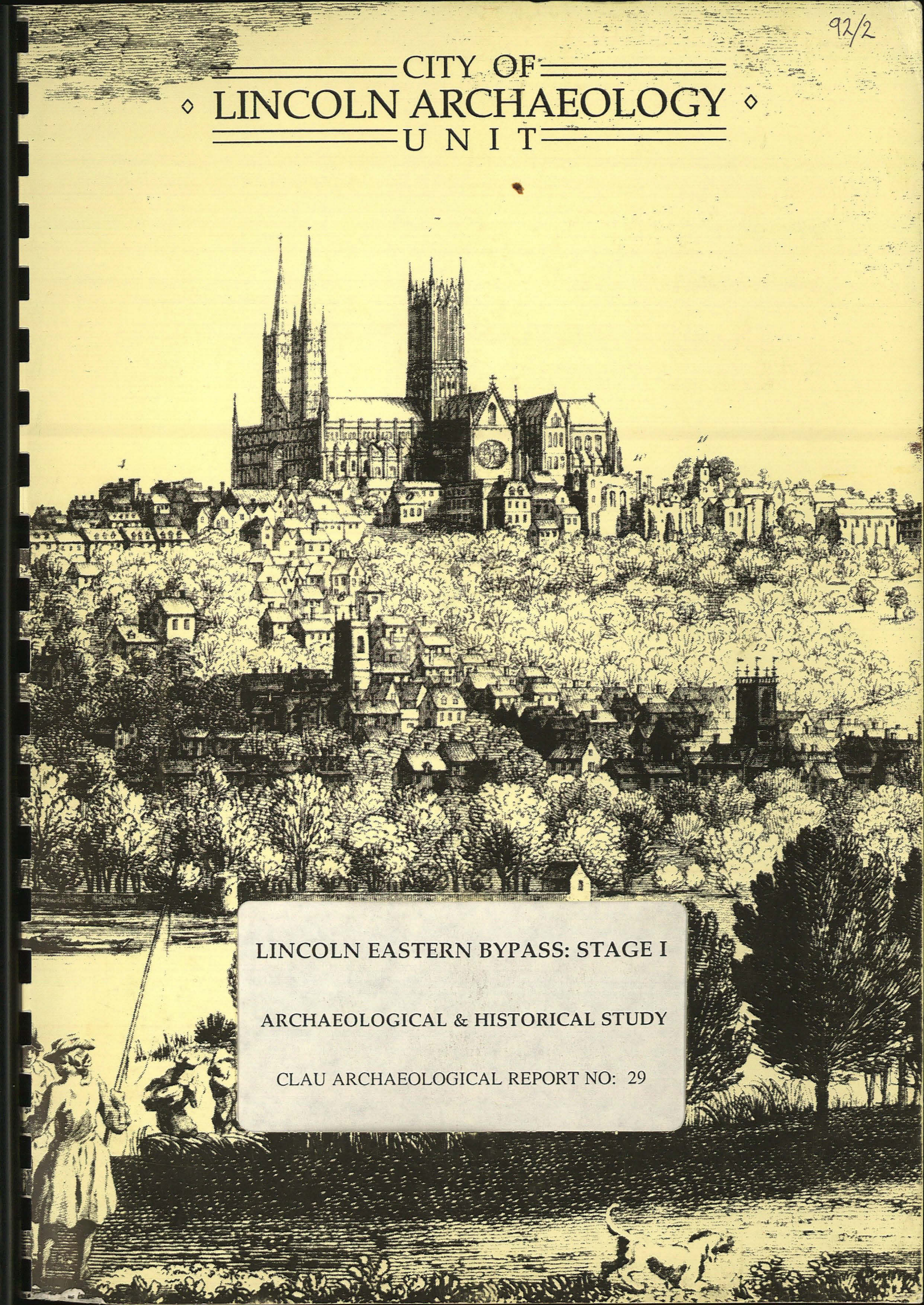
92/2

CITY OF
LINCOLN ARCHAEOLOGY
UNIT



LINCOLN EASTERN BYPASS: STAGE I

ARCHAEOLOGICAL & HISTORICAL STUDY

CLAU ARCHAEOLOGICAL REPORT NO: 29

A Report to Lincolnshire County Council

October 1992

Prepared by

City of Lincoln Archaeology Unit
Charlotte House, The Lawn, Union Road, Lincoln, LN1 3BL
Tel: Lincoln (0522) 545326
Fax: Lincoln (0522) 548089

