ANCIENT MONUMENTS LABORATORY

REPORT ON GEOPHYSICAL SURVEY AT HELMSLEY CASTLE, N. YORKS, 1983

Report no. G 11/83 | Dates of fieldwork: 16-18 March 1983

NG: SE 610838 | OS field no. 0481

Plans enclosed: 1. Plan showing survey location with magnetometer plot.
2. Resisitivity plots.

This field immediatelly to the N of Helmsley Castle was investigated to test for evidence of possible medieval occupation, or for earthworks or structures which could be associated with the castle defences. A site grid based on 30m squares was set out and measured to the field boundaries as shown in plans 1(i) and (ii), and was surveyed using standard magnetic and resistivity techniques. The large existing bank across the field was not surveyed.

MAGNETIC SURVEY

The plot enclosed (plan 1(ii)) is a reduced scale version of the original field plot representing traverses recorded at 1m intervals using a $\frac{1}{2}$m fluxgate magnetometer and chart recorder.

There is interference from the corrugated iron roof near square 8, the fence to the W of the field and a pipe towards the S, as well as considerable scattered iron which causes sharp spikes elsewhere. Otherwise the response is generally quiet and the only magnetic anomalies of possible archaeological significance are weak ditch-like features. One lies in square 9 alongside a slight bank which is visible on the surface, and the other appears to curve across square 5. No other features can be distinguished from the background noise with any confidence.

The magnetic survey would be unlikely to detect stone wall footings or the remains of levelled banks, but the silted fill of ditches or pits should respond. The magnetic susceptibility of the topsoil was measured as 25×10^{-8} SI units/kg which, although low, should be sufficient for such features to be detectable. Additional magnetic activity could be expected in the presence of any debris from occupation.

RESISTIVITY SURVEY

Readings were taken at 1m intervals along traverses using the twin electrode configuration with $\frac{1}{2}$m probe spacing. Traverses were placed 1m apart in areas to the N and E of the bank, and 5m apart elsewhere. The two computer-drawn plots show the untreated data (plan 2(i)), and the results after a filtering process in which readings are subtracted from the mean of neighbouring values (plan 2(ii)). This treatment reduces the data to a uniform background level and emphasises local features which might be archaeologically significant. Structural remains or earthworks will normally produce positive anomalies in a resistivity survey, and so only contours above the mean of the data are shown in plot 2(ii).

Part of the exisiting bank is visible where the survey encroached on its northern end at A, but there is nothing here to suggest any substantial masonry. There is a strip of high readings alongside the bank at B, which could suggest slight remains of another earthwork, but the feature is not

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very strong and extends only a short distance N-S. Other anomalies alongside the bank at C correspond to visible hollows which produced interference in the magnetic survey and so might be modern disturbance of the site.

The resistivity anomalies visible to the E of the bank are broad and diffuse and could well be of natural origin. There is none of the regularity of plan to be expected from structural remains. Ditches can give a positive or negative anomaly according to size and fill, but the linear negative feature at D (plot 2(i)) does not appear in the magnetic survey and so is more likely to be a modern trench or drain than a ditch of archaeological origin. There are no resistivity anomalies visible in either plot to correspond to the possible ditches indicated in the magnetic survey.

CONCLUSIONS

The survey has produced little evidence for earthworks except for possible ditches marked only by weak magnetic anomalies which could be of natural or superficial origin. If ditches are present their plan does not relate in any clear way to the surroundings. No clear resistivity evidence was obtained for the presence of banks, but they might not have been detected if little survives of them.

Slight or poorly preserved wall footings would not necessarily be detectable, especially if they were from outbuildings where the magnetic disturbance associated with domestic or industrial debris might not occur, but again the the survey provided no indication of any such remains.

Negative geophysical findings can never be entirely conclusive, but if any trial excavation is to be carried out here it should quickly indicate whether the lack of observed activity genuinely represents the condition of the site.

