

ANCIENT MONUMENTS LABORATORY GEOPHYSICS SECTION

REPORT ON MAGNETOMETER SURVEY

**SURVEY:** ESKMEALS

**DATE:** 5.8.77

**Report no.** 23/77

**1. SITE** Monk Moors. North Site.

**OS grid reference:** SD 089925

**Field no.**

**Location:** coastal terrace overlooking Eskmeals moor.

**Geology:** Till

**Archaeological evidence:** flint scatter, hearths and a pit. Mesolithic.

**2. SURVEY**

**Object:** to locate further hearths and pits, and any other signs of occupation.

**(a) Magnetic survey**

**Type of survey:** automatic recording

**Magnetometer:** fluxgate

**Range:** 1-100  $\gamma$

**Initial chart recorder settings** — Y: 16  $\gamma/cm$  & 10  $\gamma/cm$   
X: 1:200 scale & 1:100

**Logged for computing:** yes/no

**(b) Other tests**

**(i) Magnetic susceptibility:**

**topsoil:** 10

**subsoil:**

**fill:**

$\times 10^{-6}$  emu/gm  
(ac bridge readings)

**(ii)**

**Survey grid measured to:** excavation grid

**Plans/charts enclosed:**

- 1.- site plan
- 2.- magnetometer traces ( 1m. spacing, 16  $\gamma/cm$  )
- 3.- magnetometer traces ( 1m. spacing, 10  $\gamma/cm$  )  
with interpretation.

#### 4. RESULTS.

The 30 m. square indicated on plan 1 was initially surveyed with traverses at 1 m. intervals. Each traverse is plotted as a graph indicating local magnetic field strength and the survey is conventionally illustrated (plan 2) as a succession of traces superimposed to scale on the grid plan. This is the usual procedure when surveying archaeological sites in detail, and anomalies are seen as displacements in the traces proportional to the size and strength of the feature. In this case it was hoped that pits and hearths would be detectable as distinct positive anomalies such as those frequently found on later prehistoric sites.

The traces on plan 2 show no convincing archaeological anomalies and parts of the area are obscured by strong reactions to iron objects (probably grid nails) in the top soil. Bearing in mind that Mesolithic features are usually slight, despite recognizable hearths and a pit being found on the site, it was thought worthwhile surveying the area in greater detail so as to highlight faint but possibly significant anomalies. The 30 m. square was divided up into four 15 m. squares which were then surveyed with the magnetometer set at a higher sensitivity (10 g./cm) and with traverses at  $\frac{1}{2}$  m. intervals. The resultant traces are shown on plan 3.

The increased sensitivity of the magnetometer has resulted in a general irregularity of the traces caused by background soil noise. If archaeological features are present, their magnetic strength is very close to the level of this noise and they are thus difficult to distinguish from arbitrary minor fluctuations in magnetic response. Possible features have been outlined in red on plan 3. These often affect several traverses and have a magnetic strength marginally greater than the immediately surrounding soil. Less well-defined features that are weak but nevertheless show a degree of continuity are shown by dashed lines. These latter are likely to result from no more than minor undulations in the soil profile, or perhaps even instrumental noise or the manner in which the magnetometer was being carried.

In conclusion one can cautiously suggest that some of the features indicated by the survey may be hearths or pits such as those already excavated. Augering or test pits over the stronger anomalies would be the only way of finding out for certain. Tests show that the soil has a low magnetic susceptibility ( $10^{-6}$  emu/gm.) which suggests that features would have to be magnetically enhanced by burning and/or decomposition for them to be detectable. The degree of burning in the hearths already examined (3 - 4 cms. burnt clay) should produce anomalies comparable to those outlined on plan 3, although the interpretation of these is confused by soil conditions. Silted pits are unlikely to be detectable in these circumstances.

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Surveyed and reported by: A. David.

