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Ancient Monuments Laboratory
Report 87/93

CLATTERFORD ROMAN SITE, NEAR CARISBROOKE, ISLE OF WIGHT: REPORT ON GEOPHYSICAL SURVEY, JULY 1993

Andy Payne BSc PIFA

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Summary

The purpose of this geophysical survey was to confirm and extend evidence for a Roman building known from cropmarks. Resistivity survey was the most informative of the methods applied, and clearly located both the building and additional features. The latter includes a dense zone of disturbance which - though unexplained - probably includes structural remains. Further work would be required to extend this interpretation.

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CLATTERFORD ROMAN SITE, NEAR CARISBROOKE, ISLE OF WIGHT

Report on Geophysical Survey, July 1993

INTRODUCTION

A geophysical survey was carried out on the site of a Roman building in the curatorship of the local authority at NGR SZ479875 in the Clatterford valley near Carisbrooke, Isle of Wight. The objective was to accurately locate and map remains of buried structures known from APs and to investigate the areas surrounding these features in order to define the full extent of archaeological activity. It was hoped that the results would help ensure that future monument protection measures accurately reflect the full expanse of the Roman settlement. The soils on the site comprise chalky hillwash (Soil Survey of England & Wales 1983) and, in the south of the area, alluvium overlying Cretaceous Chalk (British Geological Survey 1976).

METHOD

Due to the anticipated complexity of the site, a combination of techniques was employed initially in order to determine the most effective approach. It became apparent as work progressed that resistivity survey was producing the most useful results, but the magnetic data from the site also provides valuable complementary evidence (see below).

A grid of 30m squares was established in areas 1/2 and 7 (see Plan 1 - location). The axes were orientated at a slight angle to the alignment of the building plan (as plotted from the APs) in order to avoid loss of survey resolution due to features running parallel to traverses.

i) Magnetometry (plan 1)

Each grid square was surveyed using a Geoscan FM36 fluxgate gradiometer to record the vertical magnetic field gradient at intervals of 25cm along successive parallel traverses 30m long and 1m apart. Readings were recorded at 0.1 nanotesla (nT) sensitivity and the traverses were orientated N-S. The data was recorded in the internal memory of the FM36 and periodically transferred in the field to diskette on a portable micro-computer for storage and data verification. The data was subsequently transferred in the laboratory to a Tektronics XD88 Workstation, where data assembly and advanced processing was carried out enabling the use of a range of display options and mathematical enhancement routines. The resulting reassembled raw data set is presented here in the form of an X-Y traceplot, together with a greyscale plot of the enhanced data. The latter was generated from low pass gaussian filtered (smoothed) data, using a linear greyscale and an interpolation algorithm.

ii) Resistivity (plan 4)

Readings were taken at 1.0m intervals along 30m traverses set 1m apart, using a Geoscan RM15 (Basic Version) set on gain factor 10 and medium delay. The Twin Elecrode configuration using a mobile probe spacing of 0.5m was employed. The data was manipulated in the same way as for the magnetometer, generating the range of greyscale images provided (Plans 5, 6 and 7).

RESULTS

i) Magnetometry (plans 2 & 3)

The magnetic response from the site was disappointing. Whilst the cropmarks of building features are represented by a group of indistinct negative anomalies (squares D1-2), these are difficult to isolate from general background magnetic variation. Magnetic disturbance is high in the vicinity of the west wing of the complex, possibly due to interference from a former field boundary or the presence of thermally magnetised clay features contained within the remains of the buried structure.

To the north and west of the building (squares C0-2, D0) several faint curving negative and positive linear anomalies are visible. These may indicate further buried wall alignments and ditches, but their significance is uncertain. Beyond the area of the presumed villa complex, little information about the location of other possible archaeological features was recovered. In the field containing the Lukely Brook, a group of strong anomalies in squares F3-4 and other isolated marginally defined linear anomalies (F3 and G3) may perhaps signify further artificial features of uncertain date and nature.

ii) Resistivity (plans 5-7)

The background resistance shows considerable variation, as a result of the environmental differences between the northern and southern parts of the survey. Filtering of the data was required to clarify the results.

Area 1/2 - North Field

Archaeology

In the north field a zone of high resistance (D/E1-3) indicates the position of the Roman building. This assumes greater definition with filtering, to the extent that the basic ground plan and some detail of internal arrangement of the structure can be reconstructed. Also of possible archaeological significance are : a curving linear high resistance anomaly - perhaps a wall, extending north-west from the north corner of the eastern part of the building (boundary of C2 and C3), and a linear low resistance anomaly (coinciding with a weak magnetic anomaly) in C3, which may represent a ditch.

Recent Features

A linear high resistance anomaly detected in C2-E2 is aligned on a manhole cover detected by the magnetometer, and therefore probably derives from a pipe or similar recent feature. The former field boundary has also registered in the survey as a line of slightly lower resistance running through squares A1-D1.

Area 7 - South Field

To the south, the survey results indicate that the archaeological complex extends into the marshy land north of the Lukely Brook. The archaeological significance of the anomalous

activity detected here is uncertain, particularly as the magnetic disturbance usually found in association with buried buildings is absent.

