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An Archaeological Desk-Based and Field Assessment of Land to the west of King Street, Baston, Lincolnshire

NGR TF 1053 1389

prepared by

John Samuels Archaeological Consultants

on behalf of

**Mr Douglas Freeman
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JSAC 244/98/02

January 1998

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**An Archaeological Desk-Based and Field Assessment
of Land to the west of King Street, Baston, Lincolnshire**

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Summary

Mr Douglas Freeman proposes to extend an existing lagoon to the west of King Street, Baston, Lincolnshire. As part of the planning application for this development, John Samuels Archaeological Consultants have been commissioned to undertake a desk-based and field assessment of the archaeological implications of this development proposal.

Baston has a rich archaeological heritage with known remains dating from the Iron Age, Roman and Saxon periods all within 300m of the proposed development site. The eastern boundary of the site is the modern road that follows the line of the Roman road known as King Street (SMR 34687). The generally good aerial photographic records for the Baston area show no cropmarks within the proposed development site. Having recognised the various potential causes of this lack of data, a geophysical survey and program of fieldwalking were commissioned for the study area.

The fieldwalking recovered 20 sherds of medieval pottery, probably the result of manuring activity or part of the fill of quarry pits, suggested within the central part of the proposed development by changes in the soil type within hollows.

Geophysical survey has identified a number of probable archaeological features in the southern part of the study area. These comprise a cluster of hearth/pit type responses and a part of a possible enclosure.

In order to determine the date, nature, condition and extent of these features, it is recommended that a trial excavation be undertaken. Trenches would be located in order to test the features identified by the geophysical survey and the two hollows noted during fieldwalking, with arbitrarily placed trenches designed to test the survey methods used. This work could be undertaken as a negative condition of the planning permission.

1.0 Introduction

- 1.1 The study area is situated to the west of King Street at Baston, Lincolnshire, centred on NGR TF 1053 1389. The area proposed for development covers approximately 2.4ha of land currently under cereal crop.
- 1.2 Mr Douglas Freeman commissioned *John Samuels Archaeological Consultants* to undertake a desk-based assessment to identify any archaeological remains in advance of the development of the site as an extension to an existing lagoon to the west.
- 1.3 This assessment is based on the requirements of *Planning Policy Guidance Note 16 : Archaeology and Planning* (DoE, 1990). The recommendations contained within the Lincolnshire County Council *Archaeology Manual (draft)* (George 1996) are also taken into consideration. It is in accordance with current best archaeological practice and the appropriate national standards and guidelines, including:
- Standard and Guidance for Archaeological Desk-Based Assessments* (Institute of Field Archaeologists, 1994);
- Standard and Guidance for Archaeological Field Evaluations* (Institute of Field Archaeologists, 1994);
- Management of Archaeological Projects* (English Heritage, 1991).
- 1.4 This assessment was written by Nansi Rosenberg BA, PIFA in consultation with John Samuels BA, PhD, FSA, MIFA. The geophysical survey was undertaken by GSB Prospection, the fieldwalking by Dr John Samuels, and the pottery analysis by

2.0 Methodology

- 2.1 Lincolnshire County Council provided the Sites and Monuments Records (SMR) for the study area. The Lincoln archive has been examined and references consulted are listed in section 6.0 of this report. Available published sources were examined for information on soils, geology, historical and archaeological background.
- 2.2 A site visit was undertaken on 26th May 1997 to check recorded information and identify any previously unrecorded archaeological features that might be visible, such as earthworks or standing buildings. Consideration was made of the suitability of ground conditions for other survey and evaluation methods should they be required. Fieldwalking was undertaken on the same day and a report of the results forms Appendix A of this document; a summary of the results is made in section 4.0.
- 2.3 The fieldwalking was carried out at 20m transects with collection points at 20m intervals. A summary of the results of this survey are included in section 4.0 of this document and the full report forms Appendix A.
- 2.4 The geophysical survey was carried out by GSB Prospection. An initial magnetometer scan of the entire site was used to determine areas of greatest archaeological potential for detailed magnetometer survey. A total area of 1ha underwent detailed (recorded) survey. The results of this survey are summarised in section 4.0 of this document and the full report forms Appendix B.
- 2.5 The objective of the assessment was to identify any archaeological remains which may affect the development of this site, and to assess, where possible, the potential impact.

3.0 Archaeological and Historical Assessment

- 3.1 The site is situated on river terrace and lacustrine gravels on the Lincolnshire fen edge. The land is level and low-lying at approximately 8m above Ordnance Datum.
- 3.2 Baston is situated on the Lincolnshire fen edge, between the Roman road of King Street (SMR 34687) and the Roman waterway, the Car Dyke. A further Roman road branches off King Street to the east, known as the Baston Outgang. The proposed development site lies immediately adjacent and to the west of King Street, to the northwest of Urn Farm where an Iron Age and Roman settlement (SMR 34861 & 33530), a Saxon cemetery and evidence of Saxo-Norman and later medieval activity have all been identified through excavation (LAS 1989, JSAC 1996).
- 3.3 Iron Age/Romano-British enclosures have been suggested by the cropmarks identified from aerial photographs in fields to the south and northeast. The date of some of these features was proven as Iron Age/Romano-British by excavations at Urn Farm, approximately 150m to the southeast (SMR 33530).
- 3.4 The lack of cropmarks may or may not indicate a lack of below ground remains within the present study site. Various complicating factors, such as localised changes in the geology or the site not having been sown with a suitable crop at the time of photographing could be responsible for the lack of cropmarks.
- 3.5 A Saxon cremation cemetery (SMR 33387) has been excavated at Urn Farm and evidence of a large Saxon settlement is known from Kate's Bridge, approximately 800m to the north (Hall & Coles 1994). Late Saxon settlement has been identified to the south of the Church of St John the Baptist, at Hall Farm within the village of Baston (Jarvis 1992 & APS 1996). The settlement there dated from the 9th - 12th centuries and consisted of a number of timber buildings within east-west aligned plots and an area used for iron-working. The site was reoccupied in the late 12th century (see below, para. 3.8)
- 3.6 Baston is mentioned in numerous Anglo-Saxon charters dating from the 9th century to the 10th. Much of the manor of Baston belonged to Crowland Abbey, granted by these charters and retained throughout the medieval period. The 11th century record of Baston in the Domesday Book records both Crowland Abbey and Gilbert de Gand as owning land in Baston, suggesting the parish was split between two manors.
- 3.7 The excavations at Urn Farm also produced quantities of Saxo-Norman and later medieval pottery from linear boundary ditches and a filled in water trough (SMR 33388). The water trough had been filled with kiln wasters, indicating that pottery production was probably underway in the vicinity, although no evidence for kilns was found. The medieval ditches appeared to respect the earlier ditches in places, which may indicate either continuous use of these boundaries throughout the Saxon period or reuse at a later date.

- 3.8 The Hall Farm site was reoccupied in the late 12th century, with the construction of substantial stone and timber buildings at a time broadly contemporaneous with the construction of the parish church. The site was occupied into the mid-14th century, when the buildings fell into decline. Documentary records of Baston's manorial buildings being ruinous in the 1350s may identify the function of these structures. Further finds of kiln wasters were made at this site and it is likely that pottery production took place in the vicinity of this site as well.
- 3.9 Later medieval and post-medieval use of the proposed development site appears to have been agricultural. However, extensive medieval quarrying at Urns Farm may also have occurred on this site (see para. 4.2 below). A post-medieval watermill, Fletland Mill, is known from 19th century Ordnance Survey maps, approximately 500m north of the site (SMR 33386).

4.0 Fieldwork

- 4.1 The **fieldwalking** was undertaken on a bright and clear day in May 1996 by John Samuels. The soil was observed to be generally light although two depressions near the centre of the field were filled with a darker clayey soil, possibly the fill of quarry pits.
- 4.2 A total of twenty sherds of medieval pottery and no other finds were recovered. All of the pottery was abraded and formed no significant concentrations. It is likely that these finds are the result of manuring.
- 4.3 The **geophysical survey** involved an initial magnetometer scan of the entire 2.4ha proposed for development. The scan showed the site to be generally magnetically quiet although strong pit-type anomalies were noted in the southwestern corner of the field. Disturbance from the adjacent quarry access road may be partly responsible and has complicated the interpretation.
- 4.4 Detailed (recorded) survey was undertaken of three areas across the site, covering a total of 1ha. A cluster of pit/hearth type anomalies and part of a possible enclosure were identified in the southern part of the field (Area C). A group of linear features, possibly stone field drains, cross Area C and appear to have disturbed the archaeology, making interpretation of the features more difficult. The remaining area is generally quiet although linear features have been identified in both Areas A and B.

