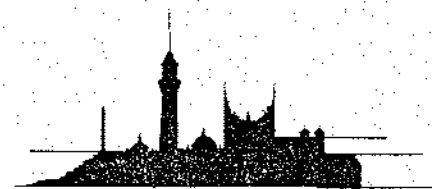


*BIRMINGHAM UNIVERSITY
FIELD ARCHAEOLOGY UNIT*

An Archaeological Evaluation at
Newbold Gravel Pit, Barton Under Needwood,
Staffordshire, 1991-92

B.U.F.A.U.



**An Archaeological Evaluation at Newbold Gravel Pit,
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Extract from:

Report on Geophysical Survey, Newbold, Staffordshire, Report No. 91/59
Geophysical Surveys of Bradford 1991

An Archaeological Evaluation at Newbold Gravel Pit, Barton Under Needwood, Staffordshire, 1991-92

by E.G. Hughes

1.0 INTRODUCTION

The following report outlines the results of the archaeological evaluation of approximately 53 hectares of farmland (centred on NGR SK 198200) to the east of Lower Farm, near Barton Under Needwood, East Staffordshire (Fig. 1). The work was carried out on behalf of Douglas Concrete and Aggregates Limited, prior to the submission of an application for sand and gravel extraction, and was undertaken in three stages. The first stage involved a geophysical survey, carried out by Geophysical Surveys of Bradford in August 1991. The second stage involved trial trenching by Birmingham University Field Archaeology Unit and was carried out on an intermittent basis (due to the presence of crops in a number of the fields under investigation), between August and October 1991. The final stage was carried out by Birmingham University Field Archaeology Unit in January 1992 and involved the examination of a scheduled ancient monument in the northern part of the site.

2.0 THE SITE

The site lies on a gravel terrace to the west of the River Trent. Part of the area lies within the parish of Dunstall and part within the parish of Tatenhill.

No significant archaeological features are visible on the ground apart from a trackway known as Green Lane (formerly Dunstall Common Lane) which runs northwest-southeast through the centre of the threatened area. This corresponds approximately with the boundary between the parishes of Dunstall and Tatenhill. Aerial photographs taken by J. Pickering during the late 1960s (copies of which are located in the Staffordshire Sites and Monuments Record) provide cropmark evidence suggesting the presence of numerous sub-surface archaeological features. These form six distinct groups (SMR numbers 206, 1401, 1402, 1403, 1442 and 1444).

Five of these are largely composed of linear features suggesting the survival of evidence for pre-enclosure field systems. The original interpretation of the remaining cropmark (SMR number 206/SAM number 221) suggested the presence of a D-shaped enclosure ditch of a type well known elsewhere, such as the Avon Valley in Warwickshire (Hobley and Webster 1964), and often associated with Iron Age finds. On the basis of this original interpretation the site has been given scheduled status.

Recent archaeological work in the area has included the evaluation of a similar cropmark complex immediately to the south of the current investigation (Cane and Jones 1989), and of a number of fields at Tucklesholme Farm approximately 1.5km to the southeast (Hughes 1990 and Ferris and Buteux 1992). The latter subsequently led to the partial excavation of a ring ditch (Hughes 1991). All these investigations were carried out by Birmingham University Field Archaeology Unit on behalf of Douglas Concrete.

3.0 OBJECTIVES

The broad objective of the evaluation was to determine the character and nature of the archaeological constraint prior to the submission and assessment of a proposal for gravel extraction. The proposed quarrying would inevitably result in the destruction of any surviving archaeological features or deposits. In particular it was intended:-

- i) To determine the character and nature of the linear cropmarks identified from aerial photography, both within the scheduled and non-scheduled areas.
- ii) To establish whether significant archaeological features or deposits, not so far detected by aerial photographic survey, had survived within the area of proposed gravel extraction.

4.0 METHOD

Cropmark evidence was not available for all the fields under threat, possibly because several do not appear to have been extensively cultivated in the recent past and were under pasture at the time the various photographs were taken. Consequently, the first stage of the evaluation involved geophysical prospection. A fairly extensive magnetometer survey was initially envisaged but following poor initial results a combination of magnetometry and resistivity was applied over a more restricted area.

The geophysical survey was conducted by Geophysical Surveys of Bradford (1991) and concentrated on those areas for which there is little or no cropmark evidence ('Mow Meadow', 'Tivey's' and 'Gorse Hall'). In addition a licence was sought and granted for a survey of the scheduled area. The detailed results are contained within their report, part of which is reproduced in the appendix. In summary, a very poor response was obtained from the magnetometer survey. However, several anomalies were detected during the resistivity survey, in particular within the western half of 'Gorse Hall' field (Appendix, Fig. 23 and Fig. 24) and the southeastern part of 'Tivey's' field. In addition, several anomalies were recorded within the scheduled area, some of which appeared to correspond with the recorded cropmarks. However, these results appeared to question the presence of the D-shaped enclosure originally identified. In particular, the southern and western ditches (which were clearer) appeared to extend beyond the limits of the enclosure (Appendix, 10.2.3 and Fig. 34 and Fig. 37).

Before work began on the trial trenching stage of the evaluation, all the cropmarks were replotted onto 1:1250 plans using the 'Möbius network' technique (Hogg 1980, 226). On the basis of both these newly plotted cropmarks and the geophysical results a total of sixteen 2m wide trial trenches of various lengths and one area, 20m by 20m, were excavated within the non-scheduled area (Fig. 2). In addition Scheduled Monument Consent was sought and granted for an evaluation of the scheduled area (SMR 206). A total of five 15m by 2m trenches were excavated across the line of the anomalies detected by the resistivity survey and two 7m by 7m trenches

were excavated where two or more of the anomalies intersected (Fig. 3). A third 7m by 7m trench was excavated in the approximate centre of the suggested D-shaped enclosure. These eight trenches were designed specifically to test the character and the status of the suggested enclosure. The remainder of the scheduled area was sampled by means of five 2m wide trenches varying in length between 40m and 100m.

In all trenches the ploughsoil was removed by machine and was found to vary between 0.3m and 0.4m deep. The underlying gravel subsoils were cleaned manually in order to facilitate the definition of archaeological features. In all cases these archaeological features were sample excavated in order to determine their character and to attempt to recover information relating to their date.

5.0 THE ARCHAEOLOGICAL RESULTS

5.1 The non-scheduled area (Figs. 2 and 4A) Trenches I and II ('Mow Meadow')

Trench I (81 x 2m with two extensions 15 x 2m and 10 x 3m) was designed to investigate any possible continuation into 'Mow Meadow' of the cropmarks (SMR 1402) identified in the field immediately to the west. These included a linear feature and three sides of a possible enclosure. The natural gravels were found to be overlain by 0.2m of dark brown peat and 0.15m of grey clay. The presence of this peat and clay presumably accounts for the unsuitability of the field for arable farming and the consequent absence of cropmarks. Two linear features were observed cutting the clay, one of which (F5) contained a modern field drain. The second, F4, was orientated southwest-northeast and was filled with a fine yellow-brown sand with thin bands of orange and black staining (Fig. 4A). It was approximately 2m wide and up to 0.4m deep. The line of this ditch was traced by an eastwards extension to the trench where it was found to become much shallower. It was not detected at all by the geophysical survey to the east. Two fragments of roof tile (possibly Romano-British imbrex) and three sherds of Romano-British pottery were recovered from the fill. These included a rim sherd from a beaker in a sandy oxidised Severn Valley type ware and a fragmentary rim in a red colour coated ware.

