HATTON TO SILK WILLOUGHBY

Proposed Natural Gas
1050 mm Diameter Pipeline LEC 0217

ARCHAEOLOGICAL FIELDWALKING and FIELD RECONNAISSANCE SURVEY

Prepared by
NETWORK ARCHAEOLOGY LTD
For
LAING ENGINEERING LTD

network
ARCHAEOLOGY LTD

Event LI777 415522

97/19

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Report No. 111

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APPENDICES

FIGURES

1. SUMMARY

1.1 General

This report presents the results of archaeological fieldwalking and field reconnaissance survey of the proposed Transco *Hatton to Silk Willoughby* Gas Pipeline (Figure 1). The route is some 38km long and connects the existing Above Ground Installations (AGIs) at Hatton (TF 173762) and Silk Willoughby (TF 084436) in Lincolnshire.

The proposed route runs roughly north to south through the central part of the county, its middle section crossing the Witham Fens. Initial investigations including fieldwalking were carried out on the proposed route in 1994 (Brooks *et al)*; no archaeological 'sites' were identified. Only a moderate density of archaeological remains was recorded during the Archaeological Desk-Based Assessment (ADBA, Network Archaeology, 1997), although a significant number of these are Scheduled Ancient Monuments (SAMs) of national importance. The majority of the sites relate to the middle ages, most being Deserted and Shrunken Medieval settlements, or religious establishments such as abbeys and priorys. The latter attest the former influence of the church in this part of the country. Several prehistoric sites also lie close to the route, one being a possible Neolithic long barrow (Scheduled). Other burial grounds are evident on the Witham Fenlands where peat erosion has been exposing a number of prehistoric barrows.

The ADBA highlighted 27 main areas of archaeological sensitivity crossed by, or lying very close to, the proposed pipeline. One of those which is crossed is Scheduled Ancient Monument (SAM) 314, a stretch of the Car Dyke Romano-British waterway. Scheduled Monument Consent has been granted to directional drill below the monument. A geophysical survey carried out by GeoQuest Associates (1997) either side of the monument located several sub-circular anomalies possibly representing pits, as well as ridge-and-furrow field systems.

In addition, the ADBA also identified 13 areas of ridge-and-furrow crossed by the proposed pipeline, and 37 Category E sites, most of these single find-spots or former field boundaries.

Much of the route crosses the Witham Valley Fenlands, an area of largely unexplored yet undoubted archaeological potential, where ancient remains could lie preserved beneath deposits of peat and silt.

1.2 Results

The fieldwalking produced no artefact concentrations which could be interpreted as representing archaeological sites. It did, however, locate three medieval pottery scatters and four prehistoric flint scatters of low to moderate density. The former probably represents manuring associated with the nearby deserted medieval settlements, whilst the latter is suggestive of prehistoric activity. The field-reconnaissance survey re-evaluated the ridge-and-furrow and found only three areas were still upstanding. It also noted a possible roddon (in-filled river channel) to the north of Car Dyke.

1.3 Recommendations

These are as follows:

- Magnetic scanning combined with magnetic susceptibility survey of the whole pipeline route followed by detailed survey of certain areas;
- Trial-trenching or advanced topsoil stripping at Car Dyke;
- Trial-trenching at selected locations in the Witham Valley;
- Topographical survey of the surviving ridge and furrow (three areas), and their subsequent reinstatement.

After the above recommendations have been implemented, a reassessment should be made to decide whether further mitigation strategies will be necessary. A permanent-presence watching brief at the construction phase is recommended. This should include the archaeological supervision of all topsoil stripping, trenching and ground disturbing activities, and the adequate investigation of any exposed archaeological remains.

2 INTRODUCTION

2.1 General

Laing Engineering Ltd are currently planning to construct a *c.*38km long, 1050mm high pressure pipeline on behalf of Transco (Project No. LEC 0217). The *Hatton to Silk Willoughby* pipeline will transport natural gas and connect the Above Ground Installations (AGIs) at Hatton (TF 173762) and Silk Willoughby (TF 084436) in Lincolnshire (*Figure 1*).

Following several preliminary archaeological surveys (see below, 2.2), Network Archaeology Ltd was commissioned by Transco in January 1997 to carry out an Archaeological Desk-Based Assessment (ADBA), in order to quantify and assess the known and potential archaeological resource within the proposed route corridor, and to make outline recommendations for further investigation. In November of this year, Network Archaeology were commissioned by Laing Engineering Ltd to carry out a programme of archaeological fieldwalking and field reconnaissance along the proposed pipeline route, and again to make recommendations for further investigation. This work was carried out between the 17th and 28th November 1997.

Specialist advice on how best to approach the archaeological potential of the Witham Valley was acquired from the Environmental Consultant, Dr. James Rackham (*Appendix 5*).

2.2 Previous Archaeological Investigations

The original construction date for the Hatton to Silk Willoughby Pipeline was Spring 1994. Prior to this, a preliminary archaeological feasibility study was carried out, although this report was not available. A fieldwalking programme was carried out along the length of the proposed pipeline route in January 1993 (Brooks *et al*, 1994). Geophysical prospection was limited to a detailed magnetometer survey over a Romano-British pottery scatter near Greenfield Farm (TF 171750). Although the detailed survey produced no magnetic anomalies, the proposed pipeline route has since been moved 100m to the east.

Apart from the pottery scatter at Greenfield Farm, no other discrete concentrations were noted from the 1994 fieldwalking. From the 67% of fields available for fieldwalking, a total of 424 artefacts was recovered, almost all of these either prehistoric flint, Roman pottery or medieval pottery. Very few finds were recovered from the central part of the route, especially through the Witham Fens.

A total of 161 artefacts were worked flint, though none formed any particularly significant concentrations. The majority of these were found south of Car Dyke, and date to the Late Neolithic or Early Bronze Age. Four probable Early to Middle Neolithic flint artefacts were also identified. Of the few Roman pottery sherds recovered, most were from the southern end of the proposed route in the area north of the River Slea (between TF 129498 and TF 108462) and also between Ewerby Bargate Hill (TF 118477 and TF 108462). These low density scatters were attributed to Romano-British agricultural practices. The majority of the medieval pottery was discovered south of the River Slea, and again is viewed as the result of agricultural practices associated with the nearby shrunken or deserted medieval villages.

The report concluded that no archaeological sites had been identified by the fieldwalking, but did stress that the fenland peat deposits could be masking archaeological remains.

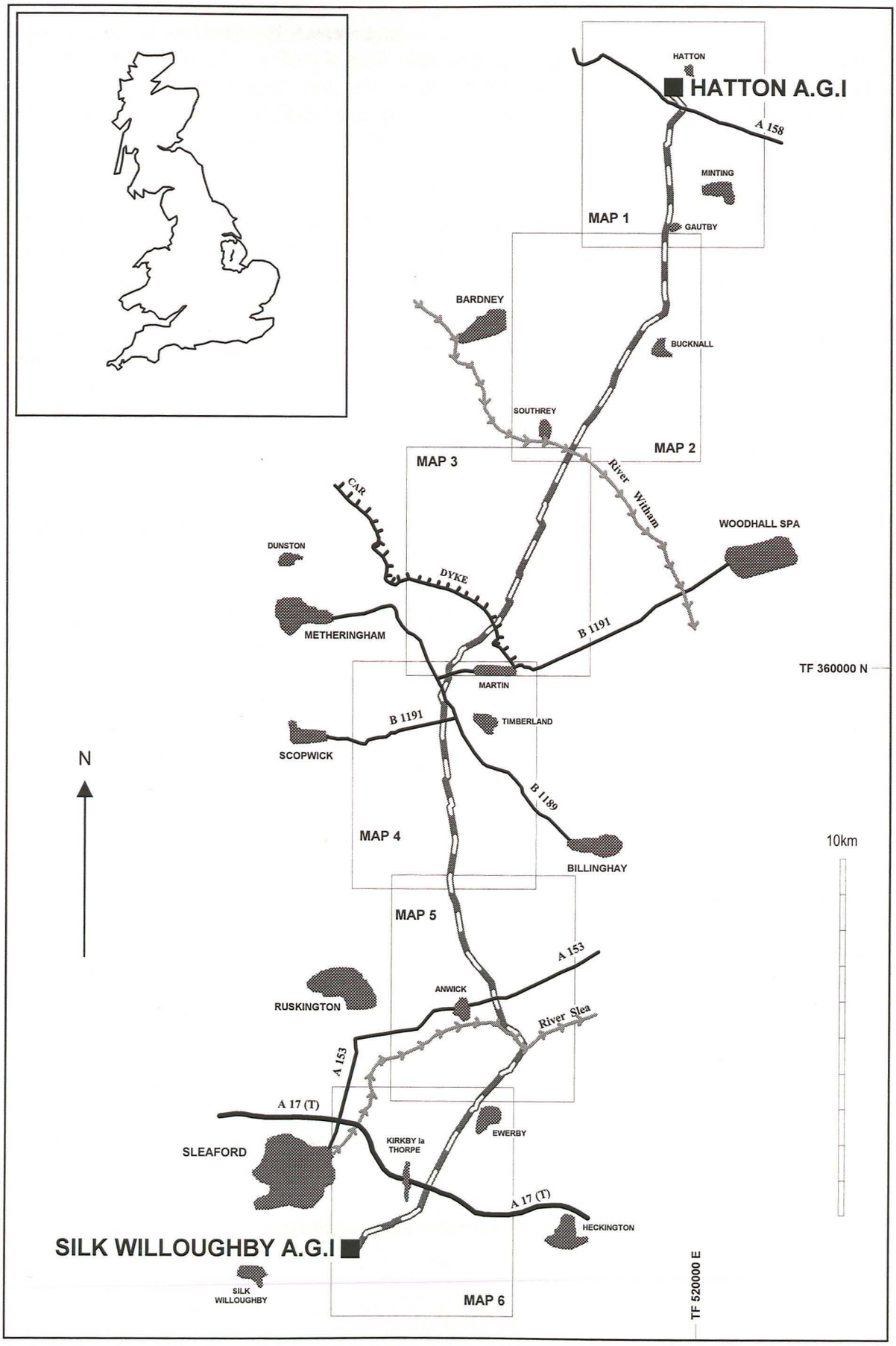

Figure 1 : Location of proposed Hatton to Silk Willoughby pipeline

2.3 Results of the Desk-Based Assessment

The ADBA recorded 211 archaeological sites and find-spots/scatters within a 1km study corridor. Each site was placed into one of five categories (A-E), ranging from Scheduled Ancient Monuments to single find-spots. It was recommended that Category A, B and C sites crossed by the proposed pipeline should be avoided.

The ADBA identified a total of 27 areas of archaeological potential lying close to, or crossed by, the proposed route: these comprised fourteen Category A, B and C sites (one from each category crossed) as well as thirteen Category D sites (all crossed). In addition, thirteen fields of ridge and furrow were crossed by the route, as well as 37 Category E sites, the latter largely comprising single find-spots or recent field boundaries. For the Category A site crossed by the route, the Scheduled stretch of Car Dyke, consent has been granted to drill beneath the monument. The crossed Category B site is a probable Deserted Medieval Village, identified from aerial photographs by the Royal Commission (RCHME/DBA:CV; TF 10364504), and lying south of Kirky La Thorpe. The crossed Category C site was also identified by aerial photography: it is plotted as two parallel linear features (possibly ditches), lying 50m apart and stretching for 400m (PRN 40030; TF 17207100).

2.4 Requirements of the Brief

As part of the *Invitation to Tender* (4/11/97), Laing issued Network Archaeology Ltd with an Archaeological Specification for Pre-Construction Survey 1997 (21/10/97), for undertaking Fieldwalking and Field Reconnaissance along the length of the pipeline route. In response to this, Network Archaeology produced a detailed Method Statement and Specification. The subsequent fieldwork conformed to the Institute of Field Archaeologist's (IFA) *Code of Conduct* (1986), and the IFA's *Code of Approved Practice for the Regulation of Contractual Arrangements in Field Archaeology* (1990). The work was managed in accordance with the methods and practice described in the *Management of Archaeological Projects, second edition* (English Heritage, 1991).

2.5 The Archaeology of Linear Projects

Linear developments such as pipelines provide an opportunity to examine a transect across the landscape and the spatial and temporal variability of human activity within it. They can also, however, be enormously deleterious to the archaeological resource. Nevertheless, through the mutual co-operation and constant liaison between archaeologist and engineer at all stages of a project, a route which minimises the disturbance of archaeological remains can be achieved. The fieldwork reported here marks one of the stages in an investigative programme designed to prevent the unnecessary destruction of the archaeological resource along the proposed pipeline. In order for this programme to succeed, continued liaison between Laing and the archaeologists involved in further stages of the project is essential.

2.6 Objectives of the Fieldwalking Project

The overall objective was:

- To assist the project engineers in the selection of an archaeologically least damaging pipeline route.

More specific aims were:

- To determine the presence or absence, extent, character, condition, quality and date

of any sites of archaeological importance along the proposed pipeline route;

- To assess the archaeological potential of the entire pipeline route, following analysis of the field survey results;

- To assess the potential for further evaluatory fieldwork and make appropriate recommendations for further investigation.

3 DESCRIPTION OF THE PIPELINE CORRIDOR

3.1 General

The proposed 38km pipeline will run through the central part of Lincolnshire, beginning just under 1km south-west of the village of Hatton, 20km east of Lincoln (TF 173762). It travels in a south by south-westerly direction before terminating 3.5km to the north-east of the village of Silk Willoughby and 2km south-east of Sleaford (TF 084436).

3.2 Topography and Geology

The upper third of the proposed pipeline route crosses the southern part of the Lincoln Clay Vale; it then passes into the Fenlands of the Witham Valley for its central portion, and finally traverses part of Lincoln Heath for its lower third.

The land along the route is low lying and of low relief, with ground elevations generally ranging from 10-15m above Ordnance Datum, although the northern and southern ends do reach 20-30m O.D., and the Fenlands drop as low as 2m O.D. The geomorphological survey (Dames and Moore International, 1992, 5) did not identify any sharp gradient changes from either aerial photography study or visual inspection, apart from the less than 2m relief of the roddons (extinct rivers) of the Fenlands, which carry drainage channels and small rivers *(eg.* The River Slea, TF 132493).

The solid geology along the route is Upper Jurassic clays and Corallian mudstones (Blisworth and Oxford Clays). In the northern and southern parts of the route, these clays are overlain in places by a thick mantle of Quaternary drift deposits comprising glacial till (Boulder Clay), pockets of fluvial sands and gravels, and occasional deposits of alluvium. The Witham Fenlands comprise recent marine, estuarine and fluvial sediments over glacial deposits, lying within a basin of Oxford Clay and Kellaway Beds, and all overlain by successions of peat and silt deposits (*ibid*).

The Witham Fens, forming one part of the Lincolnshire Fens, were created by the gradual infilling of a lowland basin with a succession of alluvial deposits. Rises in sea-level from prehistoric times led to the obstruction of the natural discharge of the rivers, and caused their waters to back up and overflow. This initiated the many series of complex flooding episodes that eventually filled-in the Fen basin, and also led to the formation of peat. Many of these early peat deposits were subsequently overlain by marine clays, silts and sands. The sequence of flooding and regression of the Fen areas with salt or fresh water, and the build-up of the Fens in general, remain a very complicated and localised process (Hayes and Lane, 1992, 1).

3.3 Soils and Landuse

The low lying nature of the land in this part of Lincolnshire, and the underlying clay geologies, have generally resulted in fairly heavy soils, naturally prone to waterlogging and agriculturally less manageable than, say, the lands of the Wolds which lie to the north-east. Because of this, however, a long history of drainage has helped to develop the area for arable farming, making it today, one of the more important arable regions in England. The Witham Fenland in particular, extensively drained in the past to prevent flooding, is one of the most fertile agricultural areas in the country. This change to intensive farming has unfortunately produced a gradual lowering of the water table, and an acceleration in the erosion of the peat deposits.

4 METHODOLOGY

4.1 The Route

The pipeline centre-line was established by the Contractor with wooden pegs being placed at intersection points, field boundaries and appropriate intervisibles along the route. These defined the centre-line which was used as a basis for fieldwalking traverses.

4.2 Fieldwalking

Fieldwalking was carried out by a team of five archaeologists walking at 10m spacings within each field. A total of five traverses was walked, one along the centre-line, and two either side. This gave a 40m-wide survey area, and provided approximately 25% ground coverage within the corridor.

Details of each field or land parcel walked (including weather/light conditions, crop type, ground visibility, land relief, walkers present, summary of finds) were recorded on proforma record sheets. These will form part of the project archive.

Recovered artefacts were given a unique identifying number, and their locations measured in by tape and marked on the 1:2500 Strip Maps. All artefacts were collected with the exception of modern or later post-medieval finds, and unworked animal bone. Significant scatters of modern and post-medieval artefacts were noted on the Strip Maps.

4.3 Field Reconnaissance Survey

This was carried out simultaneously with the fieldwalking. It consisted of a visual inspection of the proposed pipeline construction easement in order to record any existing earthworks, any significant soil or vegetative changes, present (and former) landuse, visible geology, and general topographical variations. Any features of significance were recorded on the fieldwalking record sheets. All of the 161 fields or land parcels were walked.

5 RESULTS

5.1 General

The fieldwalking and field reconnaissance surveys produced a fairly low density of artefacts and archaeological remains along the pipeline route. Three slight concentrations of medieval pottery, and four rather diffuse scatters of prehistoric flint were revealed by the fieldwalking, whilst the field reconnaissance located three of the thirteen areas of medieval ridge-and-furrow earthwork noted during the ADBA, showing that the other ten must have been ploughed out.