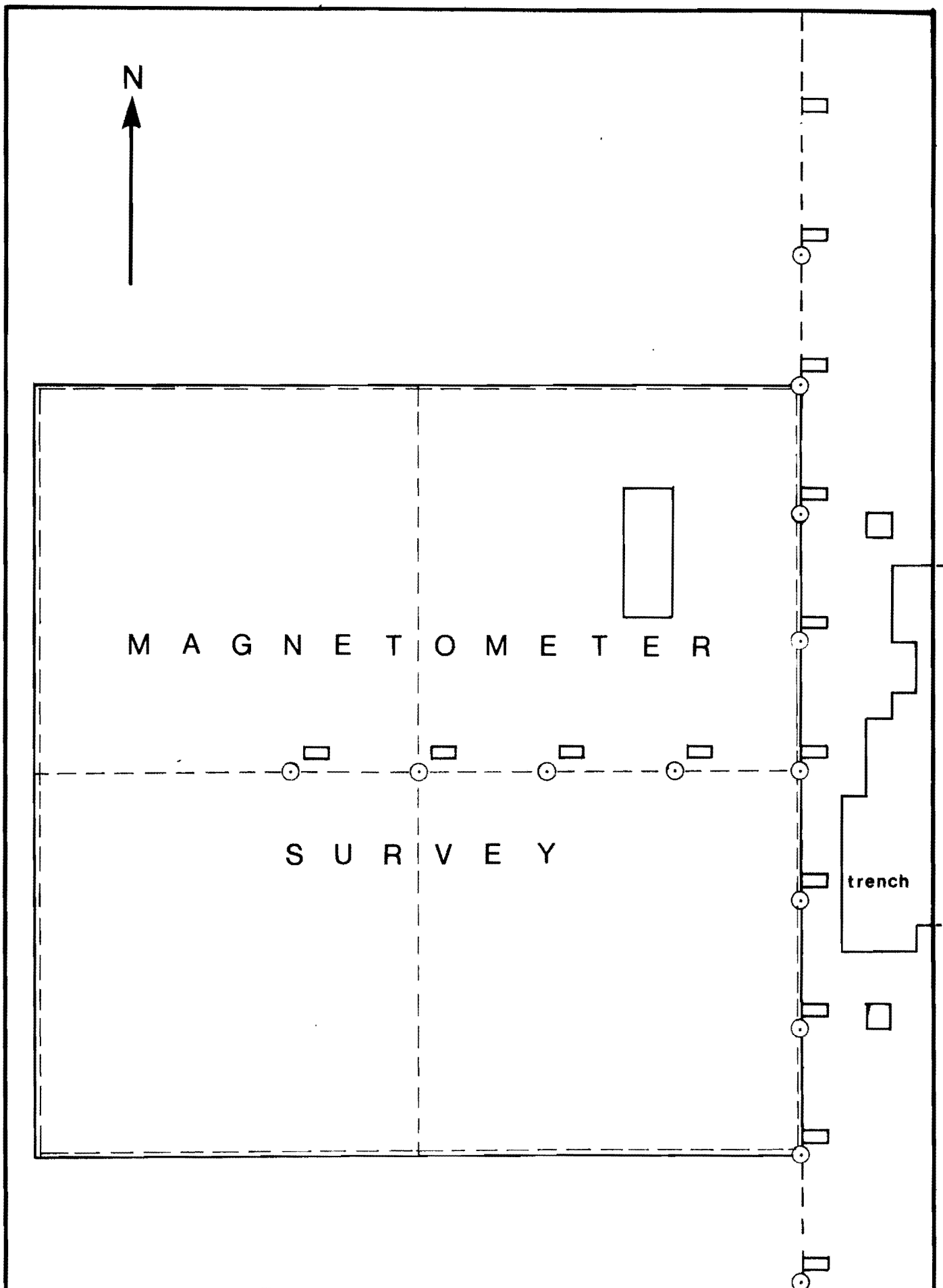
with: A. Bartlett.