It seems possible that the southwest–northeast ditch represents a continuation of the linear feature recorded in the field to the west, which has a similar orientation. No evidence for the possible enclosure was identified in Trench I, suggesting that its eastern side may correspond with the modern field boundary. It is possible that the Romano-British pottery recovered from the ditch originates from this enclosure.

Trench II (60m x 2m) was designed to investigate two linear cropmarks in the southern part of 'Mow Meadow'. The feature to the northeast proved to be a modern land drain and the one to the southwest was a shallow U-shaped ditch, possibly the line of a former field boundary.

Trenches III and V ('Gorse Hall')

Trench III (60 x 2m) was designed to investigate the possible northern continuation of the field system suggested by the cropmark complex in the field to the south (SMR 1444). In the event no features were identified. Trench V (53 x 2m) was designed to investigate several linear anomalies (suggesting an enclosure) recorded during the resistivity survey (Appendix Fig. 23 and Fig. 24). Several 'ditch' features were recorded, two of which contained modern land drains. A third, F11, had a V-shaped profile and was 0.9m wide and 0.45m deep (Fig. 4A). Two others (in the southern half of the trench) were orientated east–west, and had wide, shallow U-shaped profiles. It seems likely that these features were associated with the pre-enclosure ridge and furrow cultivation.

Trenches IV and VI ('Tivey's')

Trenches IV (32.5 x 2m) and VI (21 x 2m) were located in the southeastern area of 'Tivey's' field to the east of Black Meadow Wood. Both intersected with the line of a modern sewer trench indicated on recent surveys. A second modern trench containing an iron water pipe (clearly identified by the magnetometer survey) was recorded in Trench IV. A possible former hedgeline and associated vegetation identified in Trench VI was possibly the source of an anomaly recorded during the resistivity survey.

Trenches VII and VIII ('16 Acre Oval')

Trenches VII (50 x 2m) and VIII (51 x 2m) were designed to investigate the cropmark

complex (SMR 1401) in the northwestern area of the evaluation. No archaeological features were recorded in Trench VII. Several bands of sand were identified and tested but appeared to be of geological rather than of archaeological origin, suggesting that the cropmarks have been caused by variations in the natural subsoil rather than by past human activity. Three shallow linear ditches were sectioned in Trench VIII. Slight variations in their fill and shape suggested that they may have belonged to two distinct pre-enclosure field systems, although no dating evidence was obtained. The ditch to the southeast (Fig. 4A, F22), was 1.7m wide, 0.2m deep and had a shallow U-shaped profile. The ditch to the northwest (Fig. 4A, F23) was 1.9m wide, 0.3m deep and had a steeper U-shaped profile.

Trenches IX, X and XI ('10 Acre Rough Ground')

Trenches IX (52 x 2m), X (69 x 2m) and XI (48m x 2m) were designed to investigate the cropmark complex (SMR 1403) in the northeastern area of the evaluation. Features apparently corresponding with the linear cropmarks were identified and sectioned in Trenches IX and X. As with Trench VIII the profile and fills of these features suggested that they belonged to two field systems. One of these field systems appears to have comprised small rectilinear fields, each perhaps no more than 0.5 hectares in size, defined by shallow U-shaped ditches. One of the ditches investigated, F16 (Fig. 4A), was 0.9m wide and 0.2m deep. Although no dating evidence was recovered, the shape and dimensions of the fields suggest that a late prehistoric or Romano-British date is possible (cf. a Romano-British field system recently investigated at Duncote Farm near Shrewsbury (Hannaford *et al.* 1992)). The second field system appeared to be represented by a slightly curving ditch, F17 (Fig. 4A), 2m wide and 0.3m deep. The character of this feature suggested that it might belong to a later, possibly medieval, field system, although, once again, no dating evidence was recovered.

Trench XI was designed to investigate the possible presence of a ring ditch on the extreme eastern edge of the evaluation area. In the event the only feature identified was a ditch belonging

to a field boundary of recent date. No features corresponding with the suggested ring ditch could be identified.

Trenches XII, XIII and XIV ('Cottage Field')

Trenches XII (a T-shaped trench with one arm 50m x 2m and one 30m x 2m) and XIII (50m x 2m) were designed to investigate the cropmark complex in the northern part of 'Cottage Field' (SMR 1442). These included several linear features and an apparent circular feature, approximately 20m in diameter. Three shallow U-shaped features were recorded in Trench XII, approximately 13m apart, and a forth was identified in Trench XIII. All were orientated east-west and may also be traces of the former ridge and furrow cultivation. Although several other shallow features were recorded, there was no clear evidence for the features causing the cropmarks on the aerial photographs. No features at all were identified in a third trench, Trench XIV (25m x 2m) located to the north of the derelict buildings of Gorse Hall.

Trenches XV, XVI and XVII ('16 Acre Kale')

Trenches XV (100m x 2m), XVI (50m x 2m) and XVII (20m x 20m) were designed to investigate the complex of linear cropmarks (SMR 1444) in an arable field ('16 acre Kale') in the southern part of the evaluated area. Apart from two recent land drains the only features of note were seven wide and shallow U-shaped ditches in Trench XV. All were regularly spaced, at 9-10m intervals and were orientated east-west. Once again they presumably represent the remnants of ridge and furrow cultivation and once again there was no evidence for the features causing the cropmarks.

Trench XVII was designed to investigate the intersection between two of the linear cropmarks but no features of archaeological interest were identified.

5.2 The scheduled area (Figs. 3 and 4B)

The scheduled area was treated as a separate site for the purposes of the evaluation. A new series of numbers was assigned to the trial trenches (Trenches 1 to 13) and a new context and feature number series was established. The evaluation procedure was the same as for the trenches in the

non-scheduled area with the exception of Trenches 3 and 5 in the eastern part of the area. In these cases the natural gravels were partially overlain by deposits of natural peaty soil which proved difficult to clean and could have obscured archaeological features. Although an attempt was made to investigate selected areas (indicated on Fig. 3), no features could be distinguished. In the remaining trenches two main feature types were identified which appear to relate to two distinct periods of agricultural activity.

Period 1

Characterised by a group of very irregular and shallow depressions filled with a dark grey/black, peaty clay with some sand and gravel (eg. Fig. 4B, F8, F11 and F14). The maximum surviving width of these features was 1.5m (F14) and the maximum depth 0.25m (F8). They appeared to form rough alignments, and it seems likely that these correspond with the linear anomalies detected during the resistivity survey. Four of these features, 1031 (Trench 7), F12 (Trench 8), 1026 and F11 (both Trench 6), appeared to correspond with the western geophysical anomaly, and a further three, F10, F8 (both Trench 6) and F14 (Trench 10), with the southern anomaly. Small patches of dark peaty soil in Trenches 12 and 13 might also belong to this series of linear features. No features were identified within the area defined by these alignments apart from a very small, shallow feature, F13, in Trench 9 (Fig. 4B). No artifacts were recovered from any of these features.

Period 2

Characterised by a series of parallel linear features with a shallow U-shaped profile and orientated northwest-southeast. The majority were filled with a yellow/brown or grey silt sand with gravel, frequently capped with a deposit of red brown silt clay. A typical example was F15 (Fig. 4B). They ranged between 2m and 3m wide and the excavated examples were no more than 0.2m deep. The distance between these features ranged between 8m and 11m. One example was traced in no fewer than six of the trenches; F1 (Trench 1), 1030 (Trench 7), 1029 (Trench 8), 1036 (Trench 10), 1037 (Trench 11) and 1016 (Trench 4). In several places these features crossed the line of the Period 1 alignments, leaving no trace of the earlier features.