Generally speaking, the results accord with those of the 1994 fieldwalking survey, which uncovered no great concentrations of finds. The most blank areas were, as in 1994, on the Witham Valley Fenlands. This is not surprising, since the peats here could be masking archaeological deposits. All of the sites located are shown on *Figure 2* (north & south parts).

5.2 Fieldwalking

Of the 161 fields surveyed, 111 or 69% were suitable for fieldwalking, whilst 50 or 31% consisted of pasture, set-aside, or dense brassica and were consequently unsuitable for artefact retrieval, though these fields were walked as part of the field reconnaissance survey (see *Appendix 1* for field data). From the fields which were fieldwalked, a total of 178 artefacts was recovered (*Appendix 2*), the majority of these medieval pottery sherds (71) (*Appendix 3a*), and prehistoric flints (74), (*Appendix 4a*). A smaller percentage of the total comprised Romano-British pottery (21). Six tile fragments were also recovered, as well as five Post-Medieval pottery sherds (to be discarded), and a 1919 George V penny.

The distribution of artefacts revealed seven areas of archaeological potential: three medieval pottery scatters, and four prehistoric flint concentrations (see below). Since these artefacts are spread across quite a large area, they do not appear to represent archaeological sites, though further investigation of the adjacent ADBA sites may prove otherwise.

The Pottery (B. Precious and A. Vince, see Appendix 3c)

The 21 sherds of Roman pottery formed a small proportion of the assemblage. The majority are broadly datable to the mid 3rd to 4th centuries AD, most of them fairly heavily abraded, undiagnostic greyware body sherds, typical of artefacts incorporated into the ploughsoil by agricultural practices. Only two fragments could be as early as the mid 2nd century AD. One potentially significant piece was an exceptionally fresh rim sherd from a reed-rimmed Nene Valley mortarium, found to the south of The Harding (Strip Map 16, Field AAZ, TF 1233250783). The freshness of the sherd suggests that it may have recently been ploughed out of an archaeological feature. No previously known sites are recorded in the vicinity.

The medieval pottery formed the largest part of the overall assemblage, with a range of wares spanning the 11-15th centuries, including Stamford, Lincoln, Maxi and Bourne wares. The most interesting sherd was that from a probable Saxon vessel (Pottery Scatter 2, see below). The sherd is hand-made and quite friable, suggesting that it too, could have been recently ploughed up from an archaeological deposit.

Distribution of pottery along the route

The first three quarters of the proposed route from Hatton AGI (TF 1728076190, Strip Map 1) to Ruskington Fen, negative of The River Slea (TF 1148052220, Strip Map 15) shows a

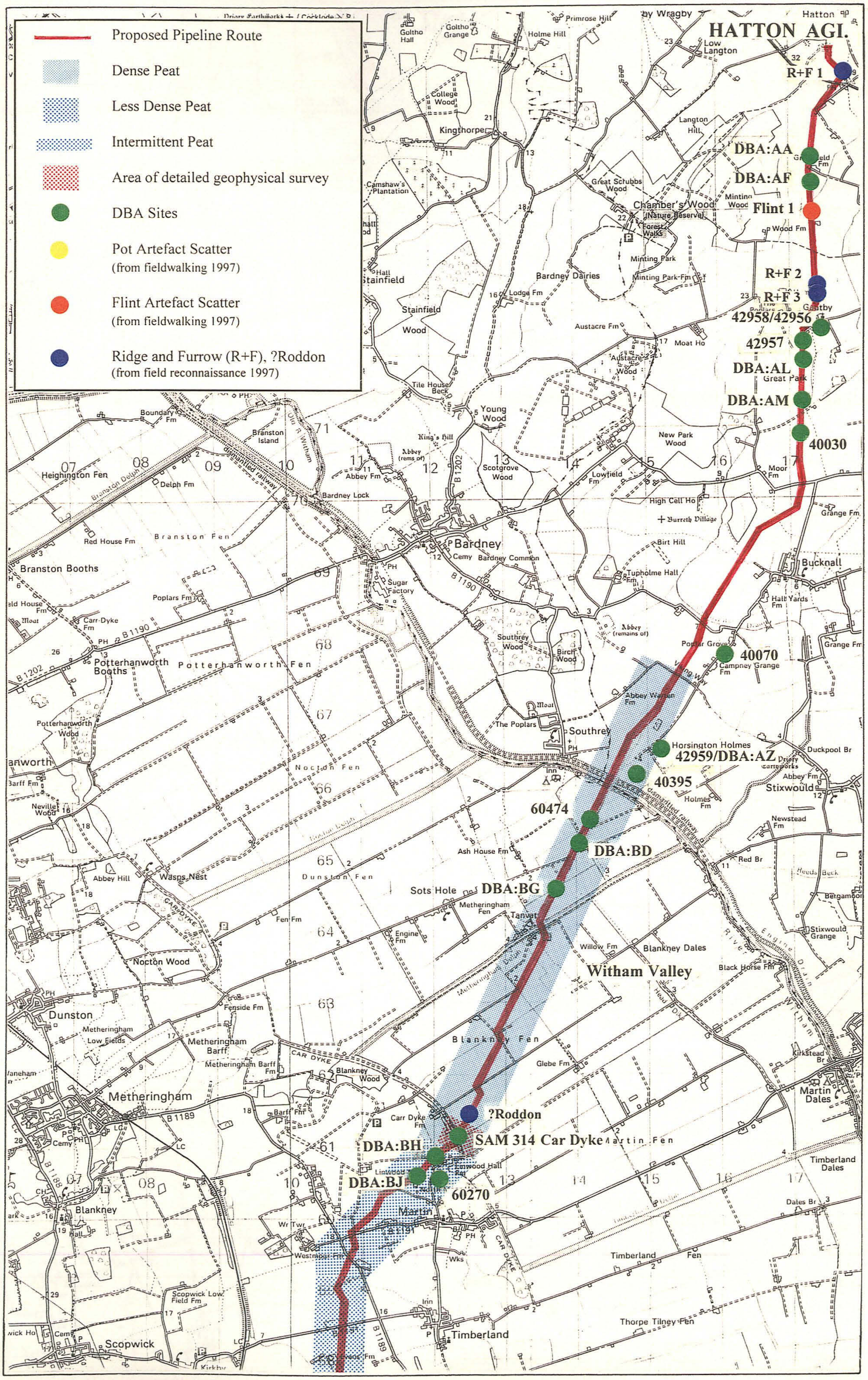

Figure 2: Location of finds and sites mentioned in the report

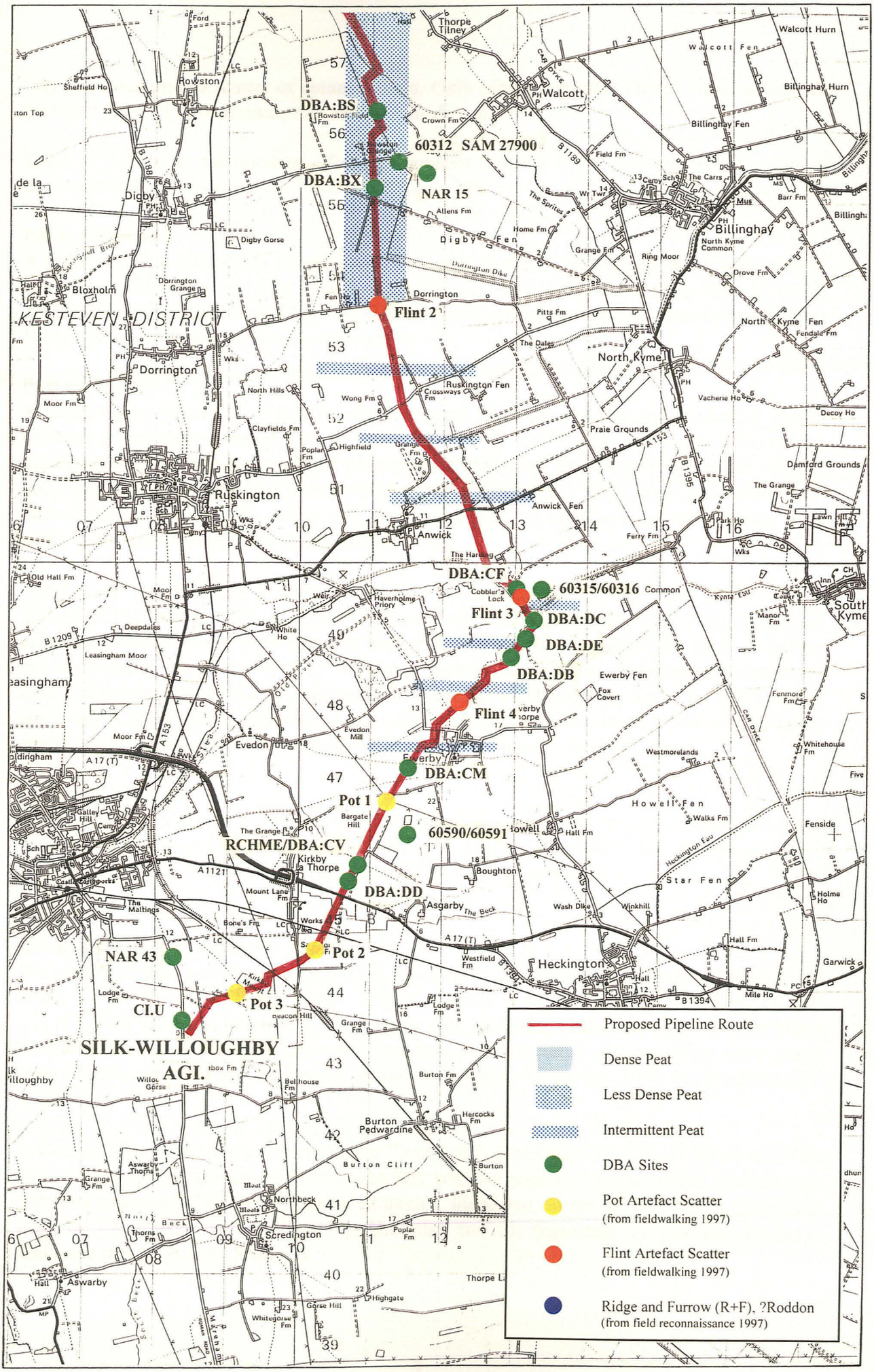

Figure 2: Location of finds and sites mentioned in the report

very low background scatter of ceramic finds. Only nineteen pottery sherds were recovered: thirteen medieval, five Roman, and one post-medieval.

South of this point, the numbers of sherds remains low, but three dispersed pottery scatters are identifiable, as follows.

Pottery Scatter 1
A slight concentration of 24 abraded medieval pottery sherds was found in the area west of the village of Ewerby (a 1.5km stretch from TF 12234849, Field 4246, Strip Map 17 to TF 11284697, Field 3700, Strip Map 18). These sherds probably represent manuring practices related to the medieval settlement of Ewerby.

Pottery Scatter 2
A small scatter of medieval pottery was recovered from the pipeline route where it passes between a probable medieval site (RCHME, DBA.CV, TF 103451). This was identified by the Royal Commission National (air photographic) Mapping Programme during the ADBA, and may represent part of a Deserted Medieval Village. No finds were recovered from immediately adjacent to the actual site, though this may be because most of the fields were under grass/stubble during the fieldwalking.

The pottery was picked up from fields AAB, 4754 and 6124 (Strip Map 19, TF 10674585 to TF10424539), around 500m north of the Royal Commission cropmark site. Of the nine finds recovered, three of them were Romano-British and six of them medieval, the latter including the hand-made Anglo-Saxon/Early Medieval sherd. (see above). Although the scatter of medieval pottery itself would not normally be regarded as representing a site, the proximity of the Royal Commission cropmark to the route increases the likelihood of the sherds being derived from archaeological remains lying within the pipeline easement.

Pottery Scatter 3
This lies 400m south of the Royal Commission cropmarks noted above, and runs for some 320m (Strip Map 20, Field 0044, TF 09924453 to TF 09624440). The group comprises twelve medieval sherds and two probable medieval tile fragments.

Brick and Tile (C. Taylor, see Appendix 3b)
Six pieces of brick and tile were recovered. The first two came from fields immediately to the south of Green Field Farm (Strip Map 2, Fields AAF, AAG, TF 1715874271, TF 1721673674). One is a possible Roman *tegula* (flat roof tile), whilst the other, despite being unidentifiable, is of a similar fabric and therefore also potentially Roman. They were found west of the concentration of Roman pottery recovered during the 1994 fieldwalking (TF 171750).

A Roman *tegula* was also recovered from Field AAQ (Strip Map 10, TF 1172060692), 80m from a cropmark of probable ditches (DBA.BJ), whilst a possible Roman *imbrex* (curved roof tile) was recovered 20m from another cropmark identified on the ADBA (DBA.CM; Strip Map 18, Field 3922, TF 1143747234). The other two tile fragments are probably medieval and form part of Pottery Scatter 3.

The Flint (D. Bonner, see Appendix 4b)

A total of 74 pieces of flint were recovered from the proposed pipeline route. No flint was found in the Witham Valley, suggesting either that this area was unsuitable for occupation, or, more likely, that any sites which do exist are masked beneath layers of peat and silt. Most of the flint (64 pieces) dates to the Late Neolithic to Bronze Age (see below), with the other ten being tentatively dated to the Mesolithic or Early to Middle Neolithic periods, and therefore indicating earlier prehistoric activity along the route. In addition, a possible Early to Middle Neolithic knife (Strip Map 15, Field 5100, TF 1181451622) was recovered 1km south-west of the scheduled Neolithic Long Barrow. Although the overall density of flint along the proposed route was low, four areas with enhanced concentrations of Late Neolithic to Bronze Age artefacts were identified, as follows.

Flint Scatter 1

A scatter of sixteen flints, dating from the Late Neolithic to Early Bronze Age, was recovered over a distance of 3km from south of Hatton to Minting (Strip Map 1, Field AAB, TF 17417603 to Strip Map 2, Field 2926, TF 17237328). The scatter is suggestive of prehistoric activity, but clearly does not constitute a 'site'. Similar period finds have previously been found in the area, including a Neolithic stone axe and a Bronze Age axe. No sites are known in the immediate vicinity.

Flint Scatter 2

A low concentation of nine Late Neolithic to Bronze Age flints was recovered from an area of 230m in Dorrington Fen (Strip Map 14, Field 1300, TF 10055412 to TF 11085389). Whilst this is an area of enhanced activity, again the density is not high enough to be regarded as representing settlement. Neolithic and Bronze Age axes have previously been found in the vicinity.

Flint Scatter 3

Twenty-one Late Neolithic to Early Bronze Age flints were found in three fields covering a 1.6km stretch of the pipeline (Strip Map 16, Field 7400a, TF 12375063 to Strip Map 16, Field 2150, TF 13164936). The scatter might be related to a possible enclosure (DBA.CF, TF 1287 4979) which is crossed by the proposed pipeline route at this point. It may also be of significance that the flint lies only 200m west of Anwick Bronze Age Barrow Cemetery (PRN 60315/6, TF 13304970). Previous fieldwork in the closer vicinity of the barrows has produced 1,362 artefacts (Chowne and Healey, 1989, 43). This large flint assemblage had elements dating from the Mesolithic, Neolithic and Bronze Age periods, with the earlier pieces suggesting some form of settlement *(ibid.)*. It is therefore clear that the proposed pipeline will pass through an important prehistoric landscape, where eroding peat has already revealed previously unknown sites.

Flint Scatter 4

A small scatter of Late Neolithic to Early Bronze Age flints was recovered from a 500m stretch of the proposed pipeline route (Strip Map 17, Field 4246, TF 12434845 and Strip Map 17, Field 0001, TF 12104811). The flints cover an area of the route where no finds or sites of this period have previously been found, and though they are too few to represent a site, it is likely that they reflect some degree of prehistoric activity in this area.

5.3 Field Reconnaisance Survey

The ADBA identified ridge and furrow field systems in thirteen individual fields. The field reconnaissance survey showed only three of these systems surviving as earthworks (Ridge and furrow 1, 2 and 3 - see below), with three others (Ridge and furrow 4, 5 and 6) being very ephemeral. A possible Roddon (infilled ancient river channel) was also noted.

Ridge and furrow 1

Strip Map 1, Field AAB, TF 17467594

Upstanding ridge and furrow, running north-east to south-west, with 5-6m spacings and surviving to about 0.5m in height. It was identified during the ADBA as NAR.21.

Ridge and furrow 2

Strip Map 2, Field 2600, TF 17217296

This field system runs east to west at about 7m intervals and survives to about 0.30m in height. It was identified in the ADBA as PRN.42956.

Ridge and furrow 3

Strip Map 2, Field 3080, TF 17217589

Remnant ridge and furrow running north-south with 7m spacings and a height of 0.30m. It was identified in the ADBA as PRN.42956.

Ridge and furrow 4

Strip Map 3, Field 1772, TF 17207273

Very ephemeral traces of ridge and furrow running east-west. It was identified in the ADBA as PRN.42956.

Ridge and furrow 5

Strip Map 3, Field 0564, TF 17187261

Indistinct ridge and furrow running east to west. It was identified in the ADBA as PRN.42956.

Ridge and furrow 6

Strip Map 3, Field 0928, TF 17087234

Ridge and furrow surviving up to 0.20m in height and with spacings of about 6m. The field system was least prominant in the north half of the field, where it was identified as PRN.42957 during the ADBA.