The most striking feature of this area is the extensive linear spread of very anomalous resistance lying parallel to the north field boundary and apparently separate from the villa complex itself. This broad zone of well demarcated disturbance generally lacks internal patterning, although in places there is clear angularity, suggestive of structural remains. In particular, a building - perhaps a bath house (pers. comm. D. Motkin) - has apparently been detected on the northern edges of grid squares F1 and F2. The evidence for buildings is indistinct elsewhere, however, and perhaps their pattern is obscured by rubble or other debris.

Anomalous activity continues further to the north-east, towards the stream, but at a much more subdued level. Linear features, presumably walls, and other partial patterns are visible. The linear anomaly in squares G4-5 is significant as, in places, it shares the same strength of resistivity response as the main area of more amorphous disturbance - supporting the suggestion that the latter is indeed archaeological in origin. The possibility should be acknowledged, however, that there may be some unidentified natural explanation for some of the extreme resistivity contrasts observed in this field, giving a spurious effect or at least exaggerating the response to archaeological features.

iii) Magnetic Susceptibility (MS) (plan 8)

The supplementary MS data adds little to the information gained by the main survey techniques. The variation in the readings shows little relationship to the known position of the Roman buildings, nor is there any obvious correlation with the other survey data. The differences in MS values more probably relate to hydrological and pedological variations between the north and south of the area sampled.

CONCLUSIONS

The survey has successfully confirmed the layout of the Roman building and has provided additional information on further features in the north field. Furthermore, there is now a strong suggestion that substantial buried features extend to the south of the previously recognised remains. Further survey - perhaps linked with augering would help to resolve the uncertainty of the interpretation of the resistivity data from the south field (area 2).

Surveyed by :	Mark Cole Peter Cottrell Neil Linford Andrew Payne	19-23 July 1993
Report by :	Andrew Payne	5th October 1993

ARCHAEOMETRY BRANCH, Ancient Monuments Laboratory,
Science & Conservation Services, Research Professional Services.

REFERENCES

Institute of Geological Sciences, 1976 *1:50,000 Geological Survey of Great Britain, Sheet 330,331,344,345 - Drift.*

Osborne Wight, H J, 1990 (reprint) *A short account of the geology of the Isle of Wight,* British Geological Survey - Memoirs of the Geological Survey of Great Britain, London HMSO.

Soil Survey of England and Wales, 1983 1:250,000 *Soil Map of England and Wales, Sheet 6 - South East England.*

PLANS ENCLOSED

1) Location of magnetometer survey (OS base plan, 1:2500)

2) X-Y traceplot of raw magnetometer data (1:1250)

3) Linear grey-scale of smoothed and interpolated magnetometer data (1:1250)

4) Location of resistivity survey (OS base plan, 1:2500)

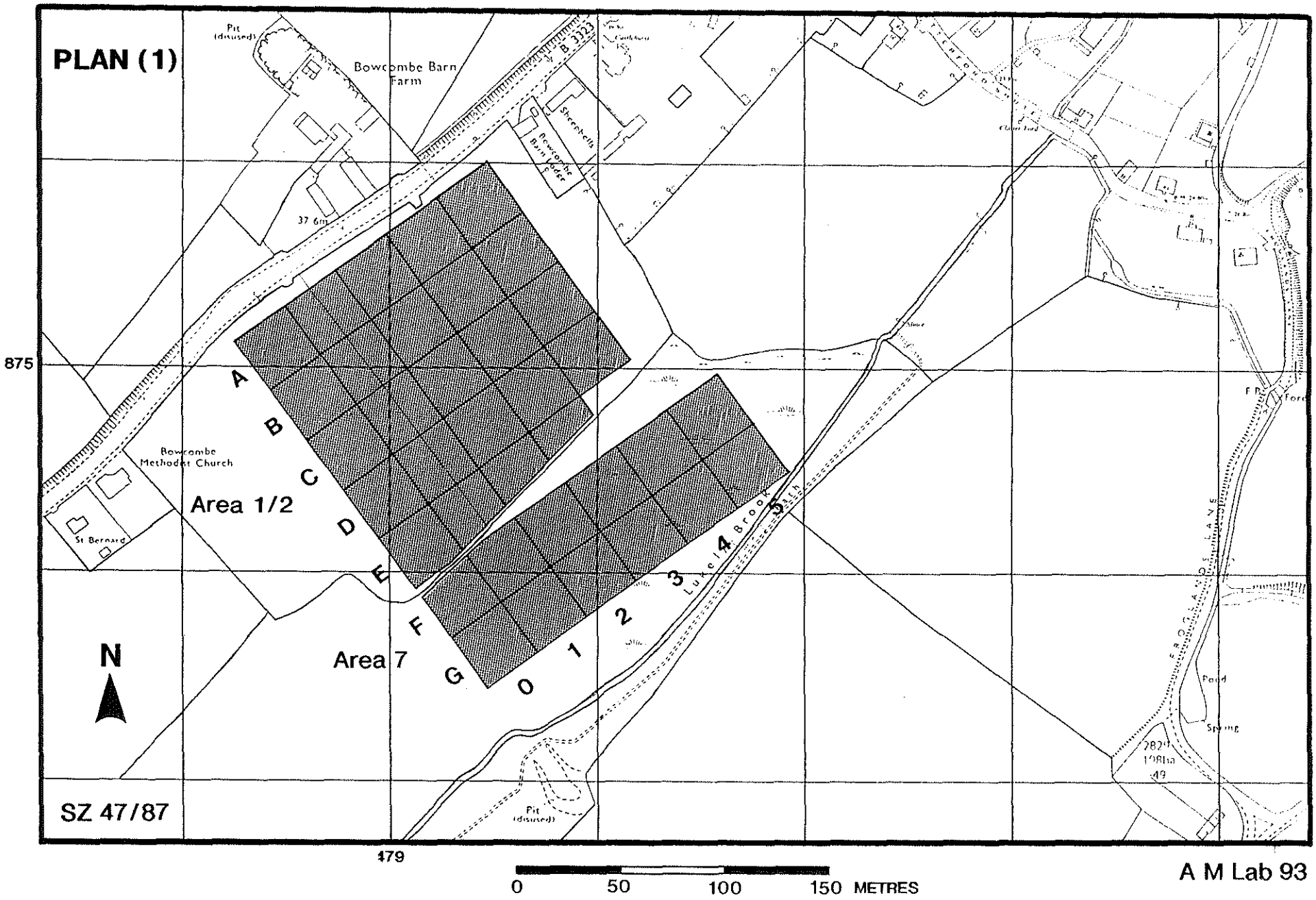
5) a) Linear grey-scale plot of interpolated raw data (1:2000)