It seems almost certain that these features correspond with the parallel linear responses identified from both the magnetic and resistance data (Appendix, 10.1.1 and 10.2.1). Only one find, a fragment of clay pipe stem, was recovered from any of their fills.

6.0 DISCUSSION

6.1 The non-scheduled area

The trial trenches excavated to date have established that a number of the cropmark features and anomalies detected by the geophysical survey are of geological origin or of recent date. Many could not be identified at all. This was particularly the case in those fields that have recently been under intensive cultivation (such as 'Cottage Field' (1442) and '16 acre Kale' (SMR 1444)) and raises the possibility that they have been eradicated by recent ploughing. However, numerous features were recorded which were thought to belong to the former ridge and furrow cultivation. Most were orientated east-west and appeared to be between 9m and 13m apart. During the winter, traces of this system could be observed on the surface of those fields, close to Lower Farm, which have not been cultivated in recent years. A similar pattern of linear furrows was identified at Tucklesholme Farm (Hughes 1991, 4 and Fig.2), and might also explain a number of the features identified at Newbold Manor Farm (Cane and Jones 1989, Fig. 2b).

A few features, particularly in the northern part of the evaluated area, might relate to early field boundaries. An examination of 19th-century Tithe maps indicates that the present pattern of field boundaries has remained largely unchanged since 1839. Therefore, the suggested field boundaries would appear to belong to pre-enclosure field systems and may even date back to the late prehistoric or the Romano-British period. Unfortunately, the majority of these features lacked any dating evidence, although the presence of a small quantity of Romano-British pottery from the ditch (F4) in Trench I suggests some contemporary activity in the area. No settlement enclosures have so far been conclusively identified, although a promising candidate would be the cropmark feature to the west of 'Mow Meadow', but lying outside the evaluation area.

6.2 The scheduled area

It now seems clear that the cropmarks on the aerial photographs were wrongly interpreted as a D-shaped enclosure. The Period 1 features recorded in the trial trenches were very poorly preserved and presumably belong to an early system of field boundaries. Unfortunately, the complete absence of artifacts prevents any consideration of their possible date. The alignments of these features suggest that they are the cause of both the cropmarks and the geophysical anomalies. It is probable that when the aerial photographs were taken the features had suffered less truncation from modern ploughing. Presumably, the resistivity survey was able to differentiate between the peaty character of their fills and the surrounding natural gravels. The only intermittent survival of the linear features suggests that the original field boundaries may have been defined by hedges and trees.

The Period 2 features are almost certainly the truncated remnants of more recent agricultural furrows relating to ridge and furrow cultivation, also suggested elsewhere in the evaluation. These are potentially of medieval date but could be of more recent, though pre-19th century, origin.

7.0 RECOMMENDATIONS

While the evaluation has been a useful exercise in examining an archaeological landscape of the Trent Valley gravels, and has revealed traces of an early field system, part of which may date back to the Roman period, it is suggested that additional archaeological work would not add significantly to our current knowledge of the area. A programme of monitoring in selected areas during topsoil stripping prior to gravel extraction would be the most appropriate archaeological response should gravel quarrying proceed.

The evaluation of the scheduled ancient monument clearly indicates that the site is not of national archaeological importance, and it is therefore most unlikely that English Heritage will recommend its continuing preservation *in situ*. Moreover, the evaluation suggests that little additional information is likely to be gained from a more extensive programme of excavation, should the application for gravel extraction be

successful and, once again, further archaeological work could be limited to a programme of monitoring.

8.0 ACKNOWLEDGEMENTS

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Many thanks to the quarry manager, Mike Davies, for his assistance and to Richard Evans at Lower Farm for his help and patience.

