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ARCHAEOLOGICAL FIELD EVALUATION REPORT

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WHITE HOUSE LANE, FISHTOFT,
LINCOLNSHIRE



PRE-CONSTRUCT ARCHAEOLOGY (Lincoln)

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WHITE HOUSE LANE, FISHTOFT

AN ARCHAEOLOGICAL FIELD EVALUATION REPORT

FOR

G. DIXON

(ON BEHALF OF REGALBOURNE LTD.)

BY

COLIN PALMER-BROWN

PRE-CONSTRUCT ARCHAEOLOGY (LINCOLN)
66 SCHOOL LANE
SILK WILLOUGHBY
SLEAFORD
LINCOLNSHIRE
NG32 8PH

PHONE & FAX 01529 302874

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1.0 Non-technical summary

Regalbourne Ltd. propose to construct 37 houses on the west side of Whitehouse Lane, Fishtoft, Lincolnshire (Fig. 's 1 and 2). A combined desk top and field walking investigation suggested that the site was of moderate archaeological potential (Palmer-Brown 1994), and was procedurally followed by a magnetometer survey which identified a series of magnetic anomalies; some of which appeared to be archaeological.

This report follows a ten day trenching programme, designed to assess impacts to archaeological resources which may be caused by the proposed scheme. Eleven trenches were excavated within the area of proposed housing development; to sample magnetic anomalies identified during geophysical survey, and to assess areas which (on the basis of that survey) appeared to be archaeologically sterile. Three of the trenches were sited outside the survey zone.

The combined desk and field-based surveys of the site have demonstrated the presence of significant archaeological remains dating to the late Saxon (late C9th/early C10th) and early medieval periods (C13th). The late Saxon occupation is considered to be regionally significant. Features of this date contain important well-preserved, and potentially unique, environmental remains.

2.0 Introduction

An intrusive phase of archaeological field evaluation took place between Monday, March 27th and Friday, April 7th, 1995 on the site of a proposed housing development. The works were commissioned by Mr G. Dixon (Architect) on behalf of Regalbourne Ltd and followed a combined desk-based and field walking programme (Palmer-Brown 1994) and magnetometer survey (Lyll 1994, Appendix 7).

The combined assessment and phase I evaluation report concluded that the archaeological potential was moderate. Conclusions were drawn largely from data derived during field walking - a considerable density of late Saxon/early medieval pottery was present within the modern ploughsoil, as were concentrations of iron smithing slag.

A geophysical (magnetometer) survey, undertaken by the Landscape research Centre Ltd. in advance of trenching, identified a large number of magnetic anomalies: those considered to be of potential archaeological significance featured principally on the south side of the area sampled (Fig. 2, Appendix 7).

The Community Archaeologist for Boston issued a requirement for strategic archaeological trenching, involving the excavation of a sample area not exceeding 1% of the overall site. A project specification was prepared by Pre-Construct Archaeology (Lincoln) which was subsequently approved by the Community Archaeologist and the Client.

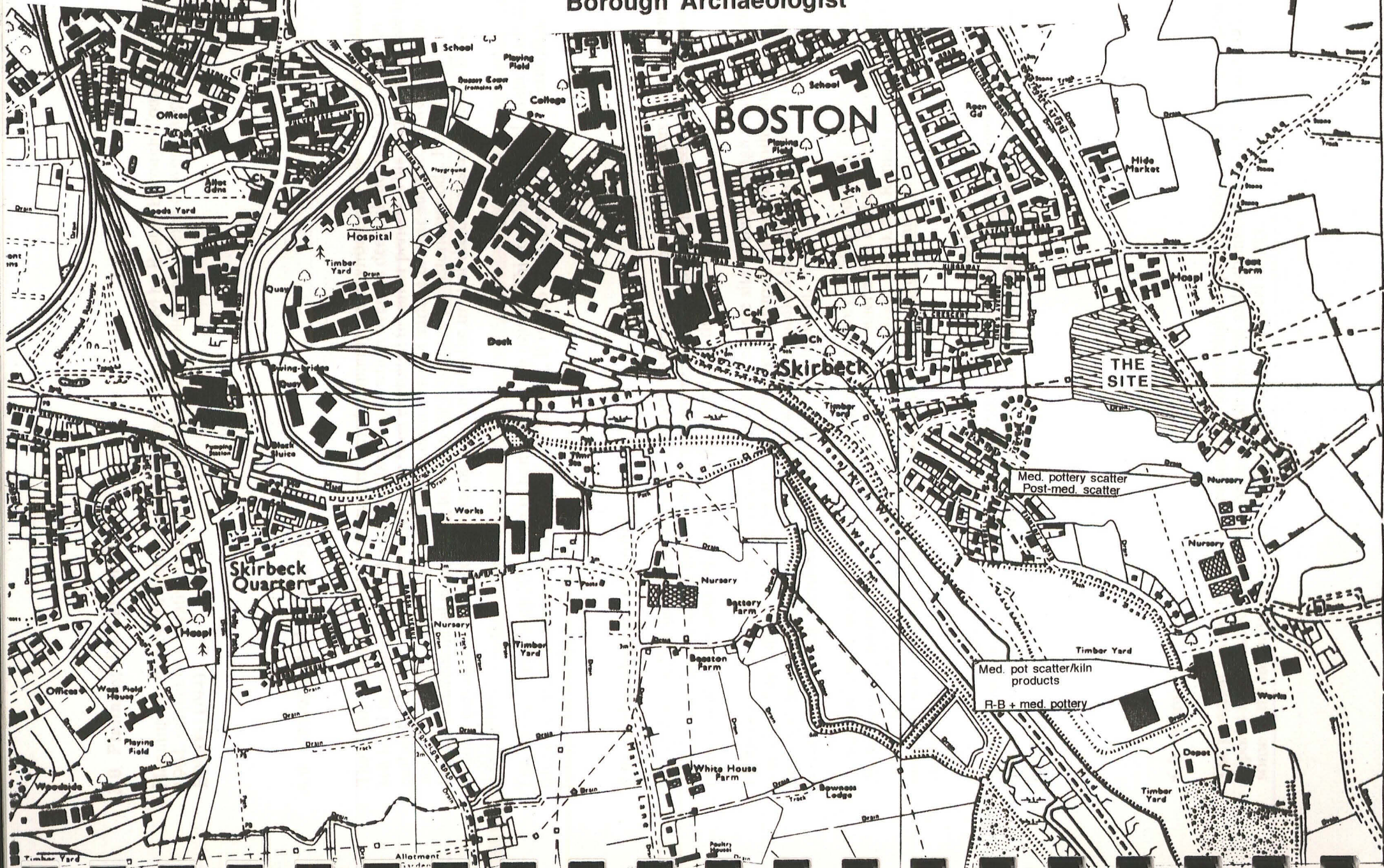
An assessment of material remains exposed within the evaluation trenches is presented below and is supported with specialist assessment reports. On the basis of this information, it has been variously concluded that the archaeological potential of the site is high. The most significant remains appear to concentrate on the south side of the proposed development area. As such, it is suggested that it may be in the interest of the client to consider seriously the use of sympathetic foundation designs (a situation already in hand) and/or the relocation of some properties with a view to avoiding (and preserving) the resource.

The site central national grid reference is ~~SK 9375 3008.~~

TF 3450 4305

Fig. 1

1:10,000 O.S. map section with site location and relevant entries from the Sites and Monuments Record/records held by the Boston Borough Archaeologist



3.0 Planning background

Planning permission for residential development was granted by Boston Borough Council in March 1994, subject to a negative condition requiring an archaeological scheme of work (application B09/0611/94).

4.0 Geology and topography

The White House Lane site is set within a predominantly flat environment, where the height above sea level is around 3.0m. The modern landscape, which overlies deep silt deposits, conceals an earlier landscape, aspects of which have been exploited in earlier periods. This buried landscape is not flat, and this explains the intermittent occurrence of surface or near-surface, as well as deeply-buried, archaeological sites dating to within the Roman or prehistoric periods. Fishtoft lies in a slightly elevated position - on a moraine which marks the limit of the Devensian ice sheet (Lane, 1993, 30).

The site is covered with 30 - 35cm of humic silty clay topsoil. This overlies natural strata of silt and silty clay; deposits associated with seasonal flooding. It is into these deposits that archaeological features on the site are cut.

5.0 Archaeological potential

The archaeological and historical significance attached to the proposed scheme was established and described in the preceding desk top/field walking report and is only summarised below. The reader interested in a more detailed account is referred to the earlier document.

Prehistoric remains have not been recorded in the immediate site vicinity, though a single worked flint was picked up during field walking. It is possible that prehistoric remains lie within the area of proposed development, though such remains would lie masked beneath deep deposits of fen silt and would probably not, therefore, be threatened by development.

Roman finds were recorded at the site of Foggerty's Factory, c. 500m south of the site, though here the remains lay beneath c. 3.0m of silt and alluvium. In other areas, Roman occupation debris has been found just below the modern ground surface (eg Zeffertt 1991). No Roman artefacts were found on the present site during field walking, though a single sherd of Samian occurred residually in one archaeological feature.

For the Saxon/medieval periods, site potential was considered to be higher due to the high incidence of surface remains. No information has been hitherto identified which could explain the nature of the buried archaeological resource, though the geophysical survey indicated the presence of ditch-like linear and L-shaped anomalies (Appendix 7).

6.0 Aims

The principal aims of the field evaluation were to establish the presence/absence of archaeological deposits and to assess their significance at local, regional and national level: in particular, to interpret some of the magnetic anomalies identified during geophysical survey.

7.0 Methodology

7.1 Evaluation trenching

Following circulation of assessment and survey reports, the Community Archaeologist requested that a sample of the site be examined by trenching and a proposal was put forwards by Pre-Construct Archaeology (Lincoln). This proposal was accepted, though the Community Archaeologist requested that the number of trenches be increased from the suggested ten to eleven.

A team of four experienced field archaeologists excavated and recorded features and deposits exposed within the eleven trenches (under the direction of the writer). All deposits were recorded on standard pro-forma context sheets and contexts were drawn and, where necessary, photographed. All finds were washed and/or processed and were selectively presented to specialists for individual appraisal (Appendix 2, Appendix 4).

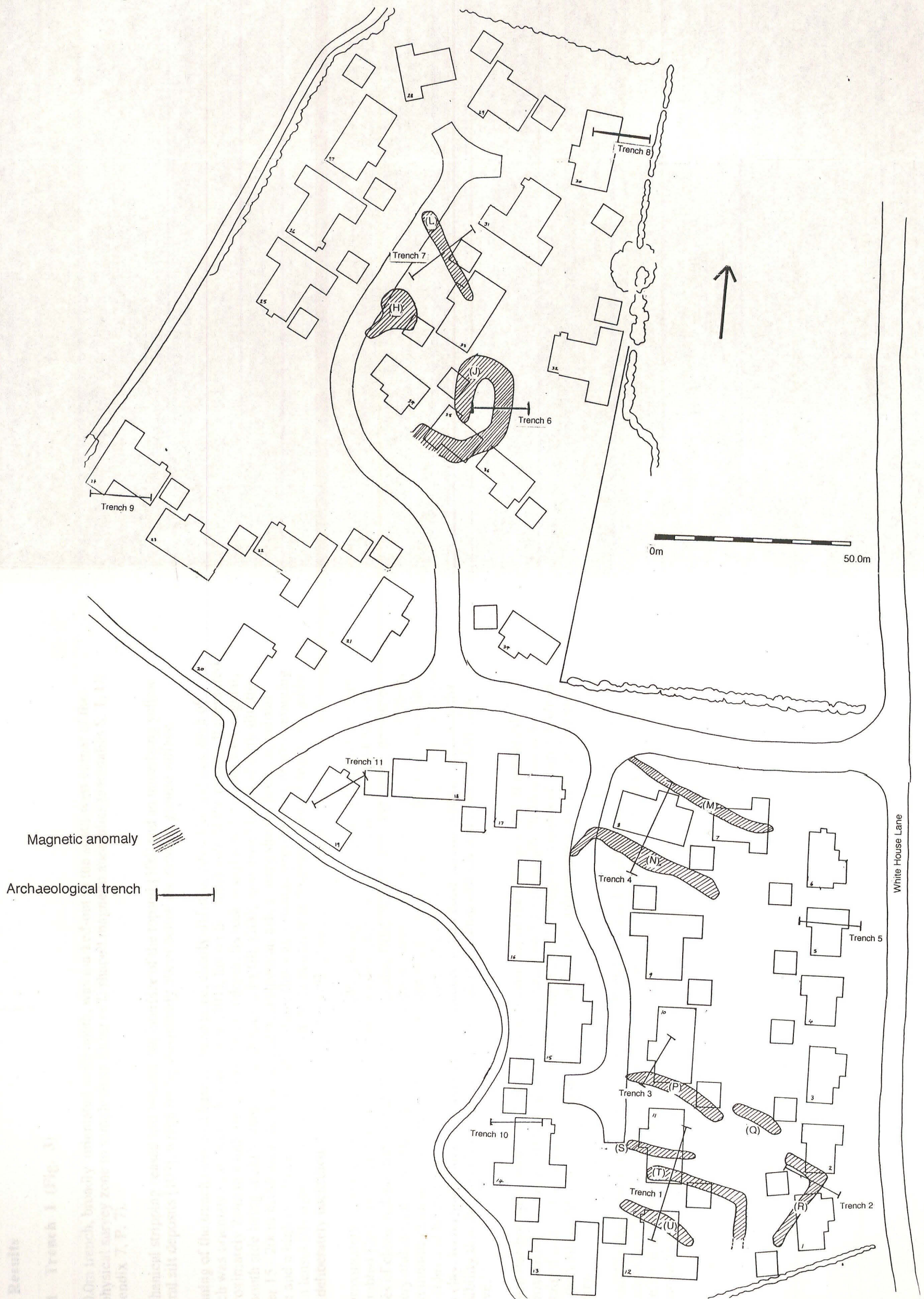
Selectively, features were sampled for environmental remains (eg plant/insect remains, charcoal, industrial residue) and were then assessed by an independent environmental consultant (Appendix 3).

In areas where no features of archaeological significance were present (Trenches 2, 5, 8, 9, 10, 11)), the level of work was restricted to cleaning, photography and context recording.

A mechanical excavator fitted with a straight ditching bucket was used in each of the trenches to strip regular, level spits no deeper than 200mm. The process was repeated until the first archaeologically significant or natural horizons were exposed. All further excavation was by hand. Section and plan surfaces were meticulously cleaned and a representative sample of each archaeological feature (where present) was excavated.

Excavation at the site was made difficult by extremes of weather (wet and freezing/blizzard conditions) and by high ground water - most features were excavated by digging small sumps and regularly dewatering using buckets; the nature of the geology rendered mechanical pumps impractical).

Fig. 2 Proposed housing layout, incorporating significant magnetic anomalies and evaluation trench locations (based on drawing 950.12)



5.0 Results

5.1.1 Trench 1 (Fig. 3)

A 30.0m trench, heavily eroded, was excavated in the geophysical survey zone (see Appendix 7, P. 7).

Mechanical striations, also natural silt deposits, were

observed in the trench

which was approximately

15m wide and 1.5m

deep. The trench was

deliberately excavated

approximately

15m from the

road (see Appendix 7, P. 7).

The trench was

excavated to a

depth of 1.5m

and was filled with

soil. The trench

was located in the

area of the site

where the magnetic

anomaly (U) was

observed.

8.0 Results

8.1.1 Trench 1 (Fig. 3)

A 30.0m trench, broadly orientated north-south, was marked-out in the south-west corner of the geophysical survey zone to sample three linear or L-shaped magnetic anomalies (anomalies S, T, U; Appendix 7, P. 7).

Mechanical stripping ceased just beneath the interface of the topsoil [106] and an underlying yellow natural silt deposits [107], which lay approximately 30cm below the modern ground surface.