5.0 Conclusions and Recommendations

- 5.1 Iron Age, Romano-British, Saxon and Medieval activity has all been attested in the Baston area, through aerial photographic assessment, geophysical survey and excavation. The lack of cropmarks within the present study area may or may not be significant.
- 5.2 The fieldwalking finds are not concentrated enough to identify particular areas of occupation although the two darker areas of soil noted may be the result of medieval or earlier quarrying.
- 5.3 The geophysical survey has identified part of a possible enclosure and a number of pit/hearth type anomalies. Although there may be some interference from ferrous debris, it is more likely that these represent archaeological features.
- 5.4 In order to place the features identified by these surveys in the historic landscape of Baston, it is recommended that evaluation excavations be conducted. This would investigate the nature, date, condition and extent of the features to be examined and would involve trial trenches located across features identified and in apparently blank areas to test the surveys undertaken so far.
- 5.5 It would be appropriate for this work to be undertaken as a negative condition of the planning permission :

No development shall take place within the area indicated (this would be the area of archaeological interest) until the applicant, or their agents or successors in titles, has secured the implementation of a programme of archaeological work in accordance with a written scheme of investigation which has been submitted by the applicant and approved in writing by the local planning authority. (Paragraph 55, Circular 11/95)

6.0 Figures

Figure 1 : Location of the proposed development site

Figure 2 : Fieldwalking results

Figure 3 : Summary results of the geophysical survey

Figure 4 : Extract from the RCHME aerial photographic assessment of the Baston area

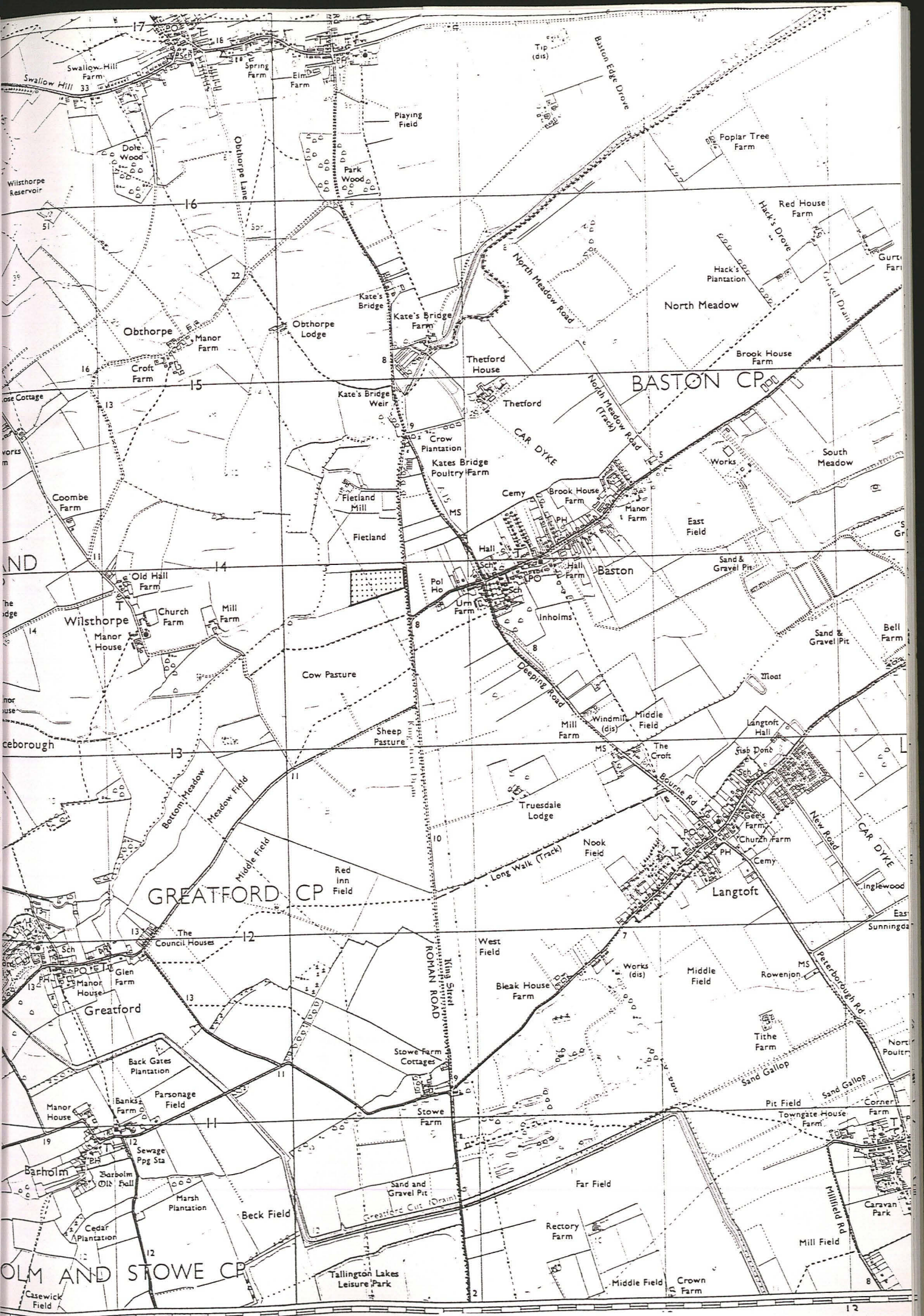
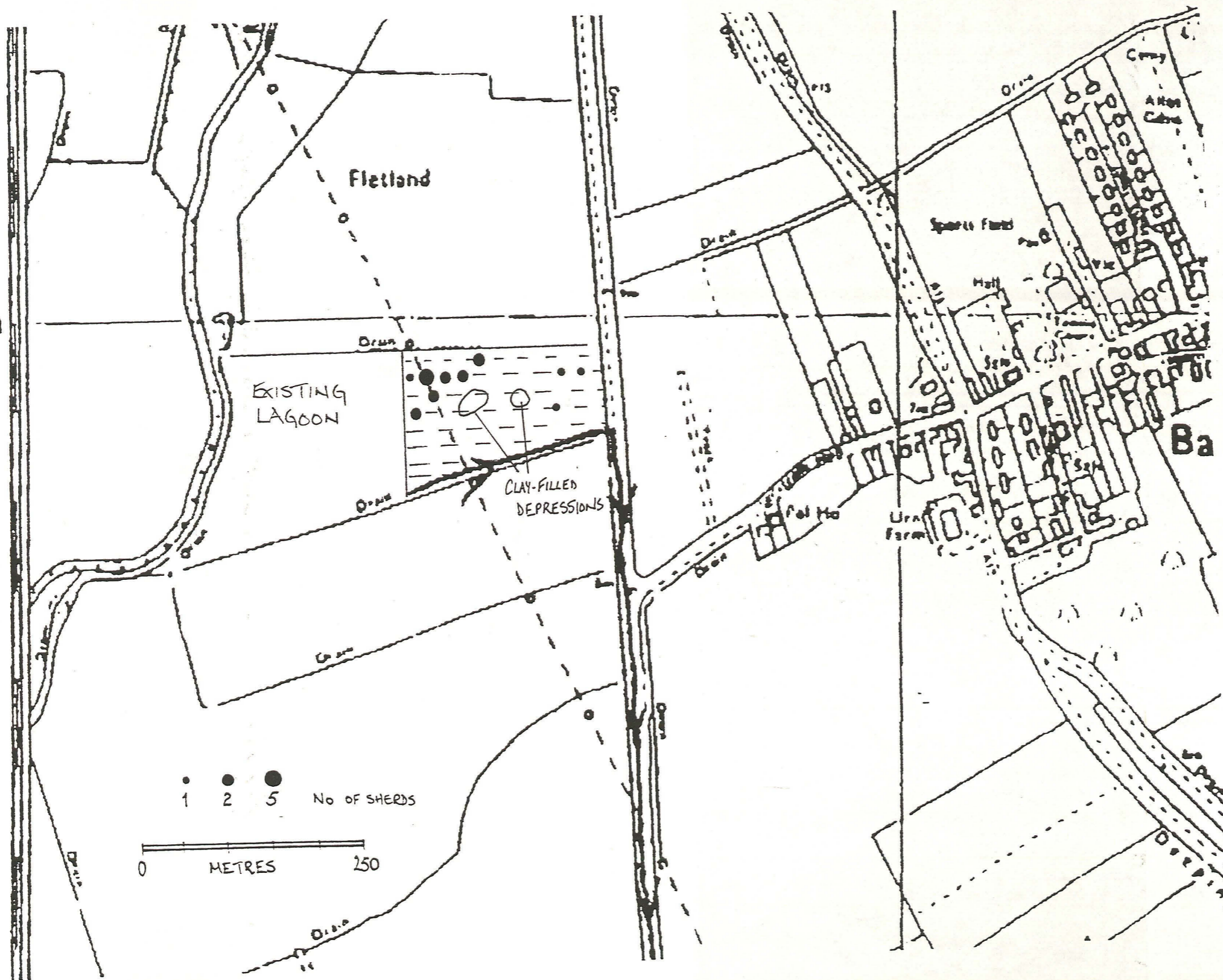


Figure 1 : Location of the proposed development site

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Distribution of Medieval Pottery
Scale 1: 5 000

