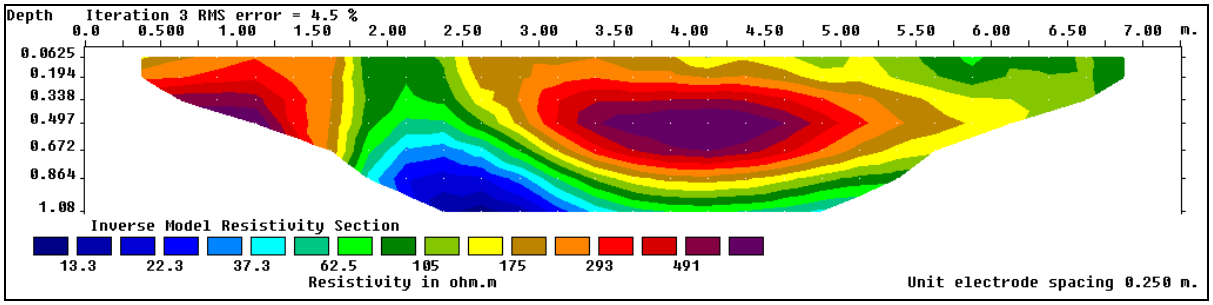
Wenner array survey 1.



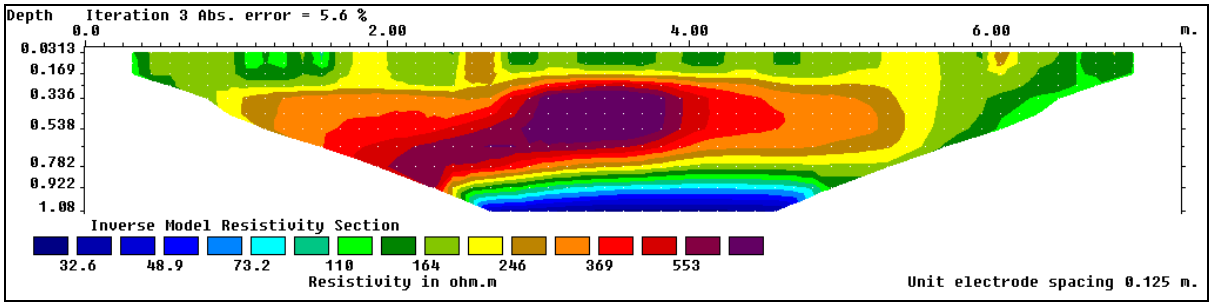


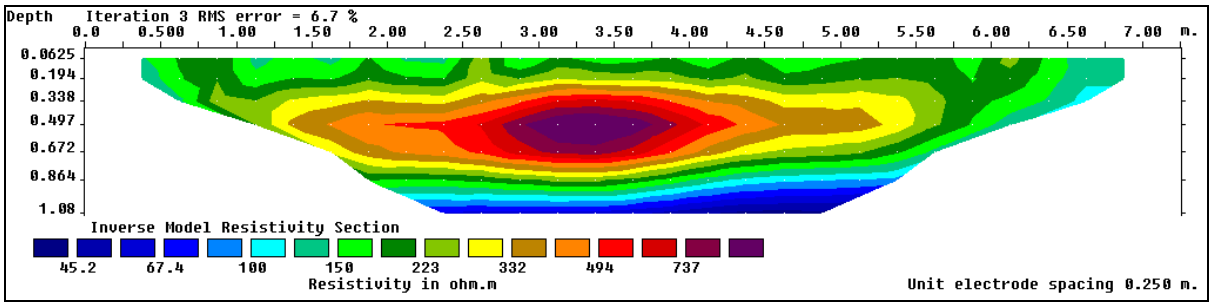
Wenner array survey 2.



