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LETCOMBE CASTLE OR SEGSBURY CAMP LETCOMBE REGIS, OXFORDSHIRE: INTERIM REPORT ON GEOPHYSICAL SURVEY, NOVEMBER 1993

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Summary

Exploratory magnetometer and magnetic susceptibility surveys were carried out within the hill-fort of Letcombe Castle in order to assist the development of conservation and public display schemes. The survey revealed the presence of occupation features, appearing to cluster together into groups. Anomalies consistent with circular dwellings were also detected. Additional magnetic susceptibility data suggests an uneven distribution of settlement activity across the fort enclosure.

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LETCOMBE CASTLE OR SEGSBURY CAMP, LETCOMBE REGIS, OXON

Report on Geophysical Survey, November 1993

INTRODUCTION

A geophysical survey was carried out at Letcombe Castle (County Monument 209) - a 14 hectare scheduled Iron Age hill-fort consisting of grassed over earthworks. The site lies directly north of the Ridgeway at NGR SU 385845 on the edge of the chalk Downs overlooking the Vale of White Horse. The survey was undertaken to explore the character and distribution of archaeological features in the fort interior for the purpose of assisting the management and presentation of the site under a Countryside Stewardship scheme (Fairclough 1993). Until recently the hill-fort interior was under cultivation, but a permanent pasture regime has now been established under the stewardship scheme, which is a joint initiative between the Countryside Commission and English Heritage.

Archaeological Background

The enclosure is defined along most of its perimeter by a single bank and ditch. There is evidence that sarsen stone was used in the construction of the defences as at nearby Uffington Castle (Palmer 1990). The original entrance on the east was flanked by out-turns of the rampart. With the exception of the visible earthworks, little is known about the occupation of the site, as no formal excavation has ever taken place. A cist burial was found in the southern rampart in 1871 and stray finds of Iron Age pottery and Roman coinage have been retrieved following ploughing. The fort is bisected by a modern road running north-south. (Source : Oxfordshire SMR).

METHOD

Magnetometry was selected as the most appropriate technique for rapidly detecting the presence and concentration of Iron Age occupation features (Tite 1972, 43-5, Aitken 1974, 188, Clark 1990, 86-7). The size of the area enclosed and time constraints only allowed a 30% sample of the fort interior to be surveyed. The survey took the form of a transect aligned on the presumed entrance, crossing the middle of the site from east to west (see Figure 1). In addition a magnetic susceptibility (MS) survey was carried out in the eastern area of the fort in order to inform and extend the interpretation of the magnetometer data.

Magnetometry

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 orientated north-south. Readings were taken at 0.1 nanotesla (nT) sensitivity at 0.25m intervals along each traverse. The data was captured in the internal memory of the FM36 and periodically downloaded to a portable field computer for storage and verification. The resulting data-set is displayed after interpolation in figure 2 in the form of grey-scale and X-Y traces. The data used to

generate the grey-scale plot has been treated with a Gaussian low pass filter to remove the effects of random superficial soil 'noise' (Scollar 1990).

Magnetic Susceptibility

The variation of the magnetic susceptibility of volumes of topsoil was measured at 10m intervals using a Bartington Instruments MS2-D search loop connected to a MS2 susceptibility meter. Readings were recorded in the field on a Psion data-logger and reassembled to produce the two grey-scale representations provided. In the first plot of the raw data (figure 4a) each reading is represented by a block, which is alloted a shade of grey between black and white, depending on the value. High values are represented by lighter tones and low values by the darker tones. In the second plot (4b) a contour effect has been produced by averaging between readings.