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NEWBOLD GRAVEL PIT 1991~2

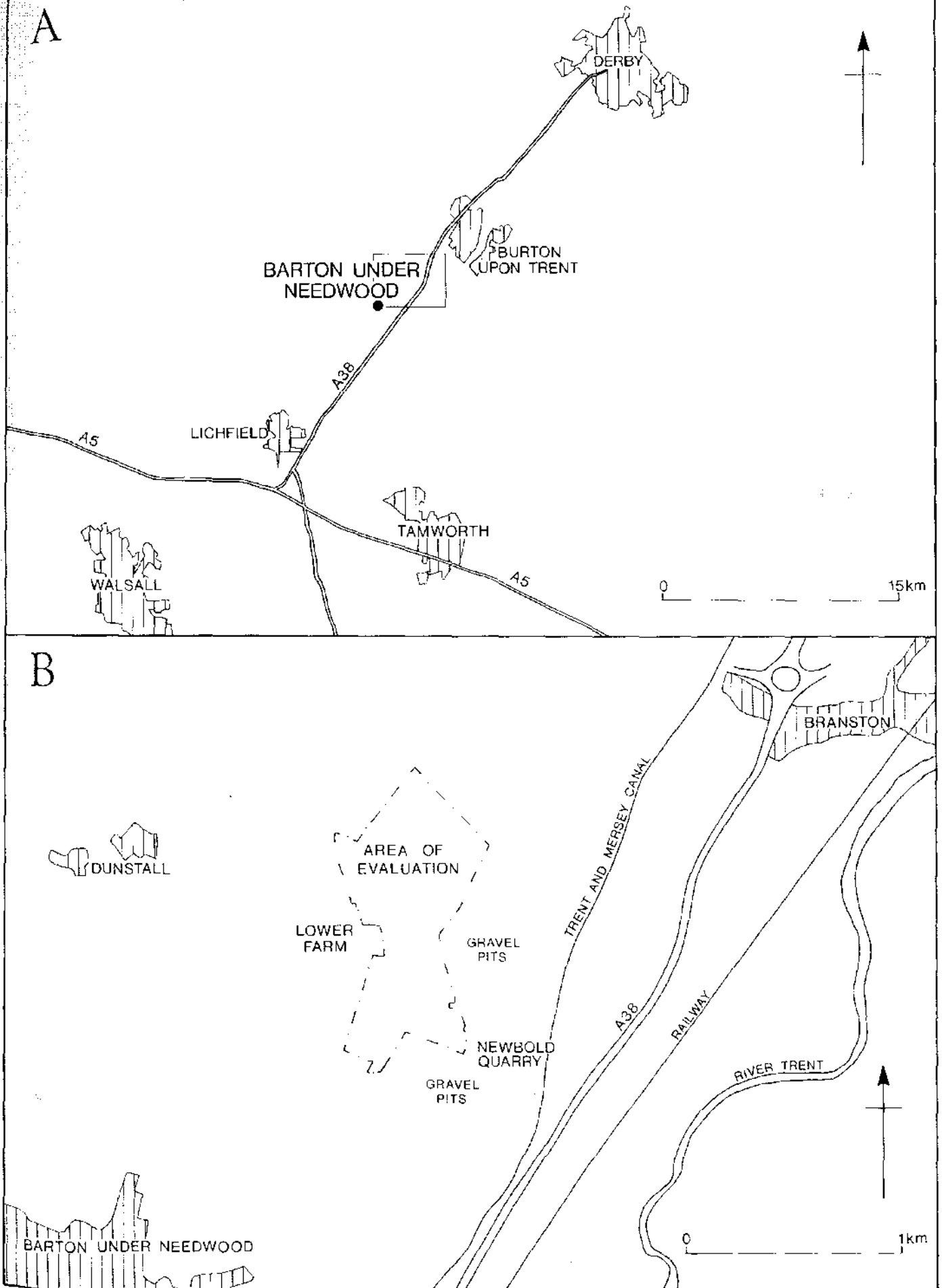


Figure 1

NEWBOLD GRAVEL PIT 1991 ~2

Area of Evaluation

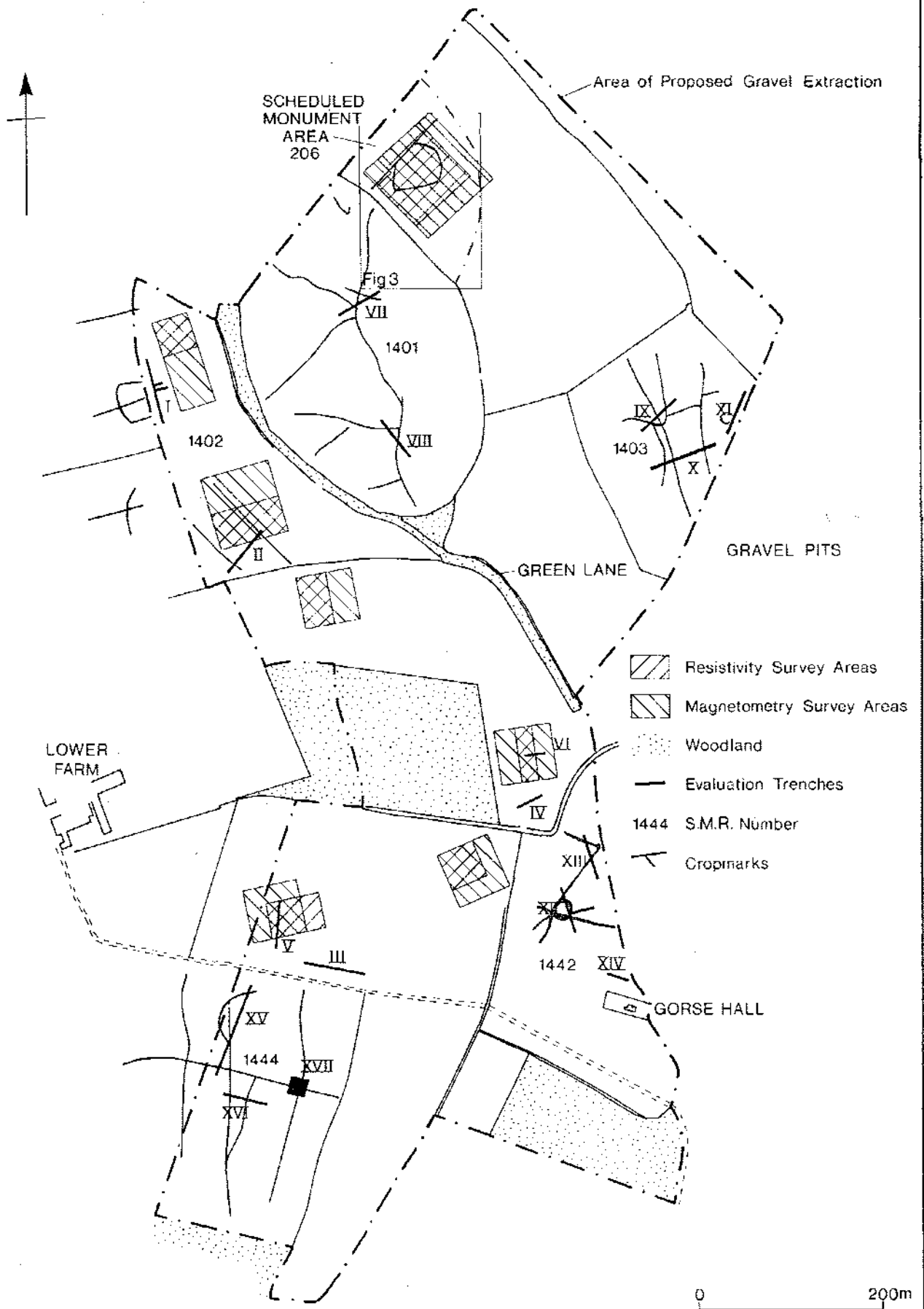
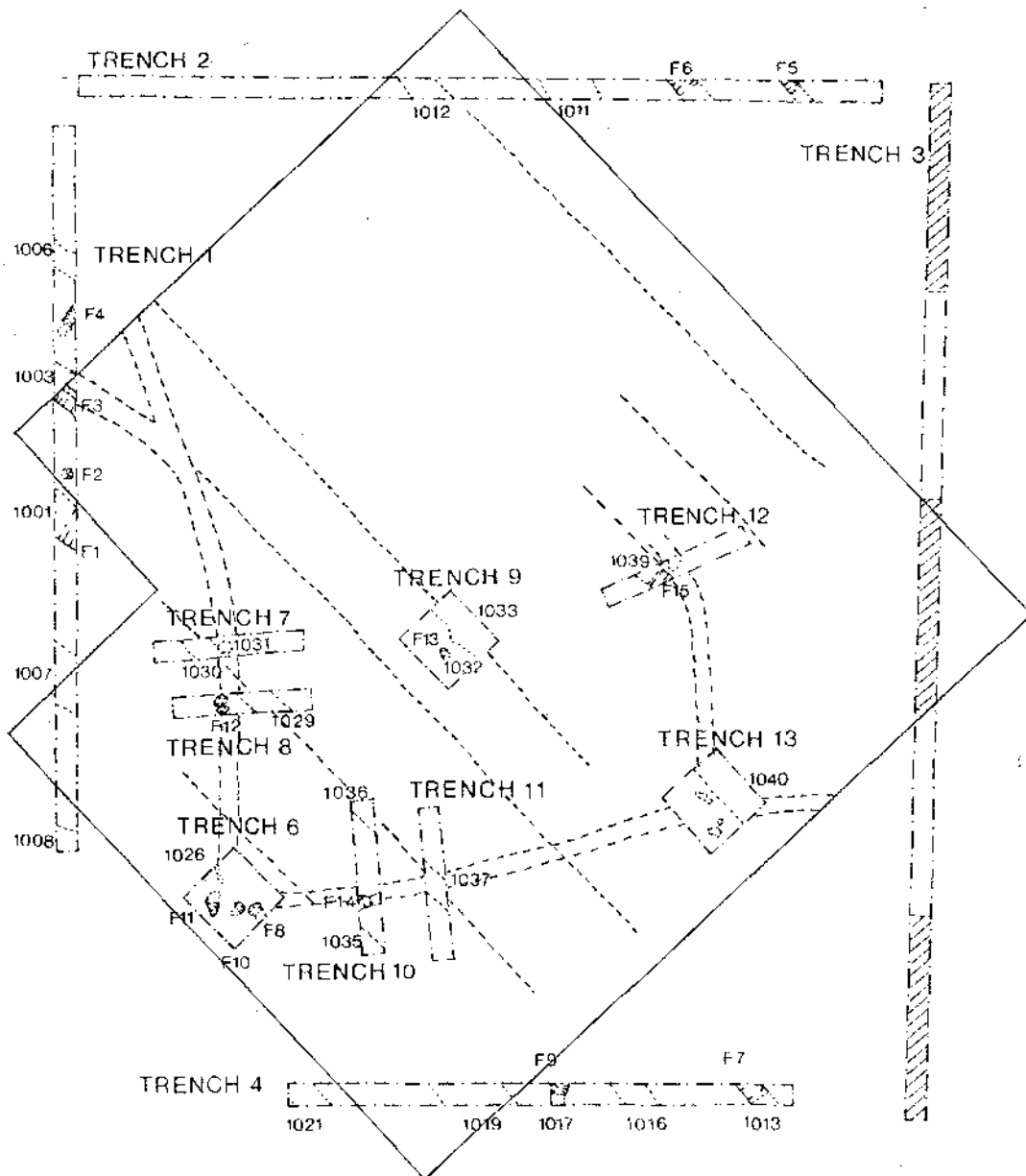