For: C. Bonsall

Date of report: 10.12.77

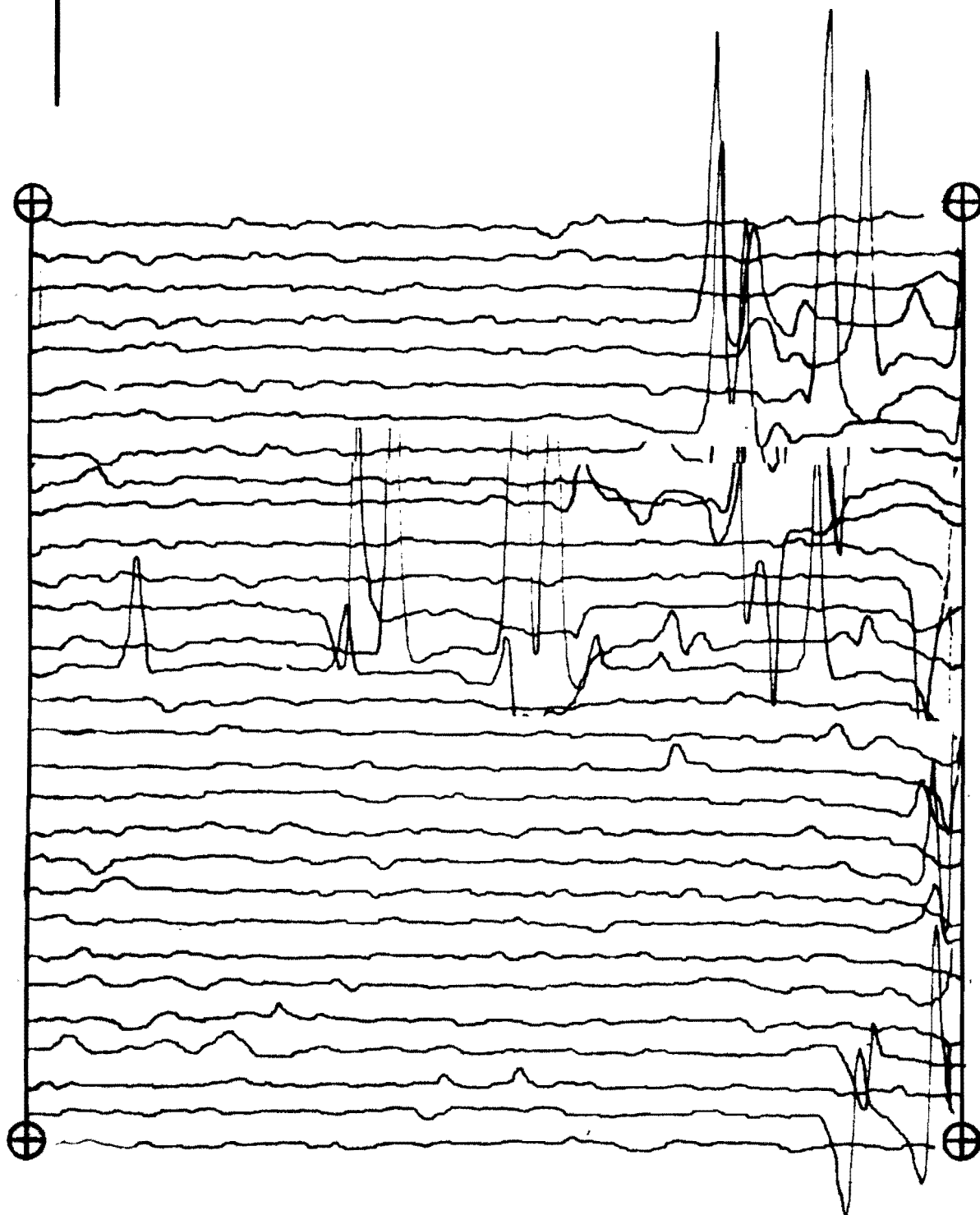
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ESKMEALS. MONK MOORS. N. SITE.

⊙	pegs	MAGNETOMETER SURVEY	Site plan
Survey no. 23/77 Plan no. 1 of 3	1:200	DoE A.M. Laboratory Geophysics Section	



ESKMEALS. MONK MOORS. N. SITE.