   b) Non-linear grey-scale plot of interpolated enhanced data (1:2000)

6) & 7) Linear grey-scale plots of enhanced versions of the resistivity data (1:1250)

8) Non-interpolated linear grey-scale plot of the magnetic susceptibility readings in locational context (1:3000).

CLATTERFORD ROMAN VILLA, ISLE OF WIGHT Location of Magnetometer Survey, July 1993.

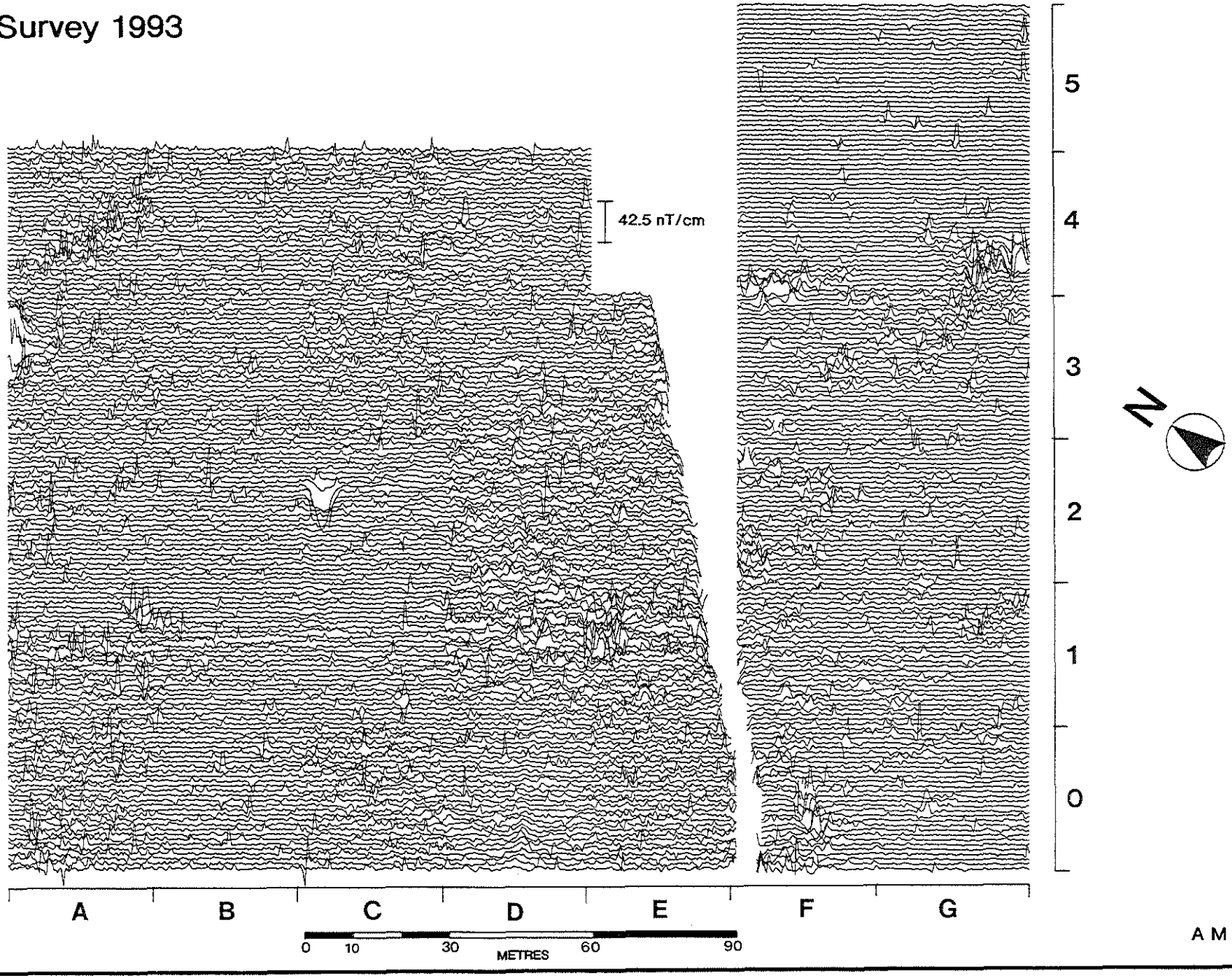


PLAN (2)

CLATTERFORD ROMAN VILLA, ISLE OF WIGHT

Magnetometer Survey 1993

X-Y TRACEPLOT
RAW DATA



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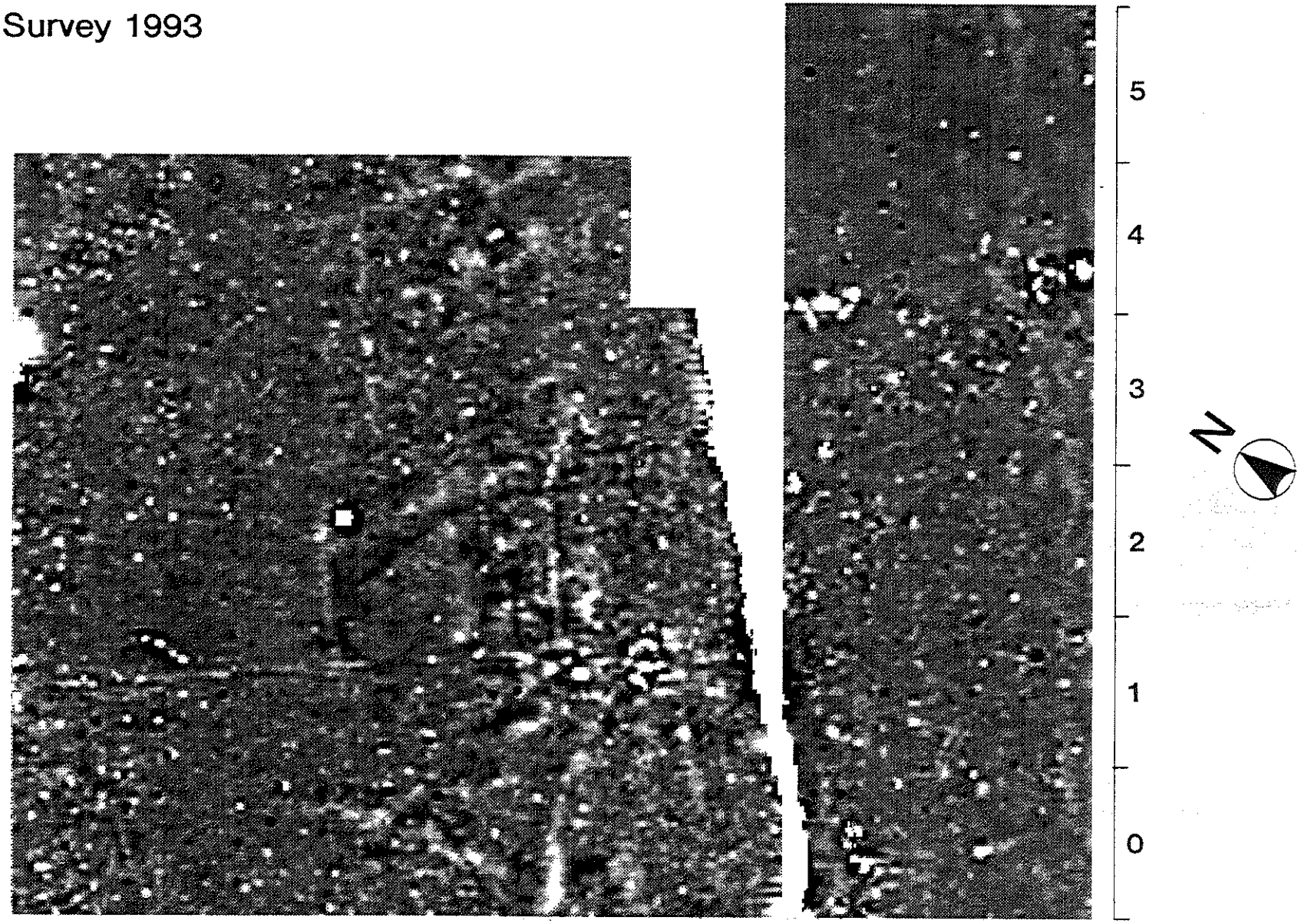
PLAN (3)