Figure 2 : Fieldwalking results

BASTON Area C

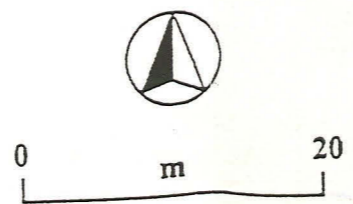
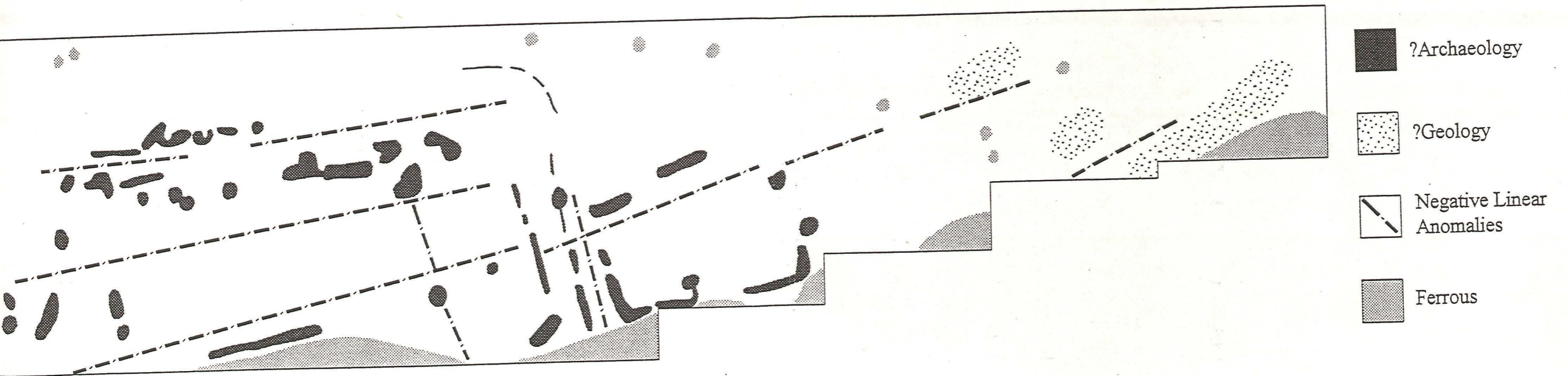


Figure 3 : Summary results of the geophysical survey

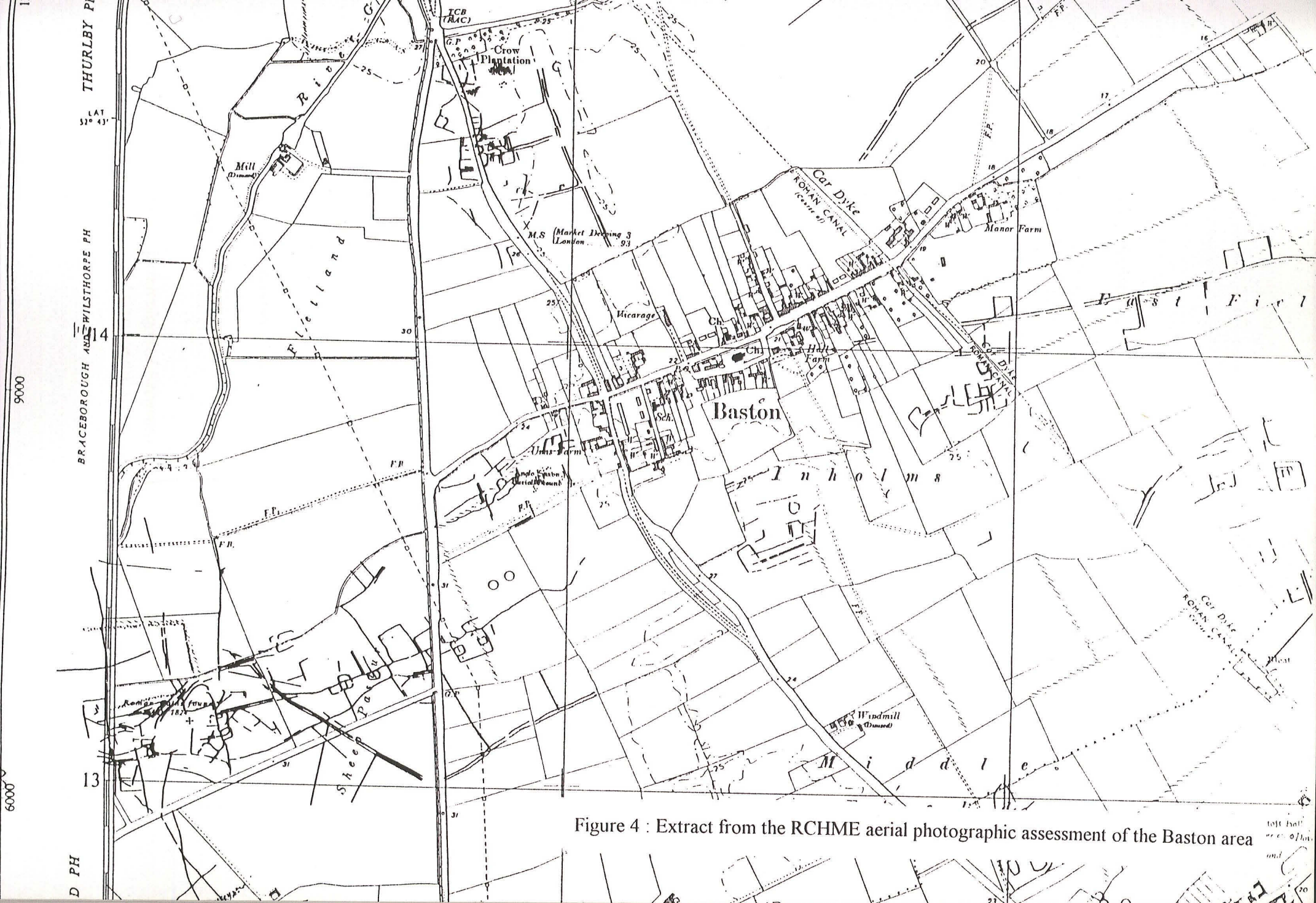


Figure 4 : Extract from the RCHME aerial photographic assessment of the Baston area

7.0 References and Sources Consulted

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- Ekwall, E (4th edition, 1991) *The Concise Oxford Dictionary of English Place-names*, Oxford University Press
- Foster, C W & Longley, T (1924) *The Lincolnshire Domesday Survey*, Lincoln Record Society Volume 19
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*Desk-Based and Field Assessment
of land west of King Street, Baston, Lincolnshire*

Smith (1831) *Plan of the Parish of Baston*

Terrier Bundle : Baston, Lincolnshire Archive

Whitwell, J B (1982) *The Coritani*, BAR British Series 99

*Desk-Based and Field Assessment
of land west of King Street, Boston, Lincolnshire*

Appendix A :
Fieldwalking Report

Baston Urn Farm (BUF 97) Fieldwalking Report

The site was fieldwalked on 26 May 1997 by John Samuels. Weather conditions were good, being a bright clear day. There was a crop of sugar beet in the field but the plants were small, no more than 0.05m high with little leaf, and the soil was clearly visible. The soil was generally light with gravel, although two depressions near the centre of the field were filled with darker clayey soil. These may be the remains of earlier small gravel pits similar to those found on the east side of King Street.

The fieldwalking was undertaken at 20m transects with collection points every 20m. Twenty sherds of medieval pottery were found, all of them abraded with no significant concentrations and most likely the result of manuring. Inclusions are sand, fossil shell and red iron with a date range from the late 11th to the 13th/14th century.