Possible Roddon

A low bank forming an 'L' shape and running through two fields north of Car Dyke was recorded. It measures around 40m in width, and is crossed by the proposed pipeline at TF 12446139, Strip Map 9, Fields 5550 and 4341. If this is a roddon, then its significance lies in the fact that Roman settlers would have been attracted to this higher, better-drained area (see environmental assessment, *Appendix 5*). Indeed, Roman settlement along these roddons is already known in other parts of Lincolnshire (*ibid.*).

5.4 Desk-Based Assessment Sites Reviewed

Category A, B and C sites crossed by the route

The ADBA showed that the proposed pipeline route would cross one Category A, one Category B, and one Category C site. Details of each of these are given below.

Category A : Car Dyke, SAM.314 (TF 1261)

A scheduled portion of this Romano-British watercourse lies in the path of the proposed pipeline. Scheduled Monument Consent has been granted by the Department of National Heritage to auger-bore the pipe beneath it, thereby causing no damage. The ADBA recommended that a geophysical survey be carried out either side of the monument where the pipeline groundworks were to be placed. Such a survey was commissioned by Laings and carried out by Geoquest Associates on 28th October 1997 (Geoquest, 1997). The aim was to establish the nature and extent of any archaeological features lying adjacent to the monument. A magnetometer survey using a Geoscan FM36 fluxgate gradiometer was employed to carry out detailed survey either side of the dyke. The results indicate the presence of potential archaeological features north of the monument, notably possible storage or refuge pits, and ridge and furrow (*Figure 3*).

Category B : ?Deserted Medieval Village, RCHME (TF 1045)

This site was identified by the Royal Commission from aerial photographs, and comprises cropmarks probably relating to a Deserted Medieval Village. Two groups of cropmarks are known, one either side of the route, suggesting that they may represent a single complex. If so, the pipeline easement is almost certain to disturb associated archaeological deposits.

Category C : ?Linear Ditches, PRN 40030 (TF 1771)

This cropmark site possibly represents the former course of an early track or droveway.

Category A, B and C sites lying close to the route

In addition to the above three sites, the ADBA also highlighted eleven areas of archaeological potential (Categories A, B and C) lying particularly close to the proposed route. The proximity of these sites means that in some cases the proposed easement is likely to encroach on to archaeological remains. The eleven sites are listed below; the figure on the right is the distance of the site from the proposed construction easement.

✸ Neolithic Long Barrow (SAM 27900, Strip Map 13, TF 1155)	400m
✸ AP:?medieval burial ground & ?prehistoric barrow cemetery (PRN 60312, NAR 15, Strip Map 13, TF 1125)	200m & 950m
✸ AP:Shrunken Medieval Earthworks (PRN 42958/42956, Strip Map 3, TF 1772)	270m
✸ Linwood Hall, possible moated Grange & DMV of Cotes (PRN 60270, Strip Map 10, TF 1260)	50m
✸ Anwick Fen Barrow Cemetery & artefacts (PRN 60315/60316, Strip Map 16, TF 1349	200m

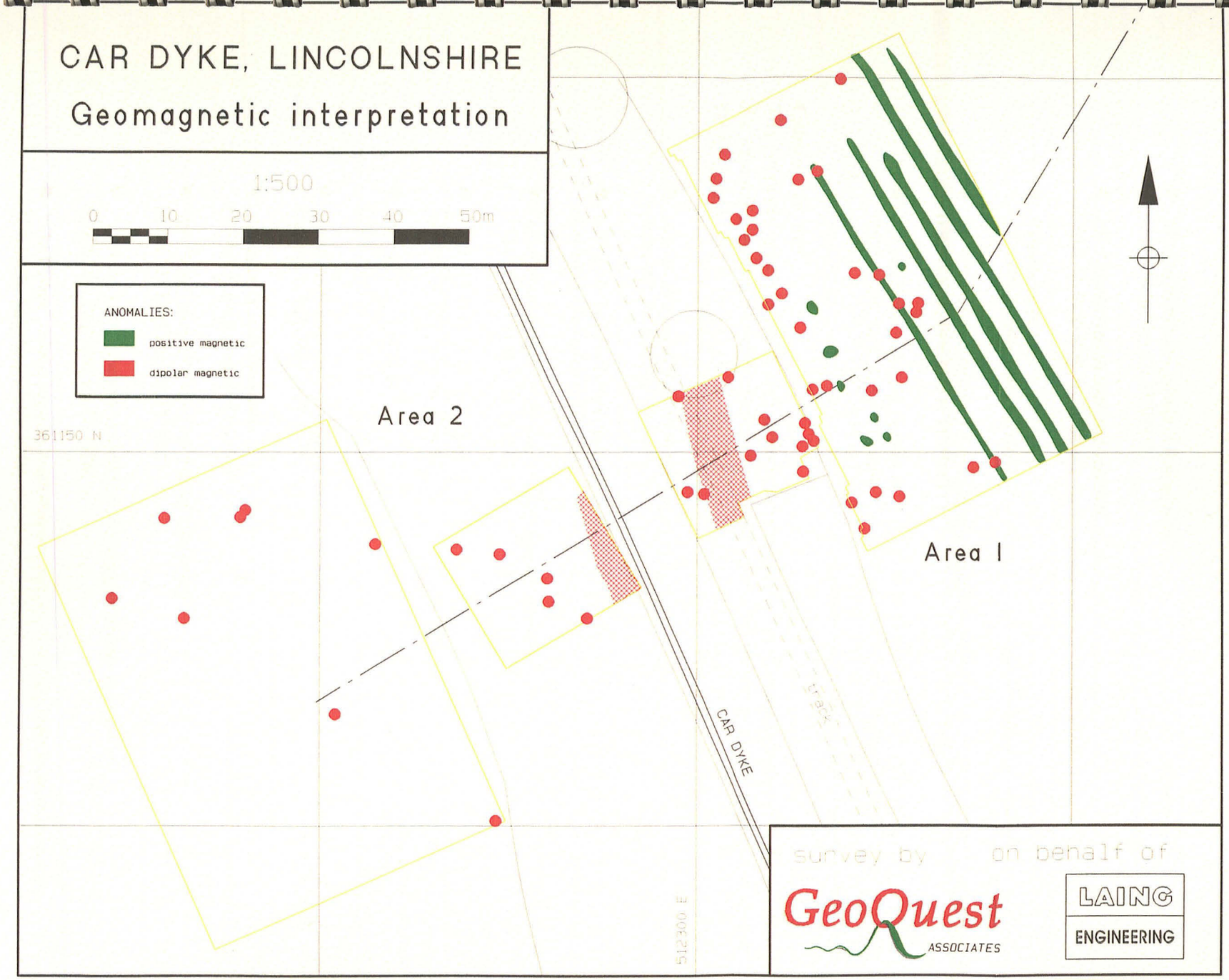

Figure 3 : Geophysical Results from Car Dyke

- AP: double/triple linear ditch complex
  (PRN 60590/60591, Strip Map 19, TF 1145) 150m

- AP: Mareham Lane, course of Roman road
  (C.I.U, Strip Map 21, TF 0843) 20m

- AP: ?Roman road or medieval headland
  (NAR 43, Strip Map 21, TF 0844) 400m

- Possible DMV site
  (PRN 40070, Strip Map, TF 1567) 300m

- AP: ?medieval cropmarks SW of Campney Grange
  (PRN 42959, Strip Map 6, TF 1566) 300m

- AP: rectilinear cropmark, ?enclosure
  (PRN 40395, Strip Map 6, TF1466) 250m

Category D sites

The proposed pipeline route also crosses thirteen Category D sites identified in the ADBA. As explained earlier, these probably have lower potential, many possibly relating to recent field boundaries or having geological origins. Each is listed below.

- AP: ditches, possibly an enclosure
  (DBA:BD, Strip Map 7, TF 1465)

- AP:?geological features or ?ditches
  (DBA:BG, Strip Map 7, TF 1364)

- AP: circular soimark, ?ring-ditch, ?pond, ?geological feature
  (DBA:CM, Strip Map 18, TF 1147)

- Reputed Roman site, little evidence
  (DBA:DD, Strip Map 19, TF 1045)

- AP: unclear, ?enclosure
  (DBA:CF, Strip Map 16, TF 1249)

- Scatter of Roman pottery, negative geophysical results
  (DBA:AA, Strip Map 1, TF 1775)

- AP: ditch or ?field boundary
  (DBA:BX, Strip Map 13, TF 1155)

- AP: linear, possible roadway to Thorpe Tilney Hall
  (DBA:BS, Strip Map 12, TF 1057)

- "Cobblers Lock", location uncertain; owner suggests Bronze Age activity
  (DBA:DC, Strip Map 16, TF 1248)

- "The Claims", owner suggests Anglo-Saxon cemetery, S of Slea, exact location uncertain
  (DBA:DB, Strip Map 17, TF 1248)

- AP: probable ditches, Linwood Moor
  (DBA:BJ, Strip Map 10, TF 1160)

- Dug-out boat
  (PRN 60474, Strip Map 7, TF 1465)

- Old river courses of River Slea
  (DBA:DE, Strip Map 16, TF 1349)

Category E sites

A total of 37 Category E sites are crossed by the proposed pipeline route. These mainly comprise recent field boundaries or single find-spots.

5.5 Plane Crash Sites

Nine purported plane crash sites have been identified by Ian Blackmore, Treasurer and Researcher of the Lincolnshire Aircraft Recovery Group. The co-ordinates given relate to 1km squares, as exact positions remain unknown.

1. 18th March 1935. 2 F.T.S. Avro Tutor 1. K3318 crashed on Martin Moor on a field belonging to George Flintham.

2. 24th September 1940. 151 Squadron Hawker Hurricane P3306 crashed in a field at Linwood near Martin. The pilot bailed out.

3. 14th June 1941. 44 Squadron H.P. Hampden. AE129 crashed at Southery, 4 miles east of Dunston village. 4 crew were killed.

4. 9th November 1941. 92 Squadron. Spitfire W3238 crashed at Timberland. It is thought that the pilots body was not found.

5. 9th June 1942. 1 S.S. Percival Proctor P6247 crashed into high tension cables at Kirkby La Thorpe.

6. 4th Feburary 1943. Squadron Avro Lancaster ED496 crashed at Youngs Farm, Kirkby Green. 5 killed of which 4 were never found.

7. 12th April 1943. 3 O.T.U Vickers Wellington LB240 crashed half a mile north-east of Ewerby. 3 crew were killed.

8. 9th December 1943. 1660 H.C.U Avro Lancaster ED811 crashed 2 miles east of Metheringham, one of the crew was killed.

9. 4th March 1945. 347 Squadron H.P Halifax. NA680 crashed at Anwick Grange, 2 of the crew were killed.

6. DISCUSSION

6.1 General

No specific archaeological sites were identified from the fieldwork, but seven areas of higher archaeological potential in the form of artefact scatters were noted. Although the overall low numbers of finds might to some extent reflect a low level of archaeological remains along the route, it must also reflect the fact that the Fenland peats and silts are likely to be masking archaeological features and artefacts. This is particularly the case in the Witham Valley, where no archaeological finds (except a 1919 penny) were recovered.

As stated earlier, the fieldwalking results accord with those of the 1994 fieldwalking survey. Neither the 1994 nor the 1997 surveys involved geophysical prospection along the route. Such a survey would be invaluable in evaluating the pipeline route for archaeological remains which cannot be located by fieldwalking and field reconnaissance alone, that is, in areas which were under pasture or set-aside at the time of walking. Similarly, in view of the masking effects of the peat and silt, a specific strategy for evaluating the Witham Fenlands would also be appropriate.

6.2 Areas of Archaeological Potential

The seven artefact scatters represent areas of archaeological potential and therefore ought to be subject to further investigation, whilst the three areas of upstanding ridge-and furrow deserve topographic survey. In addition, the proposed route crosses one Category A, B and C site identified during the ADBA, and lies sufficiently close to eleven Category A, B and C sites to be of concern. The route also crosses thirteen Category D sites and 37 Category E sites. Finally, the route may disturb the nine plane crash sites (Ian Blackmoore, July 1997).

6.3 The Fenland Area

The proposed pipeline passes through areas of fenland covered by peats and silts, in particular the Witham Valley. As a result of sea level fluctuations, the valley has undergone many episodes of sedimentary infill. There were periods when the valley floor, or part of it, was estuarine, tidal saltmarsh, freshwater marsh, seasonally dry land and permanently dry land. It is therefore possible that occupation occurred throughout these dry-land periods, evidence for which may subsequently be buried beneath later marine or freshwater sediments.

Dr James Rackham was commissioned by Network Archaeology to carry out an assessment of the Witham Valley wetlands (see *Appendix 5*). He used a model of peat formation in the fens devised by Waller (1994) to suggest three periods when the valley may have been suitable for settlement rather than more simple opportunistic exploitation of the natural resources. The first was in the prehistoric period, where any remaining landsurfaces, which had not been destroyed by the erosional effects of the sea and the later movement of roddons and creeks through the valley, may be buried beneath alluvial and estuarine sediments. Modern drainage practices, resulting in peat erosion, have already led to the exposure of previously buried sites, notably the Bronze Age Barrow cemetery at Anwick (PRN 60315, 60316) which lies on the edge of the shrinking peatlands. The second period of possible occupation was throughout the Late Iron Age and Roman periods, where activity may have occurred along the better drained sandy silty sediments of the roddons. The final period of possible occupation relates to the later medieval and post-medieval periods when the fens were intensively drained and agriculturally exploited. The field reconnaissance survey recorded a possible roddon north of Car Dyke (see 5.3).

7. RECOMMENDATIONS

7.1 General

The fieldwalking and field reconnaissance surveys represent one part of a staged approach in assessing and minimising the impact of the proposed pipeline on the archaeological resource. Archaeogeophysical survey is recognised as a valuable means of determining the presence of absence of sub-surface archaeological deposits, and as such it is strongly recommended that such a survey is carried out along the proposed pipeline route. In addition to geophysical survey of the route in general, the recommendations below also concern evaluation trenches or advanced topsoil strip at Car Dyke, evaluation trenches in the Witham Valley, topographic survey of the ridge and furrow sites, and a watching brief during construction .

7.2 Archaeogeophysical Survey (entire route)

It is recommended that a combination of Magnetic Scanning and Magnetic Susceptibility Survey, followed by detailed magnetometer survey of selected areas, is carried out on the whole of the pipeline route to define areas of potential ***before*** any further mitigation strategies are adopted, *ie.* evaluation trenches. It would be as cost-effective to carry out a survey over the whole route, than to have to move about the line focusing on specific areas of interest identified by the ADBA (see gazetteer). Surveying the entire route could also identify new sites not locatable by fieldwalking and field-reconnaissance survey. It might also substantiate one or more of the nine purported plane crash sites.

The survey will normally be undertaken in a phased approach: first, a continuous magnetometer scan and fixed-interval magnetic susceptibility survey (using a field coil), to identify areas of potential archaeological activity; second, a detailed magnetometer survey to provide intra-site detail, such as the shape and magnetic intensity of sub-surface features such as ditches, pits or kilns. Either phase may be accompanied by an auger survey (and laboratory analysis), in cases where further investigation of the soils' magnetic characteristics are needed to clarify results.

7.3 Field Evaluation (Car Dyke, Witham Valley, sites found during geophysical survey)

With the exception of the Car Dyke, this stage of fieldwork cannot be detailed until after the archaeogeophysical survey has been completed. The investigations would use one or more of the techniques detailed below:

- Hand-Dug Test Trenches;
- Auger Survey;
- Machine-Trench Evaluation;
- Area Excavation.

Car Dyke

In the case of Car Dyke, it is recommended that the pit-like features located by the detailed geophysical survey, and the immediately adjacent areas, are investigated further. The land to the north-west of the monument therefore needs to be evaluated, most sensibly by trial-trenching. If this is not possible, for example due to time-table constraints, it is recommended that this area be topsoil-stripped well in advance of construction to excavate and record any exposed archaeological remains.

The Witham Valley

The following recommendations are taken from the report submitted by the environmental consultant, Dr. James Rackham. His recommendations concern the Witham Valley (TF 15346753 - TF 12236111; Strip Maps 5-9), where archaeological landscapes, deposits or artefacts may be masked by peat and silt deposits. Dr. Rackham has constructed a profile of the valley from borehole data collected by Soils Engineering Ltd (1993,1994). He suggests there to be three periods (prehistoric, Late Iron Age to Roman, and Late-Medieval to Post-Medieval) when conditions may have been conducive to settlement in the valley. Any remains would have subsequently been buried by various alluvial, estuarine and sedimentation deposits, and peat formations. It is possible that any prehistoric remains will not be affected by the pipeline trench-cutting as they may be too deeply buried, perhaps up to a depth of 3m or more. This is not the case for the fen edge, where there is positive evidence of the shrinkage and erosion of the peats, in the form of barrows being revealed at Walcott and Anwick Fen Barrow cemetery sites.

To determine whether or not soils relating to these buried landscapes survive or not, it is recommended that a series of small evaluatory trenches are placed in areas along the valley floor where it is likely that the underlying sands and gravels rise up significantly to have provided suitable conditions for past occupation. It is suggested that between 6 and 12 trenches be sunk to a depth of at least 1.5m. If buried soils are found it is possible that archaeological remains too could be preserved. If nothing is revealed, then the likelihood of unexpected sites being revealed in trenching is minimal. A decision on the strategy largely depends on the engineering techniques utilised for this area, and if it will be possible at this stage to view and record any sections.

It is also recommended that the palaeoenvironmental work proposed by Dr Rackham (see *Appendix 5*) is considered, since this would be a rare opportunity to study the environmental history of the Witham Valley. At the very least, provision should be made for an environmental archaeologist to visit the open pipe-trench.