CLATTERFORD ROMAN VILLA, ISLE OF WIGHT

Magnetometer Survey 1993

GREY-TONE PLOT
SMOOTHED DATA



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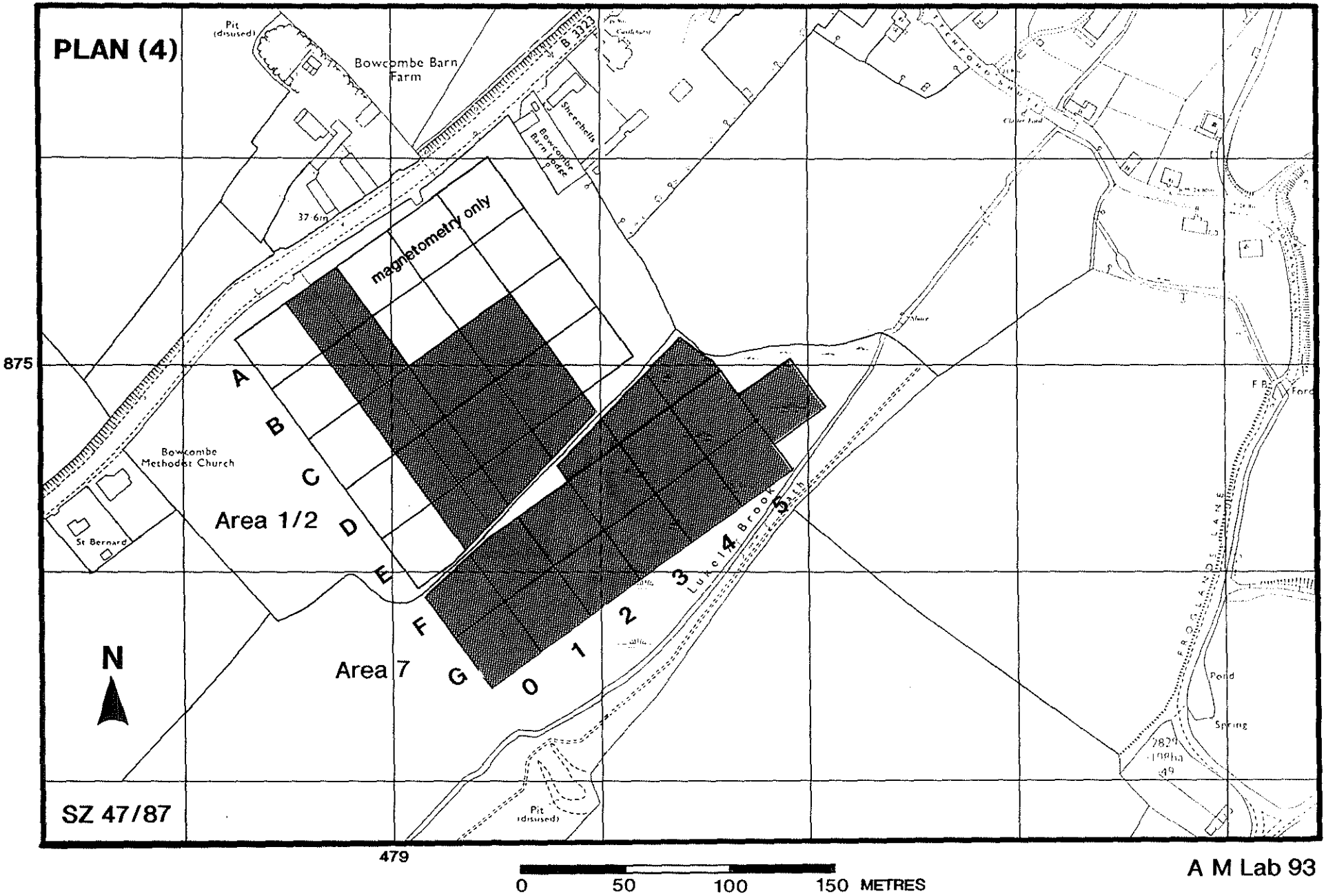
CLATTERFORD ROMAN VILLA, ISLE OF WIGHT