Heritage Lincolnshire Ltd
28 Boston Road, Sleaford, Lincolnshire, NG34 7EZ
Tel: Sleaford (0529) 506327
Fax: Sleaford (0529) 306327

Lindsey Archaeological Services
Francis House, Silver Birch Park, Great Northern Terrace, Lincoln, LN5 8LG
Tel: Lincoln (0522) 544554

LINCOLN EASTERN BYPASS: STAGE I

ARCHAEOLOGICAL & HISTORICAL STUDY

CLAU ARCHAEOLOGICAL REPORT NO: 29

LINCOLN EASTERN BYPASS:STAGE I
ARCHAEOLOGICAL & HISTORICAL STUDY

CONTENTS *PAGE*

ILLUSTRATIONS

APPENDICES

LINCOLN EASTERN BYPASS STAGE I

Archaeological and Historical Study

1.0 INTRODUCTION

This document has been prepared at the request of the County Archaeological Officer by the City of Lincoln Archaeology Unit in conjunction with Heritage Lincolnshire and Lindsey Archaeological Services on behalf of Lincolnshire County Council. The Unit was commissioned to draw together and assess all available information of archaeological and historical significance across the area to be traversed by the proposed Lincoln Eastern Bypass (hereafter 'the bypass').

The projected line of the bypass cuts through a swathe of land close to but beyond the urban settlement of Lincoln.It therefore provides an opportunity to investigate a large proportion of an area which was,for much of its history,dependent on and providing for the city.Moreover,some parts of the route offer the possibility for understanding the development of the landscape from earliest times.

The study document provides a synthesis of current archaeological and historical knowledge of the area concerned and proposes a strategy for further investigation of archaeological remains in accordance with the standards and recommendations outlined in DoE Planning Policy Guidance 16 (PPG16), published in November 1990.

The information in this document is presented with the proviso that further data may yet emerge.The Unit,its members and employees cannot,therefore,be held responsible for any loss,delay or damage,material or otherwise,arising out of this report.The document has been prepared in accordance the terms of the Unit's Articles of Association,the Code of Conduct of the Institute of Field Archaeologists, *Management of Archaeology Projects* (English Heritage, 1991) the IFA Draft Standard on Archaeological Desk-Based Studies and the Archaeological Guidelines for Road Schemes (Lincolnshire County Council, Archaeology Section).

2.0 SUMMARY OF RECOMMENDATIONS

The study has identified eleven specific areas of high archaeological potential which merit detailed field investigation (see Appendix: A).This potential,indicated by the research described in this report,derives from the fact that much of the area to be traversed by the bypass has been extensively exploited since prehistoric times.

The high potential areas revealed by documentary research are:

A Roman road,Iron-Age(?) enclosures,droveways and triple linear ditch system (AP1, AP2 & AP3 - Fig. 3) in proximity to Wragby Road.

B Line of triple linear boundary ditch (AP 4 - Fig.3) between Greetwell Road and Wragby Road.

C Proximity to area of (Roman?)Ironstone Mines (AP 5 - Fig. 3) north and south of Greetwell Road.

D Area of Ironstone mines (AP 7) and proximity to Romano-British settlement (AP 6 & F6), linear ditch (AP 7),deserted medieval village (F2) and Neolithic finds (F5 & F7) north of the river Witham (Fig.3)

E Witham Valley - early river course,possible river crossing (Note:proposed road crosses the valley close to its narrowest point east of the city). Site of suspected barrows or burial mounds (AP8a) and proximity to possible medieval site of Calscroft (F8).(See Fig.4).

NB: The waterlogged ground and peat deposits in the Witham Valley are also expected to provide high potential for preservation of environmental, timber and other remains. (Ref.Iron Age Timber Causeway at Fiskerton and excavations of Late Bronze Age or Iron Age date at Washingborough).