Chance Water-Logged Finds

It is possible that preserved, water-logged artefacts (*eg.* wood, leather, pollen) will be found, having survived under the peats and sediments of the fenland. Indeed entire dug-out boats are known from the area. One cannot, of course, predict when and where such artefacts might be discovered, so adequate provision should be made prior to construction, for the retrieval, consolidation and analysis of any resultant organic remains.

7.4 Earthwork Survey (three areas of upstanding ridge and furrow)

It is recommended that a detailed topographic survey be carried out on the three areas of ridge and furrow identified during the field reconnaissance survey. In addition, the potential for the existence of archaeological remains lying preserved beneath this ploughsoil should be considered. It has been shown that up to 50% of old land surfaces can survive under the ridges (Palmer 1996, after Hall 1972). The reinstatement of these earthworks is recommended after construction.

7.5 Watching Brief (entire route)

It is recommended that a permanent-presence watching brief is maintained by two archaeologists of all earthmoving operations during the construction of the pipeline. Where

archaeological deposits are encountered, there should be sufficient resources for their investigation and recording.

7.6 Summary of Recommendations

The report recommends five main levels of mitigation:

- Archaeogeophysical survey (entire route);
- Trial-trenching or advance topsoil strip (Car Dyke);
- Evaluation trenching in the Witham Valley;
- Topographical survey (three areas of ridge and furrow) and their subsequent reinstatement;
- Construction watching brief (entire route).

A tabulated gazetteer of areas of archaeological potential and summary of recommendations is provided below (Section 8).

SECTION 8

GAZETTEER OF AREAS OF ARCHAEOLOGICAL POTENTIAL, AND SUMMARY OF RECOMMENDATIONS

1. CAR DYKE

Recommendations: Trial Trenching or advance topsoil strip.

Reference	DBA Map No./ Strip Map No./ Field No.	Cat	NGR	Site Identified From Desk-Based Assessment	Approximate Proximity to Construction Easement	Comments from Field Survey
SAM 314	*3/ 9/ 2630 to 3200*	*A*	*TF 123601*	*Scheduled section of Romano-British waterway known as Car Dyke*	*crossed*	*Geophysical anomalies. No Roman material collected from the fieldwalking in the vicinity, but alluvium and peat may be masking sites.*

2. DESK-BASED ASSESSMENT AREAS COMBINED WITH FIELDWALKING/FIELD-RECONNAISSANCE INFORMATION

Recommendations: Magnetic scanning and magnetic susceptibility of entire route with specific regard to the following areas, followed up by a detailed survey of responsive areas, prior to the possibility of trial-trenching.

Reference	DBA Map No./ Strip Map No./ Field No.	Cat	NGR	Site Identified From Desk-Based Assessment	Approximate Proximity to Construction Easement	Comments from Field Survey
SAM 27900	4/ 13/ AAY 2345	A	TF 11555559	Neolithic Long Barrow, Walcott Commons	400m	9 flints to SW

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GAZETTEER OF AREAS OF ARCHAEOLOGICAL POTENTIAL, AND SUMMARY OF RECOMMENDATIONS

Reference	DBA Map No./ Strip Map No./ Field No.	Cat	NGR	Site Identified From Desk-Based Assessment	Approximate Proximity to Construction Easement	Comments from Field Survey
RCHME/ DBA:CV	***6/ 19/ 6124 3923 0003***	***B***	***TF 10364504***	***AP:cropmarks probable crofts and road, DMV***	***crossed***	***Mostly pasture***
42958/ 42956	1/ 3/ 0564 0244 0928	B	TF 17517231	AP:SMV earthworks	270m	Ridge & furrow in vicinity
60270	3/ 10/ 2500 0004	B	TF 12106077	Linwood Hall: possible moated Grange & DMV of Cotes	50m	Ploughed out ridge & furrow, no finds
60312 NAR 15	4/ 13/ AAY 2345	B	TF 117255	AP: ?Prehistoric barrow cemetery and ?medieval burial ground, Walcott Commons. Up to 17 possible Bronze Age Barrows.	200m/ 1km	1 Late Neolithic cutting blade found 300m to the west of the Long Barrow. Also 9 flints 2km to sw of these monuments
60315/ 60316	5/ 16/ 0771 2150	B	TF 13304970	Anwick Fen Barrow cemetery & associated artefacts produced from fieldwalking	200m	21 flints in vicinity

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GAZETTEER OF AREAS OF ARCHAEOLOGICAL POTENTIAL, AND SUMMARY OF RECOMMENDATIONS

Reference	DBA Map No./ Strip Map No./ Field No.	Cat	NGR	Site Identified From Desk-Based Assessment	Approximate Proximity to Construction Easement	Comments from Field Survey
60590/ 60591	6/ 19/ ABB 0005	B	TF 111455	AP: parallel double/triple ditch complex	150m	2 Roman sherds 1 medieval sherd
CI.U	6/ 21/ 4950 4400	B	TF 0843 4370	Mareham Lane, course of Romano-British road	20m	1 medieval sherd, 1 Roman sherd
NAR 43	6/ 21/ 4950 4400	C	TF 08414476 TF 08404419	AP:cropmark, probably a section of Roman road, or a headland. May continue over pipeline if not on the exact course of Mareham Lane	400m	1 medieval sherd
40030	***2/ 3/ 0006***	***C***	***TF 17207100***	***Cropmark: pair of parallel linear features, possibly representing an early track or droveway***	***crossed***	***1 Roman sherd***
40070	2/ 5/ 6400 4978 2968	C	TF 15836763	Possible DMV site	300m	Grass or disturbed ground

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GAZETTEER OF AREAS OF ARCHAEOLOGICAL POTENTIAL, AND SUMMARY OF RECOMMENDATIONS

Reference	DBA Map No./ Strip Map No./ Field No.	Cat	NGR	Site Identified From Desk-Based Assessment	Approximate Proximity to Construction Easement	Comments from Field Survey
42959/ DBA:AZ	2/ 6/ 2200 0006	C	TF 15346679	AP:cropmarks SW of Campney Grange, ?medieval	300m	No finds; but on peaty soil
40395	2/ 6/ AAL AAM	C	TF 149662	AP:rectangular cropmark, ?enclosure	250m	No finds; but part grass & stubble
DBA:BD	***3/ 7/ 7000***	***D***	***TF 14046510***	***AP:ditches, possibly an enclosure?***	***crossed***	***No finds***
DBA:BG	***3/ 7/ AAO***	***D***	***TF 13706460 TF 13656475***	***AP:possibly geological but some may be ditches or field boundaries***	***crossed***	***No finds***
DBA:CM	***6/ 18/ 3922***	***D***	***TF 1140 4721***	***AP:circular soilmark, ???ring-ditch, ?pond, ?geological***	***crossed***	***A possible Roman imbrex tile from fieldwalking***
DBA:DD	***6/ 19/ 0003***	***D***	***TF 103450***	***Reputed Roman site, very little evidence, nothing shown during earlier pipeline***	***crossed***	***Stubble***

SECTION 8

GAZETTEER OF AREAS OF ARCHAEOLOGICAL POTENTIAL, AND SUMMARY OF RECOMMENDATIONS

Reference	DBA Map No./ Strip Map No./ Field No.	Cat	NGR	Site Identified From Desk-Based Assessment	Approximate Proximity to Construction Easement	Comments from Field Survey
DBA:CF	*5/ 16/ 0005*	*D*	*TF 12874979*	*AP:unclear ?enclosure*	*crossed*	*Occasional flint in vicinity*
DBA:AA	*1/ 1/ AAE*	*D*	*TF 171750*	*Scatter of Roman pottery, negative geophysical results*	*crossed*	*No pottery*
DBA:BX	*4/ 13/ 2345 2600*	*D*	*TF 11135555*	*AP:?field boundary or ditch*	*crossed*	*No finds one field in beet*
DBA:BS	*4/ 12/ 9030*	*D*	*TF 10905724*	*AP:linear feature, possible continuation of roadway leading up to Thorpe Tilney Hall*	*crossed*	*Avenue of saplings and grass*
DBA:DC	*5/ 16/ 07400a 7400*	*D*	*TF 129489*	*"Cobblers Lock", location uncertain; owner suggests Bronze Age activity*	*?crossed*	*Group of flints in vicinity-mostly Late Neolithic/Early Bronze Age*
DBA:DB	*5/ 17/ 0006*	*D*	*TF 129489*	*"The Claims" owner suggests a reputed Anglo-Saxon cemetery S. of the Slea, exact location uncertain*	*?crossed*	*Arable, 2 flints*

SECTION 8

GAZETTEER OF AREAS OF ARCHAEOLOGICAL POTENTIAL, AND SUMMARY OF RECOMMENDATIONS

Reference	DBA Map No./ Strip Map No./ Field No.	Cat	NGR	Site Identified From Desk-Based Assessment	Approximate Proximity to Construction Easement	Comments from Field Survey
DBA:BJ	3/ 10/ AAQ	D	TF 11506065 TF 11806050	AP: probable ditches, Linwood Moor	20m	1 Roman *tegula* tile from fieldwalking
60474	***3/ 7/ 0053***	***D***	***TF 142656***	***Dug-out boat***	***crossed***	***Nothing seen***
DBA:DE	***5/ 16/ 0771***	***D***	***TF 130497***	***Old River courses of Slea***	***crossed***	***Not seen***

3. AREAS OF RIDGE AND FURROW RE-VIEWED DURING FIELD RECONNAISSANCE SURVEY

Recommendations: Topographical survey of three remaining "upstanding" field systems and their reinstatement.

Reference	DBA Map No./ Strip Map No./ Field No.	Cat	NGR	Site Identified From Desk-Based Assessment	Approximate Proximity to Construction Easement	Comments from Field Survey
NAR 21	*1/ 1/ AAB*	*D*	*TF 17467594*	*Ridge and furrow*	*crossed*	*Upstanding*
NAR 21	*1/ 1/ AAC*	*D*	*TF 17497564*	*Ridge and furrow*	*crossed*	*Ploughed out*
DBA:AF	*1/ 1/ AAE*	*D*	*TF 17137464*	*Ridge and furrow*	*crossed*	*Ploughed out*
DBA:AF	*1/ 2/ AAF*	*D*	*TF 17137449*	*Ridge and furrow*	*crossed*	*Ploughed out*
42956	*1/ 2/ 2600*	*D*	*TF 17217296*	*Ridge and furrow*	*crossed*	*Upstanding*
42956	*1/ 2/ 3080*	*D*	*TF 17217589*	*Ridge and furrow*	*crossed*	*Very ephemeral*
42956	*1/ 3/ 1772*	*D*	*TF 17207273*	*Ridge and furrow*	*crossed*	*Very ephemeral*

SECTION 8

GAZETTEER OF AREAS OF ARCHAEOLOGICAL POTENTIAL, AND SUMMARY OF RECOMMENDATIONS

Reference	DBA Map No./ Strip Map No./ Field No.	Cat	NGR	Site Identified From Desk-Based Assessment	Approximate Proximity to Construction Easement	Comments from Field Survey
42956	*1/ 3/ 0564*	*D*	*TF 17187261*	*Ridge and furrow*	*crossed*	*Very ephemeral*
42957	*1/ 3/ 0928*	*D*	*TF 17087234*	*Ridge and furrow*	*crossed*	*Upstanding*
DBA:AL	*1/ 3/ 2400*	*D*	*TF 17087201*	*Ridge and furrow*	*crossed*	*Ploughed out*
DBA:AM	*2/ 3/ AAH*	*D*	*TF 17077162*	*Ridge and furrow*	*crossed*	*Ploughed out*
DBA:BH	*3/ 10/ 2500*	*D*	*TF 12246110*	*Ridge and furrow*	*crossed*	*Ploughed out*
DBA:BH	*3/ 10/ 0004*	*D*	*TF 12066096*	*Ridge and furrow*	*crossed*	*Ploughed out*

4. ARTEFACT SCATTERS FROM FIELDWALKING

Recommendations: Magnetic scanning and magnetic susceptibility of entire route with specific regard to the following areas, followed up by a detailed survey of responsive areas, prior to the possibility of trial-trenching.

Reference	Strip Map No./ Field No.	NGR	Description
Pot 1	17-18/ 4246-3700	TF 12234849- TF 11284697	A small scatter of 24 abraded medieval pottery sherds, collected over 1.5km, probably representing the location of medieval field systems connected with the settlement of Ewerby.
Pot 2	19/ AAB 4754 6124 0003	TF 10674585- TF 10284487	A cluster of six medieval pottery sherds, collected over 1km including a hand-made friable Anglo-Saxon sherd. Located to the north of RCHME cropmark site identified in the archaeological desk-based assessment. This cropmark cuts the proposed pipeline and may represent a Deserted Medieval Village. No finds were recovered from the actual site as it lay under stubble.
Pot 3	20/ 0044	TF 09924453- TF 09624440	This scatter lies 400m to the south of the above RCHME cropmark and comprises twelve medieval pottery sherds and two ?medieval brick/tile fragments, collected over a 320m length.
Flint 1	1-2/ AAB-2926	TF 17417603- TF 1723 7328	A scatter of 16 Late Neolithic/Early Bronze Age flints over a 3km distance, comprising eleven waste pieces and 5 tools. A low distribution with no associated sites.
Flint 2	14/ 1300	TF 1105 5412- TF 11085389	Nine Late Neolithic/Early Bronze Age flints recovered from an area of 230m, comprising 1 core, 4 waste flakes and 3 scrapers. This scatter lies 2km SW of the Neolithic Long Barrow (SAM 27900) and the probable Bronze Age Barrow Cemetery on Walcott Commons (60312).
Flint 3	16/ 7400a- 2150	TF 12375063- TF 13164936	A concentration of 21 Early Neolithic/ Late Bronze Age flints collected over a distance of 1.6km. lies500m to the west of Anwick Bronze Age Barrow Cemetery and associated finds (60315/60316). The scatter corresponds with a possible enclosure (DBA:CF).
Flint 4	17/ 4246 0001	TF 12434845- TF 12104811	Eight Neolithic/Early Bronze Age flints recovered from a 500m distance. Possibly represents background activity rather than a site. No known prehistoric sites in the area.

5. THE WITHAM VALLEY

Recomendations: Evaluation trenching.

6. POSSIBLE PLANE CRASH SITES

Recommendations: Magnetic scanning and magnetic susceptibility of entire route with specific regard to the following areas, followed up by a detailed survey of responsive areas.

Description	NGR
Crashed in field belonging to George Flintham	TF1059, TF159
Crashed in field at Linwood near Martin	TF1160
Crashed at Southerey, 4 miles east of Dunston	TF1466
Crash at Kirkby La Thorpe	TF1058, TF1158
Crashed at Timberland	TF0944
Crashed at Youngs Farm, Kirkby Green	TF1058, TF1158
Crashed ½ mile north-east of Ewerby	TF1247
Crashed 2 miles east of Metheringham	TF1161, TF1162, TF1261, TF1262
Crashed at Anwick Grange	TF1251

Key To Gazetteer
CAT: Category assigned during Archaeological Desk-Based Assessment
SAM: Scheduled Ancient Monument
RCHME: Royal Commission for the Historic Monuments of England
DBA: Site identified during Desk-Based Assessment
CI: Site recorded in Lincoln Sites and Monuments Card Index system
NAR: National Archaeological Record site, housed at Swindon
NGR: National Grid Reference (taken from centre of feature)

9 CONCLUSION

The fieldwalking and field reconnaissance surveys suggest a low number of archaeological remains exist along the pipeline route with no recently disturbed sites being visible since the 1994 fieldwalking. To some extent, this probably is a fair assessment of the density of sites. However, a third of the route was unsuitable for artefact retrieval, and in the central, fenland portion, sites and artefacts could lie masked beneath peat and silt deposits. Furthermore, a programme of geophysical survey has not yet been carried out along the route, so new sites could easily come to light should such a survey take place, especially as a number of important sites identified during the ADBA lie close to the route. The stages of archaeological work so far carried out should be seen as part of a phased approach, aimed at minimising damage to the archaeological resource along the pipeline route. It is recommended that further stages of work, namely geophysical survey and field evaluation, be carried out at the earliest opportunity, in order to ensure the avoidance of delays in the construction timetable.

10 REPORT, FINDS AND ARCHIVE DEPOSITION

With the consent of the client, a copy of this report will be forwarded to the County Archaeologist for comment. After the completion of the construction phase of the project, a copy will be deposited with the Lincoln Sites and Monuments Record Office. At the same time, recovered artefacts will be lodged with Lincoln Museum Stores (subject to permission of the landowners) together with the site archive. A site code and accessions number (HWP97, 269.97) has been agreed, and the artefacts have been treated in accordance with the City and County Museum Archive Standards (Lincolnshire County Council, 1994).

11 ACKNOWLEDGEMENTS

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Claire Lingard
Network Archaeology Ltd
December 1997

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13 LIST OF PERIODS AND GLOSSARY The periods used in the text of this report are approximately defined as follows:

Prehistoric ..... The period before the Roman Conquest (AD 43)
Neolithic ..... 4,000 to 2000 B.C.
Bronze Age ..... 2,000 to 700 B.C.
Iron Age ..... 700 BC to AD 43
Roman, Romano-British ... AD 43 to AD 410
Medieval ..... 11th to 15th centuries
Post-medieval ..... 16th to mid-19th century
Modern ..... From mid 19th century

GLOSSARY
The following explanations of terms used in the report are included to help non-specialist readers. They are not intended as definitive definitions.

Alluvium : Sediment laid down by rivers. It forms layers in river valleys, and can mask archaeological deposits by burying them. It can also help preserve archaeological sites.