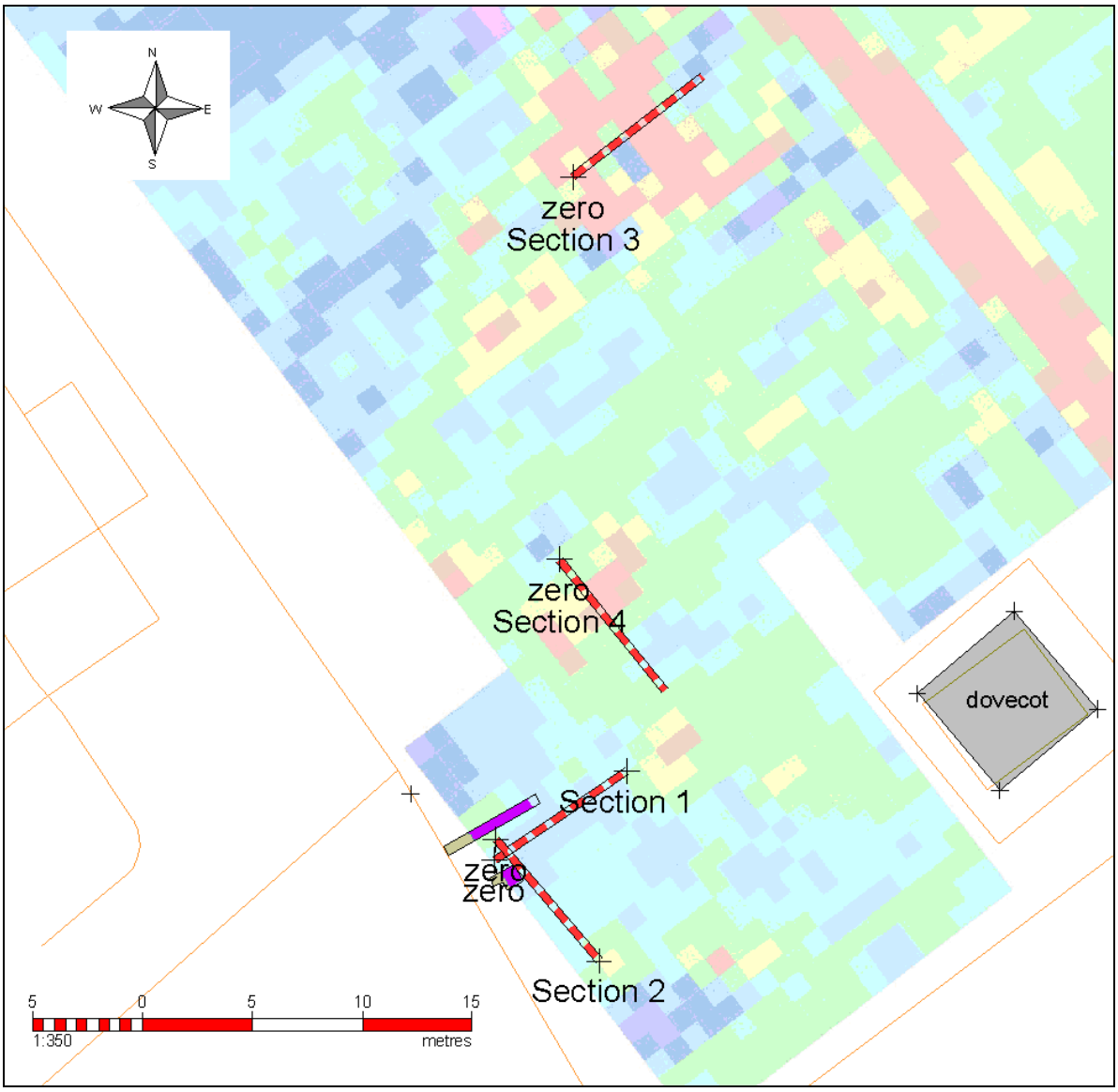


Wenner array survey 3.