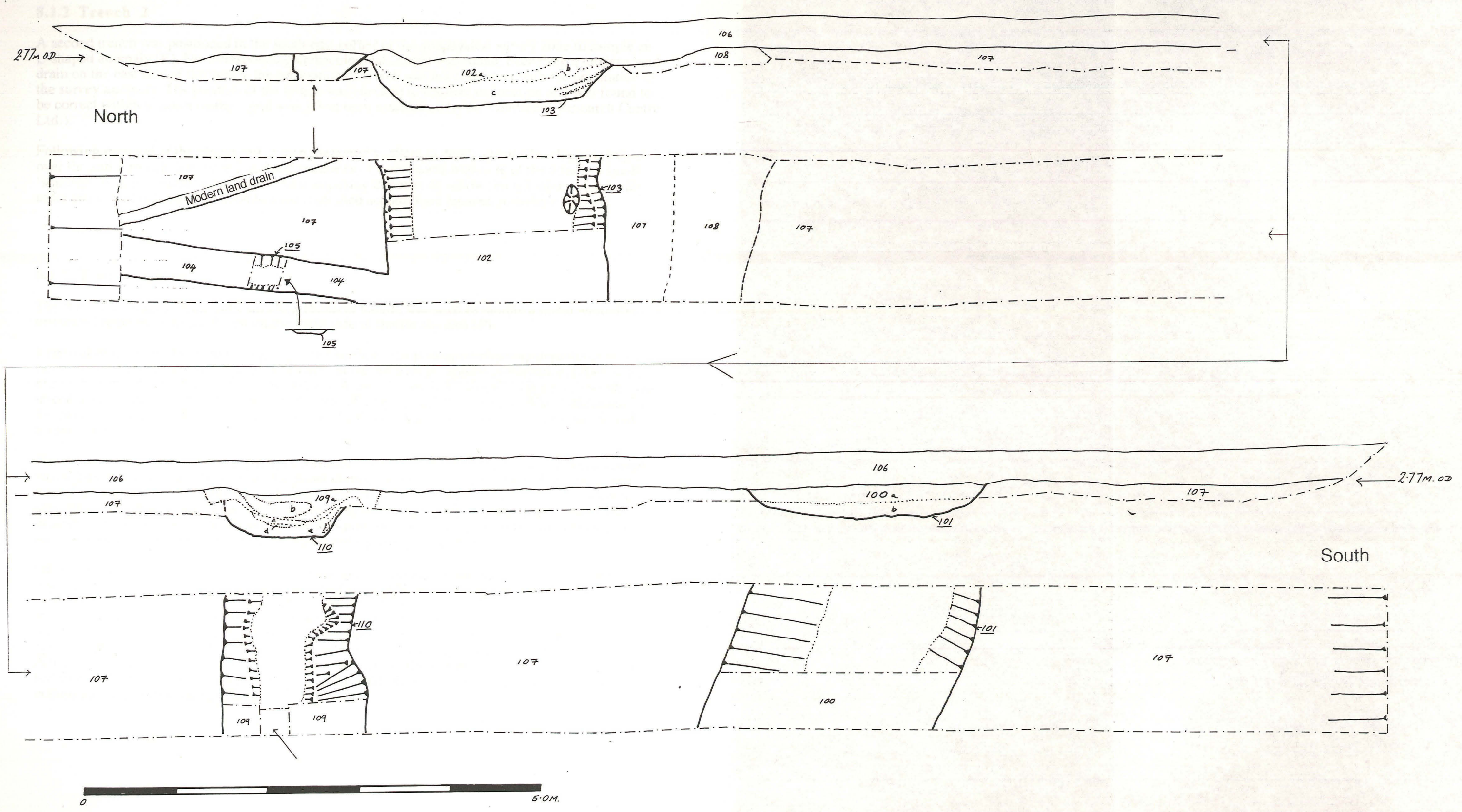
Cleaning of the trench sides and base revealed three, clearly-defined, ditch-like features, each of which was orientated east-west. A wide gully, [101], lay on the south side of the cutting. It measured approximately 2.4m in width and at least 35cm in depth. Its base was flat and its sides were regular; the south side being slightly steeper than the north. Its fill, [100], comprised bands of dirty silt; the lower 15 - 20cm being grey/black silt mixed with charcoal, ash, pottery sherds, fired silt, animal bone and a high incidence of mussel shells. Above this was a cleaner grey/brown soft silt containing green lenses (thought possibly to be cess), red flecks and similar domestic waste. Clearly, the gully was deliberately backfilled.

Approximately 3.6m north of the above was a similar, though narrower gully, [110]. In form, this resembled [101]. Its fill, [109], was a composite of black charcoal lenses, charcoal-filled silt and lenses of clean, redeposited natural silt; again containing fired silt fragments and lumps, domestic pottery and animal bone. The upper void contained a substantial wedge of clean natural silt; perhaps the remnants of an adjacent heap/bank which was thrown-in as a capping over the dirty lower fills. The sides and base of the cut appeared to contain traces of a thin lining, comprising mottled light grey silty clay. Its regularity and the conformity experienced within other similar features suggested the possibility that the effect had been created as a result of leaching and staining from the dirty fills above.

A third flat-bottomed, east-west gully lay on the north side of the cutting, [103]. It measured approximately the same width as gully [101] and measured 50cm in depth. Its base and sides contained traces of a blue/grey silty 'lining' and its fill, (102), comprised lenses of charcoal, clean and dirty silt containing mussel shells, fragments of fired silt, animal bones and late Saxon domestic pottery.

The north edge of the above merged with the south end of a much slighter linear gully, [105], orientated north-south. In plan, no stratigraphic relationship was apparent and it was assumed therefore that the two were contemporary. A section of fill (only 6cm deep) was excavated from the feature which contained a small quantity of late Saxon pottery.

Fig. 3 Plan and section of features exposed in Trench 1



8.1.2 Trench 2

A second trench was positioned in the south-east corner of the geophysical survey zone to sample an L-shaped anomaly (R). No corresponding archaeological feature was found, excluding a modern land drain on the east side of the trench, the orientation of which was not consistent with the orientation of the survey anomaly. The position of the trench was checked to confirm its location and was found to be correct within c. 20cm (using a grid which had been established by the Landscape Research Centre Ltd.).

Following removal of the ploughsoil, which measured c. 38cm in depth, clean silty clay was exposed over the entire trench; interpreted as flood residue (s). On the north-west side of the trench, a small 'sondage' was excavated to a depth c. 85cm; exposing deposits of yellow fen silt interspersed with more prominent reduced clay flood horizons (detailed accounts are retained in archive format).

8.1.3 Trench 3 (Fig. 4)

The third trench, measuring approximately 15.0m in length, was sited to sample a linear anomaly, orientated north-west to south-east on the south side of the survey area (P).

Removal of the topsoil exposed a largely natural surface, comprising interleaving deposits of water-borne silty clay. On the north side of the trench, however, a large, regular disturbance, [304], was exposed, north of a modern east-west land drain. A straight, vertical cut, orientated north-south, was traced for a distance of almost 2.0m from its point of origin in the west section. Where disturbed by the land drain, the edge was not clear. A section of fill was excavated to determine date, depth and significance.

The pit/trench had been cut to a depth approximately 60cm lower than the top of undisturbed natural strata. The side exposed was vertical which met abruptly with a flat, regular base. The lower void was filled with c. 30cm of firm reduced clay, (305); above which was c. 32cm of greyish-brown clay, (303). No direct indications of function were apparent within the area sampled, though the deposit types implied water-borne derivation. It is possible therefore the pit was simply for water storage/access. A single sherd of Saxo-Norman pottery was present in its fill.

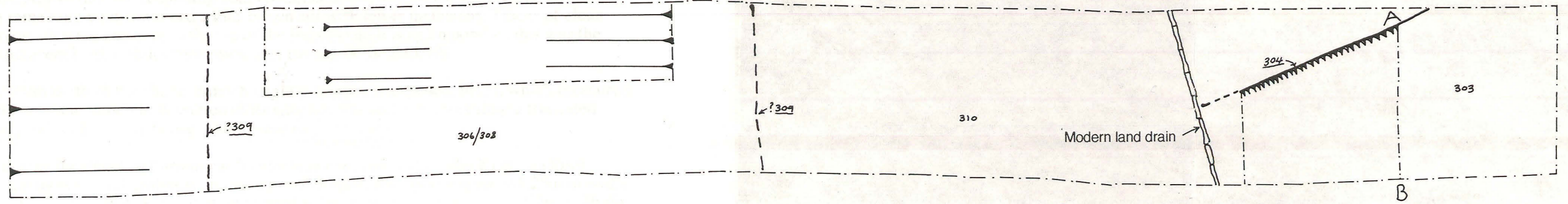
On the south side of the cutting, a reduced trench was placed against the west section to sample the (superficially) natural strata exposed. The task was made difficult due to constant water seepage and the need for regular dewatering using sumps. However, it became clear that the south side of the trench was occupied by a wide, shallow, depression - thought to be a natural east-west channel which could account for the anomaly recorded during geophysical survey. The depression measured approximately 65cm in depth, 5.5m in width. Its sides sloped gently, forming a bowl or dish profile. A layer of mottled silty clay, (307), lined its base and sides; above which was a bulk fill of compact, reduced clay, (308). Particle sizes within this, and the fill above it, (306), suggested the channel contained water of low energy flow.

Fig. 4 Plan and section of features exposed in Trench 3

5.1.4 Trench 4 (Fig. 5)

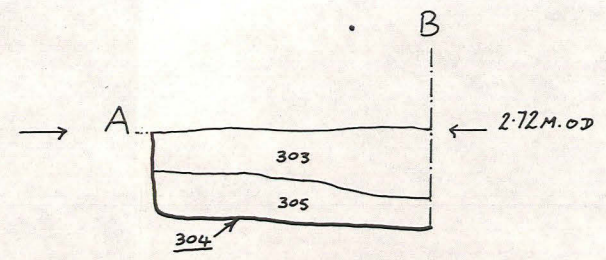
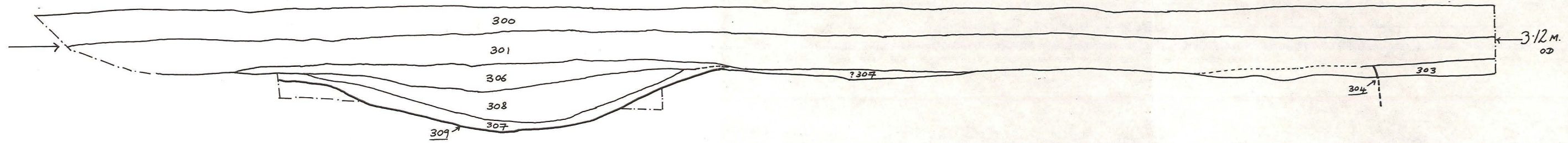
Trench 4 measured approximately 40m long and was approximately 2m in width. It was used to assess one linear and one L-shaped anomaly recorded during the aerial survey (Fig. 4) and (5).

On removal of the ploughsoil, five parallel linear features were exposed, several of which were found to be too small to register during the aerial survey. The largest of these was approximately 1.5m long, measured some 1.7m in width, 15cm deep, the surface was smooth, rounded base and sides. The base of the feature was approximately 25cm below the surface. The feature was filled with a late Saxon pottery, which was found in the trench. The pottery was found on the north side. Above this the trench was filled with ploughsoil.



South-west

North-east



8.1.4 Trench 4 (Fig. 5)

Trench 4 measured approximately 30.0m in length and was orientated north-east to south-west to assess one linear and one L-shaped anomaly recorded during the earlier survey (M and N).

On removal of the ploughsoil, five parallel linear features were exposed, two of which may have been too small to register during magnetometry. The most southerly and substantial of the group, [404], measured some 4.5m in width, 65cm in depth. Its profile was gentle, incorporating a slightly rounded base and sides, the basal lining comprising light blue/grey clayey silt, (407). The lower c. 25cm of fill, (406), comprised lenses of dark grey, ash-filled dirty silt containing fired silt fragments, late Saxon pottery, animal bone and a very high incidence of mussel shells, and was notably thicker on the north side. Above this, the remaining void contained a mid-brown silt with fewer inclusions. Above this, the remaining void contained a mid-brown silt with fewer inclusions. Traces of clean redeposited natural silt were apparent in the top of the feature and it is again possible this was the remnants of an adjacent bank which was thrown over the top of the bulk fill.

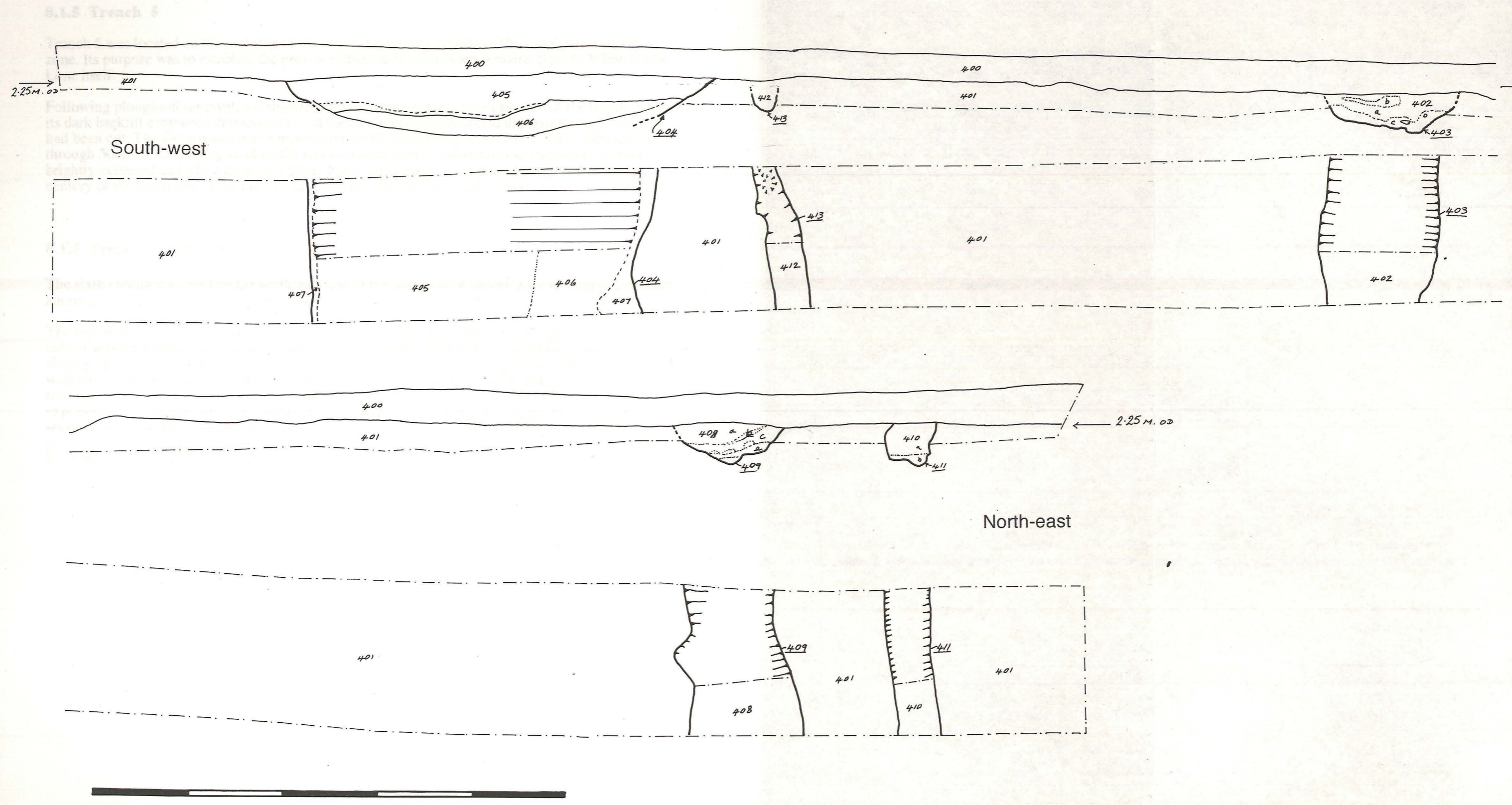
Approximately 1.0m north of the above, a much slighter gully was exposed, [413], which measured c. 35cm in width, c. 30cm in depth. A section of its silty fill was removed, revealing a truncated feature with steep sides and a round base. There were no associated finds.

Close to the centre of the trench, a third linear feature was exposed, [403], which bore a closer resemblance to the more typical gullies found on the site. It measured approximately 1.25m in width, 40cm in depth. Its base was primarily flat, its truncated sides quite steep. It was again filled with dirty occupation debris, which included part of a decorated Saxon comb handle (cover photograph). Its sides and base were lined with mottled blue/grey silty clay and traces of clean yellow silt in the top of the fill suggested conformity with a, now familiar, pattern.

A gully of similar dimensions was located c. 7.0m further north, [409]. Its fill and form differed little from that described above.

A parallel, much slighter, linear feature, [411], lay c. 1.0m north of [409]. Its sides were regular (in places, vertical), its base flat. It possessed no clear lining and was filled with dirty silt, (410). This was not distinctively laminated as it had been in other gullies. A different function may be implied, therefore, though it is assumed the two parallel features were contemporary.

Fig. 5 Plan and section of features exposed in Trench 4



8.1.5 Trench 5

Trench 5 was located on the east side of the development site, outside of the geophysical survey zone. Its purpose was to establish the presence/absence of occupation remains close to White House Lane itself.

Following ploughsoil removal, a disturbance was clearly visible on the east side of the trench, where its dark backfill contrasted dramatically with the cumulative natural flood deposits through which it had been cut. The disturbance was a modern pit, [503], measuring more than 1.5m in plan and cut through 50cm of silt. A section of its fill was removed, which contained coal fragments, clinker, brightly-coloured and white china and glass. The assemblage may be placed at the end of the last century or the beginning of the present: archaeologically, of little significance.

8.1.6 Trench 6 (Fig. 6)

The sixth cutting was sited on the north-east side of the geophysical survey zone to sample a circular anomaly (J). The trench was orientated east-west.

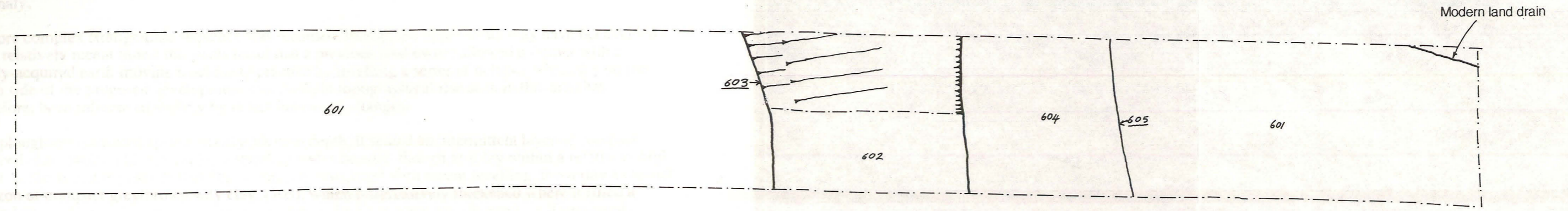
The top of the natural sub-stratum, (601), was exposed beneath c. 30cm of ploughsoil. On its west side, it was cut through by a trench, orientated north-south which had a vertical west side and gently-sloping east side, [603]. It had been cut to a depth c. 70cm beneath the top of natural and was filled with loose, very mixed, ashy/silty soil, (602). This contained post-medieval pottery, brick and tile fragments. The excavator suggested the trench was associated with the robbing of a wall; this explaining the dramatic difference between its two sides - this might also explain the presence of a second, more compact (though associated) fill, (604), on the west side of the loose fill: this contained post-medieval/modern pottery and was not excavated beyond cleaning. The feature was considered to be of relatively limited archaeological potential.