F Rising ground south of Washingborough Road in proximity to 'E' above; Bronze Age burial (F11) and other significant finds and features in the vicinity.(Fig.4)

G South East of Glebe Farm at crossing of linear ditch (AP 9 - Fig.4).

H Crossing of B1188 Lincoln Road at head of shallow valley(spring-line and watercourse), burial (F15) recorded at Canwick Heath Farm.(Fig.4)

I Area NE of the Manor House at head of shallow valley(spring-line and watercourse).Iron Age and Roman finds (F16 & F17) in the vicinity(Fig.5).

J Crossing of Roman road (A15 Sleaford Road).(Fig.5).

K Area of extensive Romano-British (and possibly earlier) settlement.Roman burials and line of Roman Ermine Street.(See Fig.6 for details of finds and features recorded in this area).

In order to provide detailed information of the spatial extent,survival conditions and nature of the remains in the areas described above and along the proposed route as a whole,field evaluation should be carried out at the earliest opportunity,the fieldwalking element of which should be undertaken during winter months.

Designed to provide cost-effective,site-specific information the proposed field investigation strategy would adopt an 'intensity zoned' approach to the bypass corridor based on a staged programme of fieldwalking and drainage ditch section survey,followed by geophysical survey of selected areas.This preliminary sequence of investigation has been designed to identify suitable locations for the excavation of evaluation trial trenches.The opportunity to record underlying deposits in conjunction with the excavation of geotechnical trial pits would further enhance the evaluation findings.

The combined results from desk-top assessment and field evaluation would provide the necessary information upon which informed decisions could be made for the subsequent management of the archaeological resource both in advance of,and during,the construction of the bypass.This might include preservation 'in-situ'or excavation prior to construction and a watching brief to monitor construction groundwork.

There is already sufficient information to indicate not only the importance of further investigation but also suggest that valuable results will emerge on the changing settlement pattern from Pre-historic through Roman,Anglo- Saxon and Medieval periods to the present day.

The opportunity to extend the assessment to include Stage 2 of the bypass route and for comparative studies with possible archaeological work to be carried out in conjunction with the A46 dualling,south of Lincoln and the Birchwood Link (Skewbridge Area Plan) should not be overlooked.

It is important that archaeological matters be effectively and efficiently incorporated into the scheme at the earliest possible time.This objective would be enhanced by the inclusion of a co-ordinating archaeologist at project planning meetings.

3.0 GEOGRAPHICAL AND TOPOGRAPHICAL DESCRIPTION OF THE ROUTE

For ease of reference the text description and numbering system adopted in this report generally follows a north-south sequence.

3.1 Topography

Primarily aligned in a NNE - SSW direction the proposed 8.3 Kilometre long bypass route passes around the eastern side of Lincoln from the A158 Wragby Road (TF 006 733) in the north to the A607 Grantham Road (SK 979 663) in the south (See Fig.1),in the process passing through the parishes of Greetwell, Canwick, Bracebridge Heath and Waddington. The present parish boundaries have been highlighted on the 1:10000 and 1:2500 scale plans (Figs. 3 - 6).

From a height of approximately 33m OD at Wragby Road the northern section of the route lies on the south east slope of the Jurassic Limestone Scarp,known as the Lincoln Edge,crossing a series of shallow valleys created by spring and watercourse erosion.The Lincoln Edge is cut by the river Witham at Lincoln forming the Lincoln Gap.It is believed that the gap was cut first by an early course of the Trent and later widened by glacial activity. Its lower slopes are covered with glacial deposits which shelve down to below 5m OD to form the low dissected plateau of the Witham Valley before rising sharply to around 55m OD along its southern edge.

The route then traverses the gently undulating and gradually rising east slope of the N-S aligned Lincoln Edge, to a high point of approximately 74m OD at the junction with the Grantham Road.

The visible features of the modern landscape which may well reflect ancient settlement and land use in proximity to the bypass route include:

- the quarrying activity in proximity to Greetwell Road.
- the Witham Valley at its narrowest point east of Lincoln.
- the routes of Roman roads.
- the spring lines at the junction between limestone and underlying clay.
- the sequence of west to east shallow branched valleys and watercourses cutting the limestone upland between Bracebridge Heath and Branston.