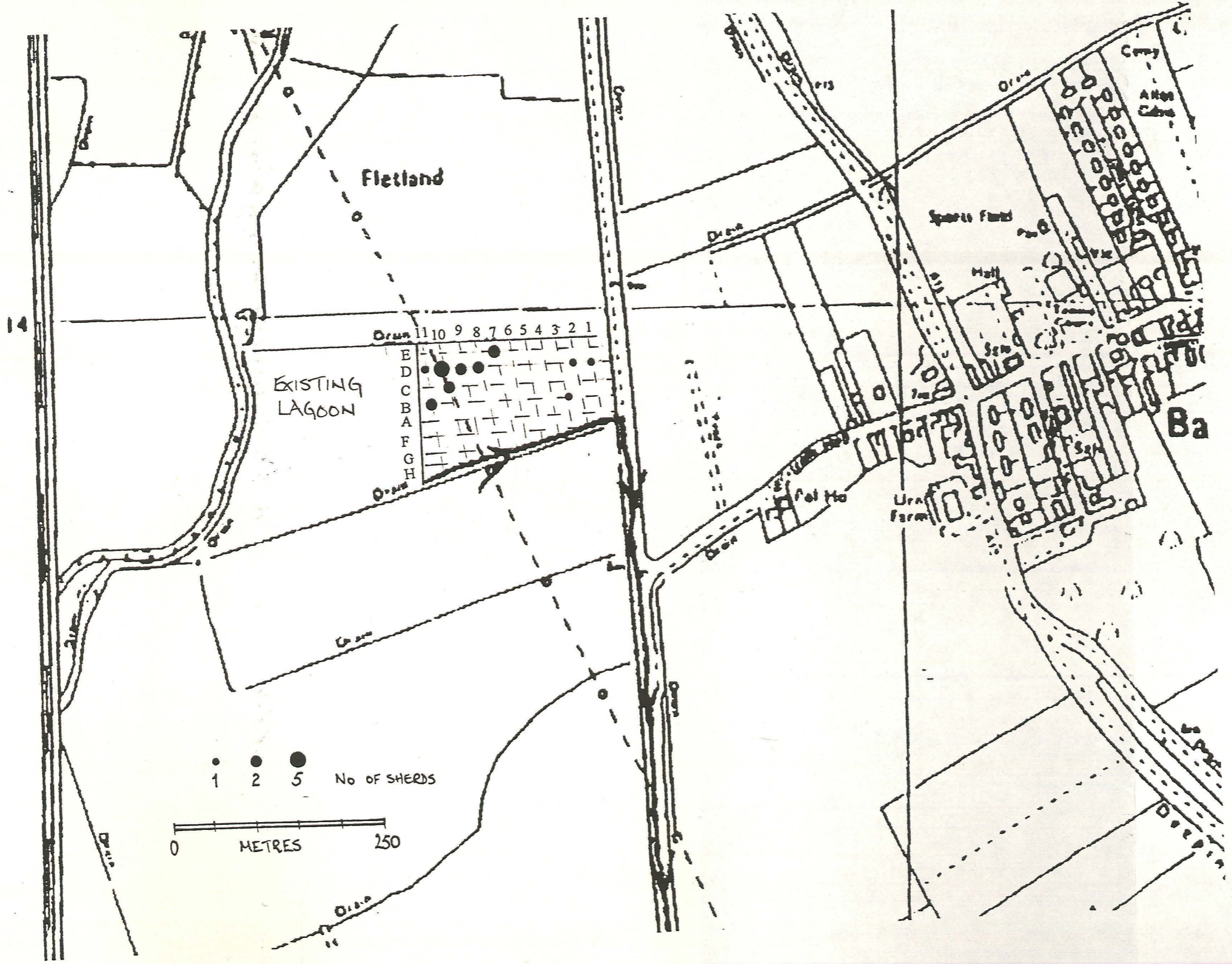
Initial pottery analysis was undertaken by John Samuels BA, PhD, FSA, MIFA, followed by more detailed analysis by R. C. Alvey MPhil.

Location	No. of sherds	Weight (grams)	Description	Date
B3	1	10	body sherd, orange/buff shelly fabric with sand, grey core	12th/13th C
B11	2	31	body sherd, orange/buff sandy fabrics, grey cores	13th/14th C
C10	1	17	rim, shelly fabric, red iron, grey with orange/buff core. Two grooves on rim top, possible jug	12th/13th C
	1	7	body sherd, orange sandy fabric, light grey core	13th/14th C

*Desk-Based and Field Assessment
of land west of King Street, Baston, Lincolnshire*

Location	No. of sherds	Weight (grams)	Description	Date
D1	1	47	Spout from a spouted pitcher or spouted tripod pitcher. Formed around a stick of 9.8 x 8.4mm diameter with a length of 56.5mm. Reddish-brown sandy fabric with a grey core. Its base was luted onto the body of the pot and thumbed in place, leaving shallow impressions around its base. The potter's fingernail could be seen in each impression. The contact between the pot and the spout is very thin. From the soil within the spout, a single grain of carbonised <i>Hordium</i> sp. (Barley).	Late 12th / early 13th
D2	1	6	body sherd, orange sandy fabric, grey core	13th/14th C
D8	1	5	body sherd, smooth grey with the odd sand grain	Roman?
	1	6	Daub fragment?	
D9	2	9	body sherds, orange sandy fabrics	13th/14th
D10	3	27	body sherds, orange sandy fabrics, traces of green glaze on one	13th/14th C
	1	15	rim, red sandy fabric, grey core	12th/13th C
D11	1	8	body sherd, reddish-orange sandy fabric, grey core	13th/14th C
E7	1	10	base sherd, orange sandy fabric, grey core	13th/14th C
	1	15	body sherd, grey sandy fabric with orange core	13th/14th C

BRACEBOROUGH AND WILSTHORPE CP



Distribution of Medieval Pottery
Scale 1: 5 000

*Desk-Based and Field Assessment
of land west of King Street, Baston, Lincolnshire*

Appendix B :
Geophysical Survey Report

REPORT ON GEOPHYSICAL SURVEY

BASTON

Survey No: 97/45

Work Commissioned by:

**John Samuels
Archaeological Consultants**

On Behalf of

AVOCET DESIGN

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UK.

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SITE SUMMARY SHEET

97 / 45 Baston, Lincolnshire

NGR: TF 105 139

Location, topography and geology

The area under investigation lies immediately to the east of the A15 road on the southwestern outskirts of the village of Baston, Lincolnshire, approximately 18km north of Peterborough. The proposed development area is bounded by King Street on the east, the River Glen to the west, and drains to the north and south. The fields are all level and supported a young crop at the time of survey. The soils are formed from a parent material comprising river terrace and lacustrine sands and gravels. They are characteristic of the Badsey 2 (511i) association (SSEW, 1983).

Archaeology

King Street, to the east of the development area, follows the course of a Roman Road. Aerial photographs indicate extensive cropmarks, suggesting the presence of remains of prehistoric settlement, to the south and east. **GSB Prospection** carried out survey work 300m to the southeast over part of a cropmark complex. Although the responses were very weak, gradiometry recorded enclosures and associated ditch features near the Roman road and two possible ring ditches further to the east (GSB, 1997).

Aims of Survey

Both scanned and recorded gradiometer survey was conducted as part of an archaeological evaluation being carried out by **John Samuels Archaeological Consultants** in advance of proposed gravel extraction. The aim of the survey was to attempt to locate any archaeological remains that may be present within the development area.

Summary of Results *

The initial scan of the entire application area found the site to be magnetically quiet. However, a number of strong pit type anomalies were identified in the southwestern corner of the application area. Detailed recorded survey in three locations, Areas A to C, confirmed the generally quiet nature of the site. A cluster of pit/hearth type responses was detected in Area C, and possibly part of an enclosure. However, the survey area lies beside an access road to the existing quarry and ferrous debris causing disturbance in the data has complicated the interpretation. A group of parallel linear anomalies with negative responses runs across Area C and may represent the courses of stone field drains. They appear to have disturbed the possible archaeological deposits, further confusing the pattern of the results.

* It is essential that this summary is read in conjunction with the detailed results of the survey.

SURVEY RESULTS

97 / 45 Baston, Lincolnshire

1. Survey Areas (Figure 1)

- 1.1 The entire application area of 2.4ha was investigated by an initial scan. Three blocks (A to C) of detailed survey were undertaken covering a total area of 1 ha. The extent of the scan and the location of the detailed survey areas is shown on Figure 1 at a scale 1:2500.
- 1.2 The detailed survey grids were set out and tied-in by **GSB Prospection**. Detailed tie-in information has been lodged with the client. Pegs and canes have been left *in situ* to facilitate relocation of the grid.

2. Display

- 2.1 The data are displayed as XY traces, dot density plots and a grey scale image. These display formats are discussed in the *Technical Information* section, at the end of the text. A list of figures included in the report precedes the diagrams.
- 2.2 Figure 2 is a greyscale image of the survey results in their relative positions, produced at a scale of 1:1000. Figures 3 to 6 are data plots and interpretation diagrams of the individual survey areas at a scale of 1:500.
- 2.3 Letters in parentheses in the text of the report refer to individual anomalies in the relevant interpretation diagram.

3. General Considerations - Complicating factors

- 3.1 Conditions were good for survey with the ground being level and supporting a young cereal crop at the time of the work.
- 3.2 A scatter of small ferrous responses were recorded in each of the three survey areas. These are considered to be due to debris in the topsoil of modern origin.

4. Results of Scanning

- 4.1 The entire application area was investigated with gradiometers in scanning mode. The field was traversed at intervals of approximately 10m and the instruments display observed for magnetic variation. The locality of any significant variations was subjected to a more detailed scan to assess their archaeological potential. Anomalies of interest were then marked with a cane for detailed recorded survey.

- 4.2 The scanning indicated a relatively quiet level of background response over the majority of the application area. Ferrous responses were noted along the eastern edge of the site, adjacent to King Street, that were considered to be due to modern debris. Similar responses were encountered along the southern edge of the application area, adjacent to the quarry access road.
- 4.3 A number of magnetically strong anomalies of archaeological potential were identified in a cluster toward the southwestern part of the development area.

5. Results of Detailed Survey

Area A

- 5.1 Area A was positioned to investigate part of the application area that scanning suggested was magnetically quiet and devoid of archaeological type responses.
- 5.2 The gradiometer recorded a series of broad variations across the survey area. Figure 2, the summary grey scale image, best illustrates these anomalies, which are likely to be responses from subsurface variations in the sands and gravels.
- 5.3 A single linear response, aligned north-south, was recorded toward the western end of the survey area. Although the anomaly has been interpreted as of archaeological interest, the possibility that it has been produced by a field drain cannot be dismissed.
- 5.4 Both the anomalies described in Sections 5.2 and 5.3 above are magnetically weak and would not have been identified during the scan.
- 5.5 A region of ferrous disturbance in the northwestern corner of the survey area was produced by a nearby electricity pylon.