Fig. 6 Plan and section of features exposed in Trench 6

8.1.7 Trench 7 (Fig. 7)

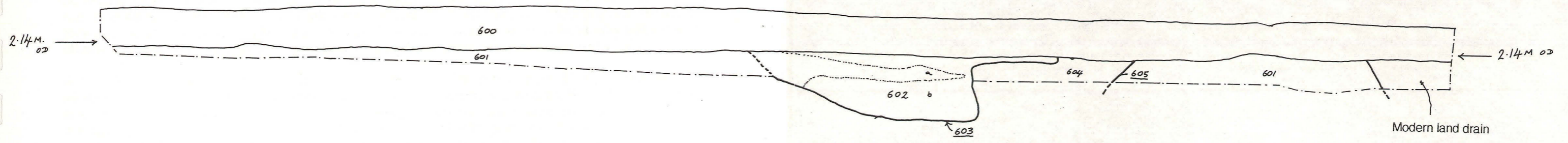
Trench 7 was located on the north side of the area surveyed to investigate a lower anomaly (L.I. oriented north-west-south-east). The trench was planned to investigate the anomaly.

A more complete plan of the trench is shown in Fig. 7. The trench was 2.14 m wide and 5.0 m long. The plan shows the trench layout and the location of the features exposed in the trench. The features are labeled 601, 602, 603, 604, and 605. The trench was located on the north side of the area surveyed to investigate a lower anomaly (L.I. oriented north-west-south-east). The trench was planned to investigate the anomaly.



East

West



8.1.7 Trench 7 (Fig.7)

Trench 7 was located on the north side of the area surveyed by geophysics to examine a linear anomaly (L), orientated north-west to south-east. The cutting was positioned at right angles to the anomaly.

A more complex stratigraphic sequence was recorded, though the upper strata may have been added to in relatively recent times; the locals recall that a previous land owner allowed a farmer with a newly-acquired earth-moving machine to practice by levelling a series of hollows which lay on the north side of the proposed development site. A slight topographical rise seen in this area has, therefore, been influenced slightly by recent landscape changes.

The ploughsoil measured approximately 30cm in depth. It sealed an intermittent layer of compact reduced clay, (402). This resembled a standing water deposit, though as it lay within a relatively high point on the site, it is possible that deposition was associated with recent levelling. It overlay a cleaner horizon of compact grey/brown silty clay, (703), which progressively thickened where it filled a redundant pool/cannel (below). In places, the top of the layer appeared churned, as if previously exposed to ploughing.

Beneath (703) was an extensive spread of similar clay mixed with large amounts of burnt/fired clay, (704). This measured approximately 4.0cm in thickness and was widely scattered within the reduced cutting excavated. It was found in association with medieval pottery dating within the C13th (Appendix 2).

A section of the above was removed with a view to extracting recognisable fired clay fragments; thought possibly to be associated with salt processing. Few were recovered, the majority of fragments simply crumbling when dislodged.

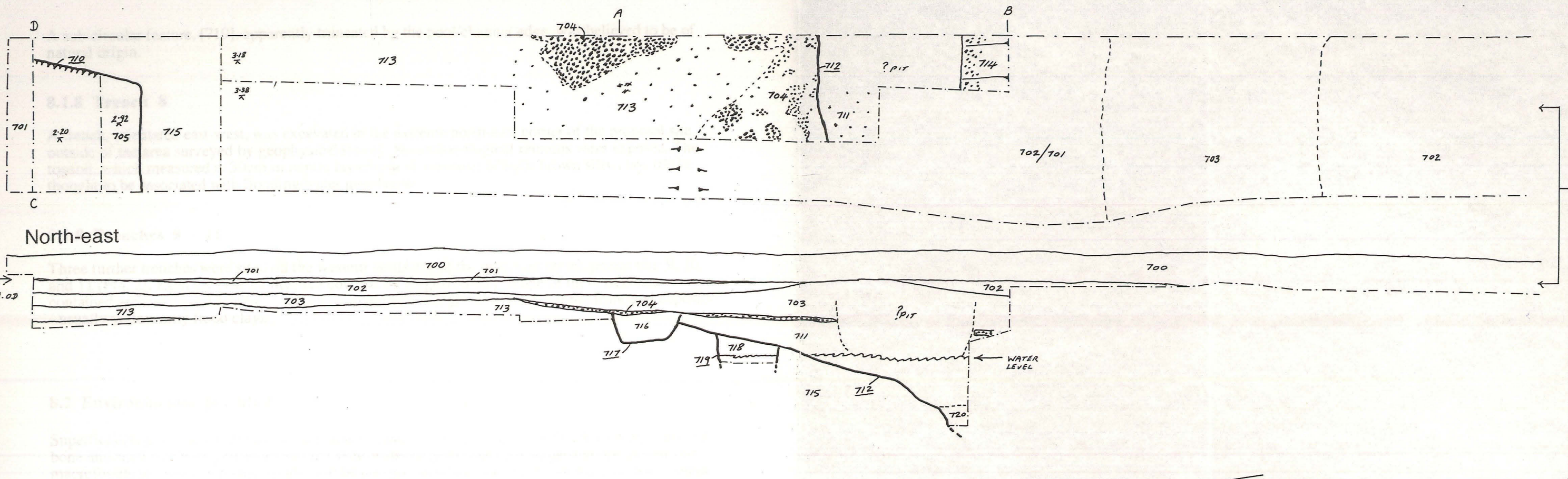
Beneath the fired clay layer was a small, steep-sided pit, [717]: possibly a square-shape in overall plan. It measured approximately 25cm in depth and was filled with clean, semi-oxidised clay, with occasional distinct lenses of charcoal. Its function was not determined. The presence of a second ?pit was suspected approximately 1.6m south-west of this as the burnt clay layer had been cut through. However no clear edges could be found, though there was a small quantity of fired clay fragments in otherwise clean layers/fills immediately beneath a more obvious disturbance through (704).

A well-defined pit was examined on the extreme north-east side of the trench, [710]. It post-dated the silting of the channel/pool and may therefore have been contemporary with the fired clay horizon. Its sides were straight and regular, the upper 70cm being almost vertical. It measured 1.6m in depth and was filled with deposits of silty clay containing large fired clay fragments - similar, but more robust, to material within [704]. In the base of the pit was a layer of charcoal, (709), and subsequent fills ((708), (707), (706), (705)) contained fired clay fragments, charcoal and ash.

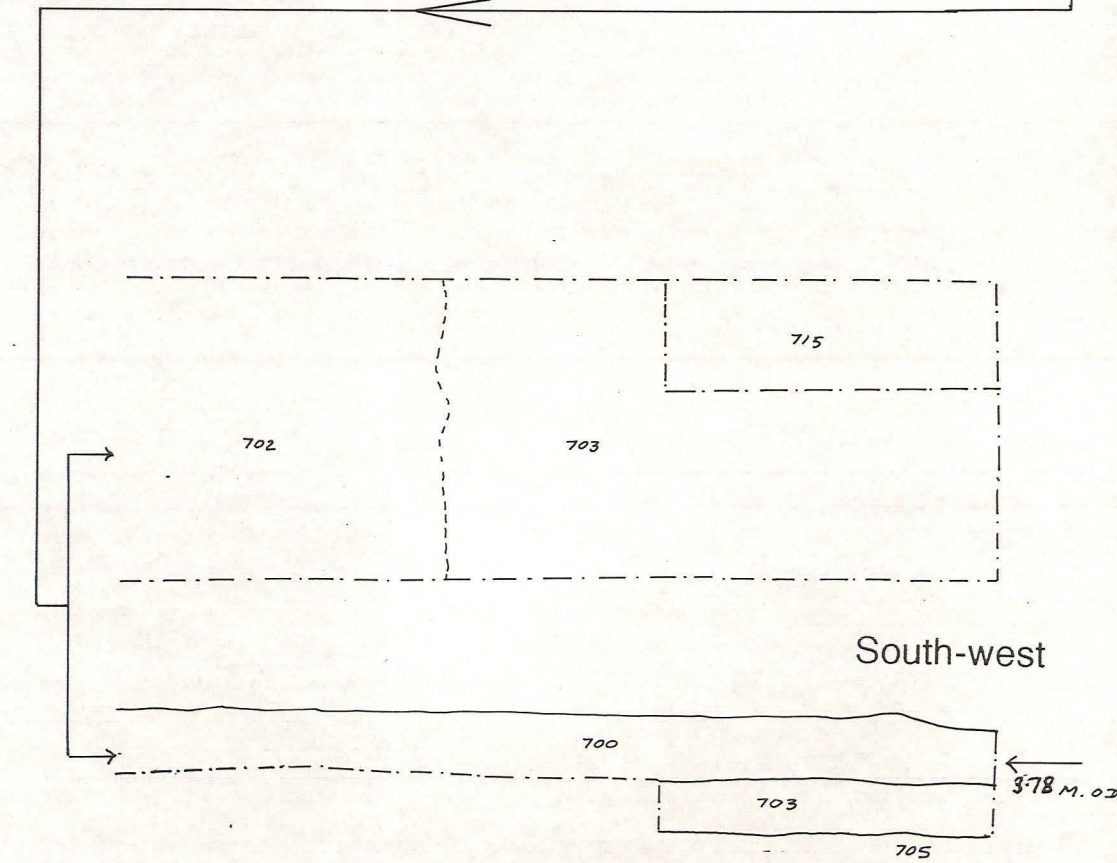
It is tempting to suggest that the pit described above was directly related to the fired clay layer, (704), though the stratigraphic sequence suggested that the pit was filled in prior to the deposition/accumulation of (704). Whatever the relationship, it is clear that some kind of industrial activity was taking place in this area. Large quantities of friable fired clay (usually amorphous lumps) could imply salt making (below).

Pit [710] was cut through a thin layer of natural clay, (713) which, on the south-west side of the reduced cutting (here coded (711)), appeared to slope into a deep channel or pool, [712]. It was not possible to examine the latter in detail due to its depth, water inundation and sabotage - backfilling by children on more than one occasion. However, it was possible to establish that the feature measured at least 1.0m in depth and that its void silted naturally within in a low energy environment.

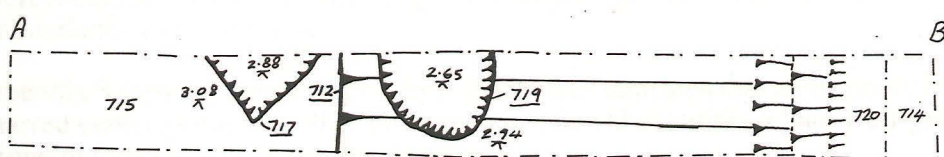
Fig. 7 Plan and section of features exposed in Trench 7



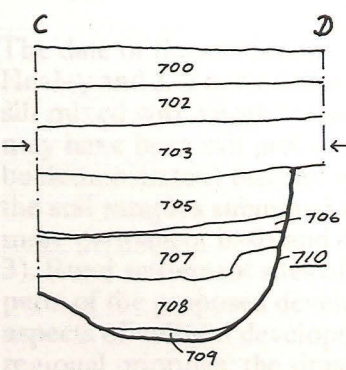
North-east



South-west



Reduced cutting



Section, pit [710]



A sub-circular feature, [719], apparently truncated by the pool/channel edge, was believed to be of natural origin.

8.1.8 Trench 8

A trench, orientated east-west, was excavated in the extreme north-east corner of the proposal site, outside of the area surveyed by geophysical survey. No archaeological remains were exposed. The topsoil, which measured c. 30cm in depth, lay on top of a deposit of light brown silty clay, (801); thought to be associated with flooding/water inundation

8.1.9 Trenches 9 - 11

Three further trenches were sited on the western periphery of the proposed development site; 9, 10 and 11 (Fig. 2). Each lay beyond the area covered by magnetometry. None of these trenches contained archaeological features; in each case, modern ploughsoil overlay natural truncated deposits - usually yellow silty flood clays.

8.2 Environmental potential

Superficially, potential for the recovery of environmental remains was considered to be high: animal bone and shell was well-preserved and the semi-waterlogged conditions suggested that pollen and microfossils (eg insect remains) might also be present. Similarly, charcoal-like material was present in abundance in some features.

Appendix 3 (environmental report by J. Rackham) indicates that environmental remains on the site (charred cereal grains and other plant remains, faunal assemblage) are well-preserved and potentially unique in terms of diversity and abundance.

9.0 Conclusions and discussion

The evaluation at White House Lane has demonstrated that the archaeological potential of the site is high. It may be essential, therefore, that suitable measures are taken to minimise impacts to archaeological resources during development and that, wherever possible, suitable provision is made for the preservation of archaeological remains *in situ*. The south side of the proposed development site appears to contain important, well-preserved, late Saxon settlement features.

The date of the site became clear during the course of excavation following discussions with H. Healey and J. Young (both, Saxon/medieval pottery specialists). The widespread occurrence of fired silt mixed with vegetable matter suggested (in the absence of other data) that the main site function may have been salt processing, possibly on a seasonal basis. Whilst it is still possible (though cannot be demonstrated) that salt was being processed here during the late Saxon period, an assessment of the soil samples submitted for identification and interpretation suggests the site was occupied on a more permanent basis and that agriculture and farming was the principal economic force (Appendix 3). Rural settlement sites of this date are extremely rare and there is a good possibility, therefore, that parts of the proposed development area will contain further remains which could be used to address aspects of cultural development during the late Saxon/Viking period which are now considered to be regional priorities: the situation is outlined in the English Heritage document, *Exploring our past*:

"The Viking Age and Late Saxon Period

Late Saxon origins have been demonstrated for many medieval towns and villages in southern England. Major reorganisation of the cultivated landscape may also have occurred in this period; studies of its field systems, crops and husbandry are likely to continue to produce results. However, the effects of Danish and Viking colonisation are poorly understood, both on the Danish-Saxon frontier and in the Viking heartland in northern England. Considerable advances have been made in our knowledge of Viking urban life, notably in York and Lincoln. Viking settlement patterns and settlement layouts, as well as the relationship of town and country, need to be investigated. Our knowledge of social and cultural similarities and differences between Viking England and Scandinavia at that time will be enhanced by studies of settlement, treatment of the dead and the interaction with Christianity in the north"

Wainwright et al, 1991, 37

It is immediately clear from the above passage that at least two areas of specific interest could be addressed by further investigations at the White House Lane site: 1) the nature of the settlement plan/layout 2) the relationship between the settlement at Fishtoft and other regional settlements - it is already clear, based on information contained in Appendix 2, that goods manufactured at Lincoln were making their way to Fishtoft in the late C9th/early C10th..

The environmental assessment report (Appendix 3) provides a very clear insight into the type and range of materials present in some of the gullies on the site, which, it is suggested, may have been property boundaries; also used as middens. Most of the gullies appear to contain large quantities of preserved cereal grains and legumes, as well as other seed remains. The small bone assemblage appears to be atypical for the period, with a high incidence of goat. It is suggested in the report that the ratio may be a reflection of environmental conditions or of purposeful ground clearance.

In 1990/91, Torven Zeffertt (Trust for Lincolnshire Archaeology) excavated a site at Gaysfield Road, Fishtoft, which bore a striking similarity to the site evaluated at White House Lane (Zeffertt 1991, unpublished). It lay approximately 2.0km south-east of the present site. A widely-spaced series of east-west 'ditches' were exposed within the area examined. Each of these features had a shallow profile, usually incorporating a flat base. Their fills contained a mixture of clean and dirty silt, incorporating quantities of charcoal, mussel shells, late Saxon pottery and fired clay/briquetage (an ambiguous term applied to fired clay thought to be associated with salt working).

Zeffertt suggested the ditches at Gaysfield Road were associated with drainage and/or property division. The frequent occurrence of briquetage/fired clay he attributed to the close proximity of a late Saxon salt working. The occurrence of this material now at two sites of similar date could suggest that, if salt processing was taking place, then it was taking place on the sites and not close to them. However, as it has proved impossible to directly associate fired clay/silt from either site with salt working, other interpretations must also be considered.

Whole categories of settlement features (eg building remains, roads/tracks) were largely unseen at either Gaysfield Road or White House Lane, despite an abundant occurrence of domestic pottery, animal bones and mussel shells within the ditches/gullies. However, it should be noted that slighter archaeological features were recorded within Trenches 1 and 4 at White House Lane, and an isolated post hole was exposed at Gaysfield Road. It is possible, therefore that very shallow features and occupation surfaces have been entirely removed as a result of ploughing, or that the trenches at both sites were simply too small or narrow to allow a suitable interpretation to be made of seemingly ephemeral remains.

In summary, two sites of archaeological interest have been identified at White House lane; one of which appears to be of regional significance:

- 1) on the north side of the proposed development area (Trench 7) is a site which appears to date within the C13th (Appendix 2): a natural pool/channel, above which lies an extensive spread of soft fired clay fragments. In the vicinity are contemporary or slightly later, steep-sided, pits associated with standing water; backfilled with deposits containing large lumps of fired clay. It is possible that the fired clay layer and associated features were associated with salt processing, though this has not been proved. No hearths or recognisable briquetage forms were identified during the present investigation (eg bridges, clips, supports, evaporation vessels).

2) On the south side of the site there exists a number of long, flat-based, L-shaped or linear gullies, orientated east-west. Each appears to have been backfilled with quantities of domestic waste. The site appears to have been occupied for a short period only (the pottery appears to date within the late C9th or early C10th).