Figure 2

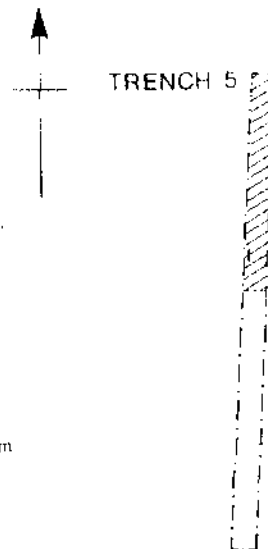
NEWBOLD GRAVEL PIT 1991-2



Scheduled Area - Plan

Key

- Archaeological Trenches
- Unexcavated Archaeological Features
- ▬ Excavated Archaeological Features
- ▨ Areas of Trenches 3 & 5 cleaned
- Limit of Resistivity Survey
- Geophysical Anomalies

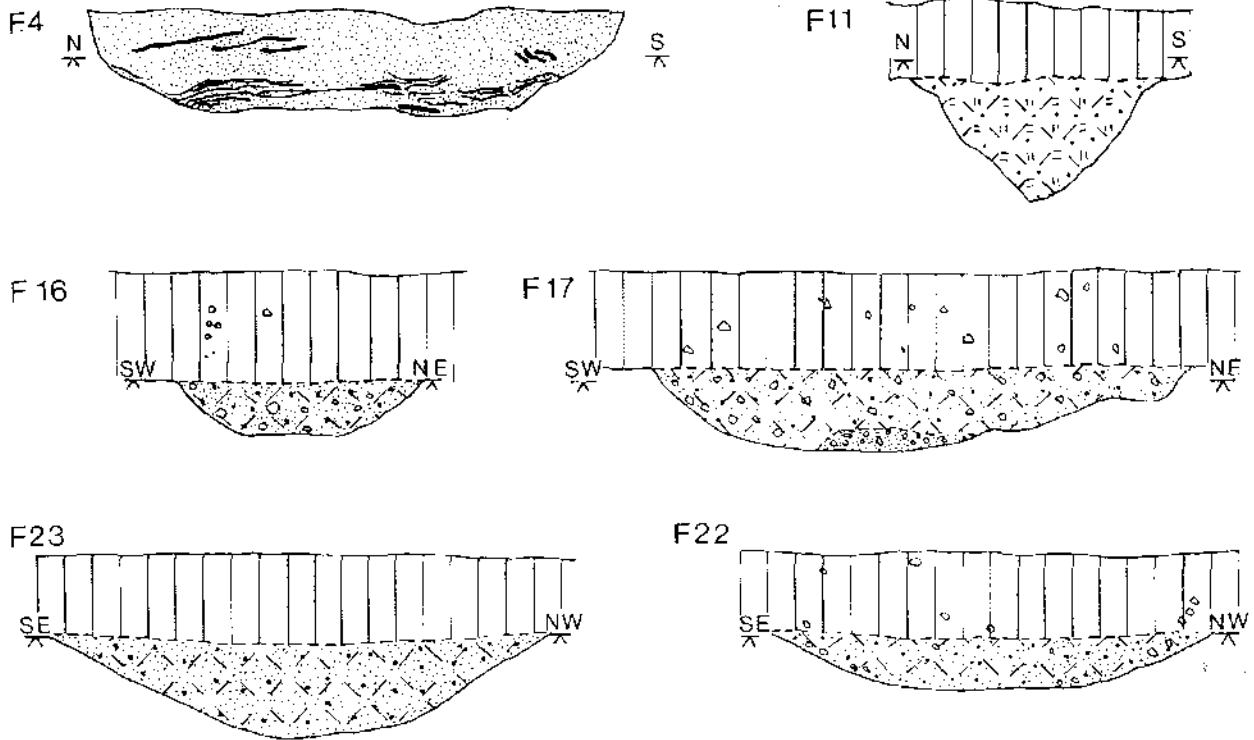


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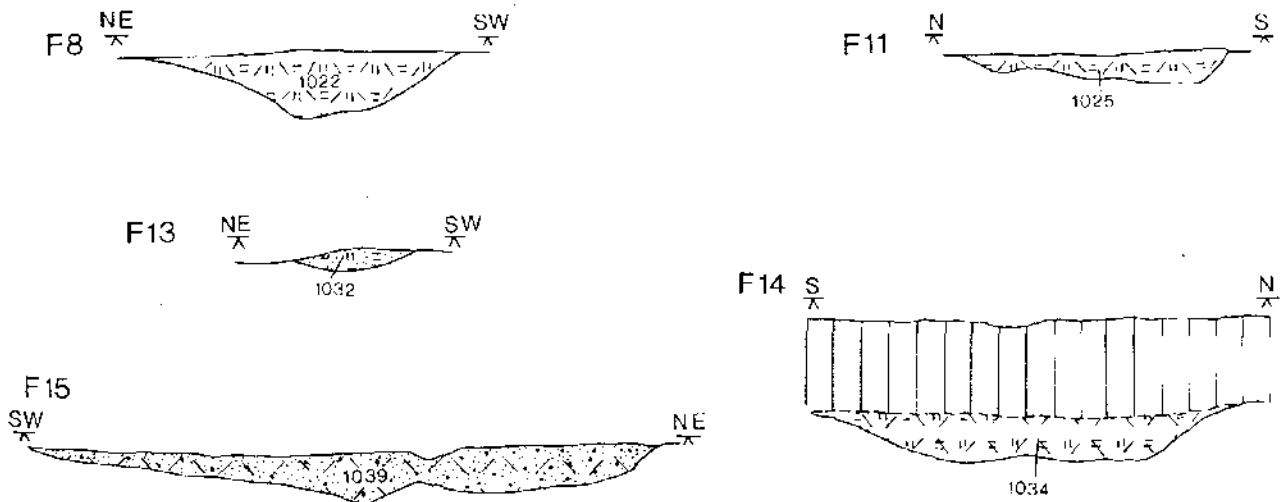
Figure 3

NEWBOLD GRAVEL PIT 1991-2

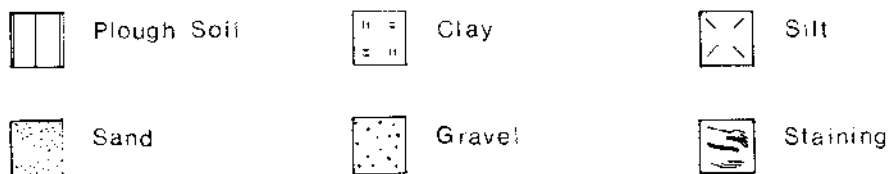
A: Non-Scheduled Area - Sections



B: Scheduled Area - Sections



Key to Sections



0 1m

Figure 4

Appendix

Extract from:

Report on Geophysical Survey, Newbold, Staffordshire,

Report No. 91/59

by

Geophysical Surveys of Bradford

1991

SITE SUMMARY SHEET

91 / 59 Newbold, Staffordshire

NGR: SK 20 19

Location, topography and geology

The site under investigation lies to the south of the village of Barton-under-Needwood which itself is to the south of Burton-upon-Trent. The survey area covers a large area of generally level farmland, to the east of a gravel quarry.