RESULTS

i) Magnetometry (Figures 2 & 3)

A sparse spread of probable occupation features has been detected throughout the survey, but with a denser concentration in the top centre of the eastern area (squares 7-10 and 20-23 in figure 1). It is not possible to predict exactly what features are represented, but a range of earth-filled pits and hollows together with thermally magnetised features such as hearths and ovens are likely to be present. In addition to this, and hinting at good preservation of archaeological deposits, the magnetometer has resolved several circular features 12m in radius, possibly the ring gullies of round houses. South of the main concentration of features is a linear zone largely devoid of anomalies and this may indicate an area set aside as a thoroughfare paralleled at other hill-forts such as Danebury. Finally the effect of former ploughing, parallel with the modern road can be seen in the survey.

ii) Magnetic Susceptibility (Figure 4)

MS survey maps changes in the magnetisation of the topsoil that can be caused by processes linked to past human occupation such as burning. The technique can therefore help to isolate areas of past occupation activity. Readings are high in areas where concentrations of features have been identified in the magnetometer survey. This may be used to suggest that a comparable level of activity extends into the area unsurveyed to the south, where MS values are similarly high. Consistently lower readings in the north and east of the survey may reflect a fall-off in settlement activity around the eastern and northern periphery of the hill-fort or alternatively non-archaeological causes such as soil changes or differential drainage adjacent to the earthworks. The former interpretation seems likely, as there is a visible fall-off in the concentration of archaeologically-derived anomalies in the magnetometer data obtained on the eastern edge of the hill-fort. Further survey will allow confirmation of the patterns of activity suggested by the MS.

CONCLUSIONS

The magnetometer has successfully located substantial evidence for previously unrecognised occupation within the superficially blank interior of the earthwork enclosure. This includes a sparse spread of features throughout the area surveyed, some denser clustering of features

in specific areas, and traces of individual circular dwellings surviving below the level of ploughing. The density of features is not sufficient to give clear definition of areas set aside as roadways but there is nevertheless slight evidence for an east west 'street'. The MS evidence suggests that the level of settlement activity may not be evenly spread throughout the fort. The survey provides important new evidence, which will enable informed future management of the site and enhanced presentation of the monument to visitors.

Surveyed by : P. Cottrell 1-5 November 1993
A. Payne
T. Williams

Report by : Andrew Payne January 1994

ARCHAEOMETRY BRANCH,
Ancient Monuments Laboratory,
Science & Conservation Services Division, RPS.
ENGLISH HERITAGE.

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Tite, M S, 1972 *Methods of Physical Examination in Archaeology*, Seminar Press, London.

Scollar I, 1990 *Archaeological Prospecting and Remote Sensing*, Topics in Remote Sensing, **2**, 490, Cambridge.

PLANS ENCLOSED

Fig. 1. Location of survey grid (1:2500)

Fig. 2. Plots of magnetometer data (1:1250)

Fig. 3. Interpretation of magnetometer survey in locational context (1:2500)

Fig. 4. Plots of magnetic susceptibility data (1:2500)