Cropmarks : Marks visible from the air in growing crops, caused by variations in the nature of soil beneath them. Where soil is shallower (*eg.* where a crop is growing over buried wall foundations or a road), stunted growth and early ripening occurs. Over infilled ditches or pits, where soil is usually damper, the crops may grow taller and ripen later owing to the extra moisture in the soil. These variations can show up clearly in aerial photographs as the buildings and enclosures associated with past settlements.

Earthwork : A general term for any raised or lowered area of ground produced by human activity. It includes abandoned pits, ditches and spoil heaps, as well as more important monuments such as burial mounds (barrows) or defensive structures.

Geophysics / Geophysical Survey : A general term for methods of detecting underground features by measuring the magnetic properties of the soil. See Magnetometry, Magnetic Susceptibility.

Imbrex : Curved Roman roof tile.

Magnetometry : A general term for a geophysical technique which, by measuring localised variations in the soil's magnetism, can locate buried archaeological features such as ditches, pits *etc*.

Magnetic susceptibility : A property of the soil, which depends on how strongly it reacts to a magnetic field. Since it tends to be higher than normal in areas of past human activity, it can be used to locate former settlements.

Peat : Substance formed by the partial decomposition of organic matter under permanently water-logged conditions. It is important for archaeologists because it can preserve organic remains such as wood (*eg.*spoons, buckets, boats, trackways), leather (*eg.*shoes, buckets) and even humans (*ie.* bog bodies). It can also contain floral evidence such as ancient pollen, which can provide a great deal of information about past environments. Perhaps most importantly, when archaeological remains are found together with evidence such as pollen, it is often possible to reconstruct the vegetational landscape of a locality or region, within a historical period, or across a range of periods.

Roddon : Extinct creek or river channel. They can show on the ground surface as raised bands of silt, sand and/or gravel.

Ridge-and-Furrow : These are usually visible in earthwork form as a series of parallel and alternating ridges and furrows. They reflect the former division of arable fields into ridged-up strips, partly to aid drainage, but also as a means of apportioning land to the different farmers in a village. They usually date from medieval times, but can be more recent. The importance of ridge-and-furrow lies in the fact that it represents an important part of the medieval rural landscape. In addition, the ridges can protect earlier archaeological remains from modern ploughing, which has already destroyed much of the ridge-and-furrow itself.

Soilmark : Marks in ploughsoil caused by variations in soil depth or composition, visible from the air as differences in soil colour during dry weather.

Tegula : Flat Roman roof tile.

APPENDICES

APPENDIX 1

APPENDIX 1
FIELD DATA SUMMARY

Strip Map	Field No	NGR	Field Length (m)	Weather / Lighting	Soil Type	Crop	Ground Visibility (%)	Overall Retrieval Conditions
1	1700	TF1729 7611	120	Overcast/dull	Silty clay	Grass	0	Very poor
1	AAA	TF1740 7601	170	Overcast/dull	Silty clay	Ploughed	100	Good
1	AAB	TF1753 7586	240	Overcast/dull	Silty clay	Grass	0	Very poor
1	AAC	TF1752 7566	210	Overcast/dull	Silty clay	Cereal	20-30	Poor
1	3952	TF1739 7552	160	Overcast/dull	Silty clay	Ploughed	100	Good
1	AAD	TF1727 7538	230	Overcast/dull	Silty clay	Cereal	90	Good
1	3800	TF1721 7515	270	Overcast/dull	Silty clay	Cereal	95	Good
1	AAE	TF1716 7477	490	Overcast/dull	Sandy silt	Cereal	90-100	Good
2	AAF	TF1715 7426	580	Overcast/dull	Silty clay	Ploughed	98	Good
2	AAG	TF1720 7377	530	Rain/dull	Silty clay	Cereal	85	Good
2	2926	TF1722 7327	330	Rain/dull	Silty clay	Cereal	98	Good
2	2600	TF1722 7297	290	Rain/dull	Silty clay	Pasture	0	Very poor
2	3080	TF1721 7284	40	Rain/dull	Silty clay	Pasture	0	Very poor
2	1772	TF1709 7270	240	Rain/dull	Silty clay	Pasture	0	Very poor
3	0564	TF1717 7256	70	Rain/dull	Silty clay	Pasture	0	Very poor
3	0244	TF1713 7243	120	Rain/dull	Silty clay	Pasture	0	Very poor
3	0928	TF1709 7229	200	Rain/dull	Silty clay	Pasture	0	Very poor
3	2400	TF1708 7211	150	Rain/dull	Silty clay	Cereal	70	Moderate
3	AAH	TF1707 7167	740	Rain/dull	Silty clay	Stubble	0	Very poor
3	AAI	TF1707 7117	210	Rain/dull	Silty clay	Stubble	0	Very poor
4	0006	TF1707 7076	560	Rain/dull	Silty clay	Cereal	78	Moderate
4	AAJ	TF1711 7031	330	Rain/dull	Silty clay	Stubble	0	Very poor
4	0005	TF1709 7006	180	Overcast/dull	Silty clay	Cereal	80	Moderate
4	8880	TF1690 6986	380	Overcast/dull	Silty clay	Stubble	0	Very poor
4	6268	TF1663 6970	270	Sunny/low	Silty clay	Cereal	80	Poor

APPENDIX 1
FIELD DATA SUMMARY

Strip Map	Field No	NGR	Field Length (m)	Weather / Lighting	Soil Type	Crop	Ground Visibility (%)	Overall Retrieval Conditions
4	6550	TF1649 6957	110	Sunny/low	Silty clay	Pasture	0	Very poor
4	6039	TF1643 6948	90	Sunny/low	Silty clay	Ploughed	100	Moderate
4	4331	TF1636 6938	150	Sunny/low	Silty clay	Stubble	10	Very poor
5	3620	TF1629 6927	110	Sunny/low	Silty clay	Cereal	85	Poor
5	3500	TF1623 6919	130	Sunny/low	Silty clay	Cereal	85	Poor
5	2300/ 0004/ 0090	TF1610 6896	310	Sunny/low	Silty clay	Ploughed	95	Moderate
5	0079/ 0062/ 0037	TF1591 6854	460	Overcast/dull	Silty clay-sandy silt	Ploughed	100	Good
5	6643	TF1578 6838	100	Overcast/dull	Silty clay	Pasture	0	Very poor
5	0015	TF1574 6830	70	Overcast/dull	Silty clay	Pasture	0	Very poor
5	6400	TF1568 6812	260	Overcast/dull	Silty clay	Pasture	0	Very poor
5	4978	TF1551 6778	310	Rain/dull	Silty clay	Pasture	0	Very poor
5	2968	TF1543 6764	20	Rain/dull	Silty clay	Machine disturbance	0	Very poor
6	5449	TF1539 6758	110	Rain/dull	Silty clay	Machine disturbance	0	Very poor
6	AAK	TF1523 6732	480	Rain/dull	Silty clay	Cereal/machine disturbance	80	Moderate
6	2200	TF1505 6705	160	Rain/dull	Peaty silt	Ploughed/ machine disturbance	90	Good
6	0006	TF1494 6692	180	Rain/dull	Peaty silt	Ploughed	100	Good
6	AAL	TF1481 6675	250	Rain/dull	Peat	Pasture	0	Very poor
6	AAM	TF1467 6649	310	Rain/dull	Peat	Stubble	30	Poor

APPENDIX 1
FIELD DATA SUMMARY

Strip Map	Field No	NGR	Field Length (m)	Weather / Lighting	Soil Type	Crop	Ground Visibility (%)	Overall Retrieval Conditions
6	5424	TF1452 6622	270	Rain/dull	Peat	Pasture	0	Very poor
7	6300	TF1445 6608	50	Rain/dull	Peat	Pasture	0	Very poor
7	6300A	TF1441 6601	20	Rain/dull	Peat	Pasture	0	Very poor
7	0002	TF1435 6588	250	Overcast/dull	Peat	Cereal	95	Good
7	0053	TF1420 6557	450	Overcast/dull	Peat	Harvesting	-	N/A
7	AAN	TF1408 6532	50	Overcast/dull	Peat	Stubble	0	Very poor
7	7000	TF1400 6515	300	Overcast/dull	Peat	Ploughed	100	Good
7	AAO	TF1380 6476	490	Rain/dull	Peat	Ploughed	100	Good
7	AAP	TF1369 6447	550	Overcast/dull	Peat	Sugar beet	0	Very poor
8	4320	TF1354 6417	110	Rain/dull	Peat	Ploughed	100	Good
8	7100	TF1361 6397	200	Overcast/dull	Alluvial silt	Cereal	95	Good
8	6178	TF1354 6382	130	Overcast/dull	Peaty silt	Ploughed	100	Good
8	4063	TF1347 6368	170	Overcast/dull	Peaty silt	Ploughed	100	Good
8	4063b	TF1339 6352	160	Rain/dark	Peaty silt	Cereal	95	Poor
8	2939	TF1331 6335	170	Rain/dark	Peaty silt	Cereal	95	Poor
8	1529	TF1325 6323	110	Rain/dark	Clayey silt	Ploughed	100	Poor
8	4200	TF1321 6315	60	Rain/dull	Silty clay	Sugar beet	60	Moderate
8	2000	TF1316 6304	180	Rain/dark	Peaty silt	Cereal	95	Poor
8	0006	TF1307 6287	220	Overcast/dark	Peaty silt	Cereal	95	Poor
9	8172	TF1298 6268	140	Overcast/dark	Peaty silt	Cereal	95	Poor
9	2046	TF1298 6253	180	Sunny/low	Silty clay	Cereal	70-80	Poor
9	9426	TF1288 6235	260	Sunny/low	Silty clay	Cereal	80	Poor
9	8100	TF1277 6210	250	Sunny/low	Silty clay	Cereal	90	Poor
9	6200	TF1269 6193	130	Sunny/low	Silty clay	Cereal	90	Poor
9	8265	TF1270 6179	130	Sunny/low	Silty clay	Vegetable	60-70	Poor

APPENDIX 1
FIELD DATA SUMMARY

Strip Map	Field No	NGR	Field Length (m)	Weather / Lighting	Soil Type	Crop	Ground Visibility (%)	Overall Retrieval Conditions
9	6857	TF1263 6167	170	Sunny/low	Silty clay	Cereal	70	Poor
9	5550	TF1254 6152	170	Sunny/low	Silty clay	Cereal	70-80	Poor
9	4341	TF1245 6138	150	Sunny/low	Silty clay	Vegetable	60-70	Poor
9	3334	TF1239 6125	110	Overcast/dull	Silty clay	Cereal	40-50	Moderate
9	2630	TF1234 6116	80	Overcast/dull	Alluvial silty clay	Cereal	40-50	Moderate
9	3200	TF1228 6113	30	Overcast/dull	Alluvial silt	Pasture	0	Very poor
9	2500	TF1222 6110	110	Overcast/dull	Alluvial silty clay	Vegetable	80	Moderate
10	0004	TF1208 6098	260	Overcast/dull	Silty clay	Cereal	90-95	Good
10	8889	TF1196 5987	90	Overcast/dull	Silty clay	Stubble	0	Very poor
10	8974	TF1186 6077	160	Overcast/dull	Silty clay	Stubble	0	Very poor
10	AAQ	TF1164 6065	380	Overcast/dull	Silty clay	Sugar beet	0-90	Moderate
10	3556	TF1140 6052	130	Overcast/dull	Silty clay	Oilseed rape	0	Very poor
10	3737	TF1132 6043	130	Sunny/low	Silty clay	Ploughed	100	Moderate
10	2728	TF1127 6029	130	Sunny/low	Silty clay	Ploughed	95-100	Moderate
10	1324	TF1119 6019	130	Sunny/low	Silty clay	Ploughed	100	Moderate
10	2900	TF1111 6010	80	Sunny/low	Silty clay	Cereal	80	Poor
10	AAR	TF1106 6060	60	Overcast/dull	Silty clay	Cereal	85	Good
10	0005	TF1100 5992	230	Fair/dull	Silty clay	Cereal	95	Good
10	2071	TF1100 5974	100	Sunny/low	Silty clay	Vegetable	80	Poor
11	AAS	TF1095 5961	200	Sunny/low	Peaty silt	Cereal	80	Poor
11	AAT	TF1087 5946	120	Sunny/low	Peaty silt	Pasture	0	Very poor
11	7536	TF1080 5934	150	Overcast/dull	Peaty silt	Cereal	60	Moderate
11	8621	TF1073 5913	50	Overcast/dull	Silty clay	Stubble	90	Good
11	AAU	TF1074 5913	80	Overcast/dull	Silty clay	Stubble	0	Very poor
11	6700a	TF1078 5902	140	Overcast/dull	Silty clay	Sugar beet	0	Very poor

APPENDIX 1
FIELD DATA SUMMARY

Strip Map	Field No	NGR	Field Length (m)	Weather / Lighting	Soil Type	Crop	Ground Visibility (%)	Overall Retrieval Conditions
11	9100	TF1083 5887	190	Overcast/dull	Silty clay	Cereal	70	Moderate
11	6700b	TF1085 5865	250	Overcast/dull	Silty clay	Sugar beet	0	Very poor
11	9541	TF1084 5844	90	Overcast/dull	Silty clay	Ploughed	100	Good
11	7836	TF1083 5833	120	Overcast/dull	Silty clay	Pasture	0	Very poor
11	6416	TF1083 5821	120	Overcast/dull	Silty clay	Pasture	0	Very poor
11	0005	TF1083 5800	290	Overcast/dull	Silty clay	Pasture	0	Very poor
12	7966	TF1087 5768	370	Overcast/dull	Silty clay	Pasture/ ploughed	0-100	Moderate
12	9030	TF1092 5738	390	Overcast/dull	Silty clay	Pasture	0	Very poor
12	0006	TF1097 5701	210	Overcast/dull	Silty clay	Pasture	0	Very poor
12	1171	TF1104 5668	450	Overcast/dull	Silty clay	Pasture	0	Very poor
12	AAV	TF1102 5638	230	Overcast/dull	Silty clay	Pasture	0	Very poor
12	AAW	TF1108 5619	130	Overcast/dull	Peaty silt	Cereal	90-100	Good
12	AAX	TF1102 5608	120	Overcast/dull	Peaty silt	Cereal	85	Good
13	AAY	TF1106 5592	390	Overcast/dull	Peaty silt	Cereal	90	Good
13	2345	TF1114 5546	300	Overcast/dull	Silty clay	Cereal	95	Good
13	2600	TF1119 5514	300	Overcast/dull	Silty clay	Sugar beet	5	Very poor
13	1784	TF1116 5487	250	Overcast/dull	Peaty silt	Cereal	90	Good
13	1058	TF1112 5457	300	Overcast/dull	Peaty silt	Sugar beet	95	Very good
13	9637	TF1109 5434	160	Overcast/dull	Peat	Stubble	0	Very poor
14	1300	TF1108 5489	640	Overcast/dull	Peaty silt - clay	Ploughed	100	Good
14	2449	TF1118 5349	230	Overcast/dull	Peaty silt - silty clay	Cereal	95	Good
14	4129	TF1124 5327	180	Overcast/dull	Silty clay	Cereal	85-90	Good

APPENDIX 1
FIELD DATA SUMMARY

Strip Map	Field No	NGR	Field Length (m)	Weather / Lighting	Soil Type	Crop	Ground Visibility (%)	Overall Retrieval Conditions
14	3000	TF1129 5301	360	Overcast/dull	Silty clay	Ploughed & manured	80	Moderate
14	1964	TF1134 5275	150	Overcast/dull	Silty clay	Pasture	0	Very poor
14	2959	TF1136 5263	100	Overcast/dull	Silty clay	Pasture	0	Very poor
14	4554	TF1138 5253	60	Overcast/dull	Silty clay	Pasture	0	Very poor
15	2633	TF1143 5234	290	Overcast/dull	Silty clay	Cereal	95	Good
15	2300	TF1152 5220	160	Overcast/dull	Silty clay	Pasture	0	Very poor
15	5100	TF1160 5191	540	Overcast/dull	Silty clay	Ploughed	100	Good
15	7946	TF1184 5169	30	Overcast/dull	Silty clay	Cereal	80	Moderate
15	0004a	TF1191 5152	110	Overcast/dull	Peaty silt	Cereal	90	Good
15	0004b	TF1198 5144	150	Overcast/dull	Silty clay	Cereal	85-90	Good
15	0004c	TF1218 5124	560	Overcast/dull	Silty clay	Cereal	95	Good
16	AAZ	TF1230 5087	180	Overcast/dull	Silty clay	Cereal	95	Good
16	7400a	TF1295 5018	1,200	Misty/dull	Silty clay	Cereal	80	Moderate
16	0771	TF1301 4966	210	Overcast/dull	Silty clay - peat	Cereal	60	Moderate
16	2150	TF1314 4948	220	Overcast/dull	Peaty silt	Cereal	85	Good
17	ABA	TF1308 4919	360	Overcast/dull	Silty clay	Cereal	70-80	Moderate
17	0006	TF1287 4888	370	Overcast/dull	Silty clay	Cereal	95	Good
17	5464	TF1262 4867	240	Overcast/dull	Silty clay	Cereal	95	Good
17	4246	TF1245 4848	290	Overcast/dull	Silty clay	Cereal	98	Good
17	0001	TF1216 4817	740	Overcast/dull	Silty clay	Cereal	85	Good
18	8775	TF1184 4776	130	Overcast/dull	Silty clay	Cereal	95	Good
18	8456	TF1173 4765	70	Misty/dull	Silty clay	Cereal	90	Good
18	6351	TF1163 4750	320	Misty/dull	Silty clay	Cereal	90	Good