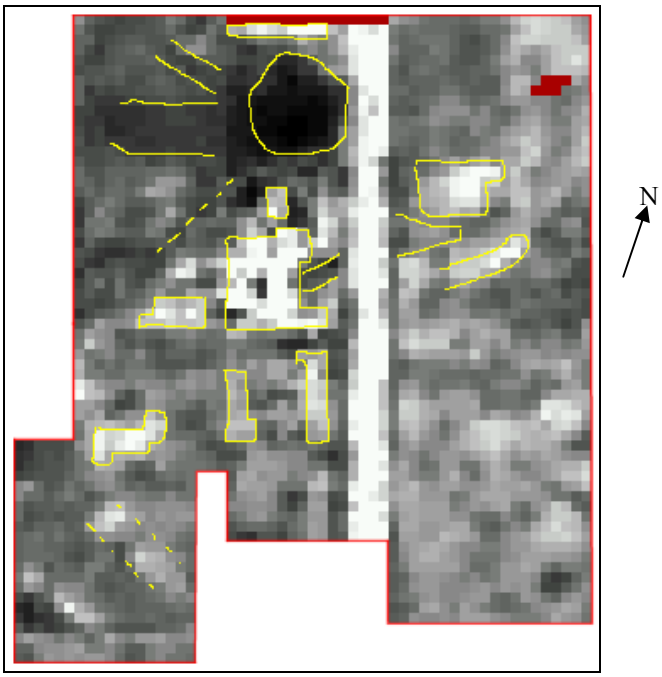




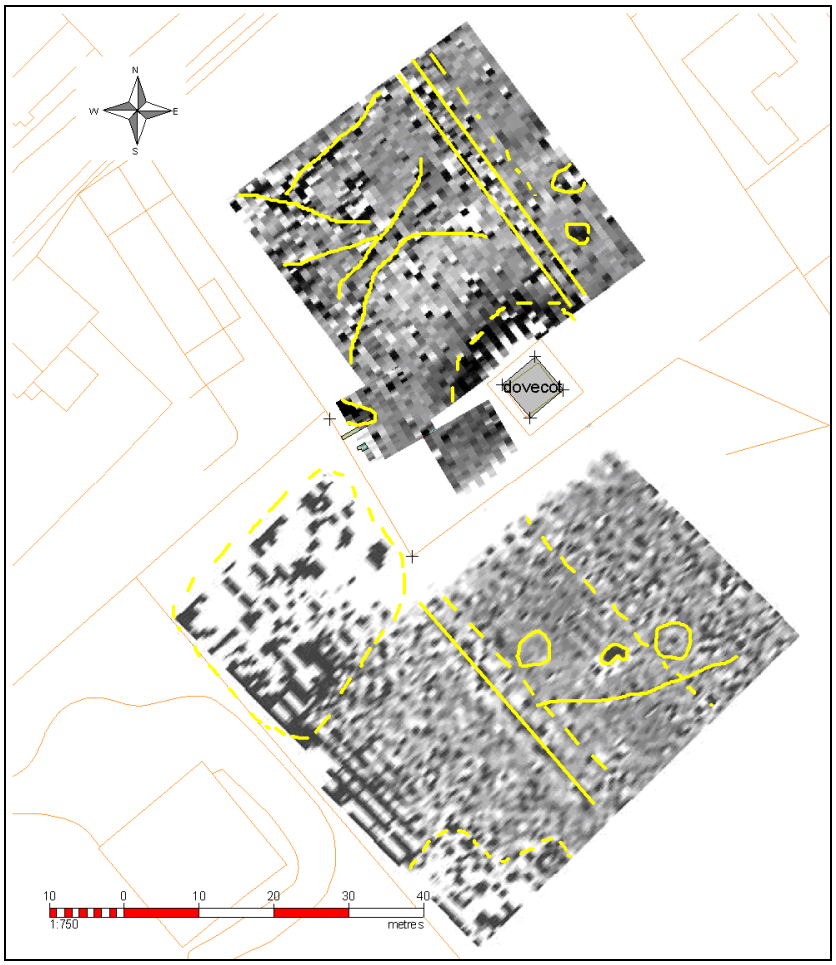
Wenner array survey 4.



Locations and zero (start) points of the Wenner array vertical sections.



Features of interest in the resistivity responses.