Area B

- 5.6 Area B was positioned to examine part of the proposed development near to the Roman road. Except for a scatter of ferrous responses, this area was found to be magnetically quiet during the scan.
- 5.7 Broad and magnetically weak responses like those recorded in Area A, presumed to have been produced by the underlying geology, were recorded in this survey area.
- 5.8 Two linear trends were detected along the eastern edge of the survey area. They have been given an archaeological interpretation and may relate to features associated with the Roman road. However, it is also possible that these anomalies have been generated by field drains and/or recent ploughing.

Area C

- 5.9 Area C was positioned to investigate a cluster of strong pit/hearth type anomalies identified during the scan.

- 5.10 In contrast to the level of response recorded in the previous survey blocks Area C was found to be magnetically noisy. This part of the development area may have been the site of a dump of ferrous debris (the farmer, *pers. comm.*). A considerable amount of iron debris was observed at the side of the quarry access road that forms the southern boundary of the survey area and this has produced some disturbance in the results.
- 5.11 It is possible that ferrous debris has produced the pit/hearth type anomalies indicated on the interpretation diagram. However, the anomalies are not entirely characteristic of ferrous responses and several linear responses were also recorded that suggest that this area is a focus of occupation activity. There are suggestions that parts of two enclosures are present in the results.
- 5.12 The pattern of the archaeological type responses is confused by a series of parallel linear trends, with a negative response and orientated approximately east-west, that appear to cut the archaeological type responses. These anomalies are also parallel to an existing drain, lying to the south of the survey area. Such anomalies are usually associated with stone and, although they may represent building remains, it is thought that they have been produced by stone field drains.

6. Conclusions

- 6.1 The scan of the application area indicated that the majority of the site had a low level of background response. The southwestern part of the proposed development was found to contain a group of magnetically strong pit type anomalies of archaeological potential.
- 6.2 Detailed recorded survey in Areas A and B confirmed the generally quiet nature of the site, though ditch type responses were recorded in both locations. However, the anomalies are very weak and possibly produced by recent agricultural processes.
- 6.3 The responses recorded in Area C were more complex, by comparison with Areas A and B. A number of pit anomalies and short ditch responses were detected. However, the survey area is affected by disturbance caused by the quarry access road. In addition, anomalies produced by possible field drains make the dataset difficult to interpret. The magnetically strong pit/hearth type responses may have been produced by modern debris in the plough soil.

Project Co-ordinator: D Shiel
Project Assistants: L Harvey & A Shields

Start of Survey: 5th June 1997
Date of Report: 13th June 1997

References:

- SSEW, 1983 *Soil Survey of England and Wales, Sheet 4, Eastern England.* Soil Survey of England Wales. Published 1983.
- GSB, 1997 *Report on the Geophysical Survey at Baston, Lincolnshire.* Report No 97/34. Geophysical Surveys of Bradford. Unpublished report

TECHNICAL INFORMATION

The following is a description of the equipment and display formats used in **GEOPHYSICAL SURVEYS OF BRADFORD (GSB)** reports. It should be emphasised that whilst all of the display options are regularly used, the diagrams produced in the final reports are the most suitable to illustrate the data from each site. The choice of diagrams results from the experience and knowledge of the staff of **GSB**.

All survey reports are prepared and submitted on the basis that whilst they are based on a thorough survey of the site, no responsibility is accepted for any errors or omissions.

Magnetic readings are logged at 0.5m intervals along one axis in 1m traverses giving 800 readings per 20m x 20m grid, unless otherwise stated. Resistance readings are logged at 1m intervals giving 400 readings per 20m x 20m grid. The data are then transferred to portable computers and stored on 3.5" floppy discs.

Instrumentation

(a) Fluxgate Gradiometer - Geoscan FM36

This instrument comprises of two fluxgates mounted vertically apart, at a distance of 500mm. The gradiometer is carried by hand, with the bottom sensor approximately 100-300mm from the ground surface. At each survey station, the difference in the magnetic field between the two fluxgates is conventionally measured in nanoTesla (nT) or gamma. The fluxgate gradiometer suppresses any diurnal or regional effects. Generally features up to one metre deep may be detected by this method.

(b) Resistance Meter - Geoscan RM4 or RM15

This measures the electrical resistance of the earth, using a system of four electrodes (two current and two potential.) Depending on the arrangement of these electrodes an exact measurement of a specific volume of earth may be acquired. This resistance value may then be used to calculate the earth resistivity. The "Twin Probe" arrangement involves the pairing of electrodes (one current and one potential) with one pair remaining in a fixed position, whilst the other measures the resistance variations across a fixed grid. The resistance is measured in Ohms and the calculated resistivity is in Ohm-metres. The resistance method as used for area survey has a depth resolution of approximately 0.75m, although the nature of the overburden and underlying geology will cause variations in this generality. The technique can be adapted to sample greater depths of earth and can therefore be used to produce vertical "pseudo sections".

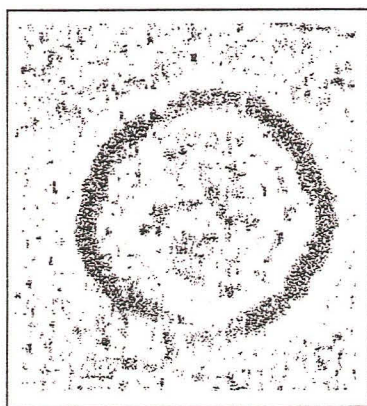
(c) Magnetic Susceptibility

Variations in the magnetic susceptibility of subsoils and topsoils occur naturally, but greater enhanced susceptibility can also be a product of increased human/anthropogenic activity. This phenomenon of susceptibility enhancement can therefore be used to provide information about the "level of archaeological activity" associated with a site. It can also be used in a predictive manner to ascertain the suitability of a site for a magnetic survey. The instrument employed for measuring this phenomenon is either a field coil or a laboratory based susceptibility bridge. For the latter 50g soil samples are collected in the field.

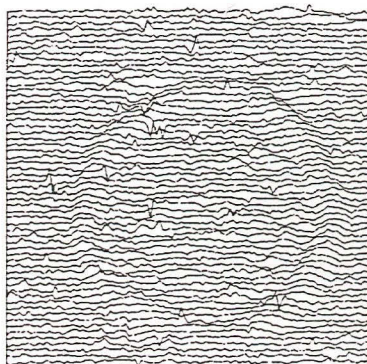
Display Options

The following is a description of the display options used. Unless specifically mentioned in the text, it may be assumed that no filtering or smoothing has been used to enhance the data. For any particular report a limited number of display modes may be used.

(a) Dot-Density



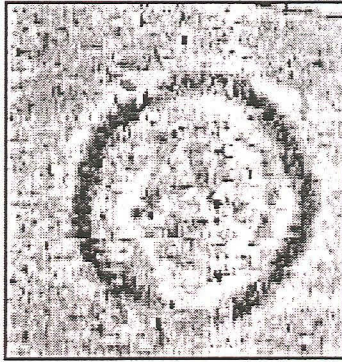
In this display, minimum and maximum cut-off levels are chosen. Any value that is below the minimum cut-off value will appear white, whilst any value above the maximum cut-off value will appear black. Any value that lies between these two cut-off levels will have a specified number of dots depending on the relative position between the two levels. The focus of the display may be changed using different levels and a contrast factor (C.F.). Usually the C.F. = 1, producing a linear scale between the cut-off levels. Assessing a lower than normal reading involves the use of an inverse plot. This plot simply reverses the minimum and maximum values, resulting in the lower values being presented by more dots. In either representation, each reading is allocated a unique area dependent on its position on the survey grid, within which numbers of dots are randomly placed. The main limitation of this display method is that multiple plots have to be produced in order to view the whole range of the data. It is also difficult to gauge the true strength of any anomaly without looking at the raw data values. This display is much favoured for producing plans of sites, where positioning of the anomalies and features is important.



(b) X-Y Plot

This involves a line representation of the data. Each successive row of data is equally incremented in the Y axis, to produce a stacked profile effect. This display may incorporate a hidden-line removal algorithm, which blocks out lines behind the major peaks and can aid interpretation. Advantages of this type of display are that it allows the full range of the data to be viewed and shows the shape of the individual anomalies. Results are produced on a flatbed plotter.

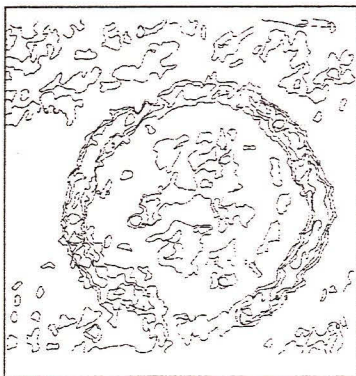
Display Options cont'd



(c) Grey-Scale

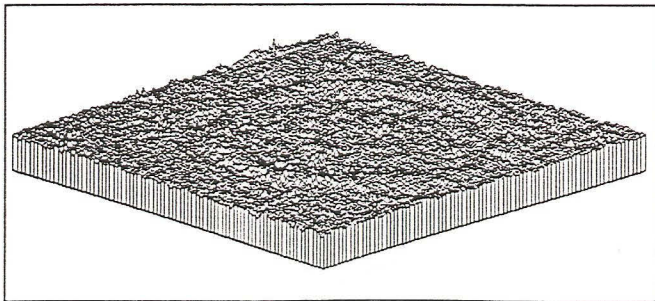
This format divides a given range of readings into a set number of classes. These classes have a predefined arrangement of dots or shade of grey, the intensity increasing with value. This gives an appearance of a toned or grey scale.