Within the fills of the gullies are fragments of soft burnt/fired silt, within which can be seen the impressions of vegetable matter (Appendix 4). Faunal/environmental remains within the gullies suggest permanent, rather than seasonal, settlement and that the principal subsistence economy was based on farming.

With a large body of data now assembled, it would be foolhardy not to suggest that the archaeological potential of **areas within** the proposed development site is high and may be of considerable regional importance in furthering the understanding of late Saxon/Viking settlement. The extent to which the archaeological resource will be threatened by development may depend, very heavily therefore, on the nature of foundation designs employed and perhaps on whether or not some relocation is possible, with a view to avoiding areas of greatest archaeological interest.

The threat, as suggested by the development footprint is broadly defined in Fig. 2 (based largely on the interpretative results of geophysical survey). The Client has already indicated that garages associated with the proposed housing scheme may be built over foundation rafts, with virtually no use of footings. As such, these structures should pose lesser direct threats to the resource. However, it is clear from Fig. 2 that deep foundation trenching in the areas of plots numbered 7, 8, 10, 11 and 12 (and possibly 33) would threaten important archaeological remains. In some areas, the access road could pose similar threats; unless construction levels were restricted to within the topsoil depth (usually c. 30cm).

The Client has expressed a consistent willingness to consider all means of preservation *in situ* within archaeologically sensitive areas. It is assumed, therefore, that discussions will take place between the curatorial archaeologist and the Client in the light of this report with regard to the future long-term management of the archaeological resource.

10.0 Acknowledgements

Pre-Construct Archaeology (Lincoln) wish to express their sincere thanks to Regalbourne Ltd and to Mr G. Dixon (Architect) for commissioning this company to undertake assessment and evaluation work at the Fishtoft site.

Thanks go to Jim Bonnor, the Community Archaeologist and to Hilary Healey for information which they have provided during and subsequent to excavation.

Thanks are expressed to Jane Young, Jane Cowgill and James Rackham for their written contributions to this report.

Finally, thank you to the excavation team: Rob Schofield, Malcolm Otter, Jim Rylatt and Simon Johnson.

11.0 References

Lane, T 1993 *East Anglian Archaeology* 66

Palmer-Brown, 1995 *Archaeological desk top assessment and phase 1 field evaluation: White House Lane, Fishtoft, Lincolnshire* (unpublished)

Wainwright, G. et al. 1991: *Exploring Our Past. Strategies For The Archaeology Of England.*

Zeffertt, T 1991 *Excavations at Gaysfield Road, Fishtoft, Lincolnshire* (unpublished)

12.0 Appendices

12.1 Colour photographs

12.2 Assessment report on the pottery (J. Young)

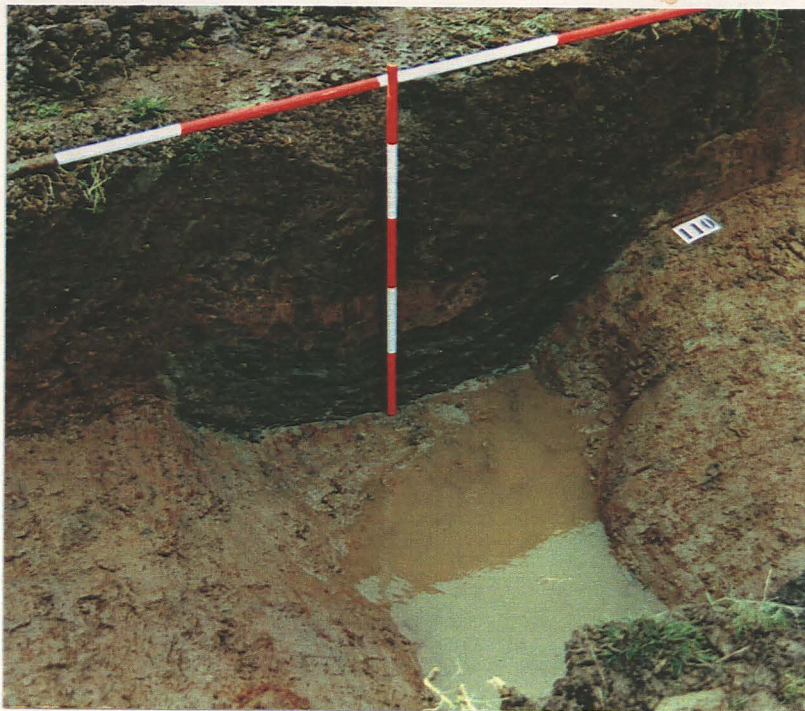
12.3 Environmental assessment/animal bone report (J. Rackham)

12.4 Assessment report on the fired clay (J. Cowgill)

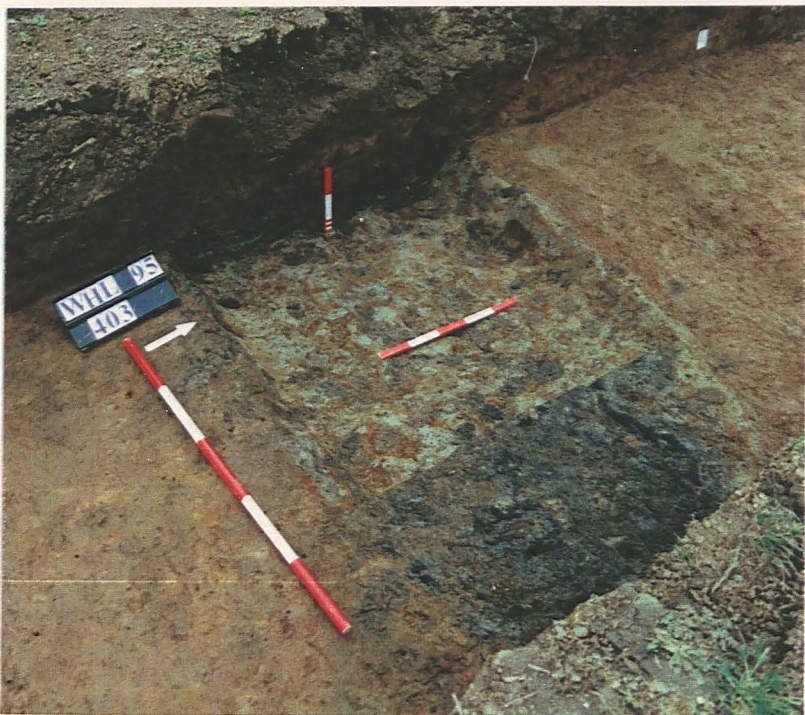
12.5 Site archive

12.6 Trench matrices

12.7 Magnetometer survey report (Landscape Research Centre Ltd.)



P1 Trench 1: gully [110], sectioned looking south-east



P2 Gully [403], sectioned looking north-west



P3 Trench/gully [411] and gully [409], looking south-west



P4 Gully [103], sectioned looking south-east



P5 Wide gully [404], sectioned looking south-west



P6 Pit [710], sectioned looking south-east from above



P7 Burnt clay layer [704], looking north-east



P8 Modern pit [503], sectioned, looking south-east

Appendix 2

WHL95: Assessment Report on the Post-Roman Pottery

Jane Young

CLAU 20.4.95

1. Introduction

A small but very important group of 114 sherds were recovered from the site. Only one sherd of Roman pottery was included in the group. The pottery was examined and recorded at basic CLAU archive level (ware type by sherd count with note of diagnostic vessel form) using CLAU classification (see Appendices 1 and 2). The basic archive is described in appendix 3.

2. Condition

With the exception of a few vessels which were possibly worn due to plough damage, the pottery recovered was in good condition. Several vessels were represented by more than a single sherd.

3. Overall Chronology and Source

Trenches 1 and 4

A small group of 58 late Saxon sherds was recovered from trenches 1 and 4. Included were wares from Lincoln (LKT and LSH) and Stamford (EST) as well as vessels whose source has not yet been discovered. The forms and decoration as well as some of the fabrics date this group to between the late 9th and the early 10th century. These vessels can all be paralleled in the earliest Anglo-Scandinavian phases at the Flaxengate site in Lincoln (Adams Gilmour 1988).

Trench 7

The medieval pottery from trench 7 appears to fall within the period between the early to early/mid 13th century. The majority of the sherds are from early-medieval (EMHM) handmade globular cooking pots. These vessels are current from the mid 12th century until the early 13th century and are possibly made in East Anglia. Vessel links between contexts 703 707 709 and 711 indicate that these vessels are probably contemporary with the jugs from Lincoln (LSW2) and Nottingham (NOTG) which do not come into production until the early 13th century. The remaining sherds include a jug handle from Beverley (BEVO) and sherds of a cooking pot in a shell tempered fabric possibly originating in south Lincolnshire (SLST).

Trench 3

A single unidentifiable sherd was recovered from context 303 in this trench. It is probably of Saxo-Norman date.

Trench 6

Only two post-medieval sherds were found in context 602. One was a sherd from a Cistercian ware (CIST) cup and the other a sherd of Bourne ware (BOU). They both probably date to the 16th century.

4. Conclusions

The material from trenches 1 and 4 is of great interest. There are very few sites outside of the urban centres of Stamford Lincoln and Torksey that have produced late Saxon material that is directly datable to the late 9th or early 10th century. It raises the question of site usage and duration, the pottery found on this site so far indicates only a short period of use. Was the area only exploited for a short time or did the focus of activity move? The pottery is similar to that found on urban sites of this date with none of the more

traditional wares usually found on country sites such as Goltho being present.

APPENDIX 1: CLAU LIST OF WARE TYPE NAMES

Ware code	description	period	earliest horizon	latest horizon
BEVO	BEVERLEY ORANGE WARE	EMED-MED	MH1	MH7
BOU	BOURNE;FABRIC D	PMED	MH10	PMH4
CIST	CISTERCIAN-TYPE WARES	PMED	MH10?	PMH5
EMHM	EARLY MEDIEVAL HANDMADE FABRICS	EMED	MH1?	MH3?
EST	EARLY STAMFORD WARE	LSAX	ASH7	ASH11
LKT	LINCOLN KILN-TYPE WARE	LSAX	ASH7	ASH11
LSH	LINCOLN SHELLY WARE	LSAX	ASH7	ASH12?
LSLOC	LATE SAXON LOCAL FABRICS	LSAX	ASH7	ASH13
LSW1	GLAZED LINCOLN WARE	EMED	MH1	MH4
LSW1/2	LSW1 OR LSW2	EMED	MH1	MH6
LSW2	GLAZED LINCOLN WARE	MED	MH4	MH6
LSWA	GLAZED LINCOLN WARE;FABRIC A	EMED-MED	MH1	MH10
LSX	LATE SAXON NON-LOCAL FABRICS	LSAX	ASH7	ASH13
NOTG	NOTTINGHAM GREEN-GLAZED WARE	MED	MH4?	MH7
R	ROMAN	ROM	0	0
SLST	SOUTH LINCOLNSHIRE SHELLY WARE	EMED-MED	MH1?	MH7?
SNLOC	SAXO-NORMAN LOCAL FABRICS	SN	ASH7	MH3
ST	STAMFORD WARE	SN	ASH7	MH3

APPENDIX 2: CLAU POTTERY DATING 5TH TO 19TH CENTURIES AT SEP 1994

HORIZONS	DATING	PERIOD
ASH1	5TH - ?L7TH	ANGLO-SAXON
ASH2	?L7TH - ?L7/E8TH	MIDDLE SAXON
ASH3	?E8TH - ?M8TH	
ASH4	?M8TH - ?L8TH	
ASH5	?E9TH - ?M9TH	
ASH6	?M9TH - ?L9TH	
ASH7	?L9TH	LATE SAXON
ASH8	L9TH - E10TH	
ASH9	E/M10TH - M10TH	
ASH10	M10TH - L10TH	
ASH11	L10TH	
ASH12	E11TH - ?E/M11TH	SAXO-NORMAN
ASH13	?E/M11TH - M/L11TH	
ASH14	L11TH - E/M12TH	
MH1	?E/M12TH - M12TH	EARLY MEDIEVAL
MH2	M12TH - M/L12TH	
MH3	M/L12TH - E13TH	
MH4	E13TH - E/M13TH	
MH5	E/M13TH - ?L13TH	HIGH MEDIEVAL
MH6	?L13TH - ?M14TH	
MH7	?M14TH - ?L14TH	LATE MEDIEVAL
MH8	?L14TH - ?E15TH	
MH9	?E15TH - M/L15	
MH10	M/L15TH - L15TH	
PMH1	E16TH-M16TH	EARLY POST-MEDIEVAL
PMH2	M16TH-M/L16TH	
PMH3	M/L16TH-E17TH	POST MEDIEVAL
PMH4	E17TH-M17TH	
PMH5	M17TH-M/L17TH	
PMH6	M/L17TH-L17TH	
PMH7	L17TH-E18TH	
PMH8	E18TH-M18TH	LATE POST-MEDIEVAL
PMH9	M18TH-L18TH	
PMH10	L18TH-E19TH	
EMH	L18TH-20TH	EARLY MODERN

APPENDIX 3: WHL95 WARE TYPES BY CONTEXT

Context	Ware	Sherds	Draw	Form	Comments	date
100	EST	2	Y	JAR	RIM;SV;UNGLZE	ASH7-ASH8
	LKT	1	-	JAR	BS;SOOT	
	LKT	1	-	JAR?	FLAT BASE;SOOT INT & EXT	
	LSH	1	-	BOWL	BASE;SOOT;FABRIC E	
	LSH	1	-	JAR	BS;SOOT;FABRIC E	
	LSH	2	Y	DISH(1)	RIM;SV;SOOT;FABRIC E	
102	LKT	1	-	JAR	? ID;SCRAP;LEECHED	ASH7-ASH10
	LKT	1	-	JAR	BS;SOOT	
	LSH	1	-	JAR	FABRIC E;BASE;SOOT	
	LSH	1	-	JAR	FABRIC E;BASE;SOOT	
	LSH	1	-	JAR	FABRIC E;BS;INT & EXT	
	LSH	1	-	JAR	FABRIC E;BS;SOOT	
	LSH	1	-	JAR	FABRIC E;BS;SOOT	
	LSH	1	-	JAR	FABRIC E;BS;SOOT	
	R	1	-	-	SAMIAN	
104	LKT	1	-	JAR	SCRAP;?ID;LEECHED	ASH7-ASH11
109	LKT	1	-	JAR	ASH7-ASH8	
	LKT	1	-	JAR	BS	
	LKT	1	-	JAR	BS;SOOT	
	LKT	1	-	JAR	BS;SOOT INT & EXT	
	LSLOC	1	Y	JAR	RIM; FABRIC A;SOOT	
303	SNLOC	1	-	JAR?	BS;QUARTZ + SHELL FABRIC	ASH7-MH4
402	LKT	1	-	JAR	BS;SOOT INT & EXT	ASH7-ASH8
	LSH	1	-	JAR	BS;FABRIC E;SROUL SHOULDER	
	LSH	1	-	JAR	BS;SOOT INT;FABRIC E	
	LSLOC	1	Y	JAR	RIM;FABRIC A	
	LSX	18	Y	PITCHER	RIM & BS;HOLLOW RIM;FABRIC A	
405	LKT	1	-	JAR	BS	ASH7-ASH8
	LKT	1	-	JAR	BS;SOOT	
	LKT	1	-	JAR?	BASE	
	LKT	1	-	JAR?	BS;SOOT INT;?ID OR LSH	
	LKT	2	Y	DISH;SMALL(4)	EVERT RIM; DROUL RIM EDGE;SOOT	
	LSH	2	Y	DISH;(1)	FABRIC E;RIM & BASE; SV 406;DROUL RIM & BODY	
406	LKT	1	-	?	SCRAP	ASH7-ASH8
	LKT	1	-	JAR	BS;SOOT	
	LKT	1	Y	JAR	RIM;DROUL RIM EDGE	
	LSH	1	Y	DISH(1)	RIM;DROUL RIM & BODY ;FABRIC E	
410	LKT	1	-	JAR	BS;SOOT INT	ASH7-ASH9
	LKT	2	-	JAR	BS;SOOT INT & EXT;	

					DROUL SHOULDER	
602	BOU	1	-	JAR/JUG	BS	MH10-PMH4
	CIST	1	-	CUP	BROWN FABRIC	
703	BEVO	1	-	JUG	STRAP HANDLE	MH4
	EMHM	1	-	COOKG	BS;	
	EMHM	1	-	COOKG	BS;	
	EMHM	1	-	COOKG	BS;SOOT	
	EMHM	1	-	COOKG	SCRAP;SOOT	
	EMHM	2	-	COOKG	BS;SV 707 709 711	
	LSW1	1	-	JUG/PIT	BS;? ID	
	LSW1	1	-	JUG/PIT	BS;? ID	
	LSW2	1	-	JUG	BS;DEC APP;STP;12	
	LSWA	1	-	JUG/PIT	BS;SPL GLZE	
	SLST	2	-	COOK	BS;SV	
	SNLOC	1	-	DISH?	BS;SV 704	
704	EMHM	1	-	COOKG	BS	MH1-MH4
	EMHM	1	-	COOKG	RIM;SOOT	
	EMHM	1	-	COOKG	SCRAP	
	EMHM	2	-	COOKG	SV;BS;SOOT INT & EXT	
	SNLOC	1	-	DISH?	BASE;SV 703; SEEN ON FLAX;QUARTZ + CA;	
707	EMHM	2	Y	COOKG	BS;SV 709 703 711;SOOT	MH1-MH4
709	EMHM	5	Y	COOKG	BS;SV 707 703 711;SOOT;HALO	MH1-MH4
711	EMHM	1	-	COOKG	BS;SOOT	MH4
	EMHM	1	-	COOKG	BS;SOOT	
	EMHM	1	-	COOKG	BS;SOOT	
	EMHM	1	-	COOKG	BS;SOOT	
	EMHM	1	-	COOKG	BS;SOOT INT & EXT	
	EMHM	1	-	COOKG	BS;SOOT INT & EXT	
	EMHM	1	-	COOKG	SCRAP;WORN	
	EMHM	4	-	COOKG	BS;SV;SOOT	
	EMHM	6	Y	COOKG	RIM + BS;SV 707 709 703;HALO	
	LSW1/2	1	-	JUG/PIT	BS;? ID	
	LSWA	1	-	JUG	BASE;THU	
	ST	1	-	JAR/PIT	BASE;UNGLZE;ASH13+	
	ST	1	-	JAR/PIT	BS;GLZE;ASH13+	
713	EMHM	1	-	COOKG	BS;SOOT	MH4
	EMHM	1	-	COOKG	BS;SOOT	
	EMHM	1	-	COOKG	BS;SOOT	
	NOTG	1	-	JUG	BS;? ID; CORDON	

Whitehouse Lane, Fishtoft, WHL95

Environmental Archaeology Assessment

This assessment is based upon 5 samples taken from selected deposits of late Saxon date and the animal bone collected during excavation of some of the features revealed in the evaluation trenches.