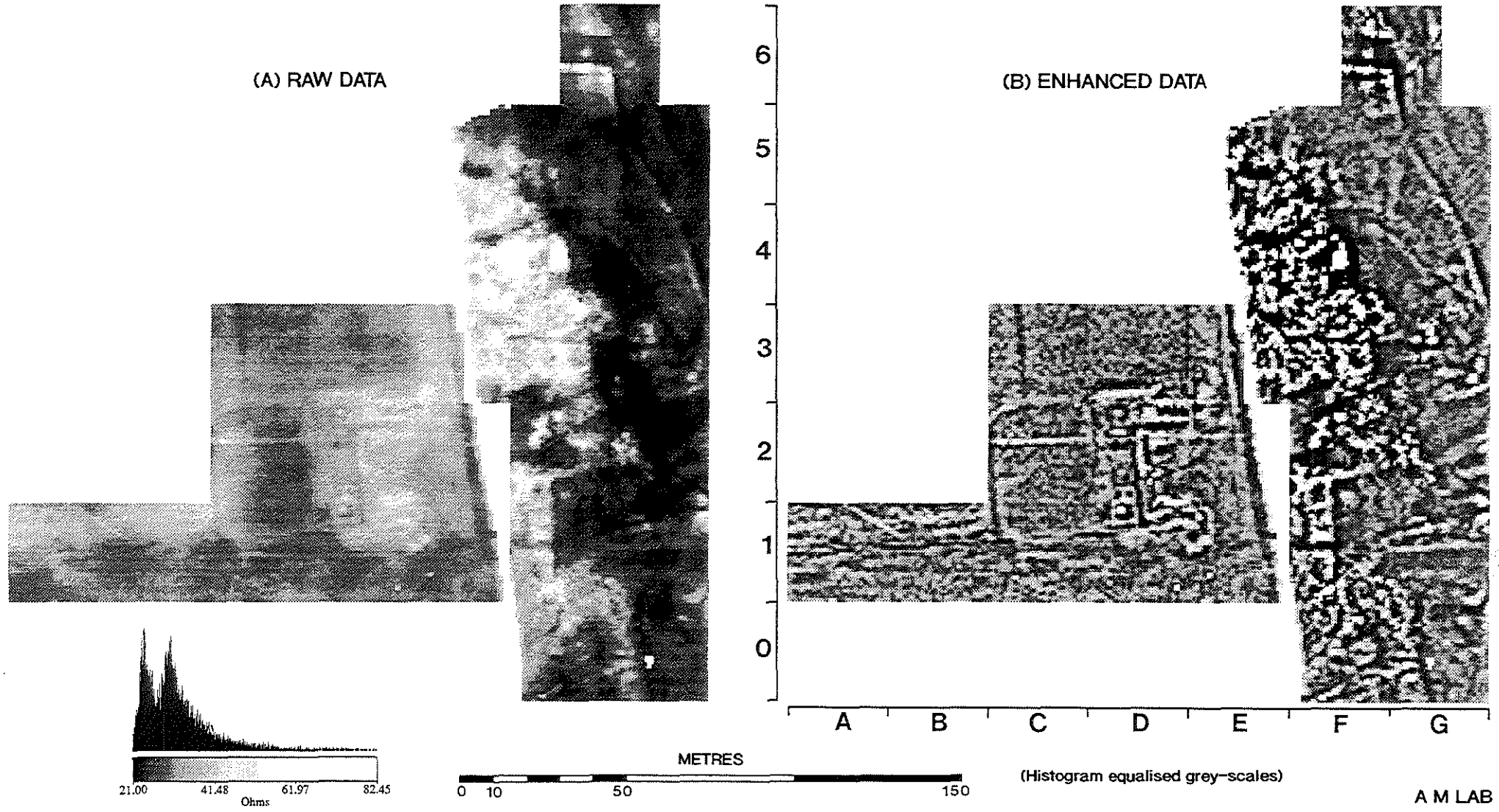
Location of Resistivity Survey, July 1993.



PLAN (5)

CLATTERFORD ROMAN VILLA, ISLE OF WIGHT

Resistivity Survey, July 1993



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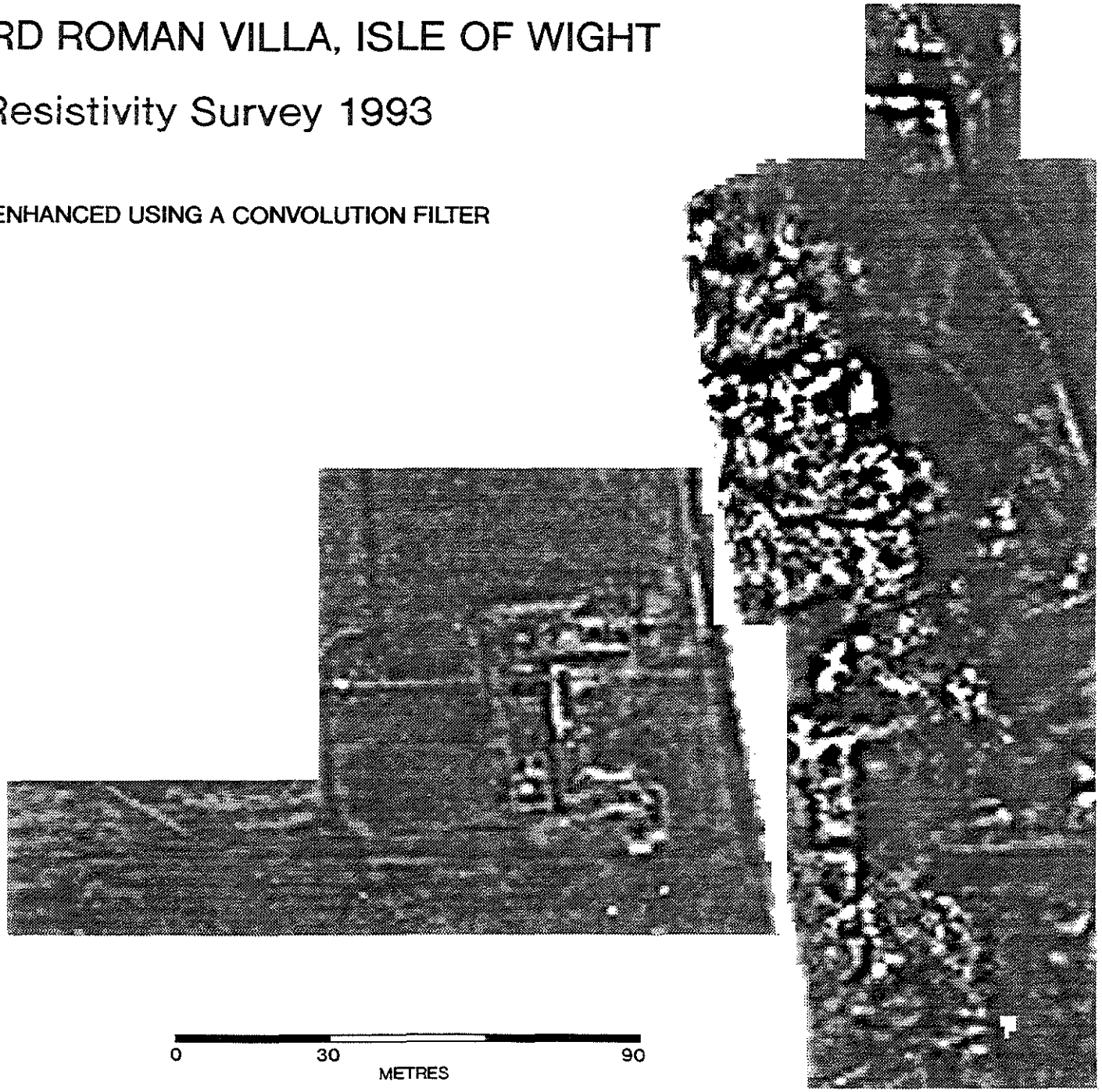
PLAN (6)