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with: D. Bolton

Date of report: 26 May 1983

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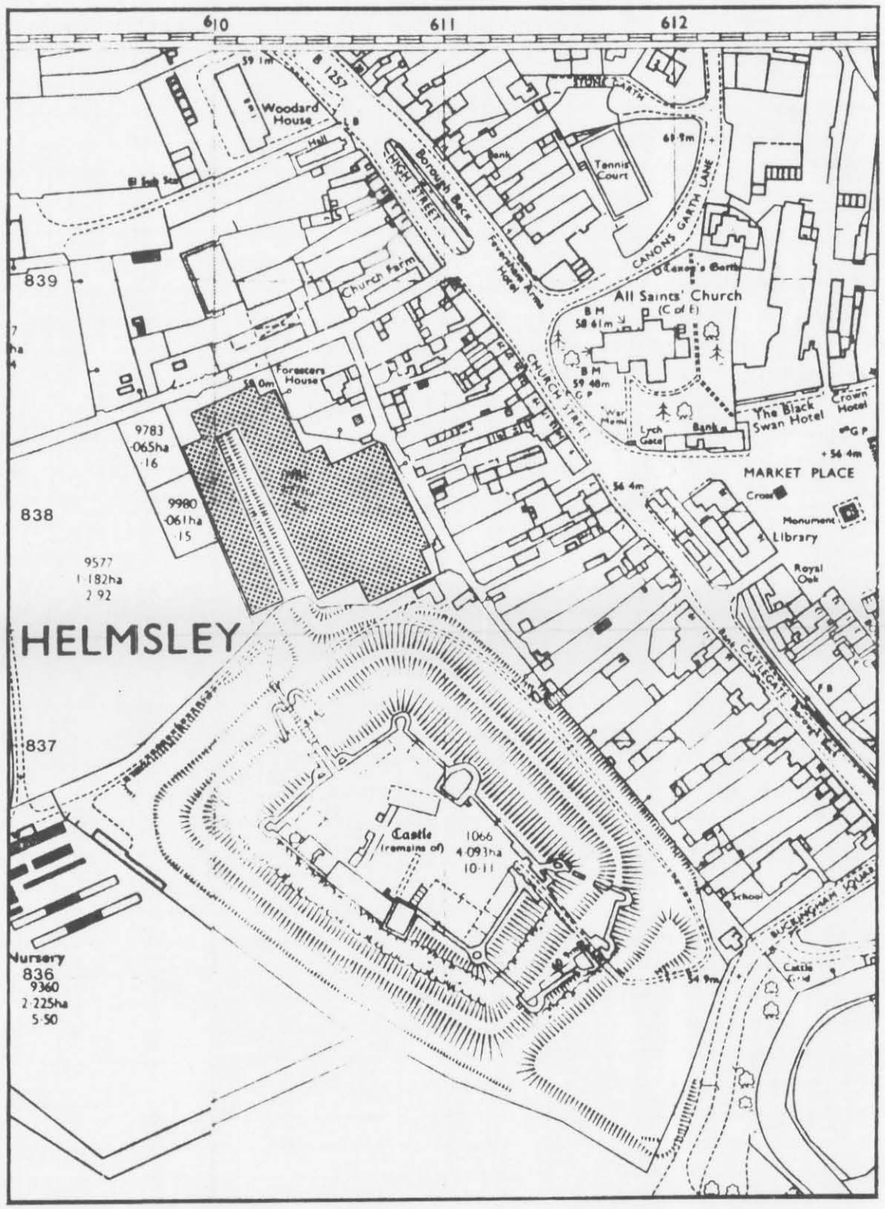
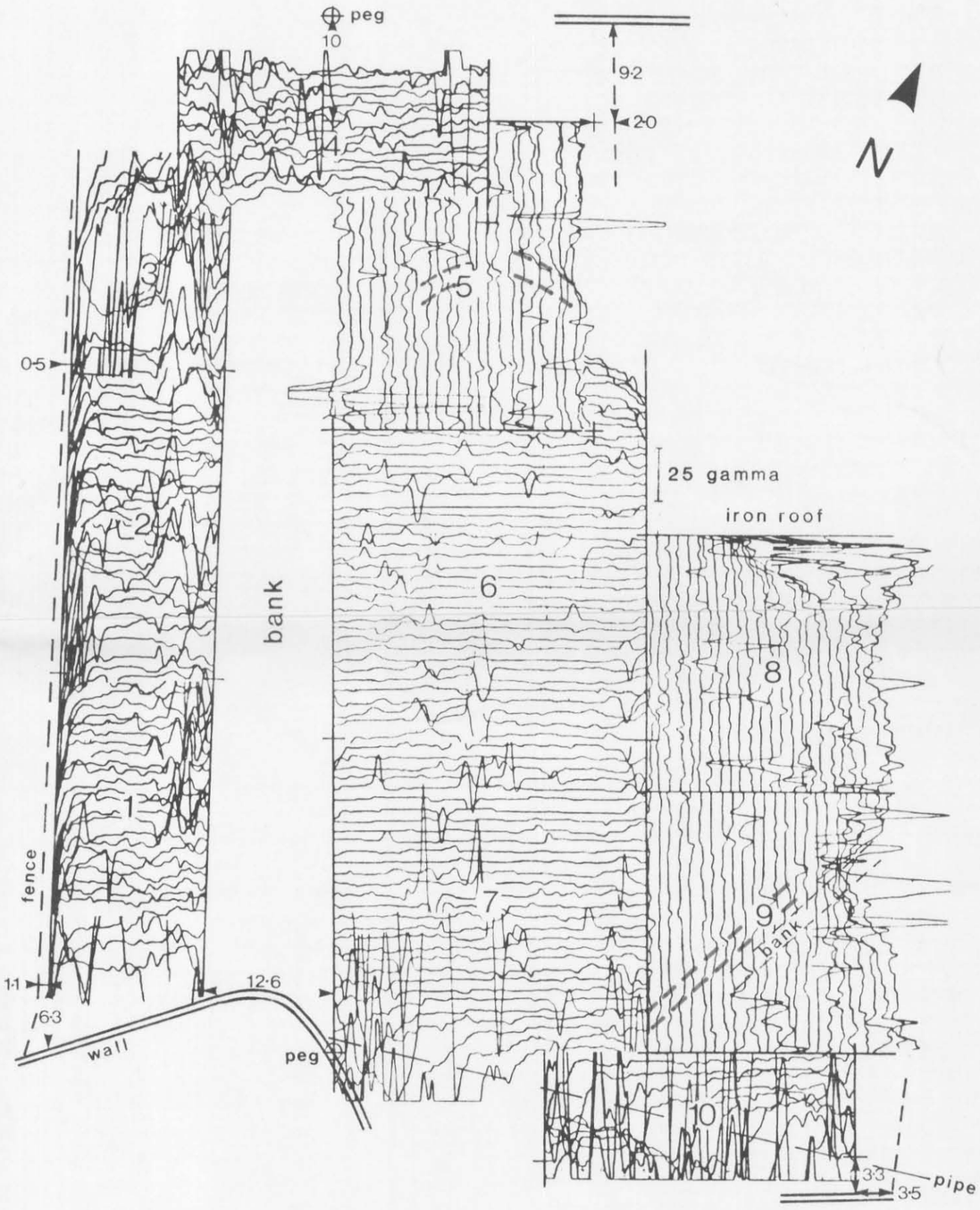
HELMSLEY CASTLE: Geophysical Survey 1983