3.2 Geology

North of the Witham Valley the underlying geological formations consist of Oolite Limestone with occasional bands of Upper Lias Clay,Northampton Sand and Ironstone.The river valley is characterised by undifferentiated alluvium and river terrace sands and gravel overlying Lower Lias Clay.A narrow band of Northampton Sand and Ironstone is also present on the south slope of the valley.The east slope of the Lincoln Cliff is capped by Lincolnshire Limestone with bands of sand and ironstone exposed in the shallow branched valleys formed by watercourse erosion from the spring line.

3.3 Soils

Soils in Lincolnshire,as elsewhere,are as much influenced by surface vegetation as by their underlying geology. The changes in the character of the soils can clearly be seen by such factors as ground geology and past and present agricultural practices and land utilisation.The soils of Lincolnshire are of varying ages;some on recent river alluvium,are relatively recent while others have evolved over thousands of years,with a direct or indirect influence from human activity.

North of the Witham valley the solid geological formations are covered by shallow,well draining,fine calcareous soils. Along the banks of the river Witham and slightly to the south of the Washingborough Road the soils are earthy eutro-amorphous in nature.These are deep peat soils and occur over variable sub-soil,usually sandy.The humic soils are formed mainly by reed and sedge vegetation originally growing in lime-rich water.

South of the river valley the Lincoln Ridge is sealed by soils of Brown Radzine.A well drained,brashy,calcareous fine loam,these soils,which vary in thickness between 80 -180cm,lie directly on the Lincolnshire Jurassic Limestone.

4.0 SCOPE OF ARCHAEOLOGICAL AND HISTORICAL RESEARCH

As no archaeological excavation or other field work has been carried out along the bypass route the existing evidence is substantially derived from the examination of documentary and aerial photographic data within a 1.0 Kilometre wide corridor centred on the proposed route of the bypass.The results have been plotted on the 1:10000 and 1:2500 scale plans (Figs.3 - 6) included in this report.

Information has been collated from the following sources:

4.1 Sites and Monument Records (SMRs) / National Archaeological Record (NAR)

Both the NAR and Lincolnshire SMR were searched for records of all archaeological sites and finds within the examination corridor.Details of entries are shown in Appendix: B.

4.2 Aerial Photographs.

All available aerial photographs were examined including the collections held by the University of Cambridge,the National Monuments Record(Swindon) and the offices of Lindsey Archaeological Services(Lincoln).Much of the bypass route lies close to military air corridors and the RAF base at Waddington which means that the area has not been well served by the private pilots who are the main source of archaeological air photographs in Lincolnshire. Consideration should be given to carrying out further aerial survey along the planned route.

Has RAF Waddington been approached re. AP coverage in this area?

Land adjacent to the watered valleys of the river Witham and the spring line watercourses along the east slopes of the Lincoln Ridge would have presented suitable conditions for early exploitation and settlement and while cropmarks are recorded in the area north of the Witham similar evidence to the south is sparse. Apart from the poor aerial photographic coverage this absence of cropmarks may be due to unfavourable variations in the type and thickness of overlying soils, the geological nature of underlying deposits, or the truncation of shallow features caused by deep ploughing.

In the lower regions of the Witham Valley any remains that may exist are probably concealed at depth due to the accumulation of alluvial and peat deposits since the Late Bronze Age (c.1000 BC).

Details of cropmark features which are believed to be of archaeological significance are shown in Appendix:C. Copies of aerial photographs not included in this report are held in archive.

4.3 Archive and other Documentary Sources

In compiling this report reference has also been made to cartographic and other material held in the Lincolnshire County Archives,Central Library Lincoln(Local History Collection) and the archives of the City of Lincoln Archaeology Unit,Heritage Lincolnshire and Lindsey Archaeological Services.

4.4 Land Use Survey

The bypass corridor was visually examined to record both general and current land use.The results of this survey are shown in Appendix:D.