Archaeology

The archaeological information for this area is dominated by a complex of cropmarks which are clearly visible in aerial photographs. This includes a scheduled 'D' shaped enclosure which lies within the proposed area of development. Furthermore nearby excavations located a prehistoric settlement, probably of Iron Age date (B.U.F.A, May 1989).

Aim of Survey

It was hoped that a geophysical survey would accurately locate some of the known cropmarks, together with additional features. The work was carried out as part of a wider archaeological evaluation of the site prior to its destruction through gravel extraction.

Summary of Results *

The geophysical survey at Newbold met with limited success. Although there were several known cropmarks in the area, none were detected by the magnetic method. Some areas of increased magnetic response were located, but it is difficult to say with certainty whether any of these are archaeologically significant.

The resistance survey was more successful, locating the known 'D'-shaped enclosure. Several other ditches, of possible archaeological significance, were also located.

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

SURVEY RESULTS

91/59 Newbold, Staffordshire

1. Survey Areas (Figure 1)

1.1 A total of seven areas were investigated using geophysical techniques.

1.2 Initially, the area was 'scanned' using a fluxgate gradiometer to ascertain whether any anomalies were visible. It was not possible to identify any likely anthropogenic anomalies using this method, and it was therefore decided to proceed with a sampling strategy.

1.3. All areas were surveyed in detail using the magnetic technique, then selected areas were surveyed within each sample using the resistance technique. The results from each area, i.e. both resistance and magnetic data, will be discussed separately.

1.4 All the areas were positioned with the help of Birmingham University Field Archaeology Unit (BUFAU), who also tied in the grid. The location of the survey areas can be seen in Figure 1 (supplied by BUFAU).

2. Display (Figures 2-36)

2.1 The results are displayed in a variety of formats including dot density plots, contour, X-Y traces, perspective XY traces and grey-scale images. These display formats are discussed in the *Technical Section*.

2.2 For ease of display and accuracy of interpretation, filtered versions of the resistance data are also displayed. The filter used is a box filter, implemented to 'strip off' the background trends, which it is assumed, are geological in origin.

3. General Considerations - Complicating factors

3.1 Magnetic Data

In the main, there are few factors affecting the quality of the data, although there are occasional ferrous peaks, and two ferrous pipes within the data set.

3.2 Resistance Data

The only factor that is of any concern when considering this data is the change in background due to local geological/pedological variation.

4. Mow Meadow - A (Interpretation - Figure 6)

4.1 The Magnetic Data (Figures 2 - 3)

4.1.1 The magnetic data is, in part, distorted by a ferrous pipe in the eastern part of the survey grid. The rest of the survey area is relatively free of ferrous material.

4.1.2 The X-Y plot indicates a low level of response, as had been suggested by the free range 'scanning'.

4.1.3 Although there are some small areas of increased responses, there is no uniformity to the shape of the anomalies. It is therefore unlikely that these represent archaeological features. It is more likely that they are the product of natural variations in the near surface geology.

4.2 *The Resistance Data (Figures 4 - 5)*

4.2.1 There are few coherent anomalies within either the raw or filtered data sets for this area.

4.2.2 There is a single low resistance anomaly that can just be discerned in the filtered data, which may represent a ditch type anomaly.

5 Mow Meadow - B (Interpretation - Figure 10)

5.1 *The Magnetic Data (Figures 7 - 8)*

5.1.1 The data are relatively free from interference, although occasional sharp peaks due to ferrous materials can be seen on the X-Y plot.

5.1.2 There are a number of anomalies that may represent small archaeological features in the northern part of the survey area.

5.2 *The Resistance Data (Figure 9)*

5.2.1 The northern part of this area was resurveyed using the resistance technique. A considerable geological change is seen in the raw data.

5.2.2 There appears to be no correlation between areas of low resistance and the positive magnetic anomalies noted above.

5.2.3 The single high resistance reading in the filtered data set is a product of the filtering.

6 Tiveys A (Interpretation - Figure 14)

6.1 *The Magnetic Data (Figures 11 - 12)*

6.1.1 The results from the western part of the survey area are dominated by the response from the ferrous pipe. To the east of this pipe is an area of magnetic disturbance. It is not clear if this is an area of recent dumping, or some archaeologically significant spread of material.

6.2 *The Resistance Data (Figure 13)*

6.2.1 The information collected in this area shows a considerable variation in resistance. The filtered data, however, suggests that there is a ditch type anomaly at the eastern edge of the narrow survey area.

7 Tiveys B (Interpretation - Figure 19)

7.1 *The Magnetic Data (Figures 15 - 16)*

7.1.1 The magnetic data contains no anomalies that appear to be archaeological in origin. The sharp amplitude responses may represent spreads of modern material.

7.2 *The Resistance Data (Figure 17)*

7.2.1 There is a clear division between the southern and northern areas within the resistance data. This is presumed to be geological in origin.

7.2.2 The filtered data has highlighted a single anomaly in the northern part of the data. Coupled with this are a series of lower level, linear anomalies, that could be the result of ridge and furrow, or some similar former agricultural practice.

8 Gorse Hall A (Interpretation - Figure 24)

8.1 The Magnetic Data (Figures 20 - 21)

8.1.1 The magnetic data is clearly distorted by ferrous type anomalies. This is probably the result of modern dumping. There are also several isolated ferrous peaks across the area.

8.1.2 There are no clear anomalies of archaeological significance

8.2 The Resistance Data (Figures 22 - 23)

8.2.1 Again the results are dominated by a marked increase in resistance, almost certainly due to geological/pedological variations.

8.2.2 The clear linear low resistance response in the north of the survey area corresponds with a ditch visible on the ground.

8.2.3 A similar anomaly to the south is not visible on the ground.

8.2.4 The filtered data reveals a ditch-like anomaly orientated north south, which may be associated with the anomalies noted above.

9 Gorse Hall B (Interpretation - Figure 28)

9.1 The Magnetic Data (Figures 25 - 26)

9.1.1 There are several sharp peaks across the area, clearly visible in the XY traces, which are almost certainly due to scattered ferrous debris.

9.1.2 There are a few lower amplitude, pit like anomalies, but these are most likely to be due to deeply buried ferrous material, rather than archaeological activities.

9.2 The Resistance Data (Figure 27)

9.2.1 The area is dominated by a central area of disturbance. This could be due to dumping of material, or a local variation in the geology.

10 Scheduled Area (Interpretation Figure 37)

10.1 The Magnetic Data

10.1.1 The magnetic data is dominated by parallel linear responses which correspond with tractor ruts/ploughing just visible on the surface.

10.1.2 There are also several peaks relating to ferrous debris across the site.

10.1.3 There are no anomalies which are readily identifiable as archaeological in nature ie. no part of the ditch system associated with the enclosure was identified.

10.2 The Resistance Data

10.2.1 Many of the parallel linear anomalies seen in the magnetic data are also visible in the resistance data.

10.2.2 There are clear linear low resistance anomalies which appear to form an enclosure, best seen in the inverse plot or the filtered data.

10.2.3 However, the nature of the features varies with the 'western ditches' being clearer. This may be the product of differential survival or variation in the depth of the topsoil. These ditches also appear to extend 'beyond' the limits of the enclosure.