Similar plots can be produced in colour, either using a wide range of colours or by selecting two or three colours to represent positive and negative values. While colour plots can look impressive and can be used to highlight certain anomalies, grey-scales tend to be more informative.



(d) Contour

This display format is commonly used in cartographic displays. Data points of equal value are joined by a contour line. Closely packed contours indicate a sharp gradient. The contours therefore highlight an anomalous region. The range of contours and contour interval are selected manually and the display is then generated on the computer screen or plotted directly on a flat bed plotter / inkjet printer.



(e) 3-D Mesh

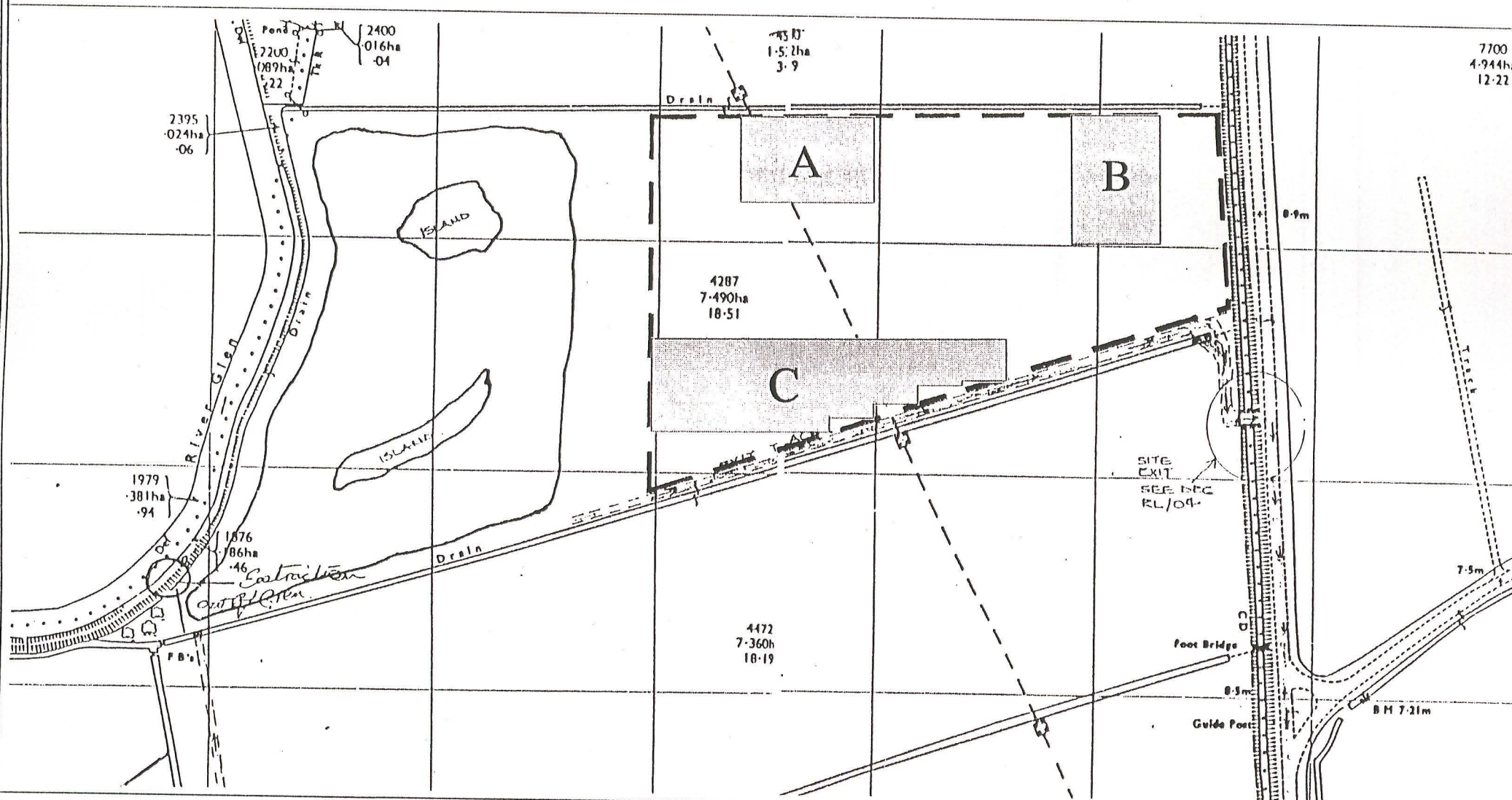
This display joins the data values in both the X and Y axis. The display may be changed by altering the horizontal viewing angle and the angle above the plane. The output may be either colour or black and white. A hidden line option is occasionally used (see (b) above).