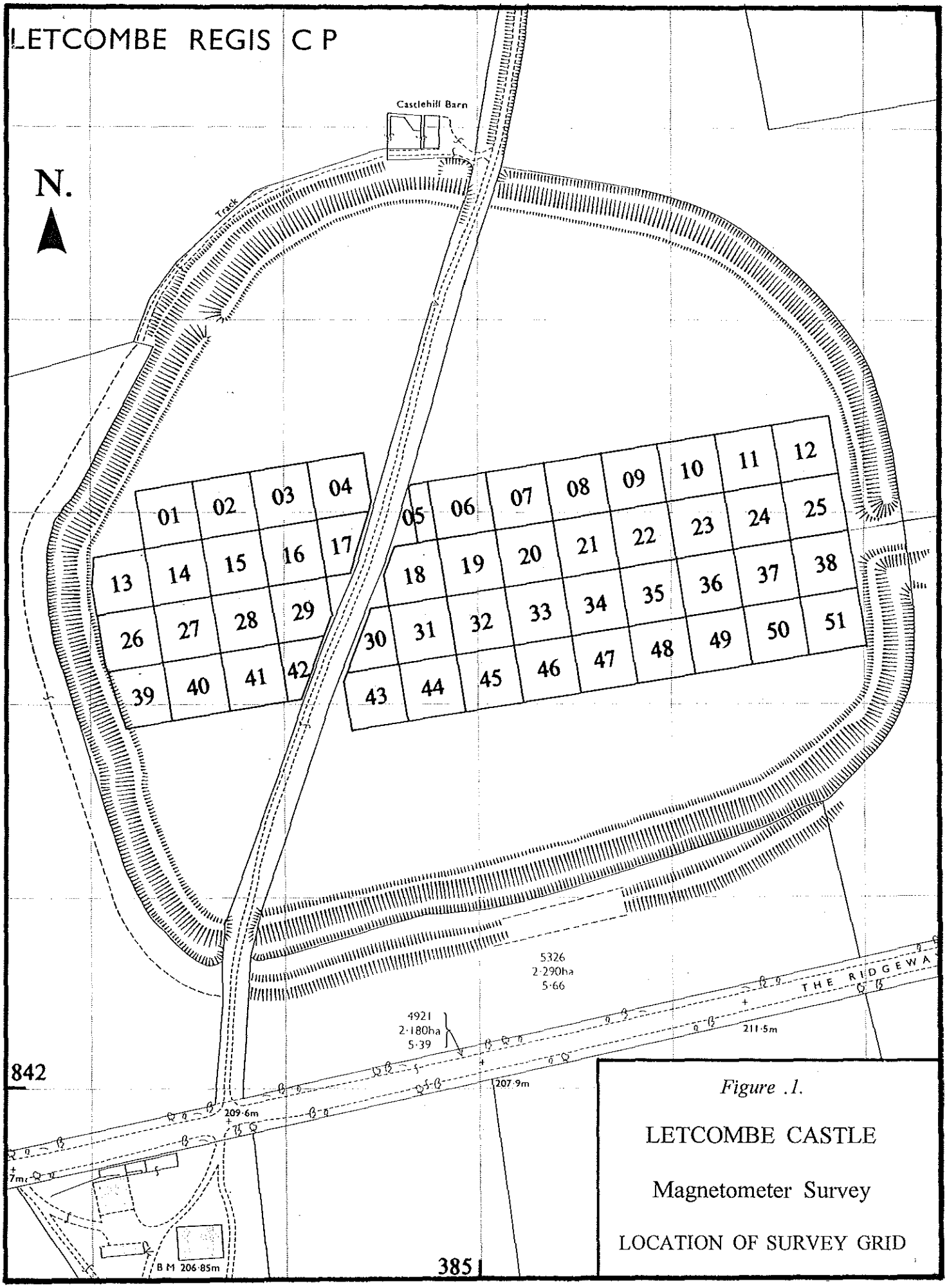
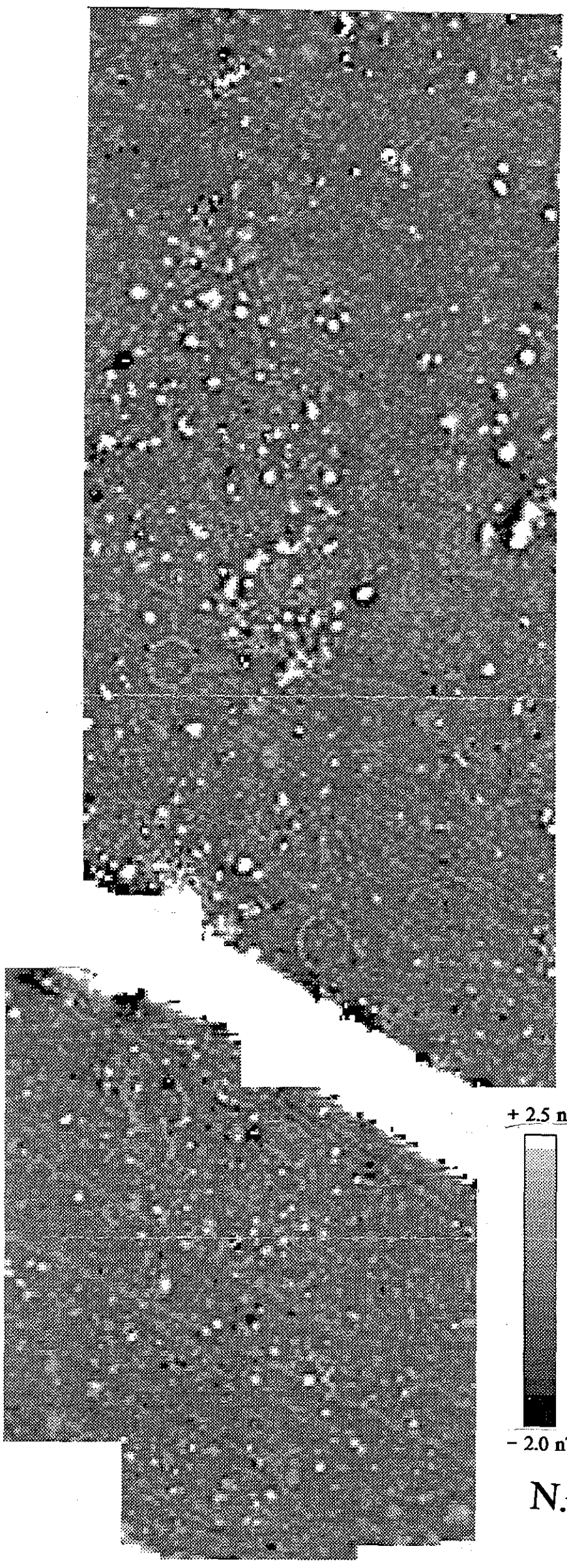