The samples

The following samples were collected:

Trench	Context	Volume	Context type
1	100	approx 4 litres	gully fill
1	102	app. 4 l.	gully fill
4	406	app. 8 l.	occupation debris
4	408	app. 6 l.	gully fill
4	410	app. 6 l.	slot/gully fill

All the samples were processed in the following manner.

A 3 litre sub-sample of each was measured out and washed in a bowl until the soil had disaggregated. During this process floating material was washed over onto a 300 micron mesh sieve until all the lighter carbonised material had floated over. The residue was then poured onto a 250 micron mesh sieve and washed clean of silt. Both fractions (the float and residue) were drained and dried on aluminium foil in a drying oven.

The residue was sorted by eye, and environmental and archaeological finds picked out, noted on the assessment sheet and bagged independently. The residue was then bagged. The float of each sample was studied under a low power binocular microscope. The presence of environmental finds (i.e. snails, charcoal, carbonised seeds, bones, etc) were noted and their abundance and species diversity recorded on the assessment sheet. The float was then bagged. The residue, float and finds constitute the material archive of the samples.

The assessment sheets are attached and the results summarised below.

The sediments are all slightly sandy silts with little or no clay. All the samples produced carbonised cereal grains, burnt straw or hay, some carbonised chaff and carbonised weed seeds. Small fragments of charcoal only were found. At least two specimens in the occupation debris, layer 406, were pea or bean species. The concentration of cereal grain in 100, 406 and 410 was particularly high and showed a range of preservation from very well preserved to poorly preserved unidentifiable grains, and included a number of grains suggesting partial preservation of unburnt or merely charred grains through mineralisation. It may be that these features had included human or animal cess producing a high phosphate concentration and leading to mineralisation. These assemblages are suggestive of domestic waste probably from either fires or the parching process to which cereals need to be subjected to prevent germination and to harden the grain before milling. The occurrence of a range of large and small weed seeds and chaff further suggests that some crop processing is taking place on site indicating that the site is probably a producer and includes the cultivation of cereals within its economy.

In addition to the carbonised material from the samples, most of them included fragments of mussel, and 100 included a cockle fragment. Small fragments of eggshell also occurred in some samples. A few terrestrial snails were found but not in sufficient numbers to warrant study.

The animal bone

122 bones were recovered from the evaluation. These have been identified where possible and an archive catalogue produced (attached).

The condition of the animal bone varies across the site but, in general, is in good condition. Fragmentation was relatively high, but a number of bones could be measured and the finds included intact jaws with teeth from which an age at death could be determined.

Bones of cattle, sheep, goat, pig, chicken and horse were identified (Table 1). The collection is small and therefore it is not possible to draw any conclusions from the assemblage but the sample is unusual in one respect. It includes a number of goat bones.

Table 1
Number of fragments of each species identified

Horse	3
Cattle	30
Sheep	6
Goat	10
Sheep or goat	20
Pig	10
Chicken	2

Goats are not unusual on sites of the late Saxon period, but in this small collection ten is an unexpectedly high number and exceeds the number of bones that could definitely be ascribed to sheep. If this pattern was to be shown by a much larger sample from the site then this would constitute a potentially unique species ratio and suggest a pattern of animal husbandry different from contemporary examples elsewhere in the country. One might speculate that it is related to the availability of grazing in the area since goats are browsers of scrub and rough pasture, while sheep are grazers, and the predominance of goats might indicate the first stages of clearance of scrubland in the area, but more work would be required before taking such ideas further.

The presence of most parts of the carcass within the sample and the occurrence of a young lamb or kid indicates that animals were probably kept on the site, which must, with this evidence and that from the cereals, have had an agricultural function in addition to any other it may have had. The absence of maritime food resources, except mussels and a single cockle, on a site which may have been nearly on the coast in the 9th century further suggests a typically prosaic Saxon agricultural economy.

It is clear from the concentrations of carbonised cereals and animal bone that the features are in the close vicinity, or more likely part, of a late Saxon agricultural settlement.

Potential

The opportunity to sample rural sites of this period in eastern England has not been great and the high concentrations of cereals in some of the samples and the interesting character of the animal bone suggests that this site does not conform to any pattern that might be ascribed to others of the period. The preservation of both the bone and the carbonised remains in the deposits is good and there is clear potential for learning about the agricultural and pastoral economy of this area of Lincolnshire if further excavation was to take place. The English Heritage publication *Exploring our Past* (1991) identifies the late Saxon period and the Viking colonisation of eastern England and studies of the reorganisation of the cultivated landscape, the crops and husbandry at this time as some of the academic objectives of further archaeological work. The tight time span apparent within the pottery from this site in conjunction with the quality of the environmental remains in the assessment samples suggests that this site might offer an opportunity for furthering these objectives and would repay more extensive excavation and sampling.

There appears to be no organic preservation on site and sampling and excavation strategies for the environmental material can be limited to the recovery of carbonised plant remains and animal bone, although the palaeochannel and 'pool' observed during the evaluation may contain palaeoenvironmental material that could give a wider picture of the contemporary landscape in the area.

Key to codes used in the cataloguing of animal bones

SPECIES		BONE		SIDE	FUSION
BOS	cattle	SKL	skull	W - whole	Records the fused/unfused condition of the epiphyses
CSZ	cattle size	TEMP	temporal	L - left side	P - proximal; D - distal; E - acetabulum;
SUS	pig	FRNT	frontal	R - right side	N - unfused; F - fused; A - anterior; C - caudal
OVCA	sheep or goat	PET	petrous	F - fragment	
OVI	sheep	PAR	parietal	TOOTH WEAR - Codes are those used in Grant, A. 1982 The use of tooth wear as a guide to the age of domestic animals, in B.Wilson, C.Grigson and S.Payne (eds) <i>Ageing and sexing animal bones from Archaeological sites, 91-108.</i>	
SSZ	sheep size	OCIP	occipital	Teeth are labelled as follows in the tooth wear column:	
EQU	horse	ZYG	zygomatic	h ldpm4/dupm4	f ldpm2/dupm2
CER	red deer	MAND	mandible	H lpm4/upm4	g ldpm3/dupm3
CAN	dog	MAX	maxilla	I lml/uml	
MAN	human	ATL	atlas	J lm2/um2	
UKN	unknown	AXI	axis	K lm3/um3	
CHIK	chicken	CEV	cervical vertebra		
GOOS	goose, dom	TRV	thoracic vertebra		
LEP	hare	LMV	lumbar vertebra		
UNB	indet bird	SAC	sacrum		
MALL	duck, dom.	CDV	caudal vertebra	ZONES - zones record the part of the bone present.	
GULL	gull sp.	SCP	scapula	The key to each zone on each bone is on page 2	
		HUM	humerus		
		RAD	radius		
		MTC	metacarpus	MEASUREMENTS - Any measurements are those listed in A.Von den Driesch (1976) <i>A Guide to the Measurement of Animal Bones from Archaeological Sites, Peabody Museum Bulletin 1, Peabody Museum, Harvard, USA</i>	
		MCI-4	metacarpus 1-4		
		INN	innominate		
		ILM	ilium		
		PUB	pubis		
		ISH	ischium		
		FEM	femur		
		TIB	tibia		
		AST	astragalus		
		CAL	calcaneum		
		MTT	metatarsus		
		MT1-4	metatarsus 1-4		
		PH1	1st phalanx		
		PH2	2nd phalanx		
		PH3	3rd phalanx		
		LM1-LM3	Lower molar 1 - molar 3		
		UM1-UM3	upper molar 1 - molar 3		
		LPM1-LPM4	lower premolar 1-4		
		UPM1-UPM4	upper premolar 1-4		
		DLPM1-4	deciduous lower premolar 1-4		
		DUPM1-4	deciduous upper premolar 1-4		
		MNT	mandibular tooth		
		MXT	maxillary tooth		
		LBON	long bone		
		UNI	unidentified		
		STN	sternum		
		INC	incisor		
		TTH	indet. tooth		
		CMP	carpo-metacarpus		

ZONES - codes used to define zones on each bone

SKULL - 1. paraoccipital process	METACARPUS -	1. medial facet of proximal artciulation, MC3
2. occipal condyle		2. lateral facet of proximal articulation, MC4
3. intercornual protuberance		3. medial distal condyle, MC3
4. external acoustic meatus		4. lateral distal condyle, MC4
5. frontal sinus		5. anterior distal groove and foramen
6. ectorbitale		6. medial or lateral distal condyle
7. entorbitale	FIRST PHALANX	1. proximal epiphysis
8. temporal articular facet		2. distal articular facet
9. facial tuber	INNOMINATE	1. tuber coxae
0. infraorbital foramen		2. tuber sacrale + scar
MANDIBLE		3. body of illium with dorso-medial foramen
1. Symphyseal surface		4. iliopubic eminence
2. diastema		5. acetabular fossa
3. lateral diastemal foramen		6. symphyseal branch of pubis
4. coronoid process		7. body of ischium
5. condylar process		8. ischial tuberosity
6. angle		9. depression for medial tendon of rectus femoris
7. anterior dorsal ascending ramus posterior M3		
8. mandibular foramen		
VERTEBRA	FEMUR	1. head
1. spine		2. trochanter major
2. anterior epiphysis		3. trochanter minor
3. posterior epiphysis		4. supracondyloid fossa
4. centrum		5. distal medial condyle
5. neural arch		6. lateral distal condyle
SCAPULA		7. distal trochlea
1. supraglenoid tubercle		8. trochanter tertius
2. glenoid cavity		
3. origin of the distal spine	TIBIA	1. proximal medial condyle
4. tuber of spine		2. proximal lateral condyle
5. posterior of neck with foramen		3. intercondylar eminence
6. cranial angle of blade		4. proximal posterior nutrient foramen
7. caudal angle of blade		5. medial malleolus
HUMERUS 1. head		6. lateral aspect of distal articulation
2. greater tubercle		7. distal pre-epiphyseal portion of the diaphysis
3. lesser tubercle	CALCANEUM	1. calcaneal tuber
4. intertuberal groove		2. sustentaculum tali
5. deltoid tuberosity		3. processus anterior
6. dorsal angle of olecranon fossa		
7. capitulum	METATARSUS	1. medial facet of proximal artciulation, MT3.
8. trochlea		2. lateral facet of proximal articulation, MT4
RADIUS		3. medial distal condyle, MT3
1. medial half of proximal epiphysis		4. lateral distal condyle, MT4
2. lateral half of proximal epiphysis		5. anterior distal groove and foramen
3. posterior proximal ulna scar and foramen		6. medial or lateral distal condyle
4. medial half of distal epiphysis		
5. lateral half of distal epiphysis		
6. distal shaft immediately above distal epiphysis		
ULNA		
1. olecranon tuberosity		
2. trochlear notch- semilunaris		
3. lateral coronoid process		
4. distal epiphysis		

FISHTOFT, Evaluation

ARCHIVE CATALOGUE OF ANIMAL BONES FOR FISHTOFT, WHL95

SITE	CON.	SPEC.	BONE	NO	SIDE	FUS	ZONES	TOOTH WEAR	COMMENTS
WHL95	100	BOS	MAND	1	R		7		FRAG ASCENDING RAMUS
WHL95	100	SUS	FIB	1	F				SHAFT FRAGMENT
WHL95	100	CSZ	LBON	1	F				BURNT-SHAFT FRAGMENT
WHL95	100	OVCA	CEV	1	W	CFAN	1245		CALCINED-2 PIECES
WHL95	102	CSZ	LBON	2	F				BURNT-SHAFT FRAGS
WHL95	102	SSZ	RIB	1	L				SHAFT FRAG
WHL95	102	SUS	RIB	1	R				SHAFT FRAG-DIST CUT
WHL95	102	CSZ	LBON	1	F				SHAFT FRAG
WHL95	102	CSZ	RIB	4	F				SHAFT FRAGS- 1 CHOPPED - 2 CUT
WHL95	102	BOS	ULN	1	F				SHAFT FRAG-CHARRED
WHL95	102	CSZ	HUM	1	L				DIST SHAFT FRAG
WHL95	102	BOS	MTT	1	R		125		PROX PATH-EXOSTOSIS AROUND ARTIC-SHAFT CUT
WHL95	102	BOS	MAX	1	R			J15K12	
WHL95	102	BOS	UDP3	1	W			g15	
WHL95	102	SUS	ATL	1	F				CHOPPED
WHL95	102	OVI	ATL	1	W		12345		
WHL95	102	OVCA	HUM	1	R				DIST POST SHAFT FRAG
WHL95	102	OVCA	RAD	1	L	DN	36		CALCINED-DIST 2/3 SHAFT
WHL95	102	OVCA	LMV	1	F	CFAF	2345		
WHL95	102	CRA	MTT	1	R				DIST & MIDSHAFT
WHL95	102	CRA	MTT	1	L		1		FRAG PROX END AND SHAFT
WHL95	102	OVCA	MTT	1	R				SPLIT SHAFT FRAG S OR G INDET
WHL95	102	CRA	MTC	1	L		1		FRAG PROX & SHAFT-BROAD AND SHORT
WHL95	102	OVI	MAND	1	R		7	FGH12I13J12K8	
WHL95	102	OVI	MAND	1	L		123456789	GH14I16J13K12	P2 CONGENITALLY ABSENT
WHL95	104	BOS	SKL	1	R				SUPRAORBITAL FRAG
WHL95	104	CSZ	SKL	1	F				CRANIAL FRAG
WHL95	104	OVCA	RAD	1	R	PF			PROX LAT SHAFT FRAG-CHEWED
WHL95	109	SSZ	LBON	1	F				SHAFT FRAG
WHL95	109	CSZ	LBON	1	F				SHAFT FRAG
WHL95	109	CSZ	RIB	1	F				SHAFT FRAG
WHL95	109	SSZ	RIB	1	F				SHAFT FRAG
WHL95	109	BOS	TIB	1	L		4		PROX SHAFT-CHEWED

SITE	CON.	SPEC.	BONE	NO	SIDE	FUS	ZONES	TOOTH WEAR	COMMENTS
WHL95	109	BOS	HUM	1	L		6		DIST SHAFT FRAG
WHL95	109	BOS	PH1	1	L	PF	12		
WHL95	109	BOS	INN	1	F				FRAG ISCIUM
WHL95	109	BOS	INN	1	R		2		ILIAL FRAG
WHL95	109	BOS	RAD	1	R		3		SMALL CALF-CHEWED-BOTH ENDS CERT UNFUSED
WHL95	109	CSZ	UNI	1	F				INDET FRAG
WHL95	109	CRA	RAD	1	R	PF	13		SHAFT-IMMATURE
WHL95	109	CRA	MTC	1	R		2		PROX FRAG-POSS MALE
WHL95	109	CRA	MTT	1	R		125		PROX END AND SHAFT
WHL95	303	BOS	INN	1	R		2		PROX ILIUM-LARGE
WHL95	303	BOS	TIB	1	R	DF	56		DIST END-CHEWED-Bd=60.0
WHL95	303	BOS	PH2	1	L	PF	12		POSS BURNT-SLIGHT EBURNATION ON DIST ARTIC
WHL95	303	BOS	SKL	1	R		8		
WHL95	303	CSZ	RIB	1	F				SHAFT FRAG
WHL95	303	CSZ	LBON	1	F				SHAFT FRAG
WHL95	303	OVCA	HUM	1	L				DIST SHAFT FRAG
WHL95	303	OVI	SKL	1	L				INTACT HORN CORE-EWE/WETHER-THUMB PRINTS
WHL95	303	CSZ	UNI	1	F				INDET FRAG
WHL95	303	OVCA	MTC	1	F				ANT SHAFT FRAG
WHL95	303	OVCA	MAND	1	L		4		FRAG ASCENDING RAMUS
WHL95	303	SUS	RAD	1	L		3		PROX MIDSHAFT
WHL95	308	EQU	MTT	1	F				MIDSHAFT
WHL95	308	SUS	MAND	1	L		23		MALE
WHL95	308	SUS	LC	1	L				YOUNG MALE
WHL95	308	BOS	MAX	1	R			I14J9	M3 ERUPTED BUT LOST
WHL95	308	BOS	UDP3	1	R			g16	POSS SAME JAW AS ABOVE
WHL95	308	BOS	UPM4	1	R			H6	POSS SAME JAW AS ABOVE
WHL95	308	BOS	LM	1	F				ONE PAIR CUSPS-NO WEAR
WHL95	308	BOS	SKL	1	F		3		DORSAL POSTERIOR FRAG-SUTURES FUSED
WHL95	308	CSZ	SKL	1	F				CRANIAL FRAG
WHL95	308	BOS	INN	1	L	EF	59		ACETABLULUM- 2 PIECES
WHL95	308	BOS	INN	1	R	EF	59		ACETABULUM-CONCRETED
WHL95	308	CSZ	UNI	1	F				INDET FRAG-POSS SCAP
WHL95	402	SSZ	RIB	4	F				SHAFT FRAGS
WHL95	402	SSZ	TIB	1	F				PROX SHAFT FRAG
WHL95	402	CRA	RAD	1	L		36		SHAFT
WHL95	402	CRA	MTT	1	L		1		FRAG PROX AND SHAFT

