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Ancient Monuments Laboratory  
Report 117/91

BURYTHORPE SAND QUARRY  
NORTH YORKSHIRE  
REPORT ON GEOPHYSICAL SURVEYS  
1988 & 1991

Andy Payne

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#### Summary

A Magnometer survey was undertaken on cultivated land containing cropmarks of Romano-British features threatened with destruction from sand quarrying. The survey aimed to ascertain whether any further features of potential archaeological interest were present, thus assisting the program of archaeological recording and research being carried out in advance of the mineral extraction. In addition to locating the features known from APs the survey detected a separate, and possibly earlier and enigmatic phase of activity comprising a very widespread pattern of repetitive linear anomalies. The cropmarks appear only to reflect the later presence of Romano-British field systems and trackways.

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## **BURYTHORPE SAND QUARRY, NORTH YORKSHIRE.**

Report on Geophysical Surveys, 1988 & 1991.

### **INTRODUCTION**

Burythorpe is located approximately 3 miles south of Malton, North Yorkshire, and is situated on sandy soil overlying Carboniferous and Jurassic sandstone. Magnetometer survey was undertaken in 1988 and 1991 in advance of mineral extraction in two neighbouring arable fields containing cropmark evidence of probable Romano-British field systems.

The aim of the survey was to establish if the aerial photography (AP) evidence was representative of the full extent of archaeological activity on the site, and to map any additional features of potential archaeological interest not visible on the APs. Geophysical survey was the first stage in a project of archaeological recording in response to the threatened sand quarrying. Directly to the east of the survey in area 1/2 (see location plan), is the scheduled site of a suspected Roman villa complex (County No.1094). Excavation of part of the area surveyed in 1988 demonstrated that although occupation of the site primarily belonged to the Roman period, there were also features of Bronze Age date.

### **METHOD**

The survey area was divided up into a grid of 30m squares. Each square was then surveyed using a Geoscan FM36 fluxgate gradiometer with traverses 1m apart. Readings were taken at 0.1 nanotesla (nT) sensitivity at 0.25m intervals along each traverse. Traverses were orientated east-west.

### **RESULTS**

Letters in brackets refer to the interpretation guide on plan 2. The survey has detected evidence of archaeological activity over most of the area covered. The magnetic variations produced by the features are weak, but nevertheless clearly defined in contrast with the sand around. The strongest anomalies (up to 7.5 nT) arise from features already suggested by the cropmark evidence. In the west and northwest of the survey, there is a typically Romano-British arrangement of at least 5 rectilinear enclosures (A-D, E-H, I-L, M-P and Q) adjoining a probable trackway (R-S-T) defined by parallel ditches orientated north-south. The trackway apparently turns towards the west at point S. There are suggestions of further enclosures adjoining the trackway running out of the northwest limit of the survey.

Another trackway or boundary ditch, (U-V-W) orientated approximately east-west occurs towards the southern edge of the survey, and the APs suggest this continues into the villa complex to the east. This feature forms the north side of another probable enclosure (X). There is a suggestion of another boundary ditch on a similar alignment at (Y-Z).

cont/

The above features appear to be superimposed over a recurring pattern of intermittent parallel linear anomalies, covering the whole survey area. Initially interpreted as remains of medieval rig and furrow, excavation evidence (A.E. Finney - pers. comm.), now suggests they may relate instead to pre-Roman occupation and may not even derive from cultivation. Further excavation may help to clarify this.

In addition to the easily recognisable patterns mentioned above, there are also many instances of individual anomalies, compatible with occupation features such as pits and hearths. Some of these occur within enclosures, for instance within I-L, but in other instances similar anomalies occur outside enclosures. There is a noticeable rise in magnetic activity - perhaps just soil noise - in the northern half of the 1991 survey area (eg in grids E3 and G3-4: see grid diagram - plan 1). Whilst archaeological activity may be responsible for this, individual features are not easily distinguishable.

The area to the south of grids A6 and B6 is grossly magnetically disturbed, and has been omitted from the final plots. The disturbance is probably due to the presence of a former quarry, backfilled with magnetic rubbish. This modern intrusion is also visible on the aerial photograph.