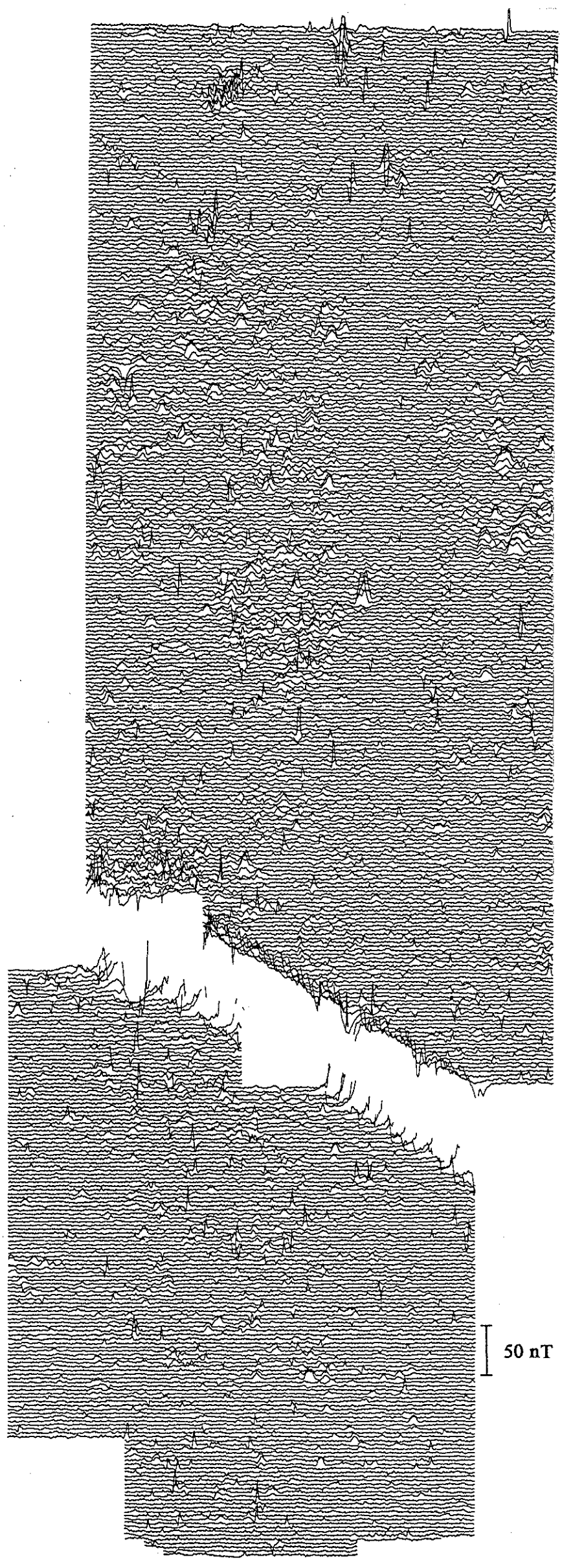
Figure. 2.