⊕ grid pegs

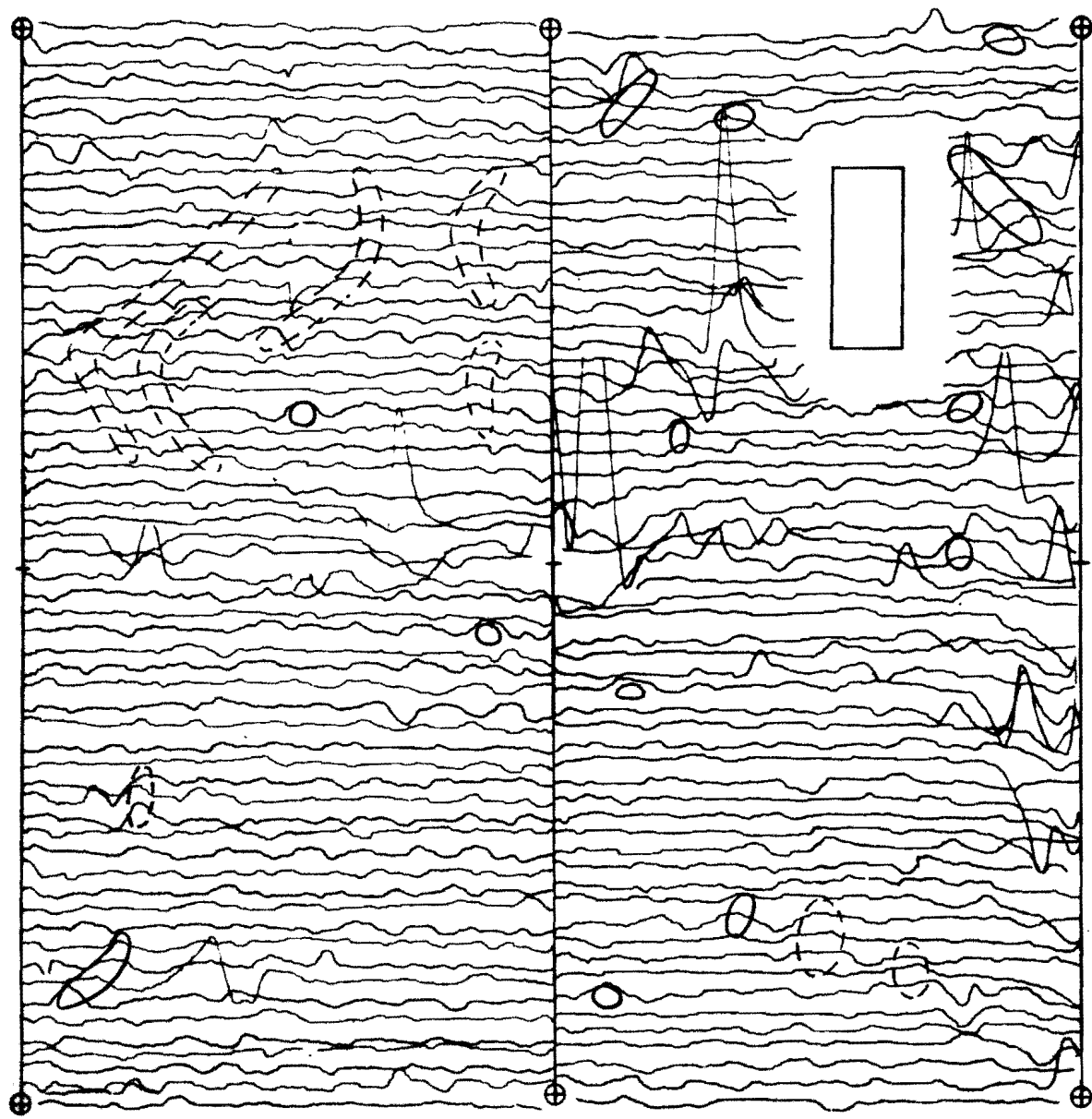
MAGNETOMETER SURVEY

SD 089 925

Survey no. 23/77  
Plan no. 2 of 3

1:200

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ESKMEALS. MONK MOORS. N. SITE.

⊕ grid pegs  
○ anomalies

MAGNETOMETER SURVEY

SD 089 925

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Plan no. 3 of 3

1: 200

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