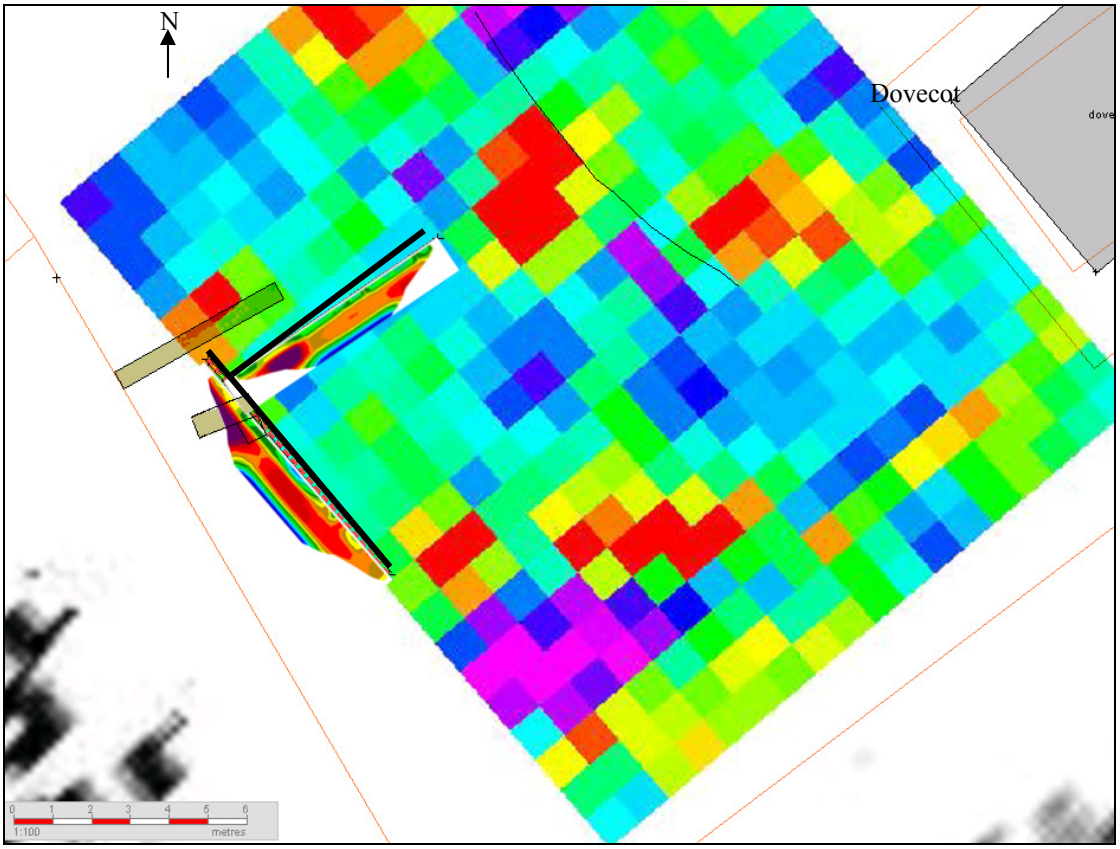
Features of interest in the magnetometry responses.

The resistivity results show a strong high resistance band dividing the image above with narrow bands of low resistance on either side. A large area of low resistance is apparent towards the N of the resistivity survey area with two, or possibly three broad lines converging on it from the W. A high resistance rectilinear structure with high resistance outliers lies immediately to the S and a narrow high resistance band lies to the N. Three rectilinear areas lie closer towards the dovecot, with the suggestion of a band of high resistance running NW from the dovecot. The responses on the E of the dividing line seem more attenuated than on the W, but two fairly strong, rectilinear, high resistance areas are visible. These are separated by a triangular area of low resistance towards the dividing line. The remainder of the E side has an interesting patchwork of low and moderately high resistance but with no identifiable patterns.

The magnetometry results were severely attenuated by the metal fencing, and to a lesser extent by the brick of dovecot itself. The site had a generally high level of noise which makes it more difficult to define real features.
The survey area in the school field is dominated by the particularly noisy area to the W. An interrupted linear feature runs NW - SE. To the NE of this the survey area divides into two general bands less noisy and more noisy, the dividing line running parallel to the linear feature. A less distinct linear response runs from just S of a noticeable anomaly in the centre of the survey area towards the E corner. It is not particularly clear, but this line could extend to the W. A circular feature about 4.5 m diameter is apparent within the 'more noisy' band just E of the central anomaly. A fainter circular feature about 3.5 m diameter occurs to the W of the larger one on the other side of the central anomaly by the side of the most distinct linear feature. There is an area in the S corner of the survey similar to that in the W corner which has a 2-3 m square feature on one edge.
The largest of the three survey areas in the dovecot field suffers particularly from background noise. The hollow way running NW - SE is noticeable but not particularly magnetically distinct. A linear feature runs parallel to and along the NW edge of the survey area, becoming more intense and more disperse to the W. A group of responses about 18 m E of the W corner may show some structural form. A rise in height across the field shows as a subtle curved band around the latter feature. It is possible that a linear feature runs from the W corner, due E as far as the hollow way and that other structural forms are shown but the background noise precludes identifying these with any confidence.
The two smaller grids in the dovecot field are too small for useful pattern recognition and both suffer from the proximity of wire mesh attached to the wooden fencing. The W grid does however, show an area of intense response in its W corner. This is sufficiently strong to overcome the effect of the metal fencing and seems to extend E for about 5 m, as far as the end of an excavation trench which was open during the survey. Slightly to the south is a similar signal, 1 m in length, that may be associated with this. The small E grid had a castellated SE edge. This may have arisen from problems in controlling instrument height due to vegetation obscuring a marked groove in the ground from one direction of walk but not the other.