LETCOMBE CASTLE OR SEGSBURY CAMP, OXON

Magnetometer Survey, Nov 1993



b) Grey-scale enhanced data



a) Traceplot raw data

0 10 50 100 150
METRES

AMLab

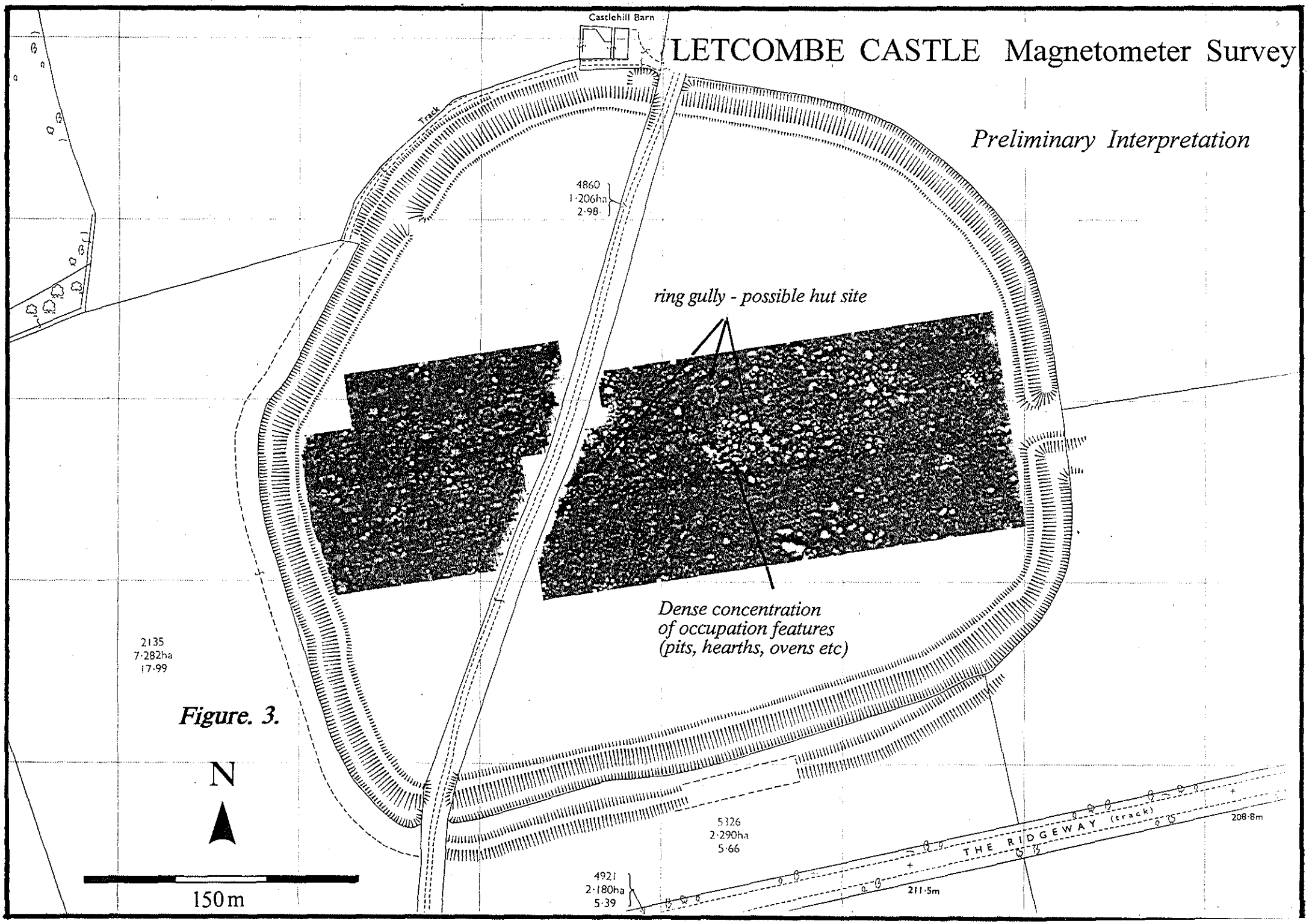
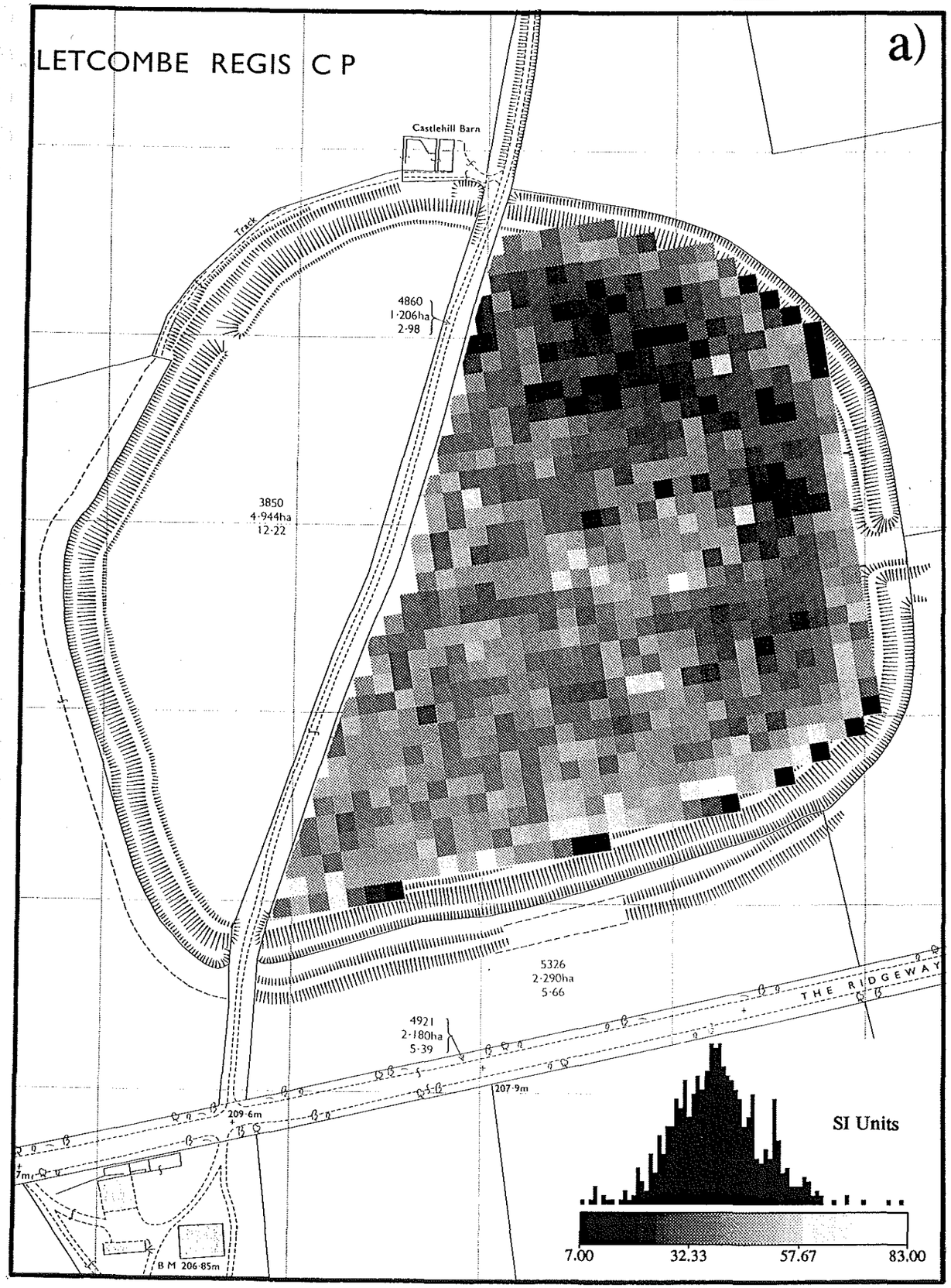


Figure. 3.