#### **CONCLUSIONS**

The survey has demonstrated that the site was perhaps more complex, extensive and intensively occupied than originally suggested by cropmark evidence alone. The APs appear to indicate Romano-British features only, whilst the survey has indicated the presence of additional activity - possibly related to occupation and cultivation. However, the precise significance of the latter and their relationship to the Roman features is not easily apparent.

Surveyed by : D. Jordan & A. Payne (1988)  
                  N. Linford & A. Payne (1991)

Report by : Andy Payne

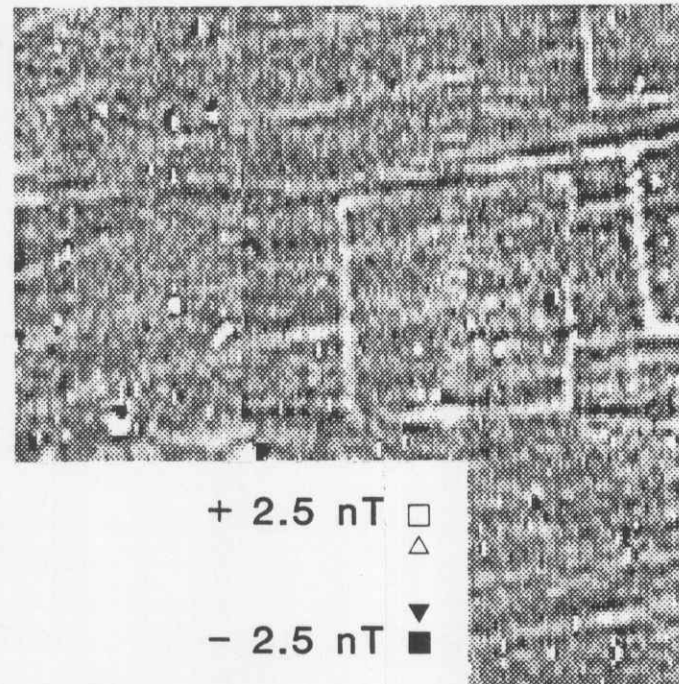
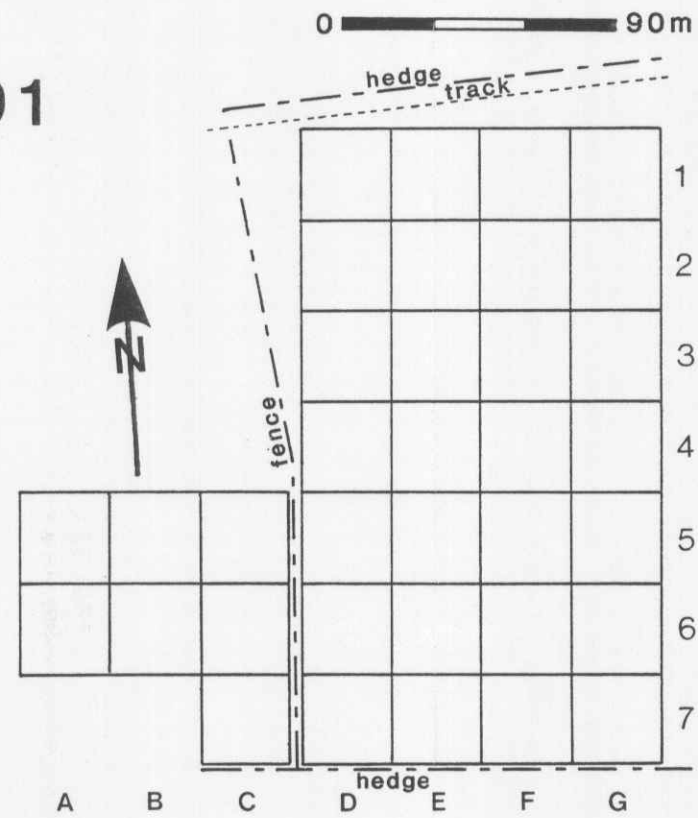
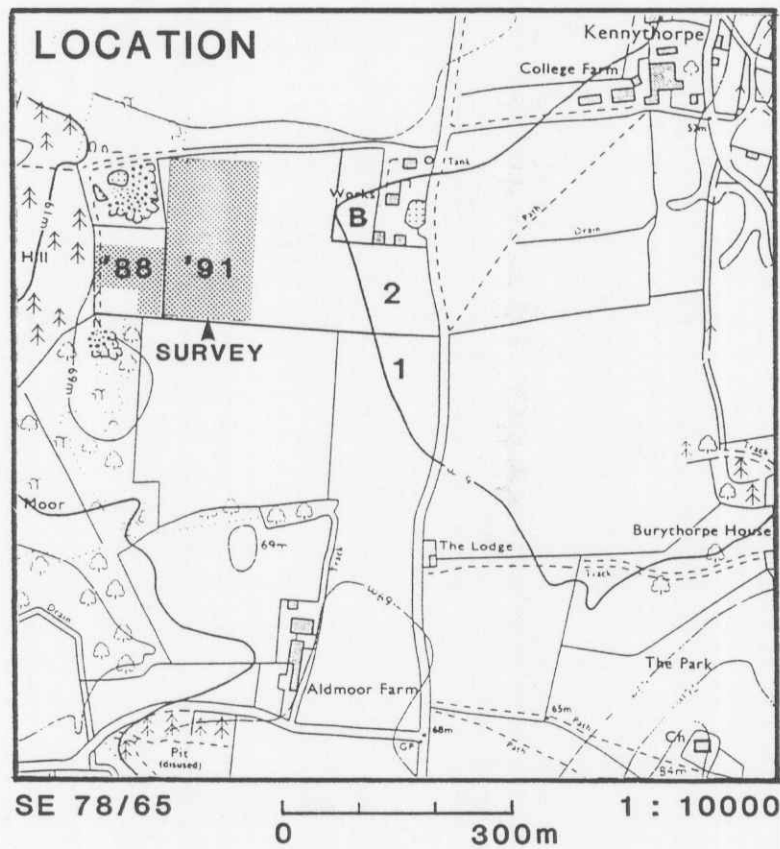
29th November 1991.