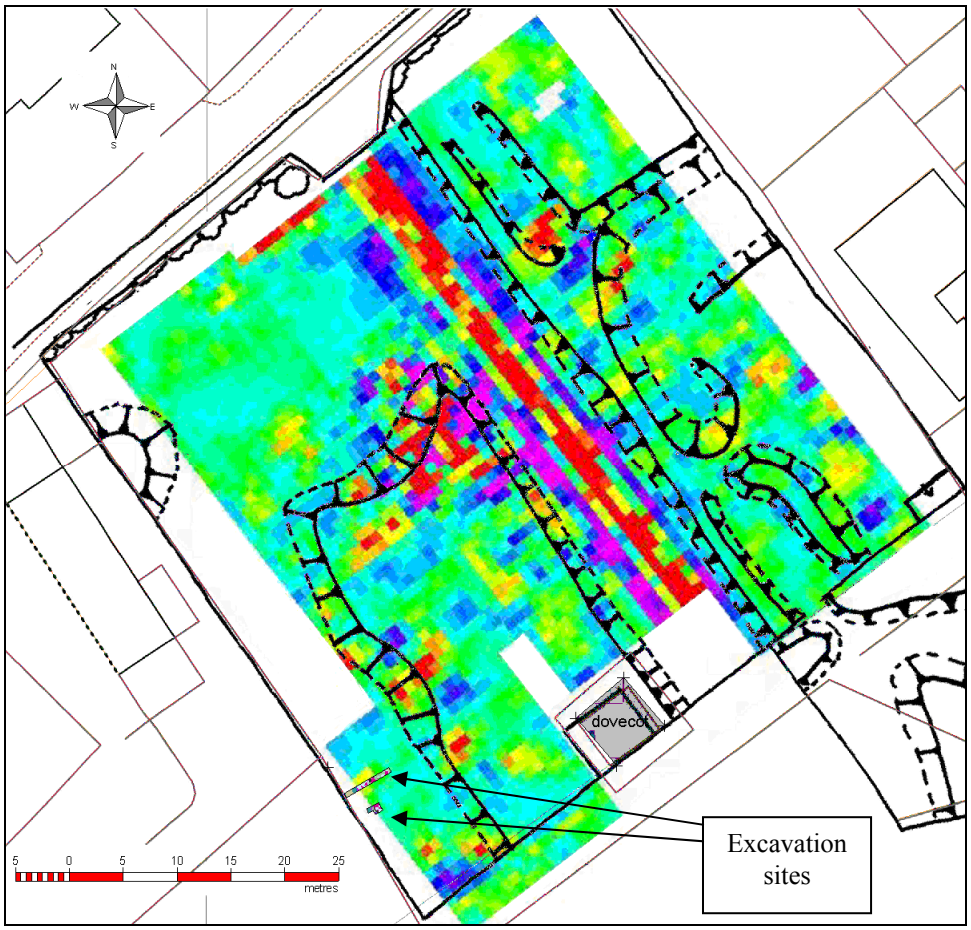
The first two Wenner array results show a dark area about 20 cm below the surface from the starting point (left side of the image, zero on the horizontal scale). Such dark areas are often interpreted as voids or zones where the signal meets a high resistance to penetration. The plan below shows the position of the Wenner array surveys with the ground surface line along the actual survey line. Survey 1 (SW-NE) shows minor variations in the surface layer with a consistent response layer (yellow) at about 20 cm. Between 20 cm and 70 cm there is a layer

of higher resistance with a marked increase ending at 2.50 m along the survey line. Below 70 cm there is a series of lower resistance layers. Survey 2 (NW-SE) is very similar except that the surface layer is more variable and the layer at 20 cm approaches the surface between 0 and 1 m along the survey line and seems to stop about 4.5 m from the start point.