APPENDIX 1
FIELD DATA SUMMARY

Strip Map	Field No	NGR	Field Length (m)	Weather / Lighting	Soil Type	Crop	Ground Visibility (%)	Overall Retrieval Conditions
18	6319	TF1151 4731	150	Misty/dull	Silty clay	Cereal	95	Good
18	3922	TF1144 4720	90	Rain/dull	Silty clay	Cereal	95	Good
18	3910	TF1138 4711	130	Rain/dull	Silty clay	Cereal	95	Good
18	3700	TF1130 4699	130	Rain/dull	Silty clay	Cereal	95	Good
18	1700	TF1122 4686	190	Rain/dull	Silty clay	Cereal	90	Good
18	3461	TF1111 4666	160	Misty/dull	Silty clay	Ploughed/ stubble	0-100	Moderate
18	3461A	TF1106 4656	120	Misty/dull	Silty clay	Cereal	70	Moderate
18	9947	TF1098 4640	330	Misty/dull	Silty clay	Vegetable	70	Moderate
19	0300	TF1085 4616	100	Misty/dull	Silty clay	Cereal	60-70	Moderate
19	0005	TF1077 4601	230	Misty/dull	Silty clay	Ploughed/cereal	50-100	Moderate
19	ABB	TF1065 4578	310	Misty/dull	Silty clay	Cereal	70-80	Moderate
19	4754	TF1052 4554	230	Foggy/dull	Silty clay	Cereal	80	Moderate
19	6124	TF1045 4535	100	Rain/dull	Silty clay	Ploughed	100	Good
19	3923	TF1040 4522	160	Rain/dull	Silty clay	Pasture	0	Very poor
19	0003	TF1020 4500	300	Rain/dull	Silty clay	Stubble	0	Very poor
20	0070	TF1014 4469	380	Rain/dull	Silty clay	Sugar beet	20	Poor
20	0044	TF0973 4449	460	Rain/dull	Silty clay	Cereal	80	Moderate
20	5040	TF0950 4442	70	Rain/dull	Silty clay	Cereal/pasture	80	Moderate
20	4626	TF0921 4426	180	Rain/dull	Silty clay	Vegetable	95	Good
20	0005	TF0903 4420	630	Overcast/dull	Silty clay	Vegetable	50	Moderate
21	7300	TF0867 4398	200	Overcast/dull	Silty clay	Vegetable	0-10	Very poor
21	4400	TF0859 4385	50	Overcast/dull	Silty clay	Cereal	80-90	Good
21	4950	TF0854 4475	210	Rain/dull	Silty clay	Cereal	80-90	Good

APPENDIX 2

APPENDIX 2
FINDS SUMMARY

Strip Map	Field No.	Roman Pot	Saxon Pot	Medieval Pot	Post-Medieval Pot	Ceramic Brick & Tile	Cu Alloy	Flint Tool	Flint Waste	Total
1	1700									
	AAA	3						1	1	5
	AAB									
	AAC									
	3952							3		3
	AAD									
	3800								4	4
	AAE								1	1
2	AAF					1		1	3	5
	AAG					1				1
	2926			1					2	3
	2600									
	3080									
	1772									
3	0564									
	0244									
	0928									
	2400									
	AAH									
	AAI									
4	0006			1					1	2
	AAJ									
	0005									
	8880									
	6268									

APPENDIX 2
FINDS SUMMARY

Strip Map	Field No.	Roman Pot	Saxon Pot	Medieval Pot	Post-Medieval Pot	Ceramic Brick & Tile	Cu Alloy	Flint Tool	Flint Waste	Total
	6550									
	6039									
	4331									
5	3620							1		1
	3500			1						1
	2300/0004 /0090									
	0079/0062 /0037								2	2
	6643									
	0015									
	6400									
	4978									
	2968									
6	5449									
	AAK									
	2200									
	0006									
	AAL									
	AAM									
	5424									
	AAM									
7	6300									
	6300A									
	0002									

APPENDIX 2
FINDS SUMMARY

Strip Map	Field No.	Roman Pot	Saxon Pot	Medieval Pot	Post-Medieval Pot	Ceramic Brick & Tile	Cu Alloy	Flint Tool	Flint Waste	Total
	0053									
	AAN									
	0700									
	AAO									
	AAP									
8	4320									
	7100									
	6178				1					1
	4063						1			1
	4063b									
	2939									
	1529									
	4200									
	2000									
	0006									
9	8172									
	2046									
	9426									
	8100									
	6200									
	8265									
	6857									
	5550									
	4341									
	3334									
	2630									

APPENDIX 2
FINDS SUMMARY

Strip Map	Field No.	Roman Pot	Saxon Pot	Medieval Pot	Post-Medieval Pot	Ceramic Brick & Tile	Cu Alloy	Flint Tool	Flint Waste	Total
	3200									
	2500									
10	0004			1						1
	8889									
	8974									
	AAQ					1				1
	3556									
	3737									
	2728			2						2
	1324			1						1
	2900									
	AAR								1	1
	0005			1						1
	2071									
11	AAS									
	AAT									
	7536									
	8621									
	AAU									
	6700a									
	9100									
	6700b									
	9541									
	7836									
	6416									
	0005									

APPENDIX 2
FINDS SUMMARY

Strip Map	Field No.	Roman Pot	Saxon Pot	Medieval Pot	Post-Medieval Pot	Ceramic Brick & Tile	Cu Alloy	Flint Tool	Flint Waste	Total
12	7966	2		2						4
	9030									
	0006									
	1171									
	AAV									
	AAW									
	AAX							1		1
13	AAY								1	1
	2345									
	2600									
	1784									
	1058									
	9637									
14	1300			1				4	7	12
	2449									
	4129									
	3000									
	1964									
	2959									
	4554									
15	2633			2						2
	2300									
	5100	1		2				1	2	6
	7946									

APPENDIX 2
FINDS SUMMARY

Strip Map	Field No.	Roman Pot	Saxon Pot	Medieval Pot	Post-Medieval Pot	Ceramic Brick & Tile	Cu Alloy	Flint Tool	Flint Waste	Total
	0004a									
	0004b									
	0004c	3		4					1	8
16	AAZ	2		3						5
	07400a	4		4	1			5	13	27
	0771								2	2
	2150							1	4	5
17	ABA								1	1
	0006							1		1
	5646									
	4246	1		7	1			2	2	13
	0001	1		11	2			1	3	18
18	8775			2						2
	8456									
	6351			2						2
	6319									
	3922					1				1
	3910									
	3700			1						1
	1700									
	3461									
	3461A									
	9947									
19	0300									

APPENDIX 2
FINDS SUMMARY

Strip Map	Field No.	Roman Pot	Saxon Pot	Medieval Pot	Post-Medieval Pot	Ceramic Brick & Tile	Cu Alloy	Flint Tool	Flint Waste	Total
	0005									
	ABB	2	1	1				1		5
	4754	1		2						3
	6124			1						1
	3923									
	0003			1						1
20	0070									
	0044			13		2				15
	5040									
	4626									
	0005			2						2
21	7300									
	4400	1								1
	4950			1						1
TOTALS		**21**	**1**	**70**	**5**	**6**	**1**	**23**	**51**	**178**

APPENDIX 3 (a/b/c)

APPENDIX 3a
POTTERY SUMMARY

Strip Map	Field No.	Pot (find no.)	Period	Comments	NGR
1	1700				
	AAA	101	?rb (2nd+)	Storage jar; handle; coarse abraded	TF17360 76048
	AAA	102	rb (3rd+)	Grey; abraded	TF17402 76006
	AAA	103	rb (3-4th)	Grey; wide-mouthed bowl; abraded	TF17414 75990
	AAB				
	AAC				
	3952				
	AAD				
	3800				
	AAE				
2	AAF				
	AAG				
	2926	205	med	Lincoln	TF17207 73376
	2600				
	3080				
	1772				
3	0564				
	0244				
	0928				
	2400				
	AAH				
	AAI				
4	0006	155	?med		TF17042 70539
	AAJ				
	5				

APPENDIX 3a
POTTERY SUMMARY

Strip Map	Field No.	Pot (find no.)	Period	Comments	NGR
	8880				
	6268				
	6550				
	6039				
	4331				
5	3620				
	3500	157	med	?Lincoln	TF16200 69178
	2300/0004/0090				
	0079/0062/0037				
	6643				
	0015				
	6400				
	4978				
	2968				
6	5449				
	AAK				
	2200				
	0006				
	AAL				
	AAM				
	5424				
	AAM				

APPENDIX 3a
POTTERY SUMMARY

Strip Map	Field No.	Pot (find no.)	Period	Comments	NGR
7	6300				
	6300A				
	0002				
	0053				
	AAN				
	700				
	AAO				
	AAP				
8	4320				
	7100				
	6178	8	post-med/ early modern	Bowl; Notts	TF13553 63818
	4063				
	4063b				
	2939				
	1529				
	4200				
	2000				
	0006				
9	8172				
	2046				
	9426				
	8100				
	6200				
	8265				
	6857				
	5550				

APPENDIX 3a
POTTERY SUMMARY

Strip Map	Field No.	Pot (find no.)	Period	Comments	NGR
	4341				
	3334				
	2630				
	3200				
	2500				
10	0004	211	med/ post-med	Bowl rim	TF12044 60942
	8889				
	8974				
	AAQ				
	3556				
	3737				
	2728	213	13-15th	Base	TF11252 60271
	2728	159	med	?pot/?tile	TF11248 60268
	1324	160	med	Jug handle	TF11141 60170
	2900				
	AAR				
	0005	161	med		TF11004 59852
	2071				
11	AAS				
	AAT				
	7536				
	8621				
	AAU				
	6700a				
	9100				
	6700b				

APPENDIX 3a
POTTERY SUMMARY

Strip Map	Field No.	Pot (find no.)	Period	Comments	NGR
	9541				
	7836				
	6416				
	0005				
12	7966	107	med		TF10895 57659
	7966	108	rb (3rd+)	Oxidised; grey interior; jar/bowl	TF10886 57657
	7966	9	med		TF10880 57610
	7966	215	rb (3rd+)	Grey; jar/bowl; very abraded	TF10854 57720
	9030				
	0006				
	1171				
	AAV				
	AAW				
	AAX				
13	AAY				
	2345				
	2600				
	1784				
	1058				
	9637				
14	1300	63	med	?Maxi ware	TF11052 54057
	2449				
	4129				
	3000				
	1964				

APPENDIX 3a
POTTERY SUMMARY

Strip Map	Field No.	Pot (find no.)	Period	Comments	NGR
	2959				
	4554				
15	2633	172	med	Handled bowl	TF11403 52415
	2633	109	med	?Tile	TF11400 52421
	2300				
	5100	110	rb (3rd+)	Grey; jar; string base	TF11558 51986
	5100	173	med		TF11724 51764
	5100	225	med/ post-med	Bowl; e.Bourne D	TF11700 51760
	7946				
	0004a				
	0004b				
	0004c	175	11-13th		TF12080 51354
	0004c	176	rb (2-4th)	Grey	TF12182 51216
	0004c	177	rb (2-4th)	Grey	TF12272 50974
	0004c	111	med		TF12256 51000
	0004c	12	med		TF12273 51009
	0004c	112	rb (3rd+)	Grey	TF12264 50960
	0004c	113	med		TF12274 50926
16	AAZ	114	med		TF12300 50904
	AAZ	178	?r/rb		TF12308 50789
	AAZ	179	med		TF12364 50716
	AAZ	115	med		TF12330 50778
	AAZ	228	rb (mid 3rd+)	Nene Valley mortaria; reeded-rimmed	TF12332 50783
	7400a	229	rb (3rd+)	Cream; grey interior	TF12334 50674
	7400a	230	rb (2-3rd)	Cream; grey interior	TF12344 50642
	7400a	116	med	Bourne D	TF12386 50613

APPENDIX 3a
POTTERY SUMMARY

Strip Map	Field No.	Pot (find no.)	Period	Comments	NGR
	7400a	13	post-med/ early modern		TF12418 50530
	7400a	117	med		TF12467 50370
	7400a	70	rb (mid3rd+)	Grey; wide mouthed jar	TF12609 49969
	7400a	185	?rb (3rd+)	Grey; bowl; very abraded	TF12575 50011
	7400a	234	11-13th	Bourne D	TF12664 49926
	7400a	187	med	Handle	TF12767 49879
	0771				
	2150				
17	ABA				
	0006				
	5646				
	4246	16	rb (2-4th)	Grey	TF12358 48406
	4246	84	med		TF12357 48379
	4246	200	?med		TF12418 48429
	4246	251	med		TF12356 48376
	4246	252	med		TF12420 48451
	4246	254	med		TF12465 48500
	4246	125	med		TF12427 48466
	4246	126	med	Bourne D	TF12443 48481
	4246	86	pmed		TF12480 48496
	0001	120	med		TF11908 47858
	0001	237	med		TF12051 48057
	0001	77	med/ post-med		TF12042 48002
	0001	124	early post-med	Bourne D	TF12351 48349

APPENDIX 3a
POTTERY SUMMARY

Strip Map	Field No.	Pot (find no.)	Period	Comments	NGR
	0001	198	rb (3rd+)	Grey	TF12275 48299
	0001	199	med	Handle	TF12276 48300
	0001	238	med		TF12087 48097
	0001	239	med		TF12109 48114
	0001	121	med		TF12099 48091
	0001	80	med	Handle	TF12076 48082
	0001	196	early post-med	Bourne D	TF12203 48180
	0001	197	med		TF12162 48138
	0001	122	med		TF12188 48202
	0001	123	med		TF12214 48220
18	8775	119	med		TF11847 47750
	8775	236	med		TF11849 47732
	8456				
	6351	127	med		TF11666 47536
	6351	128	11-12th	Stamford ware	TF11598 47412
	6319				
	3922				
	3910				
	3700	246	med		TF11289 46972
	1700				
	3461				
	3461A				
	9947				
19	0300				
	0005				
	ABB	247	saxon/med		TF10685 45841

APPENDIX 3a
POTTERY SUMMARY

Strip Map	Field No.	Pot (find no.)	Period	Comments	NGR
	ABB	17	rb (2-3rd)	Grey; jar	TF10599 45686
	ABB	249	med		TF10596 45664
	ABB	250	rb (2-3rd)	Grey; jar	TF10611 45718
	4754	301	13-15th		TF10555 45608
	4754	302	rb (3rd+)	Grey; abraded	TF10452 45432
	4754	303	11-13th	Rim	TF10491 45438
	6124	18	13/15th		TF10446 45381
	3923				
	0003	304	med		TF10270 44872
20	0070				
	0044	507	med		TF09635 44450
	0044	508	med		TF09631 44459
	0044	21	l2-early13	Stamford ware	TF09632 44450
	0044	129	med/ post-med		TF09674 44439
	0044	305	med		TF09622 44474
	0044	306	med		TF09618 44470
	0044	19	med/ post-med		TF09914 44532
	0044	451	med		TF09777 44518
	0044	502	med		TF09837 44513
	0044	504	med/ post-med	Bourne D	TF09761 44491
	0044	505	med	Bourne D	TF09746 44487
	0044	307	med/ post-med		TF09928 44566
	0044	506	med/ post-med	Bourne D	TF09738 44484

APPENDIX 3a
POTTERY SUMMARY

Strip Map	Field No.	Pot (find no.)	Period	Comments	NGR
	5040				
	4626				
	0005	309	med	Sandstone	TF09242 44280
	0005	310	?med		TF09074 44210
21	7300				
	4400	509	rb (mid 3rd+)	Grey; wide mouthed bowl; rim	TF08592 43849
	4950	308	med	Lincoln	TF08538 43751

Key:
rb-romano-british
med-medieval
post-med-post-medieval

APPENDIX 3b
BRICK AND TILE SUMMARY

Strip Map	Field No.	Tile (find no.)	Period	Comments	NGR
2	AAF	204	?rb/med	?Tegula;med tile	TF17158 74271
2	AAG	55	?rb/med/ post-med	Flat tile with three intact sides	TF17216 73674
10	AAQ	212	rb	Roman tegula with flange	TF11720 60692
18	3922	87	?rb/med	Roman Imbrex or post-med field drain	TF11437 47234
20	0044	501	?med	Tile	TF09932 44528
20	0044	503	?med	Tile	TF09837 44512

Key:
rb-romano-british
med-medieval
post-med-post-medieval

APPENDIX 3c
POTTERY REPORT

Hatton to Silk Willoughby Pipeline (HWP97) for Network Archaeology

B J Precious - Roman Pottery Consultant

10.12.97

The Roman pottery forms a very small percentage of the total pottery recovered from the Hatton to Silk Willoughby Pipeline -21 sherds in total. Despite the wide area covered during the HWP97 fieldwalking there is very little evidence for concentrated occupation during the Roman period.

The Roman assemblage is mainly composed of undiagnostic greyware body sherds, most of which are quite abraded. There are only three rim shreds, two of which are from greyware wide-mouthed jars or bowls (Strip Map 16-170;Strip Map 21 -509), and an exceptionally fresh rim sherd from a reeded-rimmed Nene Valley mortarium (StripMap 16 - 228). These three vessels provide the main dating for the respective strip maps suggesting a period of occupation from the mid 3rd into the 4th century. The dating for the remaining wares broadly fits within the above date range, with only two fragments which could conceivably be as early as the mid 2nd century. There is no evidence for early Roman occupation.

The medieval pottery was identified by Alan Vince.

The Medieval pottery forms the bulk of the HWP97 assemblage, together with a small proportion of post-medieval wares (which were discarded), and medieval or later fragments of ceramic building material. Most of the medieval material consists of body sherds, with occasional handle fragments. However there are a few rims which appear to be post-medieval in date. A number of the glazed medieval sherds appear to be of the same fabric, and hence from the same source. There is also a small fragment in a hand-made, course, grey fabric which may be saxon or early medieval in date.