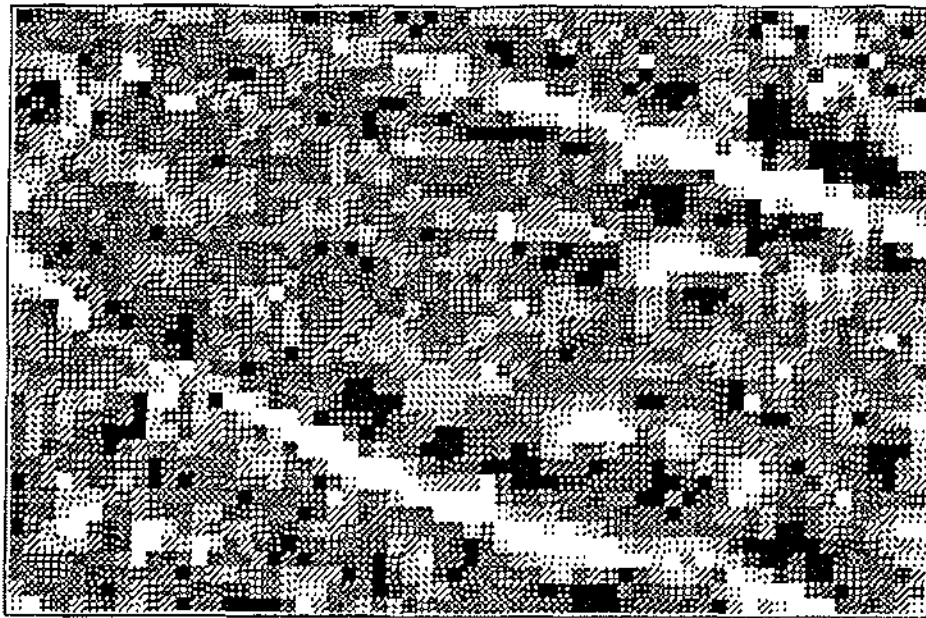
10.2.4 The northern limits of the enclosure are not clearly defined, although the filtered resistance data highlights the enclosure, suggesting a northern limit.

11. Conclusions

11.1 The results of the magnetic and resistance surveys have been varied in their quality and usefulness. In general, even the known cropmark sites, have proved unable to be mapped using the magnetic technique. The resistance technique has provided clear information, although considerable computer time was required to generate plots suitable to interpret.

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Project Assistants: S Manifold and D Shiel

Geophysical Surveys of Bradford
23th August 1991



NEWBOLD

Gorse Hall A

Filtered Resistance Data

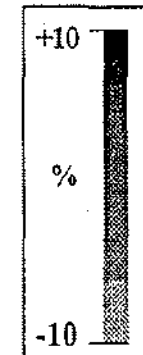
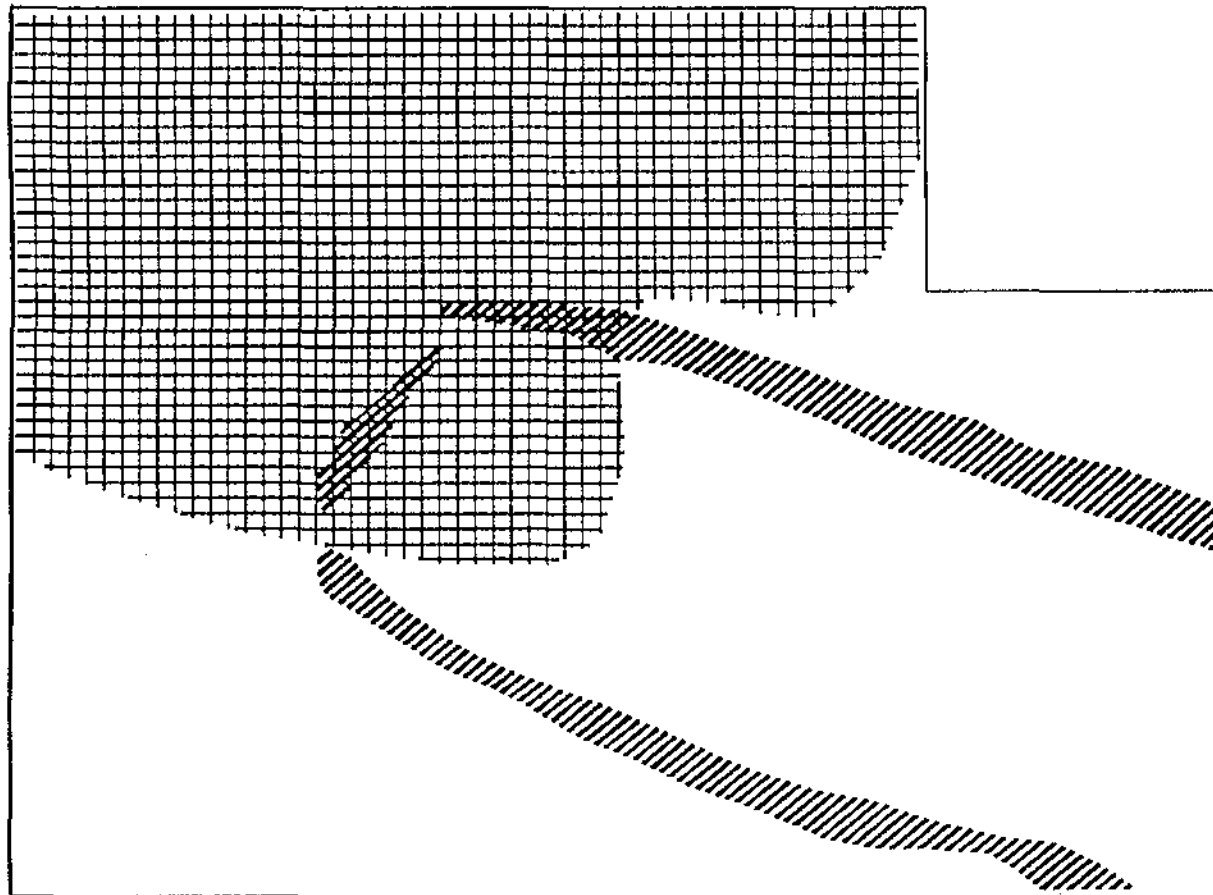