5.0 SYNTHESIS OF ARCHAEOLOGICAL AND HISTORICAL KNOWLEDGE

5.1 Pre-Roman (1st century BC and earlier)

The first historical reference to Lincoln is in the Geography of Ptolemy, written early in the 2nd Century AD, which mentions LINDUM as being one of two chief cities of a local tribe, the Coritani, now thought to be the 'Corieltauvi'. Evidence for early settlement in Lincoln has remained somewhat elusive. While excavations to the east of Brayford Pool in 1972 produced pottery identified as being of late Iron Age or early Roman date the case for any substantial prehistoric settlement centred on the present city remains unproven although traces of 1st Century B.C. activity have been identified. However, to the east of Lincoln, excavations and chance finds have indicated a rich Iron Age culture and several important objects, including the Witham Shield, were found in dredging operations along the river.

The most important known sites of pre-historic activity within the survey corridor are the enclosures and droveways and triple linear ditch boundary in the area north of the Witham Valley (see AP1,AP2,AP3 & AP4 - Fig.3).The line of the ditch boundary has been traced over a distance of at least 5km across the Lincolnshire Limestone from Grange de Lings to the north (its northern limit is not yet located) to the point in Greetwell where it fades out close to the bypass route.Although a small excavation was carried out in 1979 to the north of Wragby Road (AP2) no finds were made in the ditches.The date of this and other similiar systems,which have been recorded elsewhere in Lincolnshire and the rest of the country,is thought to be Iron Age or earlier but their true date and function await confirmation from further excavation and research.

While a recent study by the Lincolnshire SMR office suggests a continuation of the ditch line north to Scampton and south to Harlaxton the present plotting of the ditches should not be considered complete.The aerial photographic coverage for the area is poor and soil conditions are not always receptive to the recording of cropmarks.The ditches may well run beneath the alluvial deposits of the Witham Valley and plotting the route further south is considered a priority.

Two groups of circular cropmarks of unknown origin are recorded north of Washingborough Road.One group (F10 - Fig.4) are located on the west edge of the search corridor but the second group(AP8a - Fig.4)are positioned immediately alongside the line of the bypass.These marks could represent the remains of pre-historic barrows or burial mounds and merit early investigation.

Artefactual evidence for pre-historic activity within the survey corridor includes stone axes found in proximity to an enclosure group (believed to be Romano-British) on the north slope of the Witham Valley (see F5 & F7 - Fig.3).Two bronze palstaves and a Middle Bronze-Age Cinerary Urn found on the opposite slope were located in the same area as the suspected barrows mentioned above,with a further Cinerary Urn,believed to be of Bronze or Iron-Age date being found near Canwick Heath Farm (see F9,F11 & F15 - Fig.4). An Iron-Age quern was found west of Westfield Farm and a Neolithic stone axe associated with a scatter of 'blackened stones' are recorded south of the quern find (see F17 & F18 - Fig.5).

The greatest concentration of recorded pre-historic artefacts is to be found in an area of later Romano-British occupation at the point where the bypass joins the A607 Grantham road.Here the chance finds include worked flints of Neolithic/Bronze-Age date,stone axes,the tip of a Bronze-Age spear or dirk together with flint arrow heads,scrapers and waste flakes.

This data suggests significant and extensive pre-historic activity which is further supported by the results from excavations carried out in the Witham Valley east of the bypass route at Washingborough in 1972 and Fiskerton in 1981. At Washingborough the re-cutting of the South Delph,which runs parallel to the present course of the river Witham,exposed a number of earlier channels of the river while adjacent excavation for a new pumping station revealed a buried peat deposit containing pottery,wood and bone including an antler bridle cheekpiece of Late Bronze-Age type.In addition to stratigraphic information of the river valley deposits subsequent archaeological excavation produced pottery and metalwork dated to the Late Bronze-Age/Early Iron-Age.

The work at Fiskerton on the north bank of the Witham followed the discovery of timber posts during cleaning operations in the North Delph. Archaeological excavation exposed a double row of clustered posts running perpendicular to the river.This structure has been interpreted as a causeway probably leading from an adjacent settlement to a jetty by the riverside.The date range of artefacts recovered during excavation of the causeway spanned nearly a thousand years from c.5th century BC to Late Roman,while the tree ring dating from the timbers dated its use and repair to the period 457-310 BC.

The most persuasive evidence for pre-historic activity may be contained in the planned route of the bypass itself particularly as the location at which it crosses the river is close to the narrowest point in the valley east of Lincoln. Early man has been shown to be adept in constructing causeways across lowlying

waterlogged ground when they would doubtless seek the easiest possible route. The previously mentioned triple linear boundary ditch system being generally aligned to this narrow point may also provide a further indication of the potential significance of this area as an early north-south crossing point.