(i) Location of survey 1:2500



(ii) Magnetometer survey 1:500

(dimensions in metres)

magnetic anomalies

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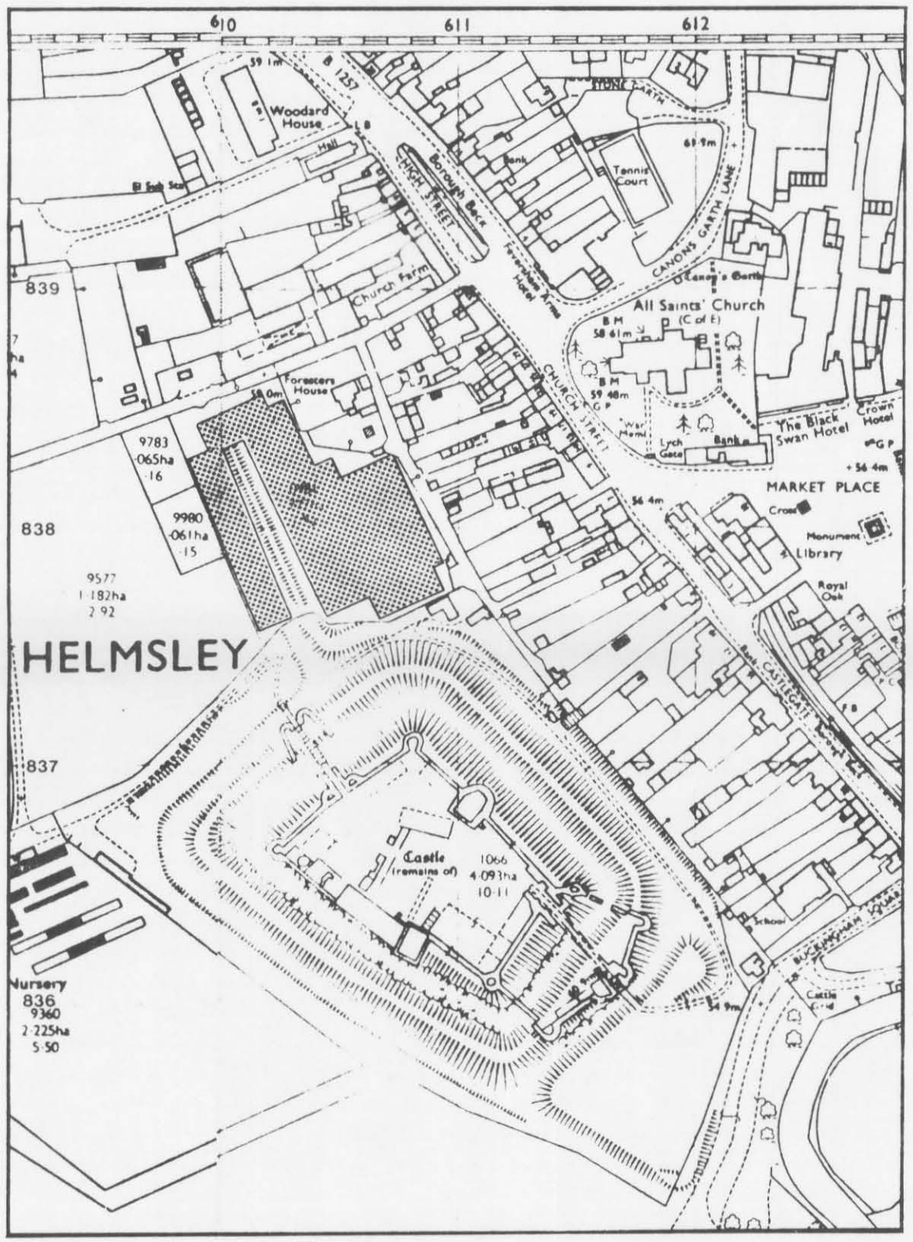
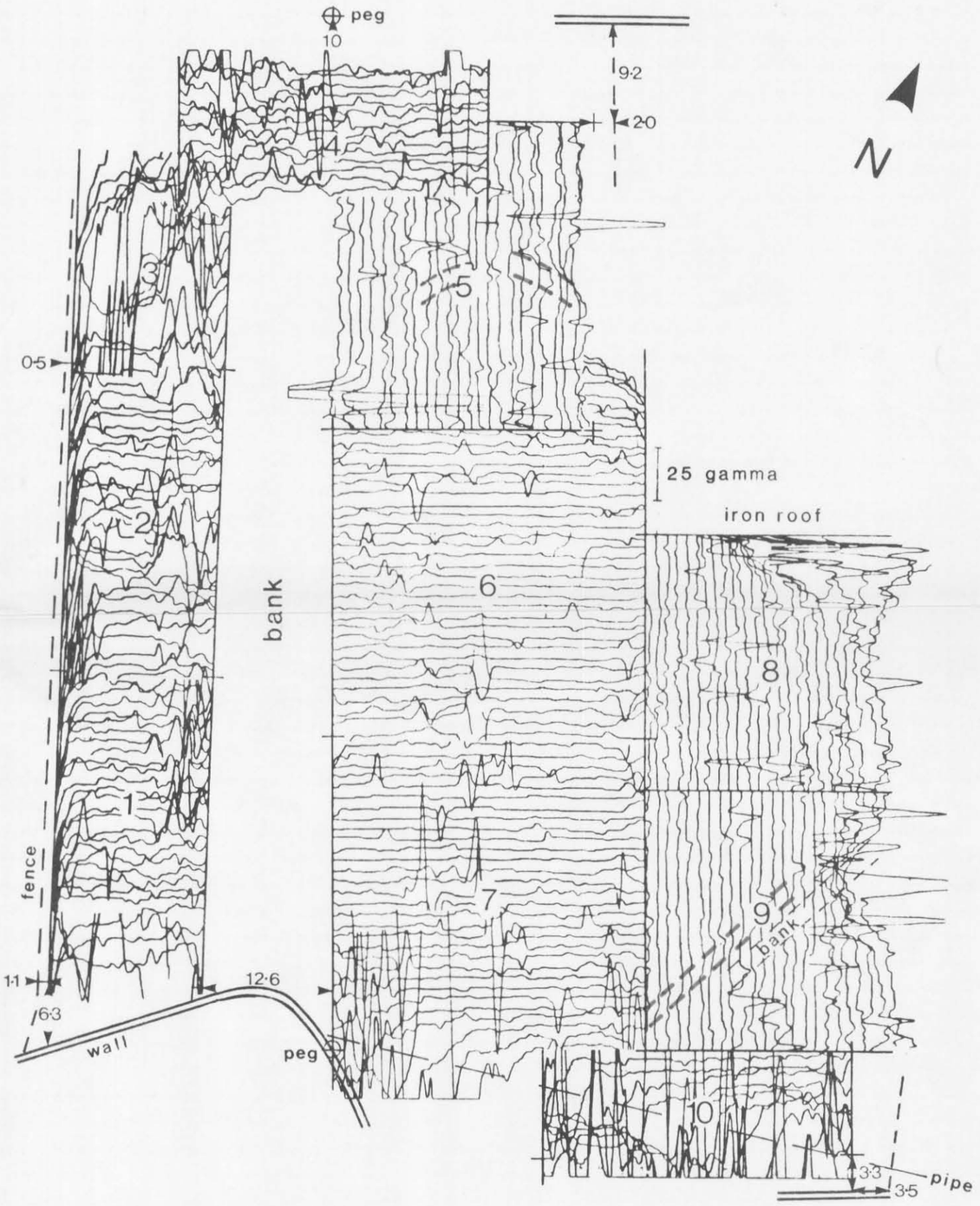
HELMSLEY CASTLE: Geophysical Survey 1983