The position of the vertical sections in relation to the excavation trenches (brown) superimposed on the resistivity survey.

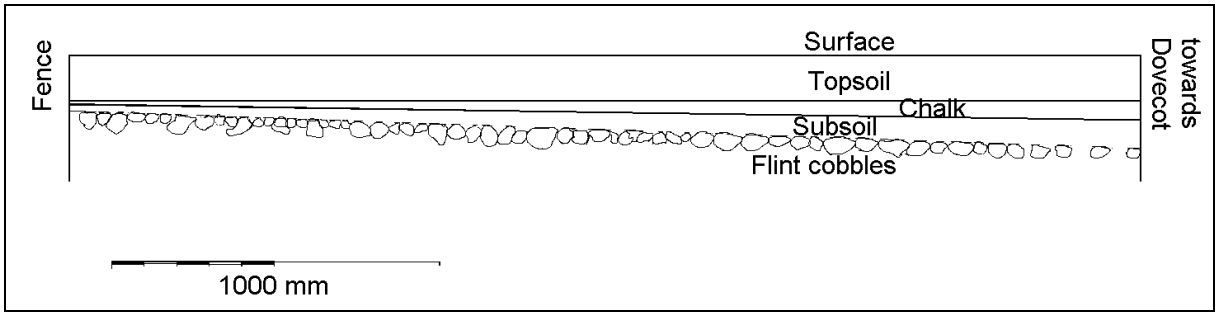
The Wenner array surveys 3 and 4 were chosen to explore possible building foundations in the locations shown on page 6. Section 3 on the N edge of the dovecot platform showed two broad high resistance zones between 20 cm and 60 cm below the ground surface. The central one (between 3 and 5 m) had a small portion extending towards the surface whilst the high resistance zone between zero and about 1.7 m showed a greater proportion of high resistance readings near the surface. The central part was about 2 m wide and the other portion extended beyond the survey line. Section 4 showed only one central high resistance band about 1 m long between 25 cm and 70 cm below the surface.

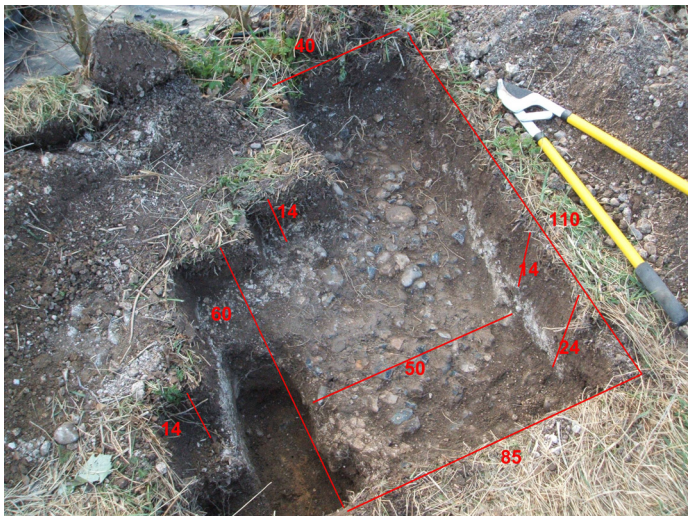


Resistivity survey results in relation to an earthwork survey by Rachel Fosberry in 2000.

Excavations:

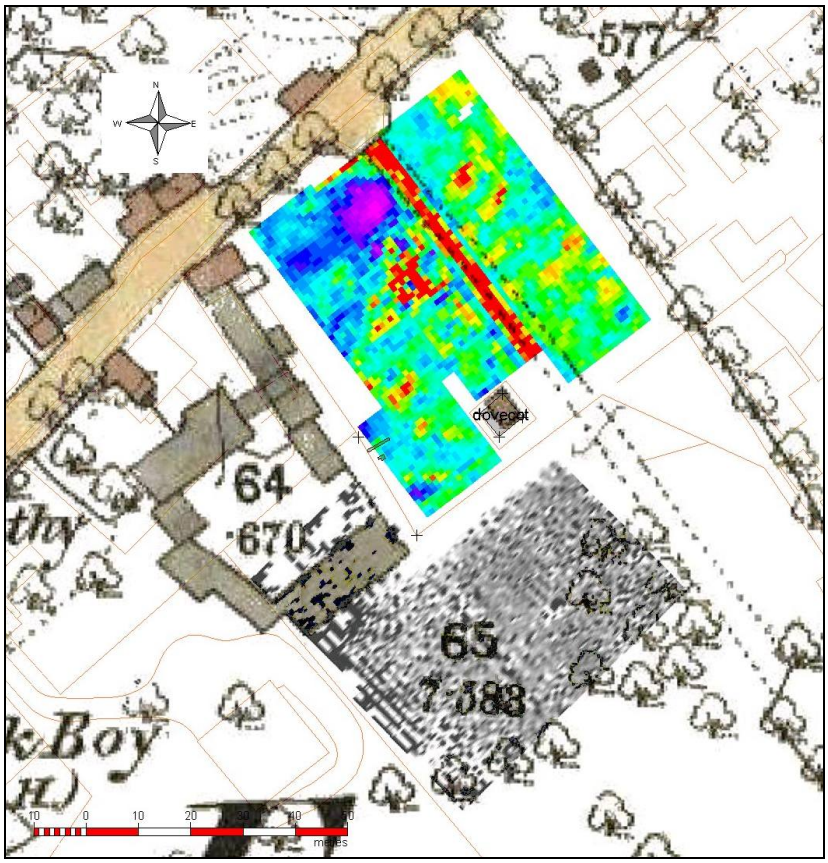
During hedge planting around the edge of the site in 2008 it was noticed that there was a hard layer below the top soil at one particular point. Initial exploration resulted in two small trenches (0.5 x 3 m and 0.5 x 0.5 m) covering what appeared, from rod insertions, to be the extent of this subsurface layer. These trenches exposed a rough flint cobbled surface sloping slightly downwards from the fenceline towards the dovecot. The cobbles were covered by soil then by an almost horizontal layer of chalk below a layer of topsoil.



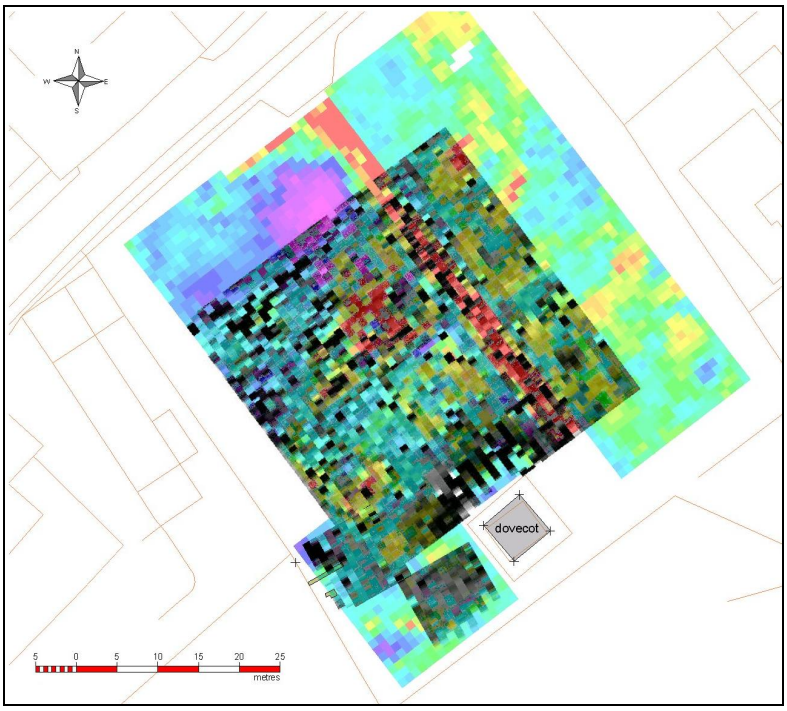


Discussion:
These results do not lend themselves to straightforward interpretation. The influence of metal fencing and general background noise means that any subtle features that may have been detected by magnetometry have been lost. The multiple reuse of the site means that any patterns showing in the resistivity have been extensively fragmented.