Archaeometry Branch,  
Ancient Monuments Laboratory,  
Science & Conservation Services,  
Technical Services Group, ENGLISH HERITAGE.

# PLAN 1.

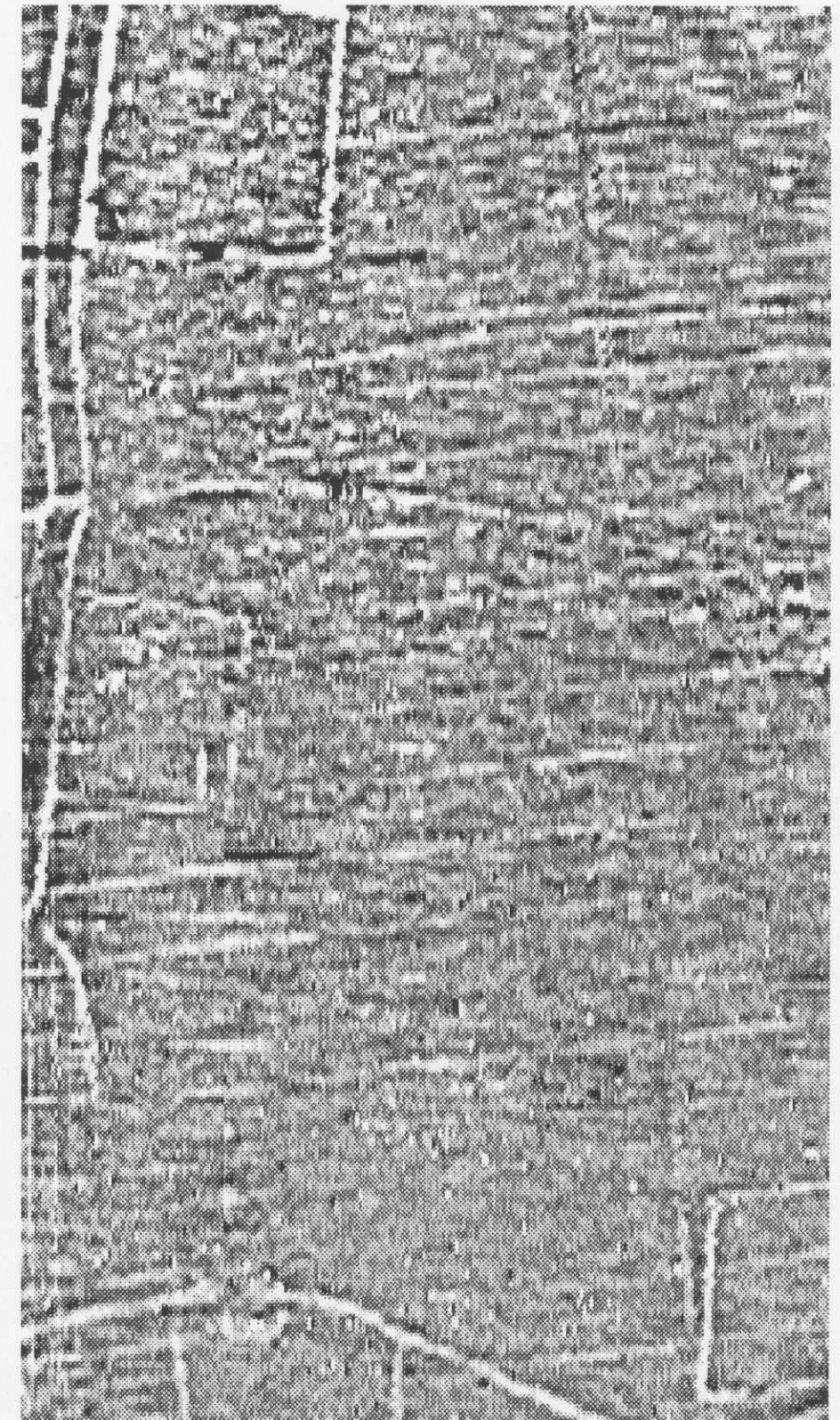