APPENDIX 4 (a/b/)

APPENDIX 4a
FLINT SUMMARY

Strip Map	Field No.	Flint No.	Description	Period	NGR
1	1700				
	AAA	51	Waste flake	LN/EBA	TF17362 76018
	AAA	151	Scraper	LN/EBA	TF17406 76022
	AAB				
	AAC				
	3952	201	Scraper	?LN/BA	TF17408 75554
	3952	52	Cutting flake	?LN/BA	TF17420 75522
	3952	104	Flake with miscellaneous retouch	LN/BA	TF17396 75524
	AAD				
	3800	202	Waste flake	LN/BA	TF17214 75175
	3800	53	Waste flake	LN/BA	TF17178 75082
	3800	203	Waste flake	?LN/BA	TF17208 75123
	3800	152	Waste flake	LN/BA	TF17228 75172
	AAE	153	Waste flake	LN/BA	TF17189 74850
2	AAF	1	?Piercer	?LN/BA	TF17149 74501
	AAF	54	Core	LN/BA	TF17117 74414
	AAF	3	Waste flake	LN/BA	TF17160 74118
	AAF	154	Waste flake	LN/BA	TF17143 74282
	AAG				
	2926	206	Waste flake	LN/BA	TF17225 73282
	2926	105	Waste flake	LN/BA	TF17234 73386
	2600				
	3080				
	1772				
3	0564				
	0244				
	0928				

APPENDIX 4a
FLINT SUMMARY

Strip Map	Field No.	Flint No.	Description	Period	NGR
	2400				
	AAH				
	AAI				
4	0006	56	Waste flake	L Meso/EN	TF17076 70725
	AAJ				
	0005				
	8880				
	6268				
	6550				
	6039				
	4331				
5	3620	156	?Cutting flake	LN/BA	TF16278 62310
	3500				
	2300/0004/0090				
	0079/0062/0037	106	Core	L Meso/EN	TF15896 68573
	0079/0062/0037	207	Core	LN/BA	TF15878 68611
	6643				
	0015				
	6400				
	4978				
	2968				
6	5449				
	AAK				

APPENDIX 4a
FLINT SUMMARY

Strip Map	Field No.	Flint No.	Description	Period	NGR
	2200				
	0006				
	AAL				
	AAM				
	5424				
	AAM				
7	6300				
	6300A				
	0002	208	Discarded		
	0053				
	AAN				
	700				
	AAO				
	AAP				
8	4320				
	7100				
	6178				
	4063				
	4063b				
	2939				
	1529				
	4200				
	2000				
	0006				
9	8172				
	2046				

APPENDIX 4a
FLINT SUMMARY

Strip Map	Field No.	Flint No.	Description	Period	NGR
	9426	158	Discarded		
	8100				
	6200				
	8265				
	6857				
	5550				
	4341				
	3334				
	2630				
	3200				
	2500				
10	0004				
	8889				
	8974				
	AAQ				
	3556				
	3737				
	2728				
	1324				
	2900				
	AAR	214	?Blade core	Meso	TF11078 60062
	0005				
	2071				
11	AAS				
	AAT				
	7536				
	8621				

APPENDIX 4a
FLINT SUMMARY

Strip Map	Field No.	Flint No.	Description	Period	NGR
	AAU				
	6700a				
	9100				
	6700b				
	9541				
	7836				
	6416				
	0005				
12	7966				
	9030				
	0006				
	1171				
	AAV				
	AAW				
	AAX	216	Cutting flake	L Neo	TF11040 56090
13	AAY	58	Blade fragment	Meso	TF11071 55903
	2345	59	Discarded		
	2345	218	Discarded		
	2600				
	1784	162	Discarded		
	1784	163	Discarded		
	1784	164	Discarded		
	1058	60	Discarded		
	1058	61	Discarded		
	9637				
14	1300	219	Waste flake	LN/BA	TF11040 54124

APPENDIX 4a
FLINT SUMMARY

Strip Map	Field No.	Flint No.	Description	Period	NGR
	1300	62	Waste flake	LN/BA	TF11082 53942
	1300	165	Core	LN/BA	TF11052 54117
	1300	166	Scraper	LN/BA	TF11067 54120
	1300	167	Scraper	LN/BA	TF11070 54112
	1300	10	Flake	LN/BA	TF11060 53927
	1300	11	Discarded		
	1300	168	Core	Meso/EN	TF11033 53985
	1300	169	Core	LMeso/EN	TF11048 53942
	1300	170	Cutting flake	LN	TF11060 53944
	1300	220	Waste flake	LN/BA	TF11021 54004
	1300	171	Discarded		
	1300	221	Discarded		
	1300	223	Discarded		
	1300	64	Discarded		
	1300	65	Scraper	?LN/BA	TF11077 53894
	1300	222	Discarded		
	2449	224	Discarded		
	4129				
	3000				
	1964				
	2959				
	4554				
15	2633				
	2300				
	5100	174	Core	LN/BA	TF11752 51672
	5100	66	Knife	E-M Neo	TF11814 51622
	5100	226	Waste flake	LN/BA	TF11758 51716
	7946				

APPENDIX 4a
FLINT SUMMARY

Strip Map	Field No.	Flint No.	Description	Period	NGR
	0004a				
	0004b				
	0004c	227	Waste flake	LN/BA	TF12090 51356
16	AAZ				
	7400a	73	Waste flake	LN/BA	TF12968 49764
	7400a	190	Cutting flake	?LN/EBA	TF12963 49770
	7400a	231	Discarded		
	7400a	67	Waste flake	LN/BA	TF12375 50622
	7400a	180	Waste flake	LN/BA	TF12427 50477
	7400a	232	Waste flake	LN/BA	TF12455 50341
	7400a	68	?Scraper	?LN/BA	TF12423 50404
	7400a	181	Scraper	LN/BA	TF12436 50362
	7400a	182	Waste flake	LN/BA	TF12434 50365
	7400a	183	Waste flake	LN/BA	TF12522 50147
	7400a	233	Waste flake	LMeso/EN	TF12524 50168
	7400a	69	Core	LMeso/EN	TF12590 50025
	7400a	184	Waste flake	LN/BA	TF12571 50018
	7400a	72	Discarded		
	7400a	235	Waste flake	LN/BA	TF12664 49926
	7400a	186	Cutting flake	LN/EBA	TF12687 49936
	7400a	188	Waste flake	LN/BA	TF12860 49812
	7400a	118	Waste flake	LN/BA	TF12727 49914
	7400a	189	Waste flake	LN/BA	TF12950 49771
	7400a	71	Scraper	LN/BA	TF12968 49769
	0771	191	Waste flake	LMeso/EN	TF12955 49741
	0771	74	Discarded		
	0771	192	Core	LN/BA	TF13039 49583
	2150	193	Waste flake	LN/BA	TF13100 49548

APPENDIX 4a
FLINT SUMMARY

Strip Map	Field No.	Flint No.	Description	Period	NGR
	2150	14	Cutting flake	LMeso/EN	TF13080 49527
	2150	76	Waste flake	LN/BA	TF13163 49368
	2150	194	Waste flake	LN/BA	TF13154 49448
	2150	195	Waste flake	LN/BA	TF13163 49430
17	ABA	130	Waste flake	LN/BA	TF13023 49094
	0006	255	Notched flake	LN/EBA	TF12908 48944
	0006	245	Discarded		
	5646	244	Discarded		
	4246	85	Core	?LN/BA	TF12361 48381
	4246	241	Notched flake	LN/BA	TF12388 48378
	4246	242	Scraper	LN/EBA	TF12384 48378
	4246	253	Waste flake	LN/BA	TF12428 48452
	4246	243	Discarded		
	0001	81	Core	LN/BA	TF12101 48108
	0001	82	Scraper	LN/EBA	TF12231 48252
	0001	240	Waste flake	LN/BA	TF12205 48237
	0001	15	Waste flake	LN/BA	TF12283 48268
18	8775				
	8456				
	6351				
	6319				
	3922				
	3910	88	Discarded		
	3700				
	1700				
	3461				
	3461A				

APPENDIX 4a
FLINT SUMMARY

Strip Map	Field No.	Flint No.	Description	Period	NGR
	9947				
19	0300				
	0005				
	ABB	248	Scraper	LN/EBA	TF10652 45779
	4754				
	6124				
	3923				
	0003				
20	0070				
	0044				
	5040				
	4626				
	0005				
21	7300				
	4400				
	4950				

Key:
Meso-Mesolithic
E Meso-Early Mesolithic
L Meso-Late Mesolithic
EN-Early Neolithic
LN-Late Neolithic
EBA-Early Bronze Age
BA-Bronze Age
LBN-Late Bronze Age

APPENDIX 4b
FLINT REPORT

The Flint

by David Bonner

Seventy-four flints weighing 946g were submitted for analysis. The small size of the assemblage and its wide provenance prevents any statistical study, although a number of observations have been made regarding the choice of raw materials, the condition, the morphology of the assemblage, the date range and the distribution of material.

Raw Materials

Macroscopic analysis on the basis of colour, hue, quality and finish has identified six main categories of flint type (in order of frequency):

A	Pale-mid honey-brown semi-translucent to opaque material with grey, olive or brown cherty mottles and a dusky finish.
B	Pale-mid yellow-brown semi-translucent material with opaque streaks and a semi-gloss finish.
C	Indeterminable material, usually with a high level of patination, or sometimes burnt.
D	Mid-dark grey-brown opaque material (with olive cherty mottles) and a matt finish.
E	Mid-brown-grey opaque material with grey cherty mottles and a matt finish.
F	Chert (mid olive-brown, grey-brown and white-grey).

Persistently thin, eroded cortex indicates that most of the material is derived gravel flint, whilst the smoothed and rounded surfaces of some indicates (glacio-) fluvial abrasion. The most likely sources for this material are the gravel terraces of the River Witham and River Slea and localised mantles of Quaternary Drift (Boulder Clay and Fluvial Sands and Gravels).

Condition of Flint

The assemblage is varied in terms of abrasion, including a range of fresh to heavily worn material, which can be accounted for by source material and differential levels of agricultural intensity along the collection area. A very high number of flakes (39%) and a similar number of tools (34%) are broken. Most came from two fields (3800 and 7400A), suggesting that these fields may have been more intensively farmed than others. This may account for the higher number of flints found in field 7400A. A large number of patinated pieces have also been identified.

Morphology of the Flint Assemblage

The flints have been divided into cores, tools and flakes (Tables 1-3). The morphology of the assemblage shows a positive bias for tools and cores. This bias can be accounted for by the fact that the flints were collected by fieldwalking, which tends to over-represent tools. Further, the fact that collection took place along a narrow linear route means that the sample of any sites crossed may not be representative, thereby skewing the results.

There are twelve cores, two with misc. retouch (Table 1). The cores include single, double and multi-platform types and most have broad flake scars suggesting a Late Neolithic or Bronze Age date. There is one possible Mesolithic opposing-platform blade core and a further four opposing or multi-platform types with narrow flake scars indicative of a Late Mesolithic/ Early Neolithic date. Most cores were small and moderately or heavily worked suggesting that resources were limited.

APPENDIX 4b
FLINT REPORT

Tools have been distinguished from the debitage by macroscopic examination for 'retouch', the deliberate alteration of the flint edge. Of twenty-three tools, over half are scrapers and notched flakes, the remainder including cutting flakes, a knife, a piercer and one flake with misc. retouch (Table 2). The earlier prehistoric tools include a single narrow cutting flake of Late Mesolithic/ Early Neolithic date, and two broader cutting flakes of probable Late Neolithic date. Most noteworthy is a possible Early-Middle Neolithic patinated knife with bifacial invasive retouch, and later retouch through the patination along the cutting edge. All of the scrapers and notched flakes have the form and flaking characteristics typical of the Late Neolithic/Bronze Age. Many of these exhibit semi-invasive retouch, suggesting a more restricted date range in the Late Neolithic/ Early Bronze Age.

There are only thirty-nine waste flakes, which have been sub-divided into primary, secondary and tertiary flakes on the basis of the degree of cortication of the dorsal surface (Table 3). Two thirds are secondary flakes with primary and tertiary flakes accounting for a similar number each of the remaining third. Metrical analysis has not been undertaken as it only tends to be a worthwhile method for investigating single-site assemblages. Instead, a subjective determination of flake shape has been made, with each flake being described as squat, intermediate or long.

The flakes include a single Mesolithic blade fragment and a three narrow flakes of probable Late Mesolithic/ Early Neolithic date. The remaining intermediate and squat-shaped flakes are typical of the Late Neolithic/ Bronze Age. Most flakes exhibit the traits of hard-hammer manufacture.

Mesolithic and Early-Middle Neolithic

Ten flints have been dated to the Mesolithic or Early Neolithic periods: five cores, four waste flakes, and a cutting flake. They come from nine fields, spread out along twenty-five kilometres of the proposed pipeline, indicating an apparently low level of exploitation in the area during this period. A possible Early to Middle Neolithic knife was also found to the northeast of Anwick at the south end of the pipeline. Given that so few earlier prehistoric finds have been made previously, those found on this project, although low in number, are significant. Earlier prehistoric material may be under-represented on the surface of ploughed fields in the Fens, unless the peat is thin, or has been totally eroded.

Late Neolithic and Bronze Age

Four areas of enhanced activity were recognised:

1. **South of Hatton AGI, for three kilometres to Minting**: 7.4 flints per hectare, including a core, two scrapers, a piercer, a cutting flake, a flake with misc. retouch and ten waste flakes. Most of the flint is Late Neolithic/ Bronze Age, although two of the tools suggests a more restricted date range in the Late Neolithic/ Early Bronze Age. The relatively low density and broad distribution suggests that these flints represent later prehistoric activity in the area. This accords with previous local finds of a Neolithic stone axe and a Bronze Age axe. No sites are known in the area.

2. **OS Field 1300, Dorrington Fen, to southwest of Walcott**: 15 flints per hectare, including a core, three scrapers and four waste flakes of Late Neolithic/ Bronze Age date, and a Late Neolithic/Early Bronze Age cutting flake. The scatter was 400m across and appears to be genuine in that there was a marked fall-off, and no further flints were observed in the adjacent fields which were walked for 0.5km and 0.8km to the north and south respectively. Whilst this is an area of enhanced activity, the density is not high enough to be interpreted as representative of settlement.

   A Late Neolithic cutting flake was also found a little to the north (Field AAX), about three hundred metres to the west of a Neolithic Long Barrow (SAM 27900) and possible prehistoric barrow cemetery at Walcott Commons. Neolithic stone axes and Bronze Age axes have been found previously in the vicinity.

3. **OS Fields 7400a, 0071 and 2150, Anwick Fen, North of the River Slea**: 13 flints per hectare, including a core, three scrapers, fifteen waste flakes, and two Late Neolithic/ Early Bronze Age cutting flakes. The scatter was recorded across three fields covering 1.6km. It corresponds with the cropmark of a possible enclosure (DBA.CF) and was located less than 200m to the west of a Bronze Age barrow cemetery (visible on aerial photographs). The scatter is probably therefore the result of activity associated with these sites.

4. **OS Field 4246 and 0001, North of Ewerby**: 8 flints per hectare, including two cores, a notched flake, three waste flakes and two Late Neolithic/ Early Bronze Age scrapers. The flints covered one 500m of the route, in an area where no finds or sites of this period have been found. It probably represents background activity.

The remaining material of this period was found as stray finds at various locations along the route: a cutting flake and a core of Late Neolithic/Bronze Age date were found west of Brackall; a core and two waste flakes of Late Neolithic/ Bronze Age date were found on Anwick Fen, to the northeast of Anwick; a waste flake and notched flake of Late Neolithic/Early Bronze Age date were found just south of the River Slea; and a Late Neolithic/ Early Bronze Age scraper was found east of Kirkby la Thorpe. All of these finds were made in areas where prehistoric finds or sites were not previously known.

Fieldwalking 1994

One hundred and sixty-one flints were recovered by a previous programme of fieldwalking along the proposed pipeline (Brooks 1994). The results of the 1994 survey accorded closely in terms of date range and distribution with the results of the current survey: there was a low level of Mesolithic activity, a low but significant level of Early to Middle Neolithic activity, whilst most of the flint represented Late Neolithic/Bronze Age technology. Its distribution also correlated with the current survey, suggesting that both surveys were representative of the available evidence.

Conclusion

The density of recovered flint was generally low, but showed some variation in distribution along those sections of the proposed pipeline which were fieldwalked. These variations accorded with previous observations during the 1994 survey.

APPENDIX 4b
FLINT REPORT

Examination by period identified four areas of apparent increased Late Neolithic/ Bronze Age activity. One of these areas corresponds with a known enclosure site on the route (DBA.CF), and may date it, although the scatter might be related to a nearby Bronze Age barrow cemetery. Two of the concentrations probably represent background activity, whilst the fourth in OS Field 1300, Dorrington Fen represents a moderate level of activity, although it is insufficient to suggest that there is settlement at this location. All of these concentrations include a small component of possible Late Neolithic/ Early Bronze Age material, suggesting a more restricted date range for some of the material.

A small number of flints are Mesolithic or Early to Middle Neolithic and represent a significant indication of earlier prehistoric activity across the Fens.

A complete absence of any flint artefacts from Bucknall south for eight kilometres to Martin is possibly due to the blanketing effect of the peats of Blankney Fen.