(i) Location of survey 1:2500



(ii) Magnetometer survey 1:500

(dimensions in metres)

magnetic anomalies

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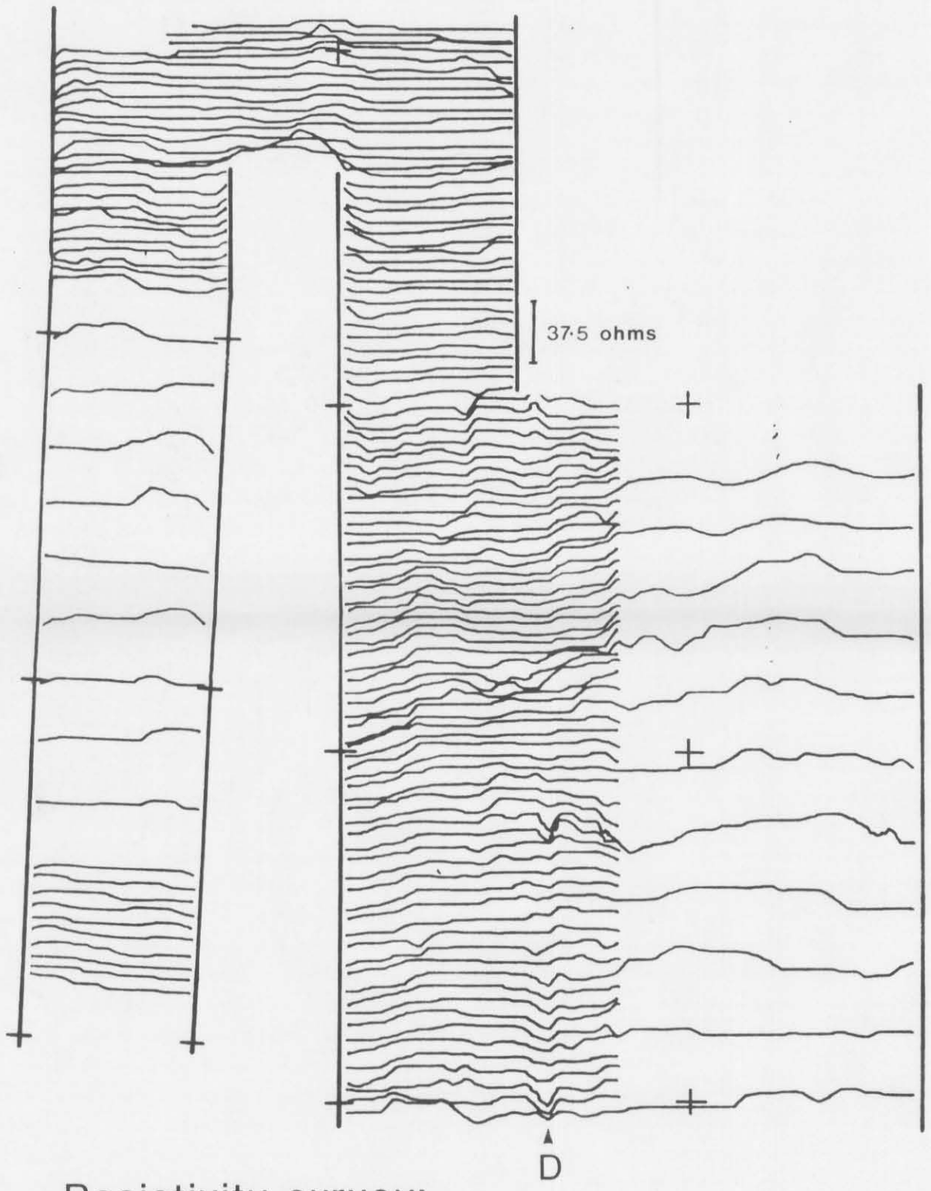