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Location of Survey Areas



Area of Scanning



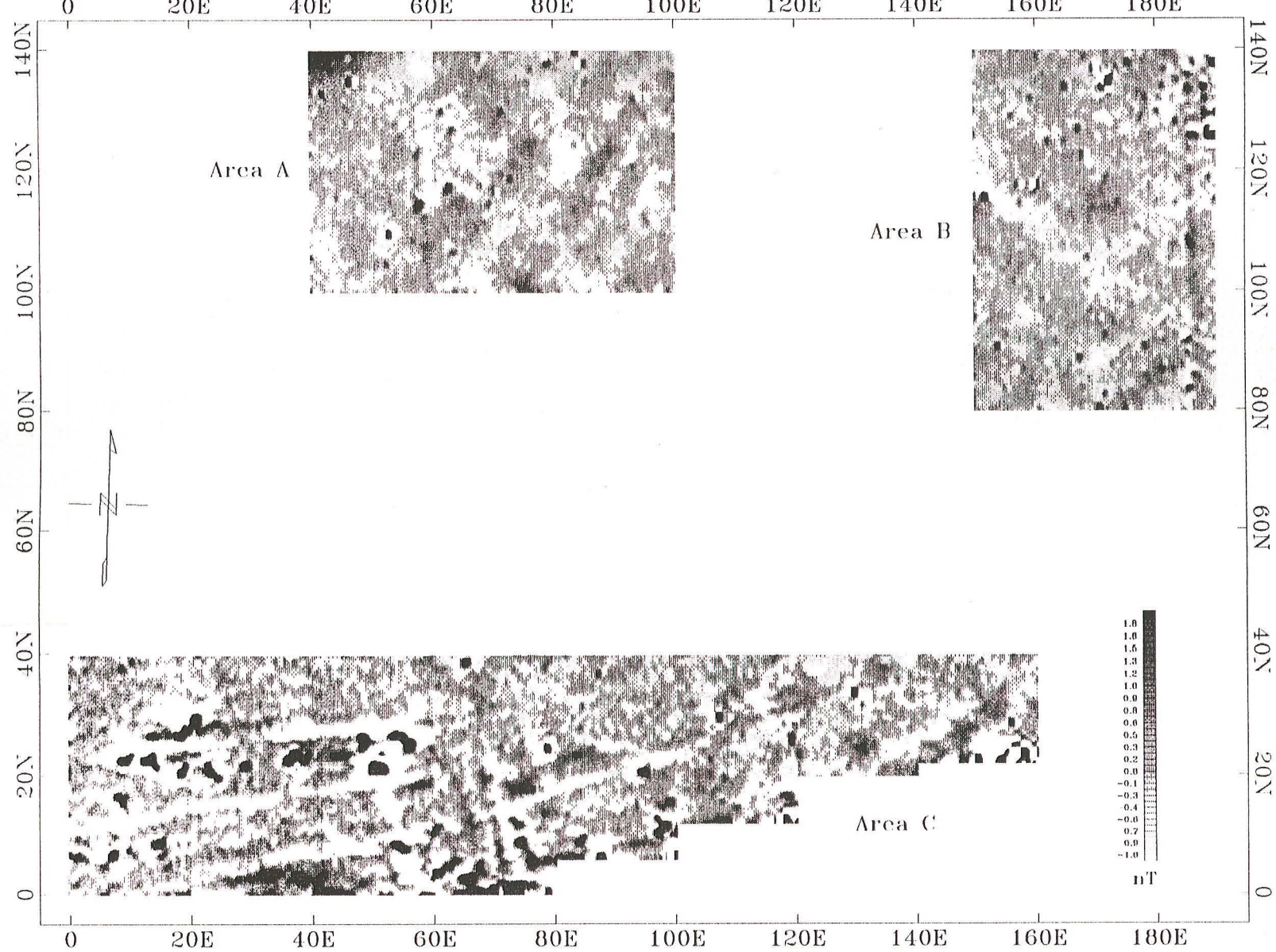
1:2500



Detailed Survey Areas

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Figure 1



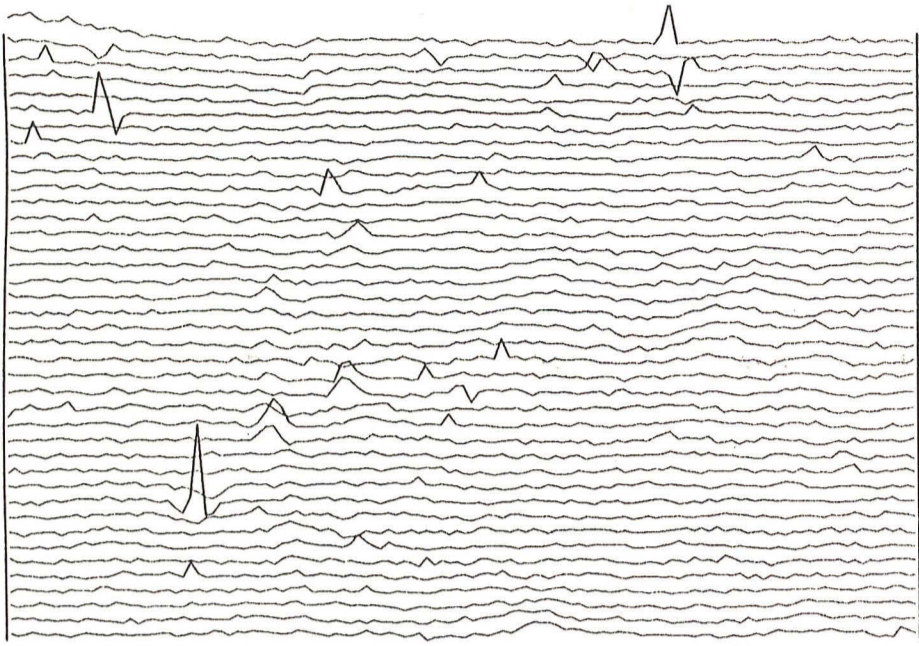
BASTON

10 0 10 20 30
 (metres)

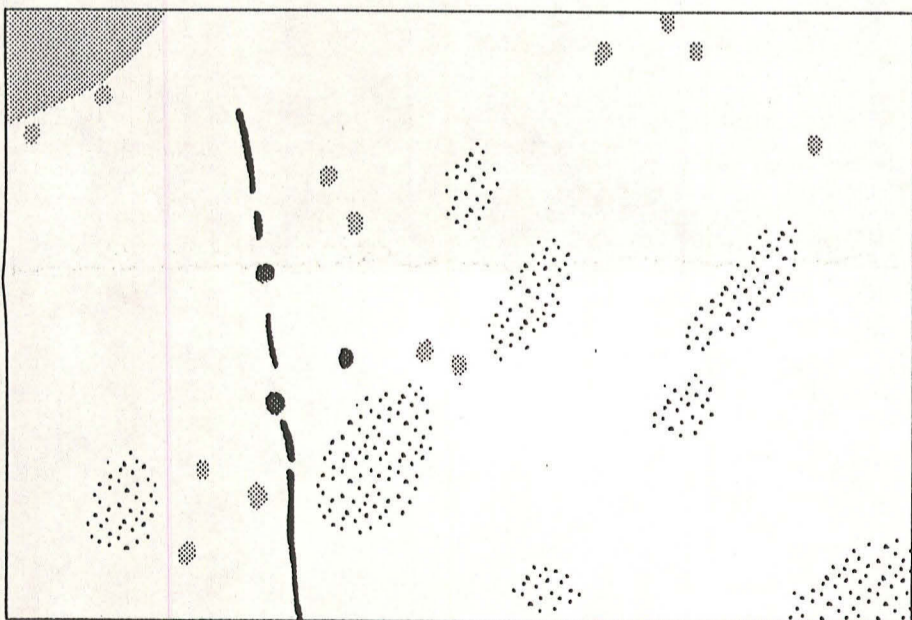
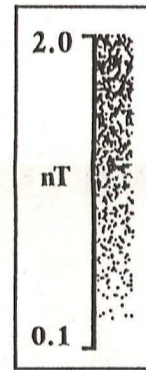
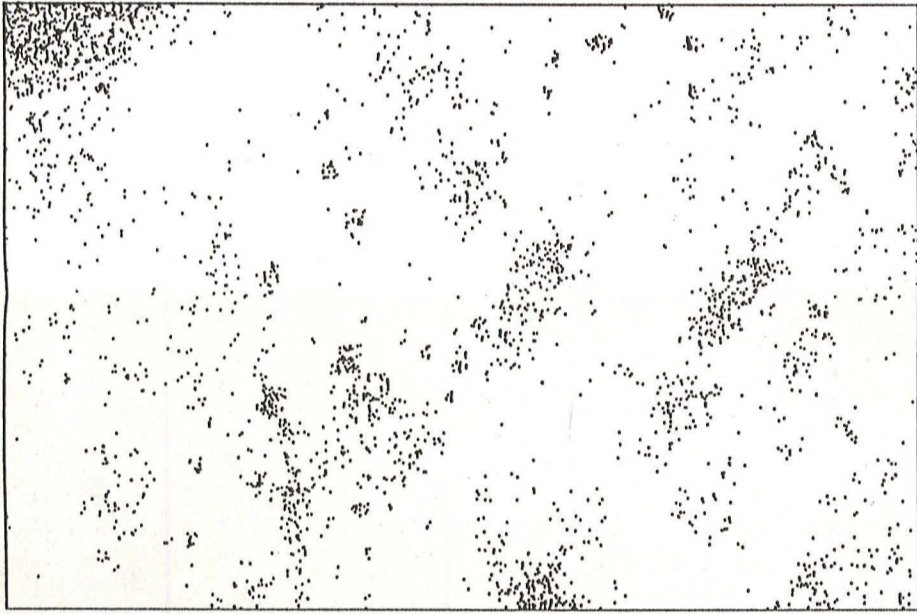
GSB Prospection 97/45