APPENDIX 4b
FLINT REPORT

Table 1. Core Quantification Table

CTXT	MAP	FLD	PL	EX	WT	COLOUR	NOTE	DATE
54	2	AAF	2	M	30g	D		LN/BA
207	5	0079	M	H	12g	E		LN/BA
106	5	0079	2	H	12g	A	narrow fl scars	LMESO/EN
214	10	AAR	opp	M	28g	A	?blade core	MESO
165	14	1300	M	H	35g	E		LN/BA
169	14	1300	M	M	42g	E	PP, some narrow fl scars	?LMESO/EN
168	14	1300	M	H	4g	C		?MESO/EN
174	15	5100	1	L	10g	E	misc ret	LN/BA
69	16	7400	opp	M	18g	A	narrow fl scars	LMESO/EN
192	16	0771	1	H	14g	E		LN/BA
85	17	4246	1	M	26g	D	misc ret	?LN/BA
81	18	0001	1	H	30g	E		LN/BA

[Pl = platforms: M = multi, opp = 2 opposing platforms; Ex = exploitation: L = low, M = moderate, H = high]

Table 2. Tool Quantification Table

CTXT	MAP	FIELD	CLASS	COLOUR	NOTE	DATE
151	1	AAA	SCR	B	bkn, V-ret: steep & some semi-inv ret	?LN/EBA
52	1	3952	CUTG FL	D	bkn, semi-inv V-ret	?LN/EBA
201	1	3952	S.SCR	A	tiny V-ret, hh	?LN/BA
104	1	3952	MISC	A	D-ret	LN/BA
1	2	AAF	?PIERCER	A	bkn, V-ret	?LN/BA
156	5	3620	?CUTG FL	A	tiny steep V-ret	LN/BA
216	12	AAX	CUTG FL	C	bkn, semi-inv V-ret, heavily utilised	L.NEO
65	14	1300	SCR	D	V-ret	?LN/BA
166	14	1300	SCR	E	hh steep V-ret	?LN/BA
170	14	1300	CUTG FL	F	bkn, denticulate- like V-ret	?L.NEO
167	14	1300	SCR	B	V-ret	?LN/BA
66	15	5100	KNIFE	C	large bifacial inv. V-ret with later retouch thru pat.	E-M NEO
190	16	7400A	CUTG FL	A	semi-inv acute V-ret	?LN/EBA
71	16	7400A	SCR	A	V-ret	LN/BA
68	16	7400A	?SCR	B	bkn, V-ret	?LN/EBA
186	16	7400A	CUTG FL	B	acute semi-inv V-ret plus steep bluntg ret	LN/EBA
181	16	7400A	SCR	B	steep V-ret	LN/BA
14	16	2150	CUTG FL	B	narrow fl with steep bluntg V-ret and util edge	LMESO/EN
255	17	0006	NOTCH	D	bkn, semi-inv V-ret	LN/EBA
241	17	4246	3 NOTCH	B	1 notch on V side, 2 notches on D side	LN/BA
242	17	4246	S.SCR	E	semi-inv V-ret	?LN/EBA
82	18	0001	SCR	A	semi-inv V-ret	LN/EBA
248	19	ABB	SCR	B	semi-inv V-ret	?LN/EBA

APPENDIX 4b
FLINT REPORT

Table 3. Flake Quantification Table

No	MAP	Field	Cl	Br	Pat	Type	Colour	Other	Date
51	1	AAA	S	-	-	inter	A		LN/BA
152	1	3800	S	-	P	squat	C		LN/BA
53	1	3800	P	Y	-	squat	A		LN/BA
203	1	3800	S	Y	-	inter	B		LN/BA
202	1	3800	S	Y	-	squat	A	hh	LN/BA
153	1	AAE	T	-	-	inter	A		LN/BA
3	2	AAF	P	-	-	squat	A		LN/BA
105	2	2926	S	-	-	inter	B		LN/BA
206	2	2926	S	-	-	squat	E		LN/BA
154	2	AAF	S	Y	-	inter	C		LN/BA
56	4	0006	S	-	P	long	C	narrow fl scars	LMESO/EN
58	13	AAY	T	Y	-	blade	C	bkn blade	MESO
219	14	1300	P	Y	-	inter	D		LN/BA
62	14	1300	S	-	-	squat	A		LN/BA
220	14	1300	S	-	-	squat	B		LN/BA
10	14	1300	S	-	-	inter	B		LN/BA
226	15	5100	S	-	PP	squat	C		LN/BA
227	15	0004c	P	-	-	long	B		LN/BA
233	16	7400A	S	-	P	long	C	pebble	LMESO/EN
73	16	7400A	S	Y	-	inter	F		LN/BA
67	16	7400A	T	Y	-	squat	A		LN/BA
183	16	7400A	S	-	-	inter	A		LN/BA
188	16	7400A	S	-	-	squat	C	burnt	LN/BA
182	16	7400A	S	-	PP	squat	D	hh	LN/BA
118	16	7400A	S	Y	-	squat	A		LN/BA
189	16	7400A	T	-	-	long	A		LN/BA
180	16	7400A	S	-	-	squat	A		LN/BA
235	16	7400A	S	Y	PP	squat	C		LN/BA
232	16	7400A	S	-	P	inter	C		LN/BA
184	16	7400A	T	Y	-	inter	F		LN/BA
191	16	0771	T	Y	P	long	C	narrow fl scars	LMESO/EN
76	16	2150	S	-	-	squat	A		LN/BA
195	16	2150	S	Y	PP	inter	A		LN/BA
194	16	2150	P	Y	P	long	C		LN/BA
193	16	2150	S	-	-	squat	B		LN/BA
130	17	ABA	S	-	-	squat	B		LN/BA
253	17	4246	T	-	PP	squat	B		LN/BA
15	17	0001	P	Y	-	squat	A		LN/BA
240	17	0001	S	-	PP	squat	C		LN/BA

[Cl = class: P = primary, S = secondary, T = Tertiary; Br = broken; Pat = patination: P = patinated, PP = partially patinated]

APPENDIX 5

APPENDIX 5
PALAEOENVIRONMENTAL ASSESSMENT

Proposed Hatton to Silk Willoughby Gas Pipeline

Palaeoenvironmental assessment of the Witham Valley stretch

Introduction

The archaeological potential of the proposed pipeline route across the Witham Valley has been assessed, along with the rest of the proposed route, from the archaeological literature and Sites and Monuments Record (SMR) in the archaeological desk-based assessment carried out by Network Archaeology Ltd. This work relies on reported surface finds and occasional discoveries when ditching or other work has been carried out. The valley has been infilled with Flandrian sediments and its lithological history is the result of a series of changes consequent upon a rising sea level with episodes of regression (falling sea level) that has lead to major changes in the Lincolnshire coastline. Because of this sedimentary history there were periods during which the valley floor, or part of it, was estuarine, tidal saltmarsh, freshwater marsh, seasonally dry land and permanently dry land. It is possible for archaeological sites and features constructed during a period of seasonally or permanently dry conditions on the valley floor to be buried by later marine or freshwater sediments. The surface finds therefore may not reflect the archaeological potential along the route or indicate the level of threat to archaeological sites occasioned by the pipeline construction.

Procedure

In order to evaluate the likelihood of buried archaeology in the valley floor the following reports were considered: the report on the borehole data collected by Soils Engineering Ltd (1993; 1994) along the pipeline route and a draft report by J.M. Monaghan (undated) on fieldwork conducted during the laying of the 42" No 9 Feeder Gas pipeline in 1981. The borehole data collected by Norwest Holst Soil Engineering Ltd (May 1980) for the 1981 pipeline was not available at the time of this assessment. Reference was also made to published works.

A lithological section across the Witham Valley was constructed from the borehole log data along a transect from borehole 22 (Soils Engineering Ltd, 1994), just west of Campney Grange Farm to borehole 46, just north of Linwood Hall Farm (Fig. 1). It is very difficult to relate the stratigraphy in consecutive bores using the log data since the finer sedimentary descriptions and details of sediment structure, such as laminations, soil formation, compaction etc are not recorded and the valley floor has been cut by dendritic estuarine creeks (see for instance those illustrated in Nocten Fen two kilometres to the north-west - Robson *et al* 1974, Plate 1) that have repeatedly dissected the horizontal stratigraphy.

Lithostratigraphic Sequence

The lithostratigraphic sequence in the North-west Fens has most recently been summarised by Shennan (in Waller 1994). He describes a discontinuous basal peat overlying the pre-Flandrian deposits, overlain by sediments of marine/brackish water origin composed of silty clays to laminated fine sands. These are covered by a surface peat which has eroded and deflated as a result of drainage, peat cutting, agriculture and wind erosion.

This picture is broadly in agreement with the borehole data from the pipeline route (Fig. 1), except that a period of silty clay deposition with occasional wood, reed and thin peat lenses is evident in a number of boreholes before the formation of a peat. The basal peat is found

between -1.0 and -3.0m OD, whilst a woody peat is found at -3.0m OD and below in the deposits infilling the ancient river channel beneath the Witham. Estuarine silty clays and roddon sands are present throughout the remainder of the sequence. Monaghan (undated) notes that the southern and northern parts of the valley along the transect for the earlier pipeline are quite different and this appears to be true along the route of the present proposal. The southern half of the valley is dominated by one, and probably a second, large palaeochannel infilled with fine to medium sands varying in silt content. These appear to have cut the lower peat horizon with the sands at the base of boreholes 36 and 37 suggesting that the northern of these two creeks/roddons was quite broad, up to 1200 metres across on the line of the pipeline. If this is correct then the peat lying at -2.0m OD in borehole 36 must indicate a later phase of peat formation in the channel. In the northern half of the transect the palaeochannel of the River Witham dominates the sequence and a series of sands and gravels and gravelly sands in the boreholes appear to reflect the higher energy environment of the main river course through the estuarine deposits. Infilling the areas between the roddons, the main river course and the sides of the valley are a series of silty clays, often containing reed fragments or thin peat lenses and organic inclusions, and in one bore (29) clearly laminated, typical of tidal deposits in the fens.

The subsequent peat deposits known to have existed in the area and still surviving in localised pockets around Bardney and along the washes on the southern bank of the Witham (Robson *et al* 1974) as well as further west, are reflected merely in the peaty topsoils recorded in a number of the bores.

Chronology and model for the deposits

The chronology for this sequence is only loosely established for this area of the fens. The basal peats have been dated west of Woodhall Spa between 4205±110 BP (HAR-192) and 3620±130 BP (HAR-149) (Valentine and Dalrymple, 1975) at between *c.* -1.7m OD and 0 OD and further downstream at Bettinsons Bridge at 3810±70 BP (Q-2568) at -0.22m OD and at Gipsey Bridge between 4070±80 BP (Q-2566) and 3790±80 BP (Q-2567) at between -0.54 and -0.12m OD.

Waller (1994) has postulated that marine sediments were being deposited at about -5.0m OD by 5000 BP. At no point, except in later creek channels, do the fluvio-glacial sands and gravels along the pipeline route drop as low as -5.0m OD, so that until about 3000 BC the valley floor of the Witham could have had prehistoric occupation on the soils developed over the underlying late Pleistocene sands and gravels. Theoretically the later alluvial and estuarine sediments could have covered this prehistoric landscape but the marine incursion represents an erosional as well as a depositional event. It is evident from the cutting down of the river and roddons through the underlying sands and gravels that much of this landscape was removed rather than buried although pockets of undisturbed palaeosols, and any associated archaeology, may survive between the roddons and up the sides of the valley.

By *circa* 4100 BP Waller's (1994) model shows that the marine incursion has reached and passed this part of the valley. He uses a marine/freshwater junction of -2.0m OD to model the limits of the marine sedimentation at this time which would imply that most of the valley floor at this point was under tidal influence with the development of some freshwater marsh along the margins of the valley.

For the next *c.* 1500 years the valley floor, along the transect, was under this tidal influence with estuarine silty clays being deposited across it and silty sands and sands within the roddons. Between *c.* 2600 BP and 1800 BP (Waller 1994) peat deposits expanded at the margins of the valley while marine silts continued to be laid down across the middle of the valley. Towards the end of this period excavations across the fens have shown that some Iron Age and particularly Roman colonisation occured on the well drained sandy sediments deposited within and along the banks of the roddons during a period of negative tendency (falling sea level) during the Roman and post-Roman period (Waller 1994). This resulted in previously tidal areas becoming largely or completely free of tidal influence. This is likely to have applied along the roddons, particularly across the southern half of the valley along the pipeline route, and may have led to pastoral or even arable exploitation of these landscapes.

Waller's model (1994, Map 11) suggests that during the post-Roman and medieval periods peat deposition occured across the whole valley floor. This is substantiated by documentary and other sources.

Monaghan's sequence (undated) along the pipeline to the west is slightly different. He describes for the northern half of his transect a lower peat and clay covered by a peat and organic 'soils'. Subsequently an episode of roddon formation followed by estuarine alluvium, an upper peat, estuarine clays and finally a peaty topsoil. The work conducted by the Fenland project since (Waller 1994) suggests that Monaghan's work and the original borehole logs should perhaps be re-evaluated, since Waller's model can in general be used with the recent borehole data without too mch discrepancy.

Archaeological implications

The model considered above allows the identification of three periods during which archaeological activity in the form of settlement, rather than opportunistic exploitation for fishing or widlfowling, may have taken place.

The first relates to the prehistoric landscape buried beneath the alluvial and estuarine sediments infilling the valley floor. Much of this landscape, which would have included neolithic and earlier activity, will have been lost to the erosional affects of the sea as it moved up the valley, and later by the roddons and creeks cutting through the underlying deposits. It is not possible to predict if and where the palaeosol associated with this landscape might have survived. It will have been destroyed wherever the roddons and river channels have cut but may still exist in places between the roddons or up the valley sides. It is most likely to survive where freshwater peats covered the landscape before the marine incursion, or beyond the limits of the marine sediments. The surviving peats in boreholes 31-34 and 38-40 might suggest limited erosion of the deposits beneath and these locations probably reflect the greatest potential along the pipeline route.

The second period of potential archaeological occupation in the valley is the late Iron Age and Roman period during which the mudflats and saltmarshes across the valley floor may have dried out sufficiently for colonisation, or at least pastoral activity. Activity is likely to have been concentrated on the better drained sediments of the roddons and any prospection should be concentrated above the sandy and sandy silts of the southern roddons and over the laminated sediments observed on the south side of the Witham system in the north (borehole 29). Even here the deflation of the overlying peats and recent agricultural activity may have

destroyed the Roman landsurface. Evidence may be limited to field systems, but saltern activity or even settlement evidence are possible.

The final period of occupation that can be predicted relates to later medieval and post-medieval activity on the fenland, particularly associated with its drainage and early agricultural exploitation. Erosion, drainage and agriculture have probably removed most if not all of this evidence as the peat deposits and other sediments have become deflated and ploughed. *In situ* evidence for this period is likely to be limited to deep features.

Dug out canoes and other archaeological finds have been made in the peats and sediments of the Witham Fen. Such finds are unpredictable but may be associated with ancient creeks or roddons. No predictive strategy can be proposed for evaluating the likelihood of such material but it should be noted that boats, canoes, rafts and possibly trackways are archaeological finds that might be exposed during the pipeline construction, and that such finds could constitute regionally, and in exceptional circumstances nationally, important finds (eg the Hasholme boat, Millet and McGrail 1987)

Proposals

Some prospection can be recommended in advance of the pipeline work.

Palaeoenvironmental Studies

The discussions above modelling the infilling of the valley across the area of the pipeline route need to be substantiated with radiocarbon dating and more detailed sediment descriptions that would permit an interpretation of the sedimentary environment. This is best tackled by sinking new boreholes, taking a continuous core sample from each bore, and radiocarbon dating any peat deposits in the sequence. Recording of the upper two metres of the sediments is probably most effectively carried out during the construction work for the pipeline when a running section will be exposed. Bores to further elucidate and date the sedimentary sequence are probably best placed adjacent to bore 24 or 25, between 29 and 30, between 32 and 33, adjacent to 36, and between 39 and 40. Subsequent analysis of samples, other than for dating purposes, should include the analysis of the basal silty clays beneath the peats and those immediately above to establish whether they were marine or freshwater sediments, study of the sediments for evidence of palaeosols and pollen analysis of suitable dated sequences. The results would test the current model for the Flandrian sedimentary history of the valley and refine the data on marine incursions into the Witham Valley and the location of the coastline at different periods.

Archaeological prospection

It appears unlikely that the construction works will impact upon the levels where the prehistoric landsurface may have survived except where the underlying sands and gravels rise up at the margins of the valley. At these locations a palaeolandsurface may have been preserved beneath the peats that formed the margins of the area of marine sedimentation (see Waller 1994, Map 5). Small testpits located where the land begins to rise on the north and south sides of the valley, particularly if the modern day plough surface is a peaty soil will permit assessment of the survival of a palaeosol and may give some indication of archaeological activity or potential. Only where the pipeline crosses or passes underneath the Metheringham Delph might the construction work impact upon prehsitoric archaeology within the valley.

It has been suggested above that Late Iron Age or Roman activity is likely to be restricted, if it occurs, to the roddon deposits. This can be tested by small test pits excavated at various locations across the valley floor. Test pits in the area of bores 26, 28-29, 34-35, 36-37, 41-42 and adjacent to the Cardyke are the proposed locations.These should be sunk to a depth of at least 1.5m and the sedimentary sequence recorded. Monaghan (op cit) suggests a final phase of estuarine sediments at the top of the sequence along the course of the No.9 Feeder and it remains possible that a Roman landsurface is stillburied beneath post-Roman estuarine silts and sands along the proposed pipeline route.

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Transect Across the Witham Valley

(Campney Grange Farm to Linwood Hall Farm)