Dovecot field
With the above caveats in mind, certain features do stand out. The hollow way in the dovecot field, called Jenkins's Lane in the Inclosure Award, shows up as a very diffuse feature in the magnetometry results and as a strong feature in the resistivity results indicating that structured fired material has not been used to any great degree in its construction but that it has been metalled. The resistivity results suggest that it had a small ditch on either side but it is surprising that these did not show up in the magnetometry results.
From the magnetometry results, the hollow way appears to be joined by two other tracks: a linear track from the W corner of the survey area and a more sinuous one from the S side of the buildings to the W. Both tracks pass close to the rectilinear high resistance feature. There are some indications that the sinuous track may have been double ditched and as wide as the hollow way. However, as the track runs along the curved edge of the dovecot platform, it may be a signal artefact whereby the change in height has forced a change in the magnetometer angle and response as the operator climbs a bank. Parts of both of these linear magnetometry features correspond to low resistance lines running towards a large round area of low resistance values just to the W of the hollow way. The S line runs towards a gap in the buildings on the 1886 map and the N line points towards the W corner of the field.



Superimposition of the 1886 Ordnance Survey map on some of the present survey results.



Superimposition of magnetometry and resistivity results.

The linear track in the magnetometry results has two regions of confused responses along its length. One area is in the W corner of the survey area and one nearer the middle. The latter is located at the bottom, and just off the centre of the curve defining the dovecot platform.

A relatively strong magnetic signal runs almost parallel to the N edge of the survey area, and therefore almost parallel to the road. This suggests an enclosure boundary rather than a track way. The linear track running to the W corner of the survey area supports this by suggesting that the track was positioned to pass around the enclosure.

The area around the excavation sites (shown above) is obscured magnetically by the adjacent metal fencing. There is a suggestion that the influence of the fencing is offset by subsurface signals on the N side. This corresponded to an area of low resistance and was associated with surface composted vegetation.

The resistivity results contain several areas of high resistance of which two suggest building foundations. One is on the junction of the two resistance surveys and the other lies on the N edge of the dovecot platform.

The Wenner array results in the excavation area (sections 1 and 2) indicate subsurface zones of high resistance corresponding to the flint cobbled area discovered. Section 2 is particularly interesting in that it suggests that the S excavation is close to, but not at the limit of the flint cobble area. It also suggests that a layer nearer the surface, possibly the thin band of chalk, extends a further 2 m before terminating. Section 1 suggests that this particular layer extends beyond the line of the survey.

The other Wenner array results (sections 3 and 4) both indicate subsurface blocks of higher resistance material which, given the lack of a strong magnetic response and the width, suggest a stone base to a structure rather than any lower courses of brick.

School field.

A clear magnetometry signal across the school field suggests the line of a track from the farm complex to the NW. Superimposing the Ordnance Survey map of 1886 with some of the results and the current plan of the area shows that the track line goes between the end of a barn and a line of trees to the S. This line, extended to the S, would pass very close to the older chalk pit near the top of Chalk Hill, but would also pass through a distinct realignment in the boundary on the S side of the hill. This could therefore be interpreted as representing an access route to the chalk pit and/or the line of the original path to Fowlmere before it moved to its present position further to the W.

Confused noisy magnetometry responses are indicative of extensive burning and the noisy area to the W of the school field survey corresponds to the site of a barn which was burnt down in 1976. The noisy area in the S corner matches a line of trees on the 1886 map and could therefore reflect where the debris or roots were burnt when the trees were removed. If the linear feature running to the E corner of the school field survey area is extrapolated it runs between The Green in Foxton and the cross roads in Newton, suggesting that the recorded feature might be a track predating the current road structure in the village. The E circular feature near the anomaly in the school field has a strong signal in the middle which is suggestive of an Iron Age circular hut with a central hearth, though somewhat smaller. The nearby W circular feature is essentially the same but without the strong central signal.

Conclusion:

Some building foundations and the hollow way were located within the dovecot field as areas of high resistivity. There were indications of other tracks across the field. Wenner results suggest that the cobbled area extends a little to the S of the excavation but that the chalk layer above extends much further S and E. Within the school field the results were dominated by the remains of a barn fire, but two small circular features may represent Iron Age features.

Dr Ian Sanderson for Archaeology RheeSearch 2009