Figure 2

BASTON Area A



15 nT

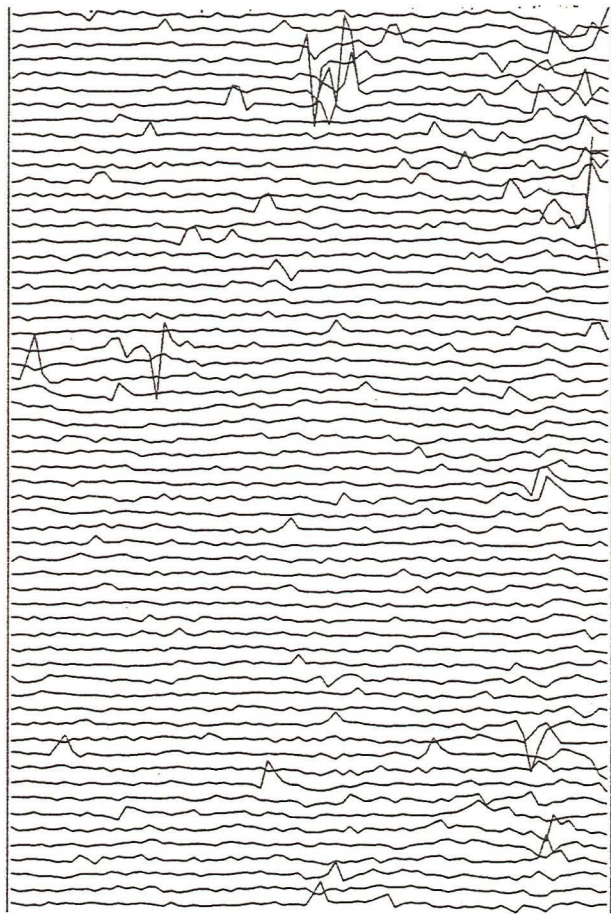


-  ?Archaeology
-  ?Geology
-  Ferrous

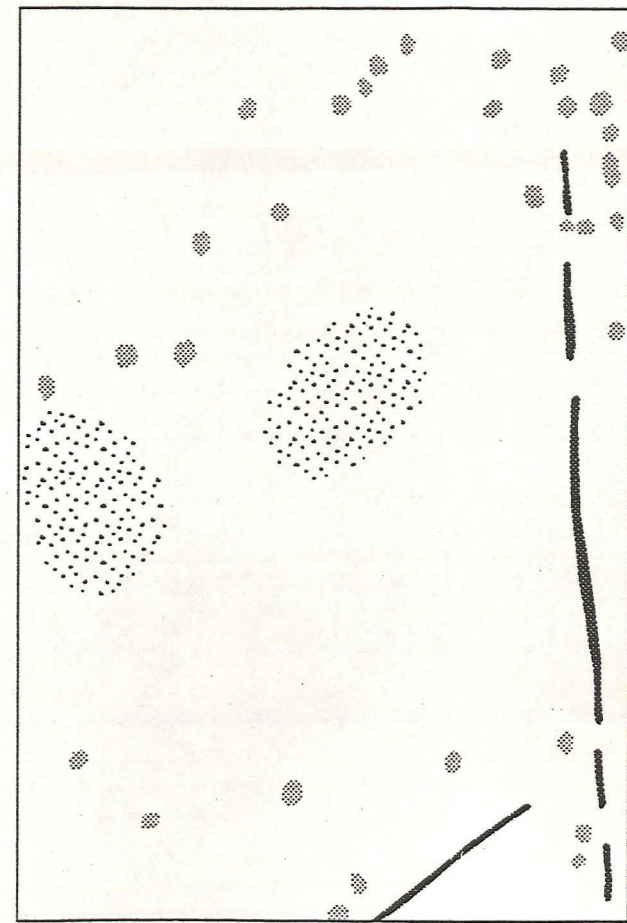
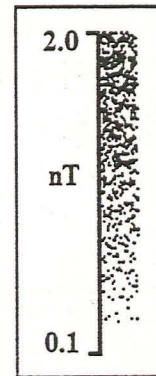
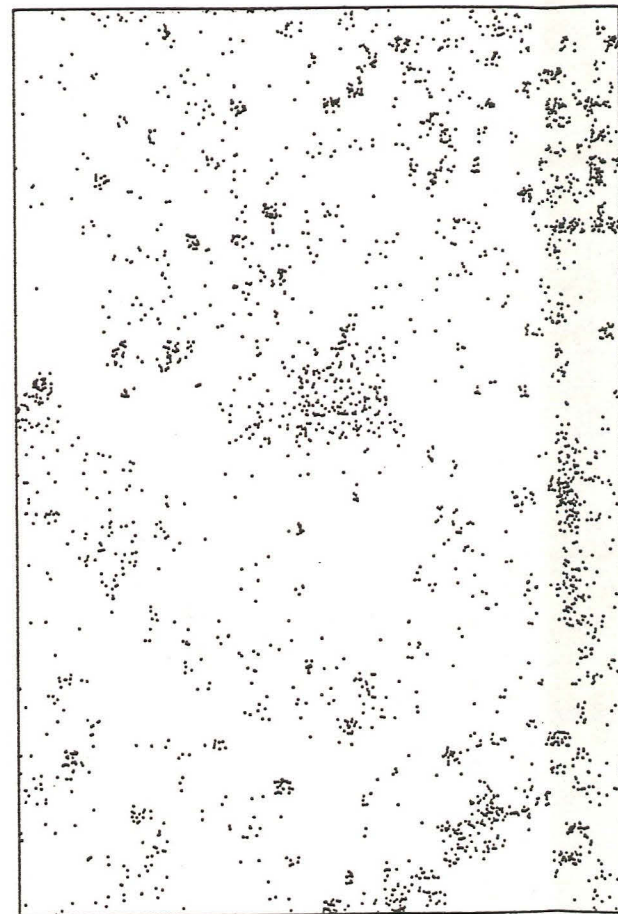





0 m 20

BASTON Area B



15 nT

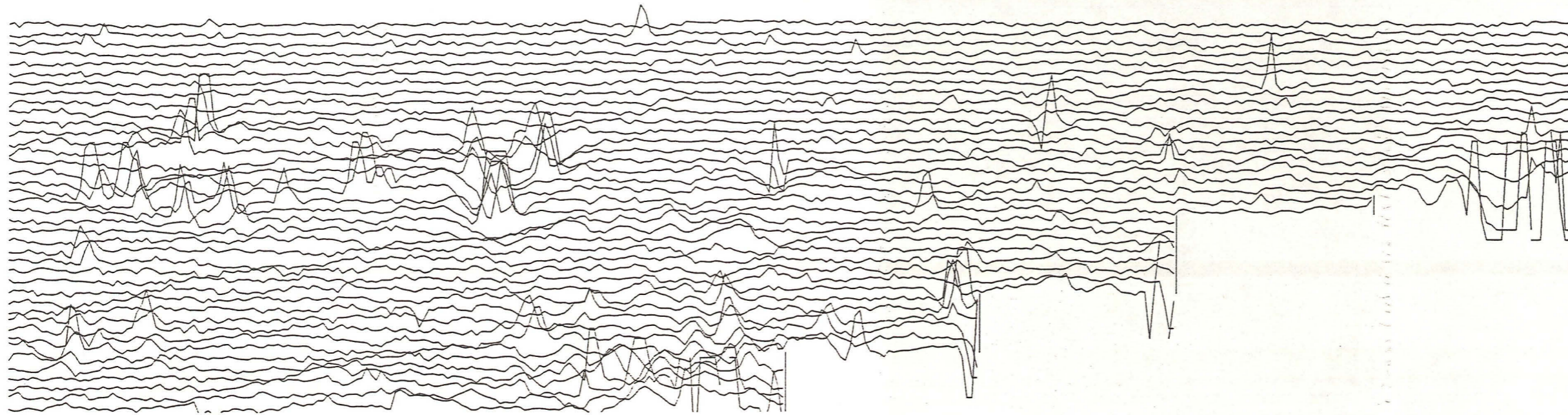


-  ?Archaeology
-  ?Geology
-  Ferrous

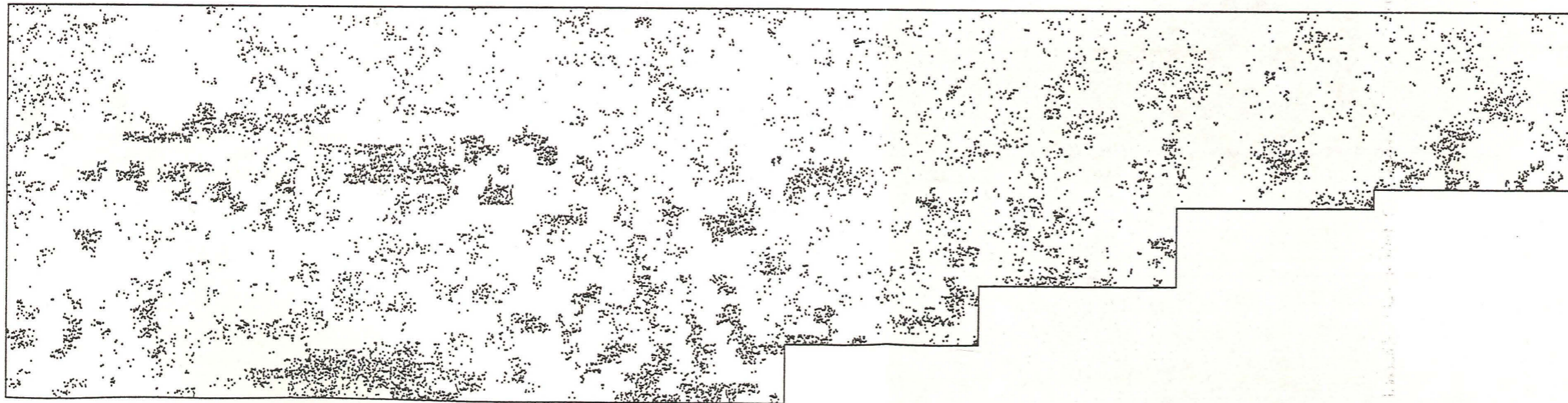


0 m 20

BASTON Area C



15 nT

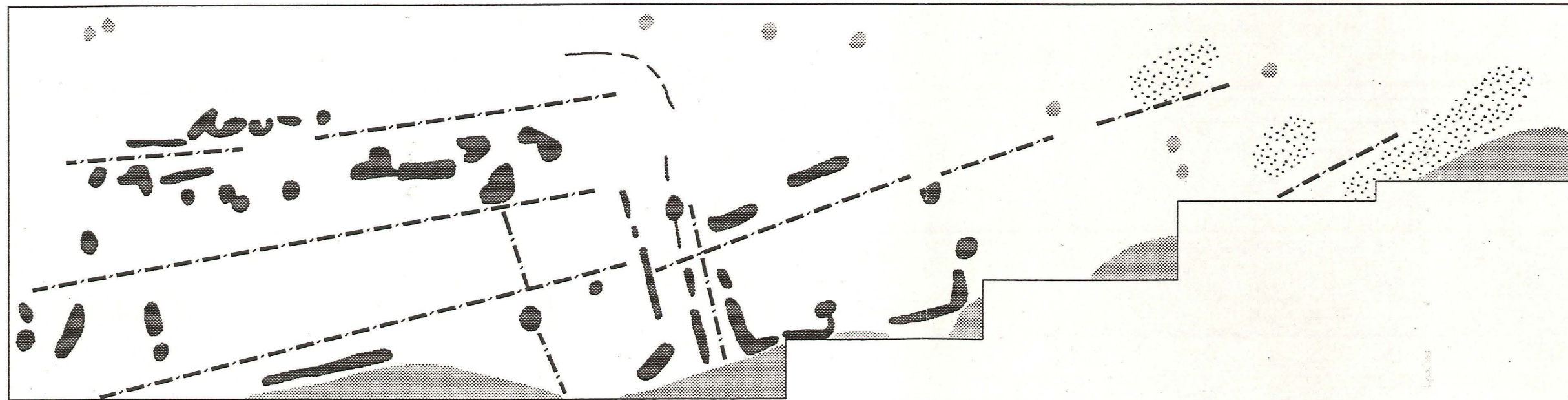






2.0
nT
0.1



0 m 20

BASTON Area C



-  ?Archaeology
-  ?Geology
-  Negative Linear Anomalies
-  Ferrous



0 m 20