SITE	CON.	SPEC.	BONE	NO	SIDE	FUS	ZONES	TOOTH WEAR	COMMENTS
WHL95	402	CRA	HUM	1	R				MIDSHAFT
WHL95	402	OVCA	UM2	1	L			J7	
WHL95	402	OVCA	MTC	1	F				POST SHAFT-POSS GOAT
WHL95	402	SSZ	LBON	1	F				POSS MTP
WHL95	402	OVCA	MAND	1	L		23	GH15	WELL WORN-AGED
WHL95	402	OVCA	MAX	1	R		9	FGH9I12J11K7	
WHL95	402	CHIK	COR	1	R				
WHL95	402	CHIK	MTT	1	L				FEMALE
WHL95	402	OVCA	FEM	1	L	PNDN	4567		LACKING PROX EPI
WHL95	402	OVCA	INN	1	L	ENPN	239		LAMB/KID-SAME AS ABOVE
WHL95	402	OVCA	TIB	1	L	PN	123		PROX EPI & BIT SHAFT-SAME AS ABOVE
WHL95	405	CSZ	RIB	1	F				SHAFT FRAG 2 PIECES
WHL95	405	BOS	INN	1	L		2		CHEWED ANT FRAG ILIUM
WHL95	405	CSZ	UNI	1	F				CHEWED FRAG INDET
WHL95	405	CSZ	UNI	1	F				INDET FRAG-MAND OR SCAP?
WHL95	406	EQU	HUM	1	R	DF	567890		Bd=74.5 Bcon=69.8 Bcon=51.0
WHL95	406	SUS	MAND	1	L		123	GH8	CANINE PRESENT-MALE
WHL95	406	BOS	MAND	1	L		45678		ASCENDING RAMUS
WHL95	406	SUS	FEM	1	L		4		DIST SHAFT
WHL95	406	SUS	INN	1	L		7		ISCIAL SHAFT
WHL95	406	CSZ	RIB	1	F				SHAFT FRAG
WHL95	406	SSZ	RIB	2	F				SHAFT FRAG
WHL95	406	BOS	INN	1	R		7		ISCIAL SHAFT-CHOPPED
WHL95	406	OVCA	UM2	1	L			J12	
WHL95	406	BOS	HC	1	R				BASAL 2/3-CHOPED FRM SKL MAXBD=59.4 MINBD=47
WHL95	406	BOS	HC	1	F				
WHL95	406	CSZ	UNI	1	F				INDET
WHL95	406	BOS	MTC	1	L	DF	12345		Bp=57.8 Dp=34 Bd=66 GL=179 EXPANDED DIST LAT
WHL95	406	OVCA	HUM	1	R				FRAG DIST SHAFT
WHL95	406	OVI	INN	1	L	EF	34579		FEMALE
WHL95	406	OVI	HUM	1	L	PF	123		PROX END AND SHAFT
WHL95	406	CRA	MTC	1	L		1		PROX FRAG AND SPLIT SHAFT
WHL95	408	SSZ	LBON	1	F				SHAFT FRAG
WHL95	408	SUS	MT5	1	R	DN	1		DIST EPI UNF
WHL95	410	CSZ	RIB	1	F				SHAFT FRAG
WHL95	410	SSZ	RIB	2	F				SHAFT FRAGS
WHL95	410	CSZ	UNI	1	F				CALCINED FRAG INDET

SITE	CON.	SPEC.	BONE	NO	SIDE	FUS	ZONES	TOOTH WEAR	COMMENTS
WHL95	410	OVCA	SKL	1	L				POST NASAL FRAG
WHL95	410	OVCA	INN	1	R	EF	7		ISCIAL SHAFT AND FRAG ACET
WHL95	703	EQU	LM	1	W				WORN -ADULT
WHL95	703	CSZ	LBON	2	F				SHAFT FRAGS
WHL95	703	BOS	CQ	1	F				SPLIT

SHELL FINDS

WHL95 405 MUSSEL 2 SHELL FRAGMENTS

Appendix 4

Report on the fired clay/silt and slag

By Jane Cowgill

Catalogue

Context 100

No. of pieces 10

Gms 288

All oxidised, all organic tempered, 2 types: (a) 1 fine silty little organic; (b) 1 very organic and ?less well wedged. (b) 1 flat surface; (a) 1 finger-made impression. Maybe 3 types but all same 'clay'.

Context 102

No. of pieces 13

Gms 254

Most oxidised (all surface oxidised), 2 types as above, some cream colour. (a) 1 fine silty, little organic. 1 right angle surface. 1 ?Moulded surface with pinkish purplish surfaces. 2 flat surfaces. 6 pieces. (b) 7 pieces, organic temper, no surfaces. 4 cream.

Context 104

No. of pieces 3

Gms 53

All (a) types, lots Fe inclusions, oxidised.

Context 109

No. of pieces 26

Gms 545

Probably 2 types but difficult to distinguish the types. Most oxidised. 4 type (a) all with surfaces, 1 very interesting with ?reed impressions. 1 type (b) with flat surface. Roughly mixed with the straw.

Context 402

No. of pieces 1

Gms 58

Iron smithing slag, SSL, mid grey.

Context 402

No. of pieces 7

Gms 55

Type (a) x4, 1 part 'rim' surface. Type (b) x3, 1 with ?surface. All oxidised.

Context 405

No. of pieces 3

Gms 78

1 oxidised. 2 reduced. All type (a) one with quite a lot of organic.

Context 406

No. of pieces 43

Gms 1,378

Most oxidised. 6 flat surfaces. 2 ?curved surfaces. 1 right-angled. Rough uneven tempering.

Appendix 2.1 Site Analysis

Context 408
No. of pieces 3
Gms 18
Type (a), some organic, 1 surface.

Context 410
No. of pieces 9
Gms 303
All oxidised. 6 surfaces. All + organic.

Context 703
No. of pieces 2
Gms 25
1 oxidised. 1 cream and with surface. Type (a). No organic.

Context 704
No. of pieces 13
Gms 180
All oxidised. 10 flattish surfaces. All same. No organic.

Context 706
No. of pieces 3
Gms 361
All oxidised. Few organic. Max thickness, 60mm.

Context 711
No. of pieces 9
Gms 218
8 oxidised. 1 reduced. 5 from same irregular surface. 2 from different surface, no oxidation.

Total 145 pieces
3,814 Gms

Notes

Most of the pieces of fired silt/clay were oxidised. All single surface some angular obtuse corners. Varies from no temper (minority) to large quantities of rough organic (?straw) inclusions. Most surfaces rough and not 'polished'. More than one surface represented in some contexts (most obvious in [711]). Some pieces quite thick, eg c. 40mm [406]. Poorly wedged. Not possible to identify any feature/structure type except that it probably/possibly does not have a strong enough matrix to be anything upstanding.

Appendix 5.1 Site Archive

The basic site archive comprises the following:

77 context record sheets

x3 colour print films, x2 colour slide film

10 scale drawings (plans and sections)

x2 boxes of finds

Primary records are currently with Pre-Construct Archaeology (Lincoln), though the paper and physical archive will be deposited with the City and County Museum within 1 year of completion of this report, together with a more detailed archive list.

The site accession number (CCM, Lincoln) is 15.95

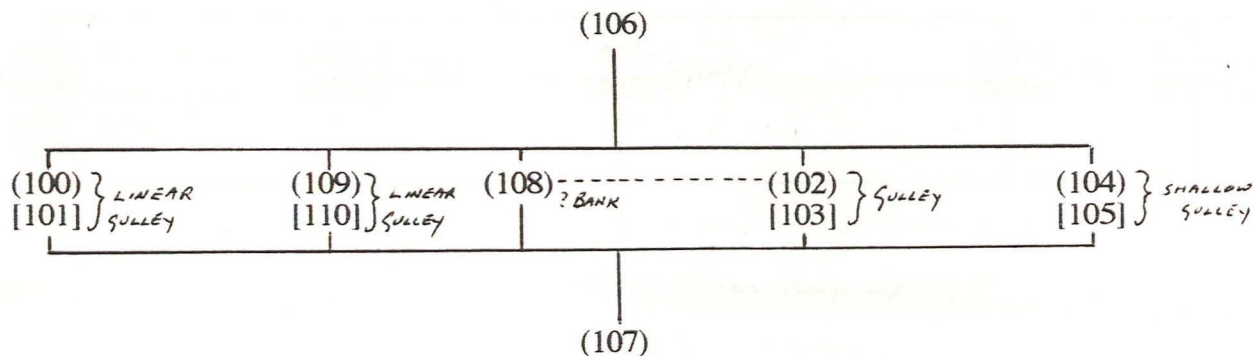
Appendix 6

WHL95: TRENCH MATRICES

Trench 1: in S/E corner of geophysical survey area; trench orientated N-S to intercept 3 linear or L-shaped anomalies.

South

North



Trench 2: in S/E corner of geophysical survey area to sample L-shaped anomaly - negative result

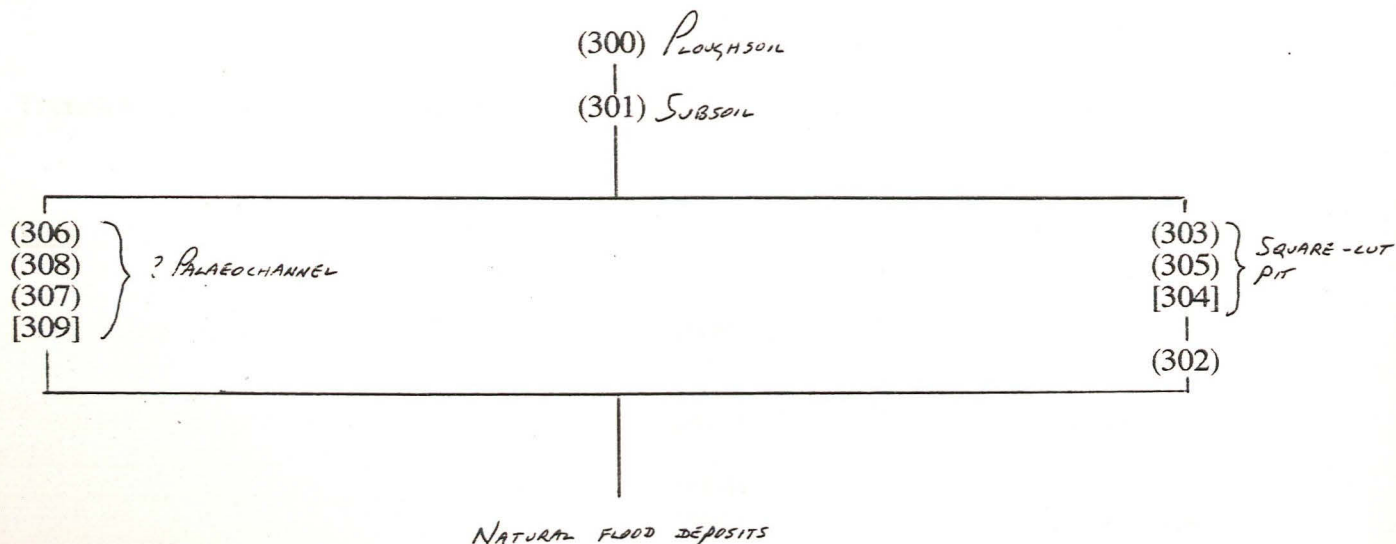
(201)

(202)

Trench 3: to sample linear (E/W) anomaly; trench orientated NNE-SSW, south side of survey area

SSW

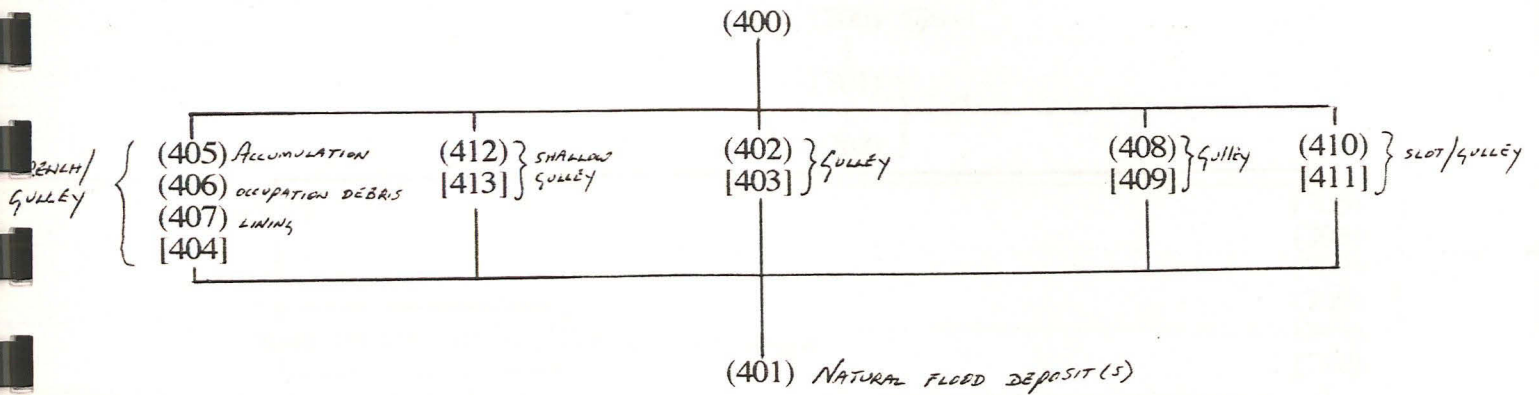
NNE



Trench 4: to sample two linear/L-shaped anomalies, orientated N/W-S/E; trench orientated N/E-S/W

S/W

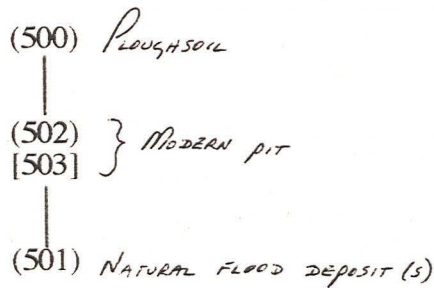
N/E



Trench 5: Random E/W siting outside of geophysical survey area on S/E side of site - negative result (excluding modern pit)

West

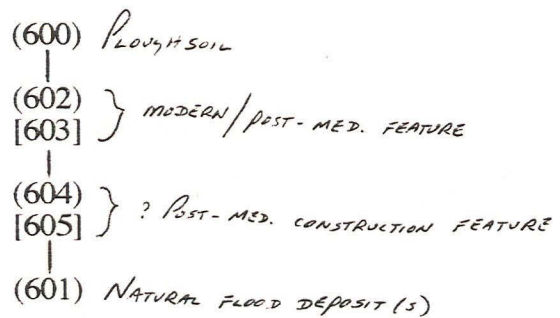
East



Trench 6: east-central area to examine curved geophysical anomaly; trench orientated E/W

West

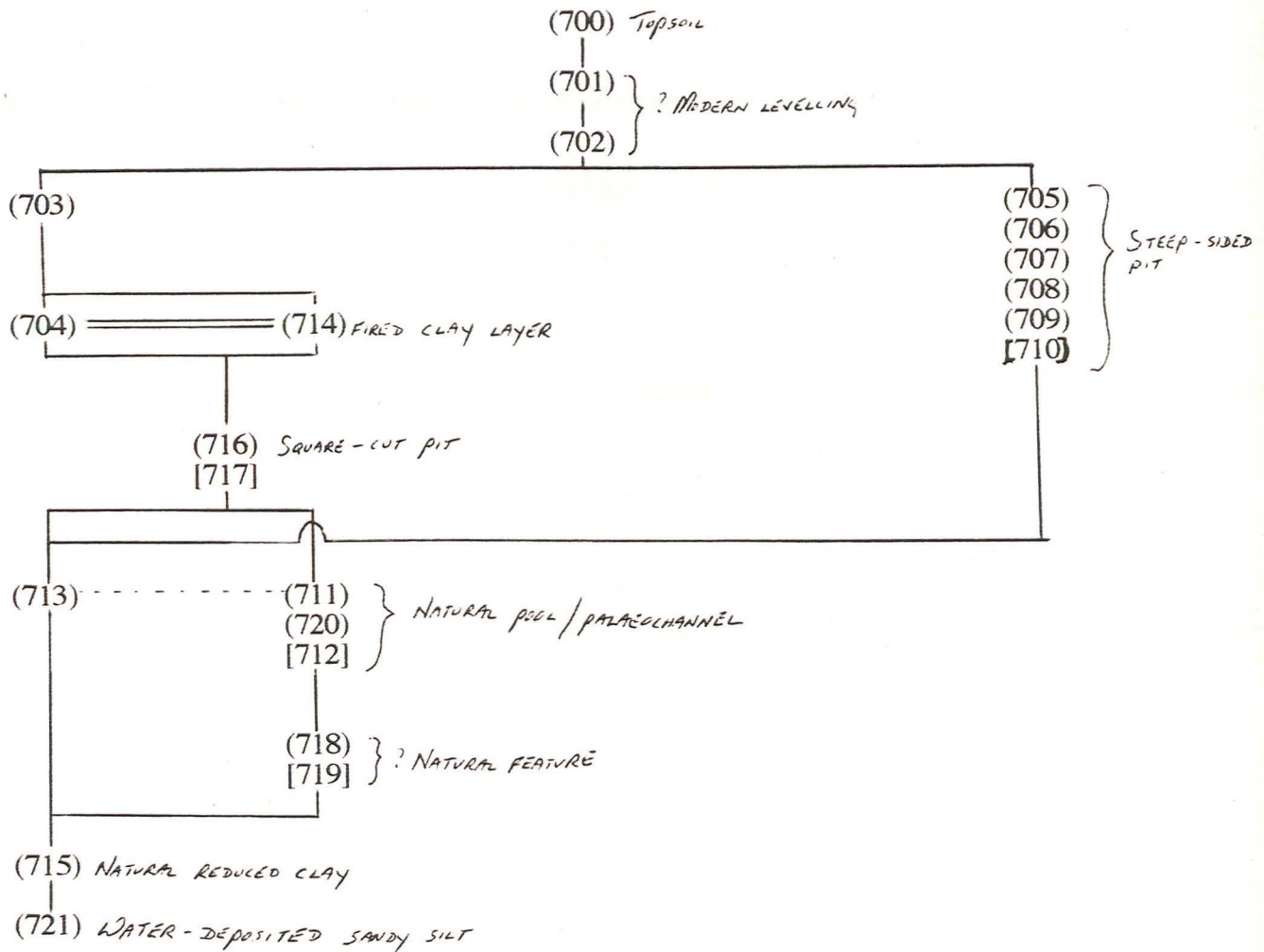
East



Trench 7: to sample north-south linear anomaly, north side of site; trench orientated N/E-S/W

S/W

N/E



Trench 8: random-sited E/W trench, N/E corner of site - negative result

(800)
 |
 (801)

Trench 9: random siting, extreme west/central area; orientated east-west

(900)
 |
 (901)

Trench 10: random siting, extreme S/W side of site - negative result

(1001)

(1002)

Trench 11: random siting between trenches 9 and 10; orientated S/W - N/E

(1100)

(1101)

Fluxgate Gradiometer Survey

for

Pre-Construct Archaeology (Lincoln)

at

**White House Lane, Fishtoft,
Lincolnshire**

Survey by the

**Landscape Research Centre Ltd
The Old Abbey
Yedingham
North Yorkshire
YO17 8SW**

carried out on the

8th-9th March, 1995

Phone & Fax 0723 859759

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This diagram shows the area covered by the 5-metre gridometer survey (1.98 hectares). The area is shaded in diagonal hatching. The grid is at 30 metre intervals.