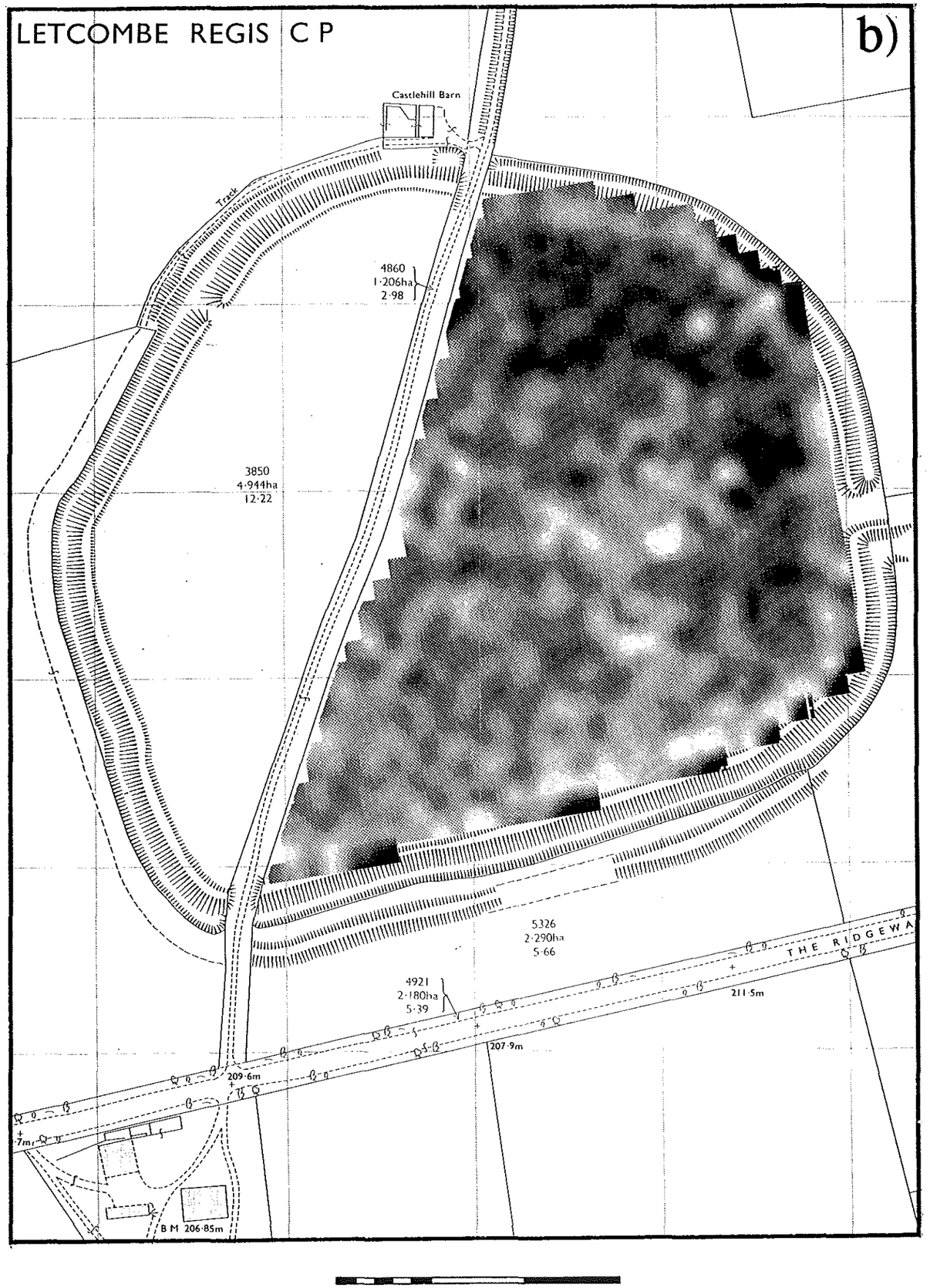


Figure.4. : Magnetic Susceptibility Survey