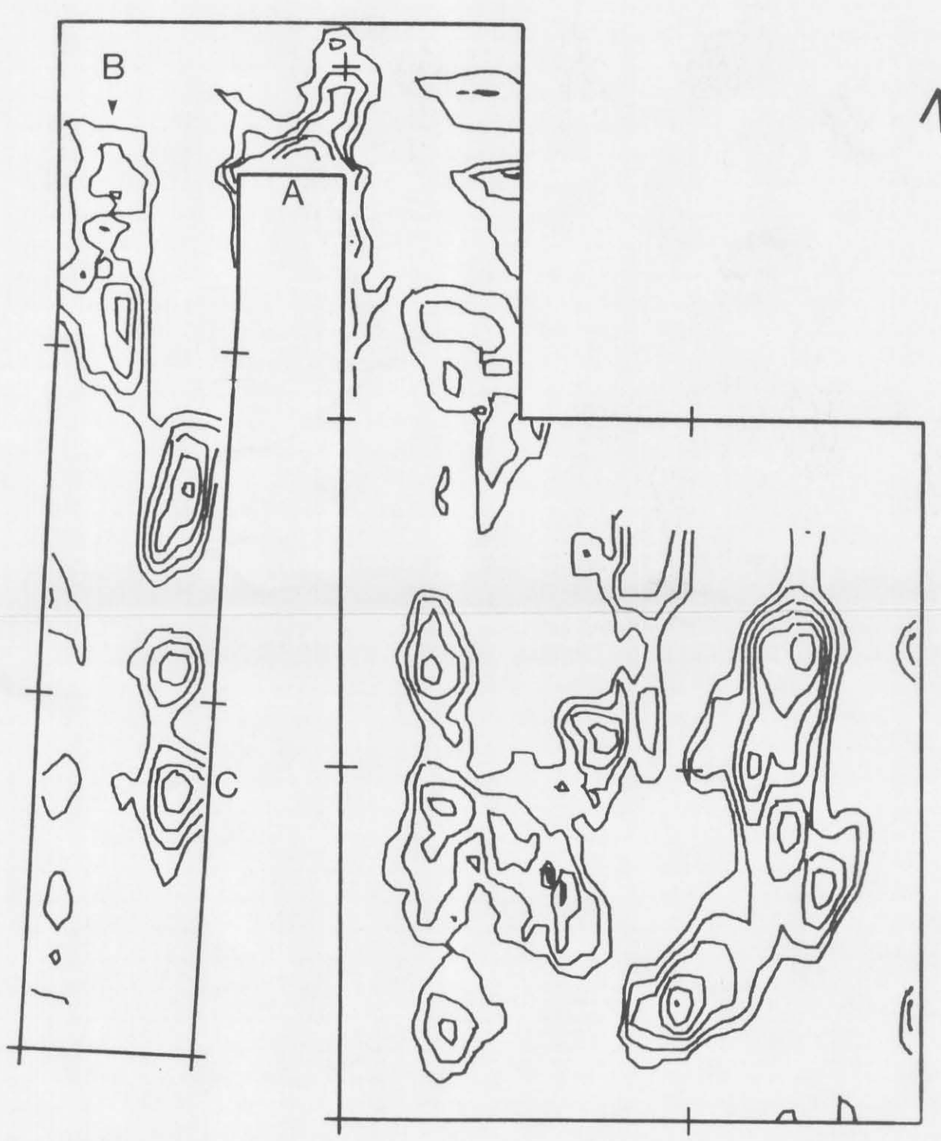

Resistivity survey:

(i) Initial data

(ii) Filtered data

1:500

Filter radius 7

Contour range: mean to maximum (approx)

Contour interval: 1/2 s.d.

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