Figure 23

NEWBOLD

Gorse Hall A

Interpretation



Area of Disturbance



Low Resistance
? Ditch

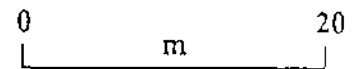
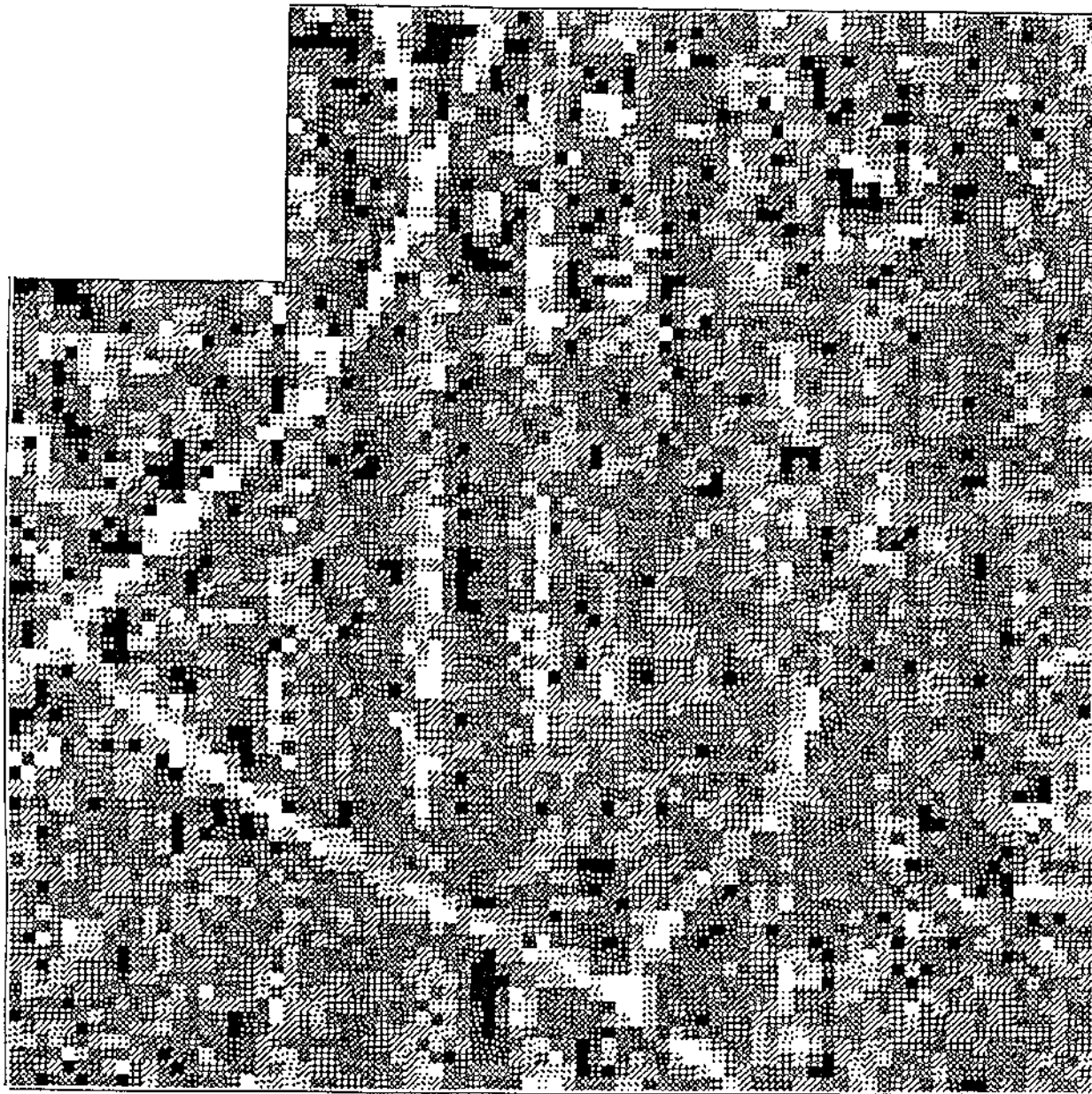


Figure 24



NEWBOLD

Scheduled Area

Filtered
Resistance Data

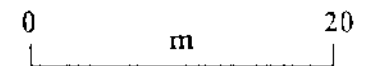
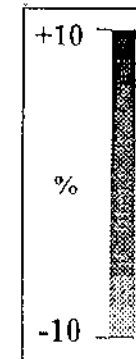
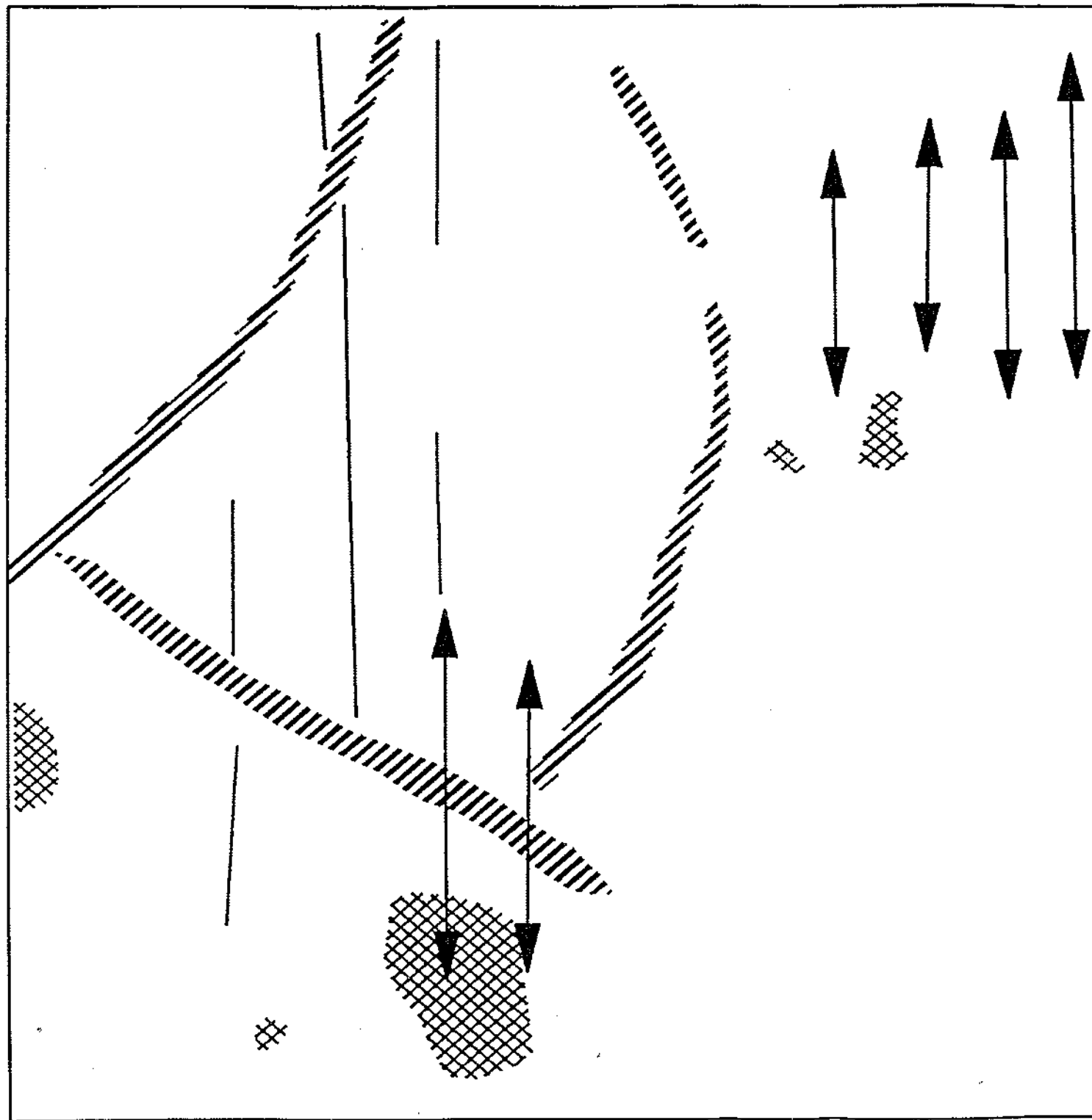






Figure 34



NEWBOLD
Scheduled Area

Interpretation

-  Ferrous Disturbance
-  Low Resistance
? Ditch
-  Magnetic Trend
-  Resistance Trend

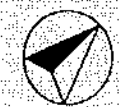


Figure 37