Summary

A fluxgate gradiometer survey was carried out by the Landscape Research Centre Ltd. on behalf of Pre-Construct Archaeology (Lincoln), as part of an archaeological assessment of a proposed development at White House Lane, Fishtoft, Lincolnshire. The proposed development area was not particularly responsive to this form of survey, due to the masking effects of the clay and the possible areas of iron-panning, although a number of potential magnetic anomalies were observed and are discussed in detail below.

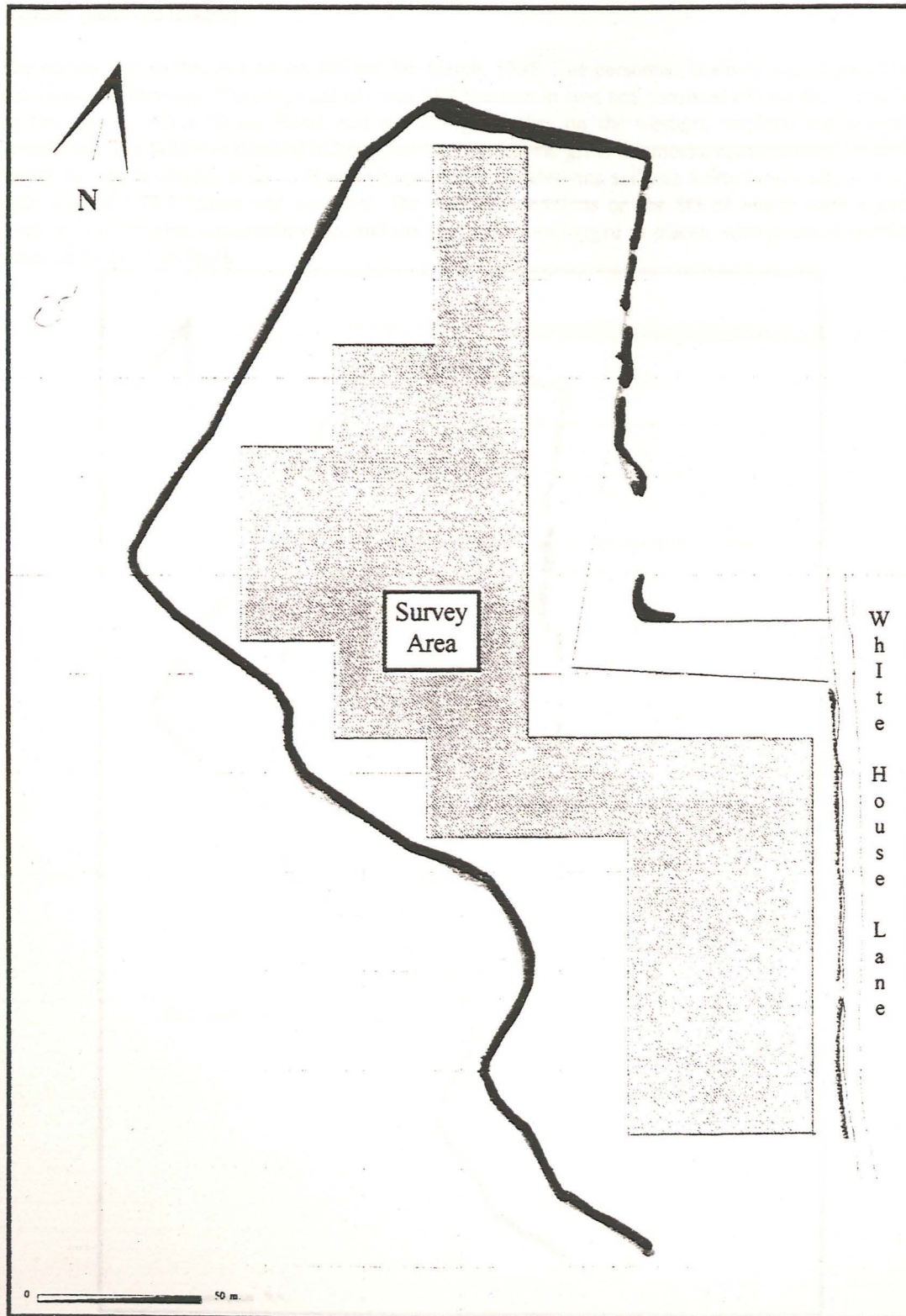


Figure One Scale 1:1930

This diagram shows the area covered by the fluxgate gradiometer survey (1.98 hectares). The area is shaded in diagonal hatching. The grid is at 30 metre intervals.

Introduction

The subject of this report is the discussion of the results of a fluxgate gradiometer survey carried out on behalf of Pre-Construct Archaeology, (Lincoln). The site in question is a proposed development at White House Lane, Fishtoft, Lincolnshire. The Fluxgate gradiometer survey was conducted using a *Geoscan Research* fluxgate gradiometer (model FM36), hereafter referred to as a magnetometer. The zigzag traverse method of survey was used. The survey was conducted by taking readings every 25cm along the north/south axis and every metre along the east/west axis (thus 3600 readings for every 30m grid). The data has been processed and presented using the programs GeoImage (a program dealing with the processing of geophysical data) and GSys (a program which can display, process and present digitised plans and images).

The survey was carried out on the 8th and 9th March, 1995. The personnel involved were James Lyall and Heather Clemence. The proposed site was 3.69 hectares in area and consisted of one field, bounded on the east by White House Road, and by drainage ditches on the western, northern and southern boundaries. The field was covered in low grass with occasional grass tummocks approximately 30 cm in height, as well as stubble of up to 40cm in height, and the underlying soil was a firm brown silty clay. A total area of 1.98 hectares was surveyed. The weather conditions on the 8th of March were a gusty wind, with infrequent thundershowers, and the area was waterlogged in places, with pools of standing water up to 20cm in depth.

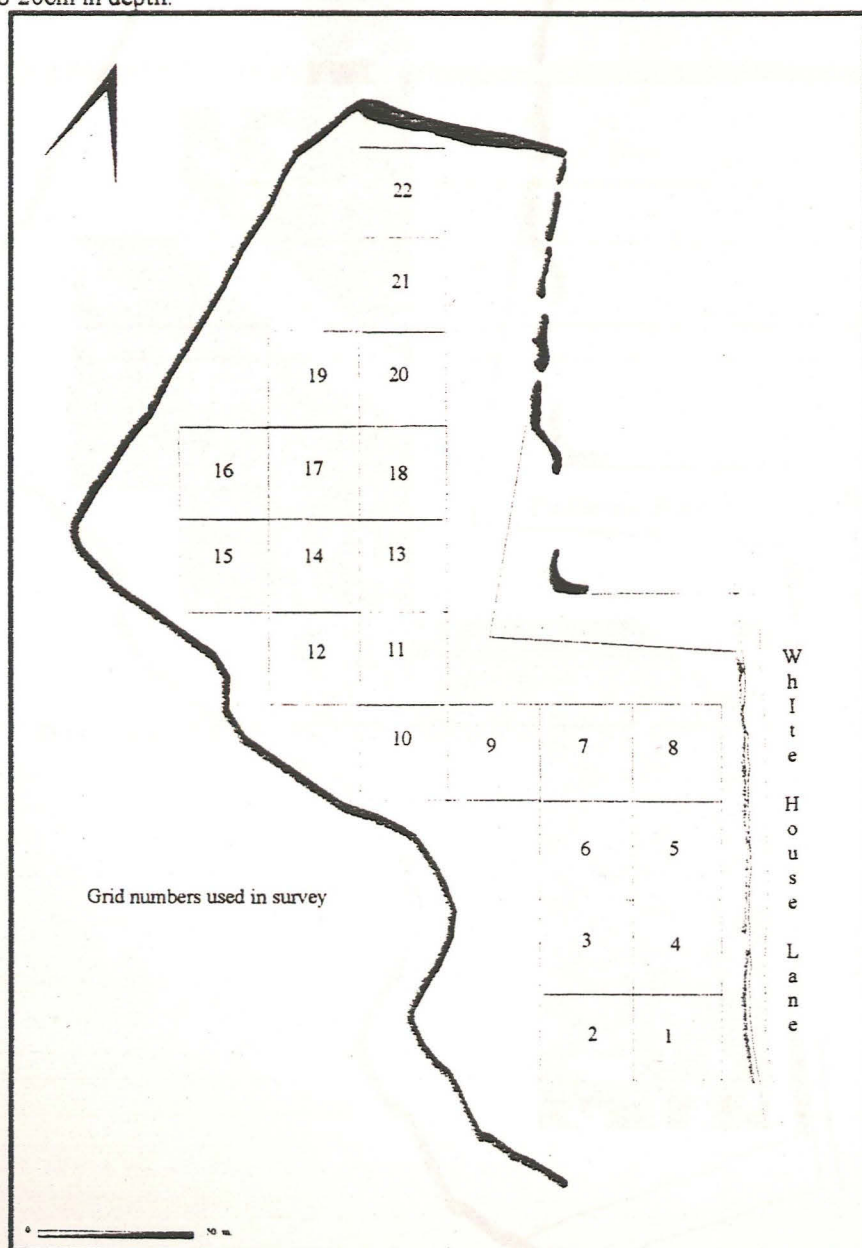


Figure Two Scale 1:2380

This diagram shows the numbers of the grids used in the main text. There are 22 grids, each 30m square.

The magnetometer data

The magnetometer data is displayed both as an image (Figure Three, below) and as a series of digitised interpretations (Figures Four and Five). Figure Six shows the estimated line of the modern anomalies. Figure Three is presented as a greyscale image. The anomalies are the areas of lighter and darker grey, which indicate areas of higher and lower magnetic response. The sampling strategy allowed for a 54% cover of the total area and thus it was felt that a solid block of data would allow for a more detailed interpretation of anomalies to be made than if gaps were left in the centre of the surveyed area. The results from the survey are discussed in detail below. The data is difficult to interpret due to the masking effect of the clay (clay usually has a ferrous component), and the presence of iron panning.

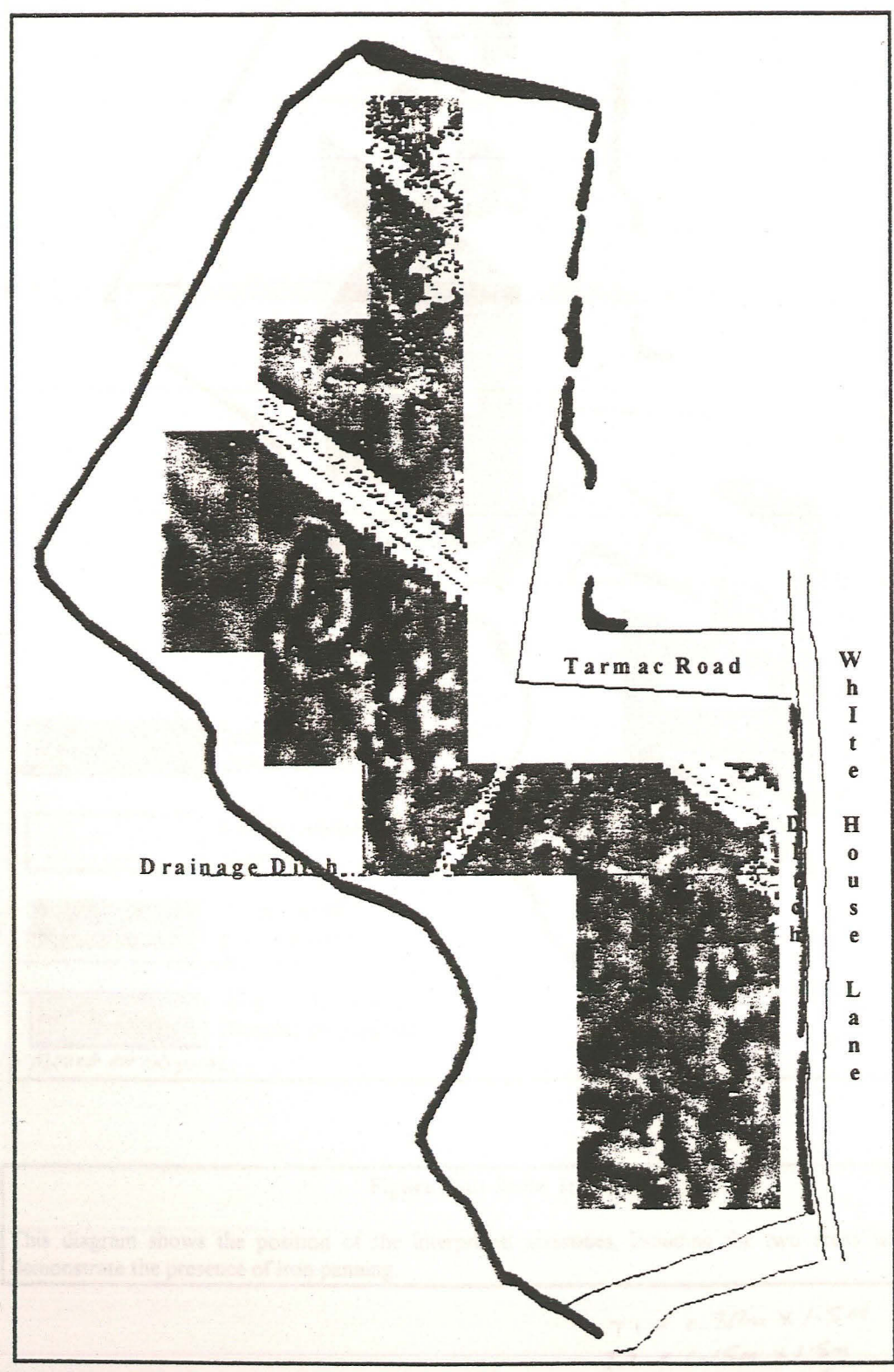


Figure Three Scale 1:1935
This diagram shows the results of the fluxgate gradiometer survey displayed as a greyscale image.