## BURYTHORPE QUARRY

### Magnetometer Survey 1988/91



+ 2.5 nT □  
- 2.5 nT ▼

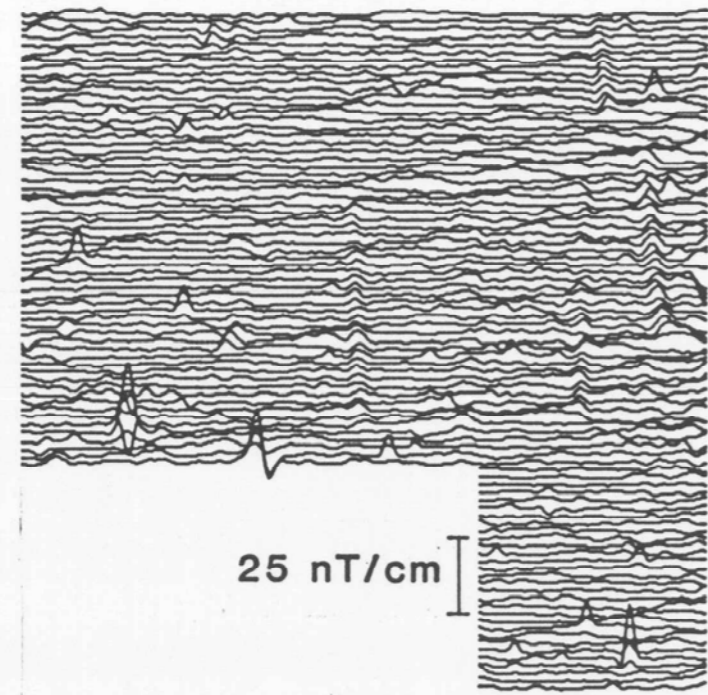
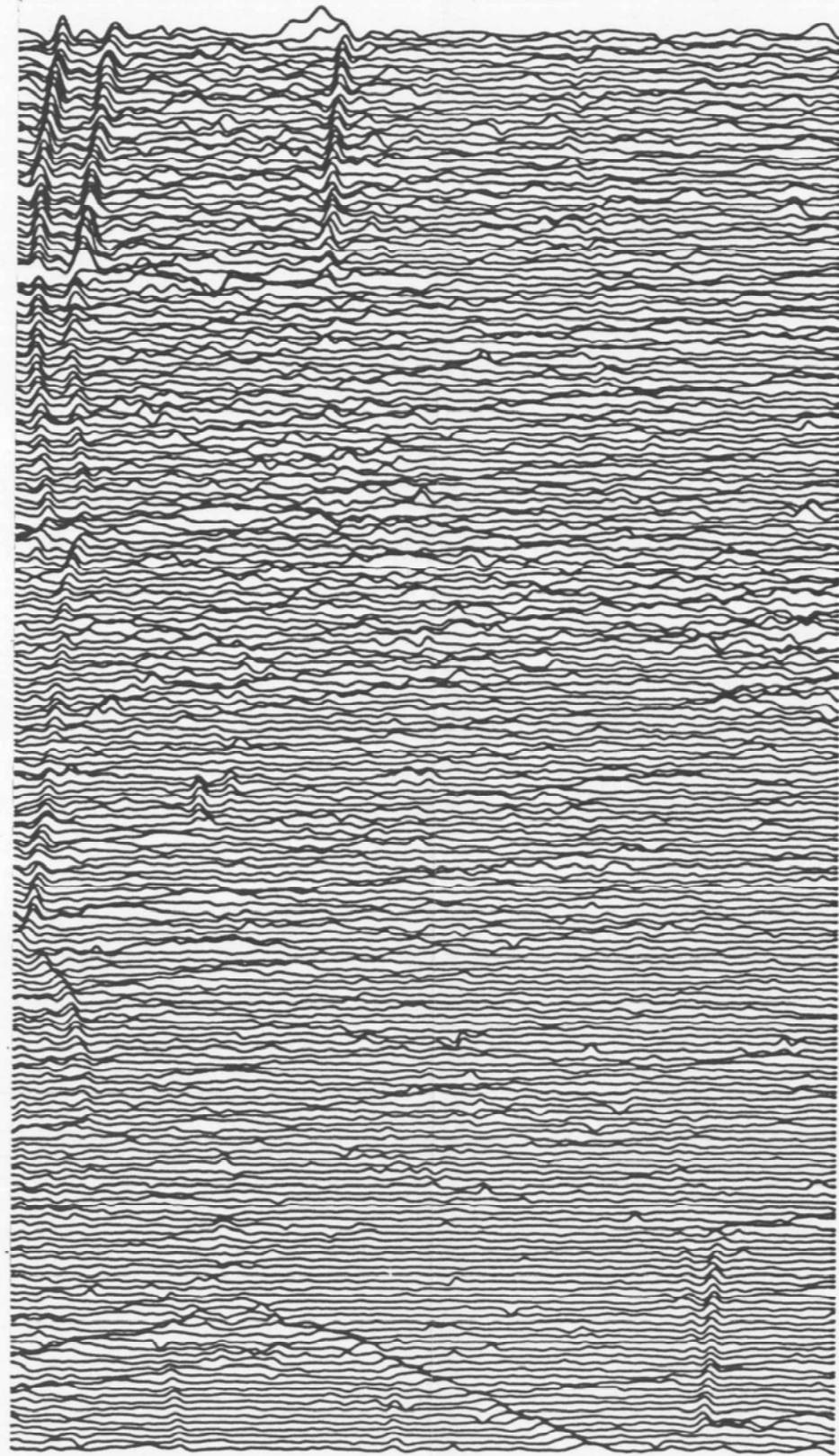
### Greytone plot - raw data