CLATTERFORD ROMAN VILLA, ISLE OF WIGHT

Resistivity Survey 1993

DATA ENHANCED USING A CONVOLUTION FILTER



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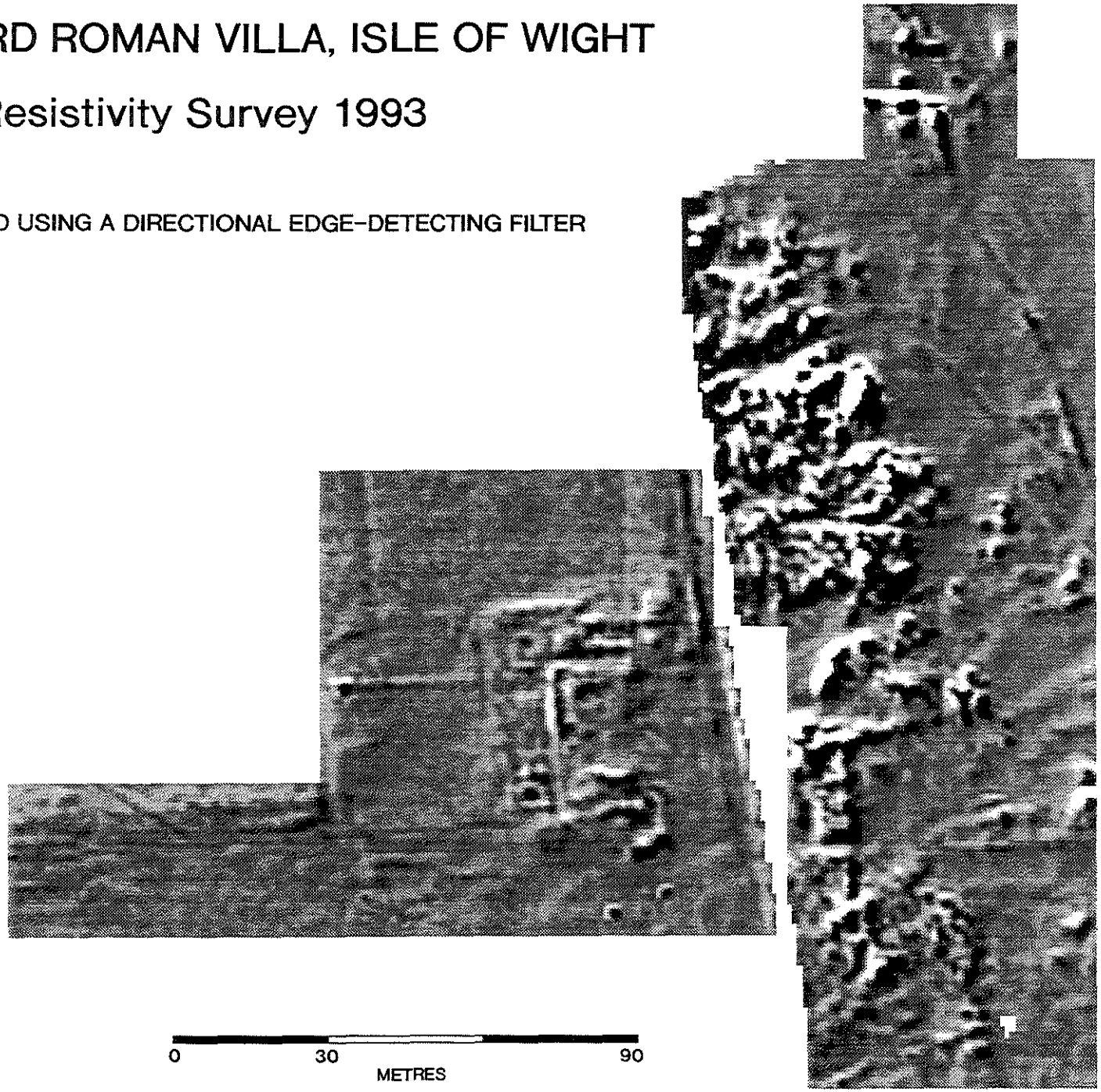
PLAN (7)