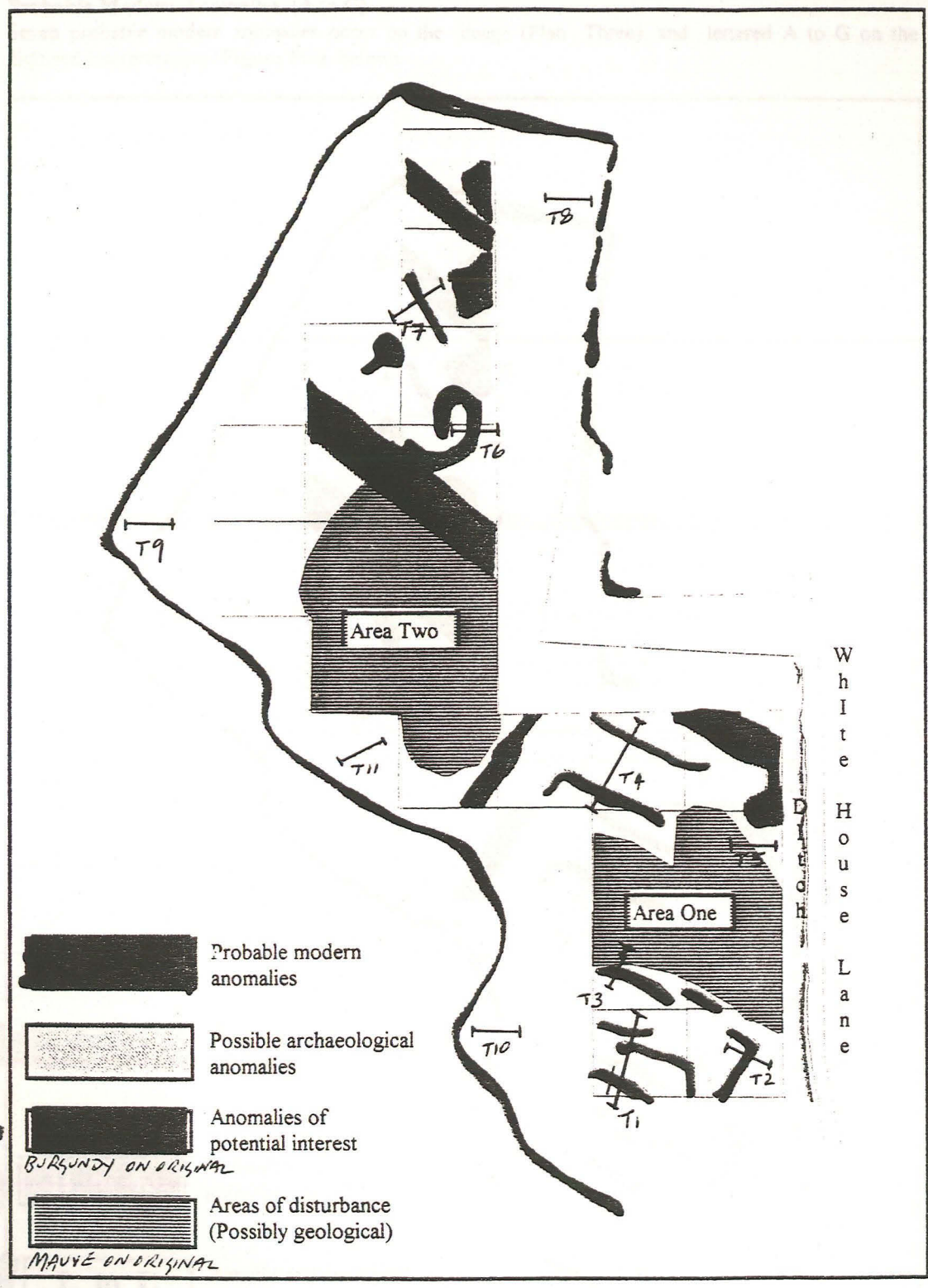
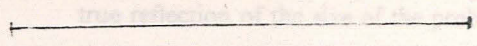


Figure Four Scale 1:1935

This diagram shows the position of the interpreted anomalies, including the two areas which may demonstrate the presence of iron panning.

- T1 = c. 30m x 1.5m
- T2 = c. 15m x 1.5m
- T3 = c. 15m x 1.5m
- T4 = c. 30m x 1.5m
- T5 = c. 15m x 1.5m
- T6 = c. 15m x 1.5m
- T7 = c. 20m x 1.5m
- T8 = c. 15m x 1.5m
- T9 = c. 15m x 1.5m
- T10 = c. 15m x 1.5m



Probable Modern Anomalies (A to G)

Seven probable modern anomalies occur on the image (Plan Three), and lettered A to G on the digitised interpretation (Figure Five, below).

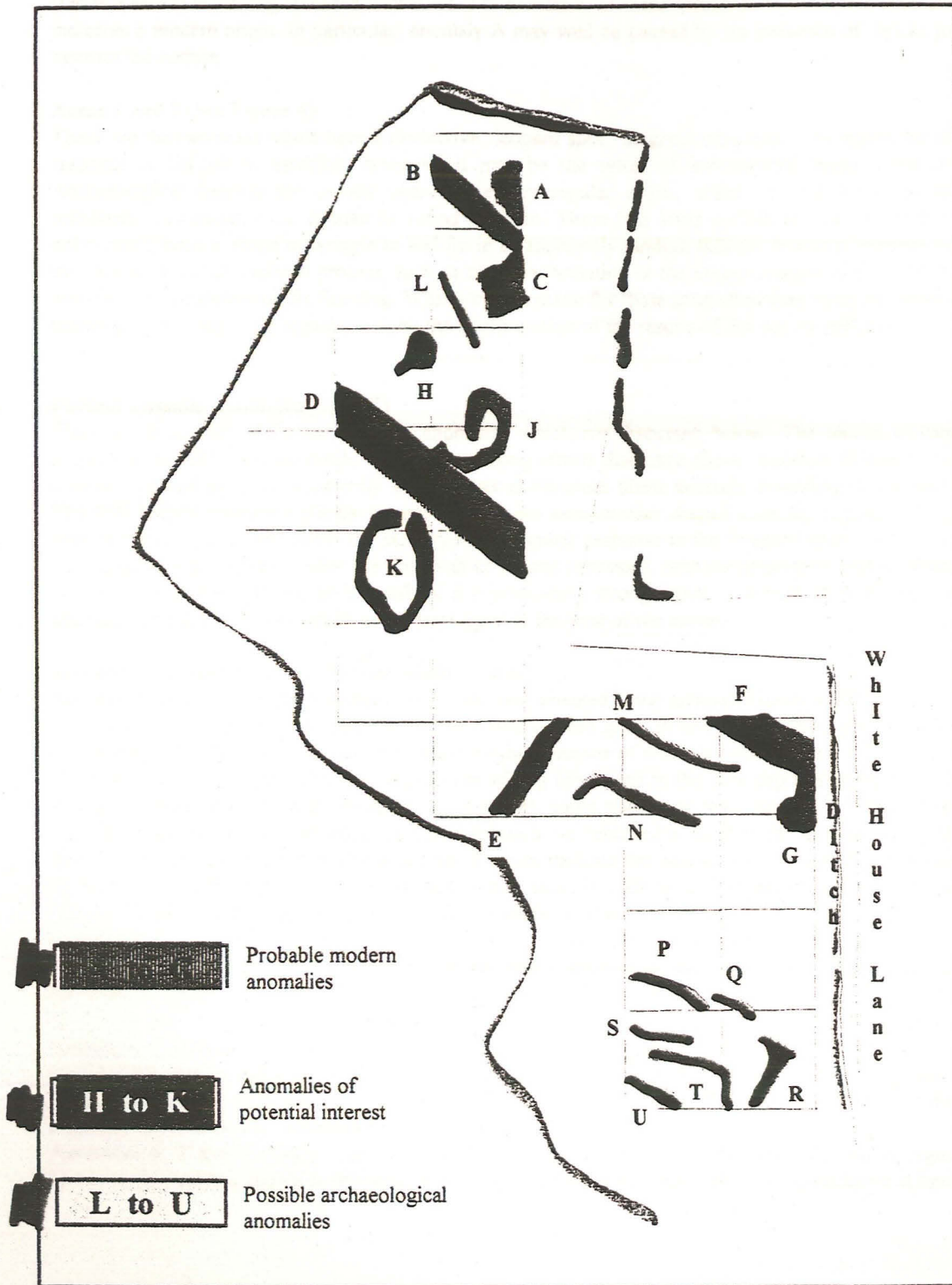


Figure Five Scale 1:1930

This diagram shows the position of the interpreted anomalies, and the letter assigned to each anomaly..

Anomalies D (Grids 13,17,18 and 19) and F (Grids 7 and 8) are almost certainly the same east/west oriented anomaly. The strength of this anomaly indicates that this is an electric cable, either near the surface or of a high voltage. The magnetic anomaly is apparently 10 to 15 metres in width. This is not a true reflection of the size of the probable cause of this anomaly, which will run down the centre of the

anomaly line. Note that the overhead electric cables are not on the same orientation as this anomaly. East/west oriented anomaly B (Grids 21 and 22) and north/south oriented anomaly E (Grids 9 and 10) are of a similar magnetic response, although not on the scale of anomalies D and F. They may be due to the presence of a lower voltage cable, or to metal pipes. Anomalies A (Grid 22), C (Grid 21) and G (Grids 5 and 8) are strong localised anomalies. The proximity of these anomalies to the linear anomalies indicates a modern origin. In particular, anomaly A may well be caused by the presence of bricks just beneath the surface.

Areas 1 and 2 (See Figure 4)

These are the two areas which have a distinctive "leopard spot" magnetic response. The reason for this response is difficult to establish; however, it may be the result of iron-panning beneath the soil. Archaeological features are usually characterised by regular edges, which can be linear, square, rectilinear, curvilinear, oval, circular or round in shape. These two areas contain anomalies which are either amorphous in shape or wriggle to and fro in an apparently random fashion. It is thus possible that they are the result of a natural process, such as iron-pan formation or the irregular deposition of silts and iron-rich clays during episodic flooding. Whatever the reason for these anomalies, they have the effect of masking or covering other signals, making the interpretation of the results of this survey difficult.

Further Possible Anomalies (H to K)

There are a number of further possible anomalies which are discussed below. The nature of these anomalies was difficult to establish, due to the masking effects discussed above. Anomaly H (Grid 19) is a weak localised anomaly, apparently with a weak north/south linear anomaly extending to the south. The oval shaped anomaly J (Grids 18 and 20) and the semi-circular shaped anomaly K (Grid 14) are interesting, but they appear to be the same type of magnetic response as the "leopard spot" variety. It is thus possible that these anomalies are the result of natural processes, with the apparently regular shapes occurring fortuitously. However, anomaly K is a particularly strong signal. It should be noted that this anomaly occurred in an area which was waterlogged at the time of the survey.

Anomalies of possible archaeological origin (L to U)

Anomaly L, is a weak, east/north/east/west/south/west oriented linear anomaly (south/western quadrant of Grid 21). It is possible that the anomaly may continue into grids 20 and 18, but the signal is masked by a number of "high spots", which are caused by the presence of small metallic objects. These objects could be modern in origin, although the presence of slag (discussed in the desk-top evaluation by Colin Palmer-Brown of Pre-Construct Archaeology, Lincoln), could also cause these signals. It is more likely a combination of the two elements, because, although we removed a number of tin cans during the course of the survey, it is certain that a number of recent metallic intrusions remained buried just beneath the surface. Note that there is an apparent line of high spots in grids 10 and 11, although the deposition of these objects could cause such a line to occur by chance alone.

Anomaly M is a very weak, east/west oriented linear anomaly, situated in grids 7 and 8.

Anomaly N is a medium strength east/west oriented linear anomaly, situated in grids 6, 7 and 9. In grid 9 the anomaly apparently turns to the south. It is possible that this anomaly continues to the west in grids 10, 11, 12 and 15, but the signals are masked by the "leopard spots", and this interpretation is uncertain.

Anomalies P (Grid 3) and Q (Grids 2,3 and 4) are weak east/west oriented linear anomalies. It is possible that they continue to form part of a single feature with north/south oriented linear anomaly R, and if this is the case they may form one corner of a rectilinear enclosure. However, the masking signals in grids 1 and 4 make this interpretation uncertain.

Anomalies S, T and U (Grids 1 and 2), may form a similar pattern to anomalies P, Q and R. Again, however, the masking signals in this area of the site make interpretations of this type speculative at best.

Conclusion

In conclusion, the site at White Horse Lane, Fishtoft, proved to be of a medium magnetic susceptibility, with the clay and possible iron-panning masking the results of the survey and making interpretation of the anomalies difficult and uncertain. This being said, there are a number of weak magnetic anomalies, which may be of archaeological origin.

Anomalies A, B, C, D, E, F and G are strong magnetic anomalies, and are almost certain to be of modern origin. In particular, anomalies D and F show the typical magnetic signals of a current-carrying cable. Anomalies B and E may also be a current-carrying cable or a metal pipe line. Weak linear anomaly N has a similar orientation to anomalies D and F.

Anomalies J and K are regularly shaped, but are of a similar magnetic response to the "leopard spot" Areas 1 and 2. It is thus possible that they are geological in origin, but this is not certain.

The remaining anomalies (H and L to U) are weak magnetic anomalies which may indicate an archaeological origin. However, due to the masking effects discussed above, interpretation of these anomalies as archaeological must remain uncertain.

The plans should allow any archaeological investigation (if such is deemed to be necessary) of the area to concentrate in the specific areas believed to be significant. Please note that the United Kingdom latitudes are such that there can be a distortion of up to half a metre in position between the magnetic anomalies shown and the position of the actual features themselves. The greyscale image shows the size of the magnetic anomalies. Note that the measurements of the anomalies are not a direct correlation between the size of the anomaly and the size of the feature. The anomaly strength is a function of depth beneath the surface and magnetic response.

Report by James Lyall

Landscape Research Centre Ltd.

APPENDIX ONE

GRID NO	MINIMUM	MAXIMUM	RANGE	AVERAGE	STD. DEVIATION
1	-90	87	177	4	7
2	-56	40	96	4	7
3	-13	37	50	4	4
4	-46	29	75	-5	6
5	-152	279	431	0	18
6	-27	36	63	5	4
7	-54	32	86	-2	7
8	-348	409	757	-4	78
9	-219	367	586	6	25
10	-305	379	684	1	30
11	-189	94	283	-2	8
12	-119	72	191	-1	6
13	-326	330	656	2	54
14	-35	91	126	3	6
15	-14	17	31	-1	4
16	-28	90	118	-1	6
17	-290	350	640	5	67
18	-340	313	653	1	59
19	-291	341	632	-5	38
20	-332	220	552	0	11
21	-350	388	738	1	44
22	-396	409	805	2	72

TABLE ONE

The table gives the raw data and statistics in NanoTesla for each of the 22 grids. Values shown are the minimum value, maximum value, range, average value and the standard deviation for each grid.

Note that these are not absolute magnetic values in NanoTesla. A true magnetometer measures absolute values. A fluxgate gradiometer measures relative differences in magnetic values, based on a zero reference point established by the surveyors at the time of the survey.

APPENDIX TWO

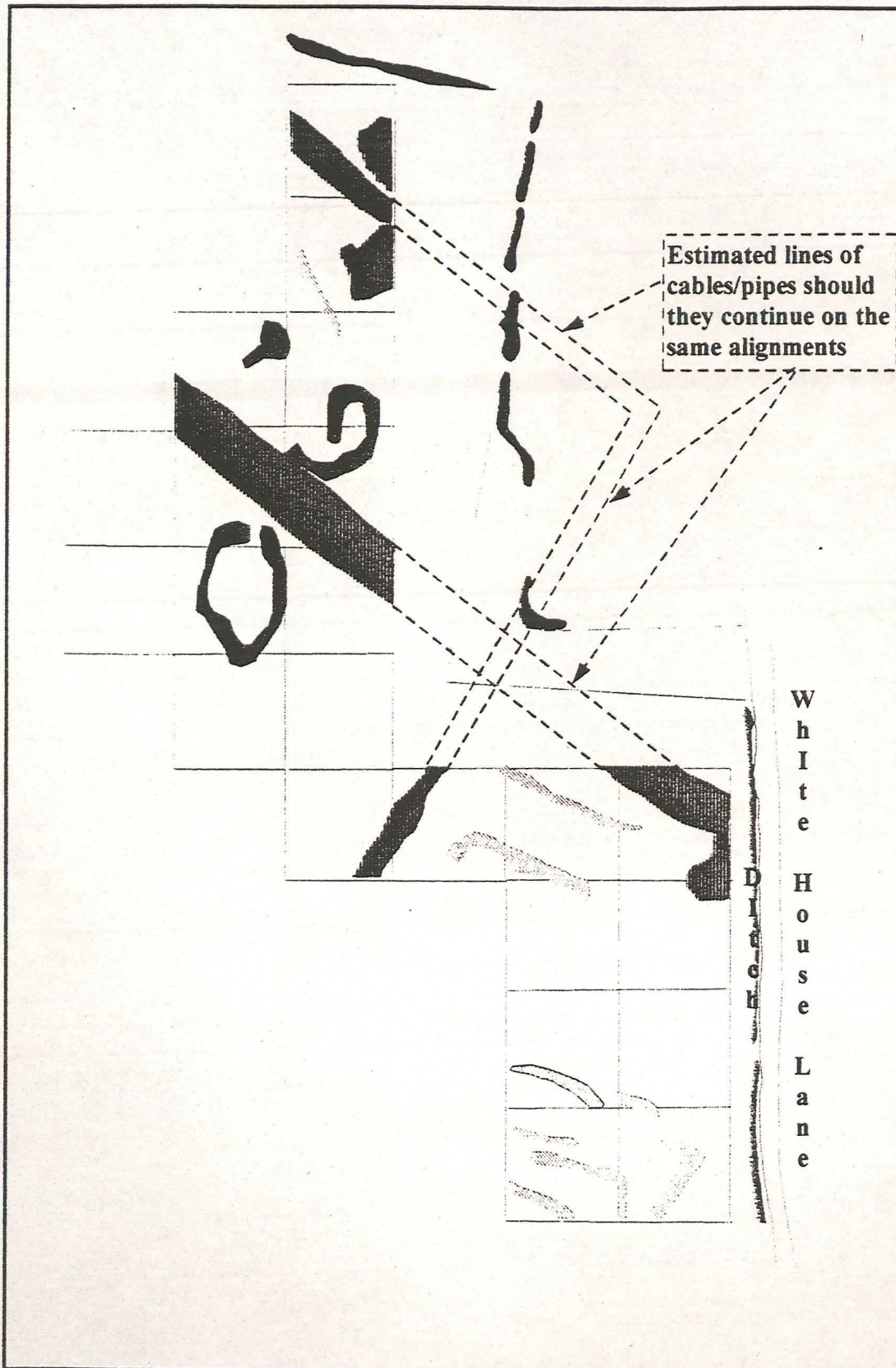


Figure Six Scale 1:1935

This diagram shows the assumed line of the continuation of the probable cables/pipes, should they continue on the same alignments visible in the survey.