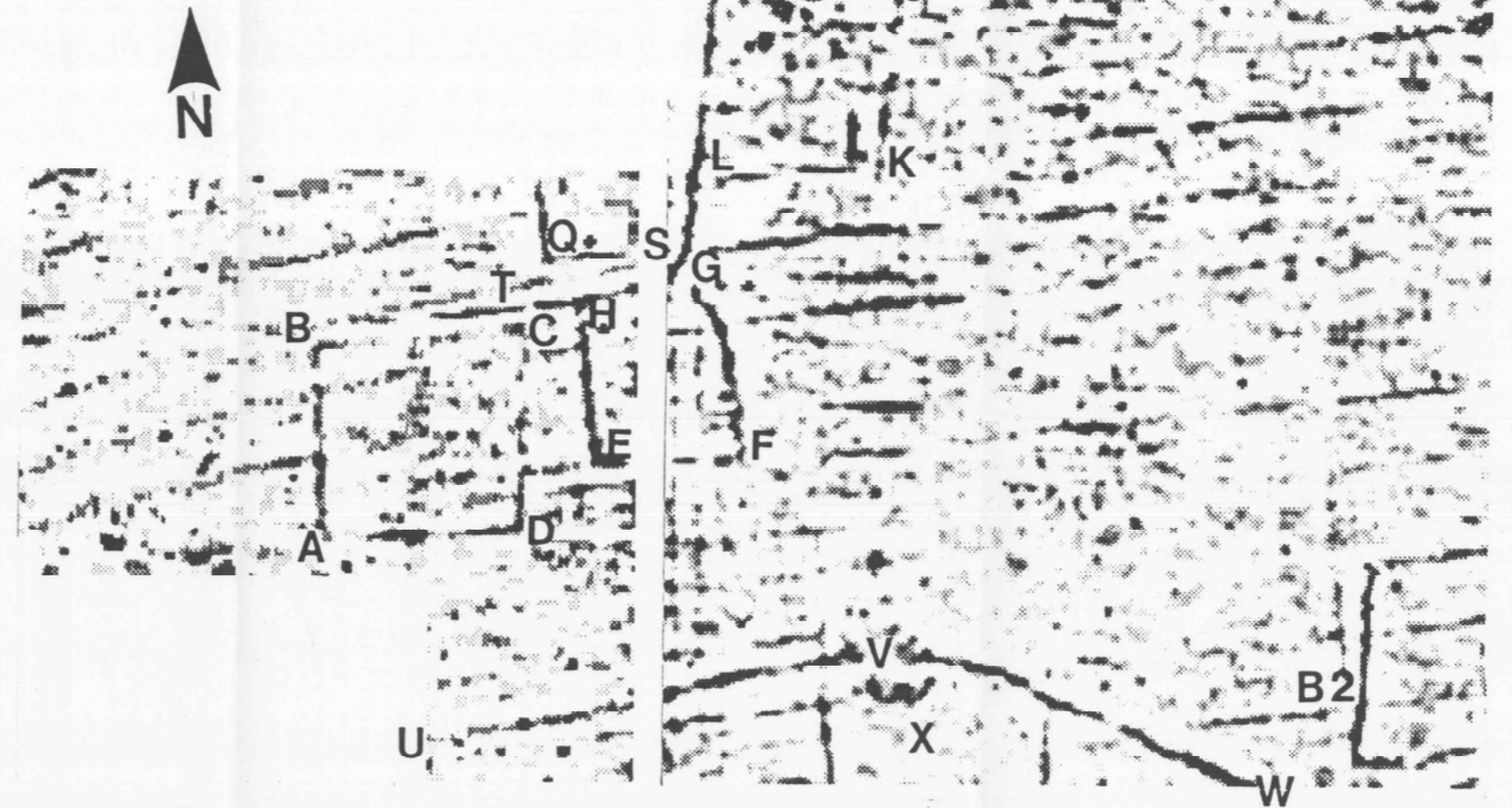
# BURYTHORPE

Magnetometer Survey 1988/91

X-Y trace plot  
slightly smoothed data



Grey-tone plot  
slightly smoothed data  
emphasising positive anomalies



INTERPRETATION GUIDE