CLATTERFORD ROMAN VILLA, ISLE OF WIGHT

Resistivity Survey 1993

DATA ENHANCED USING A DIRECTIONAL EDGE-DETECTING FILTER



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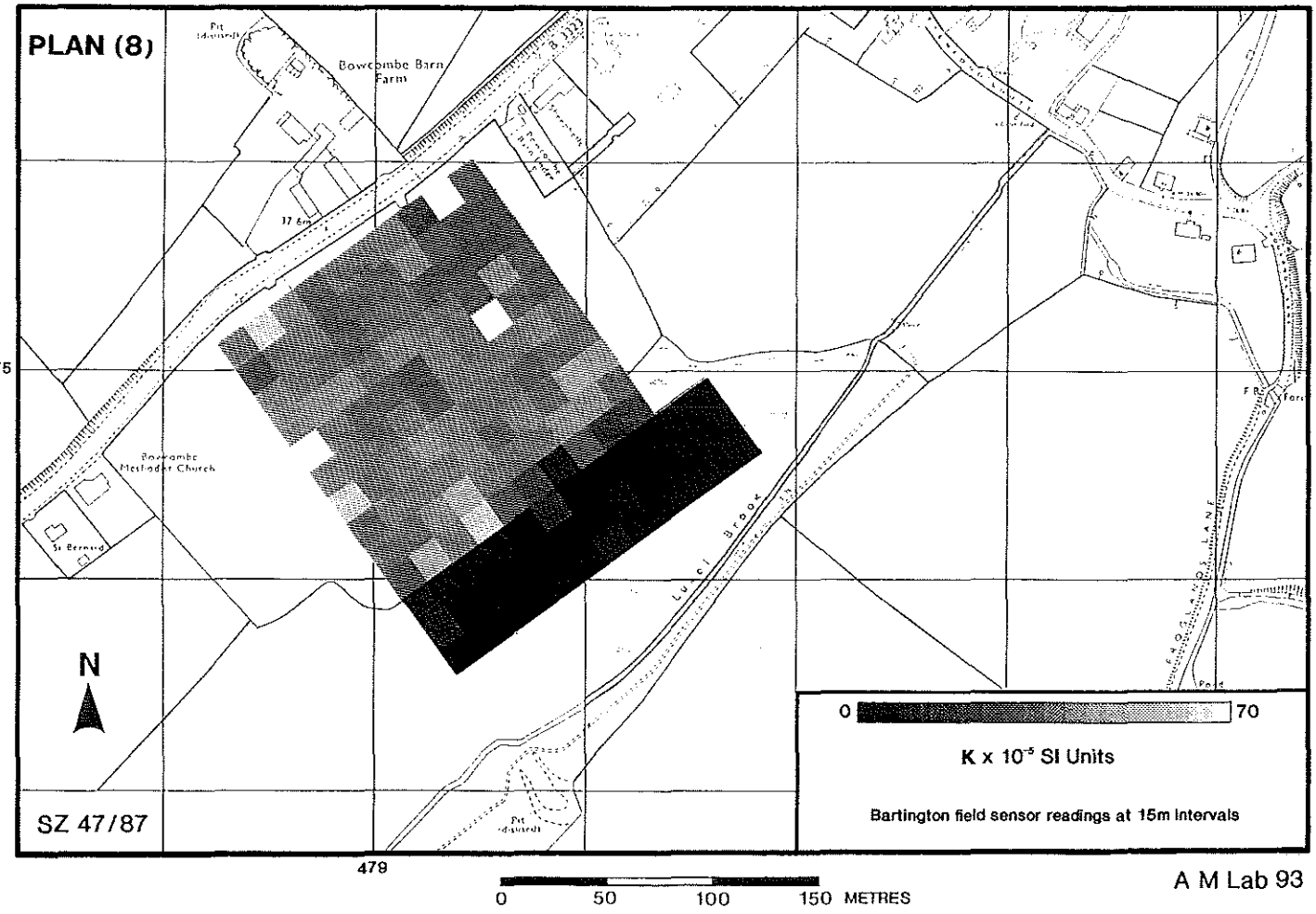
CLATTERFORD ROMAN VILLA, ISLE OF WIGHT

Magnetic Susceptibility Survey



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