The availability of water from the spring line and associated watercourses along the east slopes of the Lincoln Ridge is further evidence for possible pre-historic settlement in the wider area.

5.2 Romano-British Period (1st -4th century AD)

On historical evidence, the Roman army may have reached Lincoln by c. AD50 but dating of the earliest Roman structures excavated within the city indicates a date of c.AD54 - AD65. By c. AD96, Lincoln had the status of a 'colonia', utilizing the 'uphill' site of the Neronian fortress.

5.2.1 Roads and Waterways

To the north the bypass links with the A15 Wragby Road which lies on the line of an important Roman road running northeastwards from Lincoln to the coast(see Fig.3).

Ermine Street,the conjectured line of which is crossed by the bypass south of Bracebridge Heath(see Figs.5 & 6),was one of the main lines by which the Romans advanced north.It is important to note that in parts of Lincolnshire Ermine Street lies close to the pre-historic 'Jurassic Way' indicating the possibility that the Romans initially crossed the Witham Valley east of Lincoln using existing pre-historic tracks and an established crossing point.

A further line of penetration into Lincolnshire was along the eastern edge of the limestone escarpment,skirting the fens.This line(the A15 south of Lincoln),known as King Street,is crossed by the bypass south east of Bracebridge Heath(see Fig.5).

Although roads were clearly of importance to the Romans,they also made extensive use of water transport,and there are two major artificial waterways in Lincolnshire which are generally accepted as being of Roman construction. These are the Foss Dyke which connects the Witham west of Lincoln with the Trent at Torksey and the Car Dyke which connects the Nene east of Peterborough with the Witham east of Lincoln. The purpose of the Car Dyke, which is believed to join the Witham slightly east of the bypass,in the vicinity of Washingborough,is uncertain.Its use as a canal for the transport of goods remains unproven and it is possible that it was constructed primarily for land drainage.

It is thought that the Car Dyke - Witham junction was in proximity to the previously mentioned early crossing point.This crossing could have initially been a potential source of danger since it allowed an enemy to bypass Lincoln without being observed.By joining the Car Dyke to the river here,they could effectively control it,and all early traffic by means of a check point close by,a function which probably became less important as the city and the permanent road system became more established.

5.2.2 Settlement Sites

A site,thought to be Romano-British,is located on the 5m OD contour on the north slope of the Witham Valley. Here the SMR records refer to 'Roman burials and other Roman finds'located immediately adjacent to a series of rectilinear cropmarks revealed on air photographs (see AP6 & F6 - Fig.3). No further information is available for this site,although its proximity to the possible early river crossing point and adjacent ironstone mining and stone quarrying activity indicates the need for thorough investigation in this locality. It is possible that linear ditch AP8 (Fig.3) could be associated with the Romano-British activity in this area.

The most significant Roman site noted during our study lies adjacent to the junction between the bypass and the A607 Grantham Road,south of Bracebridge Heath.Here a considerable body of evidence,including burials,has been recorded which suggests an extensive settlement located in a commanding position on the Lincoln Ridge to the west of,and immediately alongside Ermine Street (see Figs.5 & 6).

As noted in the previous section,it is possible that the Romano-British settlement at this location was preceded by Iron-Age or earlier occupation. The use of pre-existing settlement sites and Iron-Age/ Romano-British interface in general is of particular importance and it is hoped that field investigation will provide vital archaeological evidence for further study.

The Roman artefactual evidence indicates that the site was occupied between the 2nd and 4th centuries AD and recorded finds of 'Romano-Saxon' pottery may well demonstrate continued use of the site into the 5th century.

While the site has not been investigated archaeologically the scale and nature of the chance finds suggest a villa estate or roadside settlement of some substance and clearly indicate that the area merits intensive investigation.

Although outside the defined search corridor there are remains of other Romano- British settlements in Nettleham, Greetwell, Canwick, Branston and Bracebridge which,when considered in relation to the spring line and watercourse valleys between Bracebridge Heath and Branston,demonstrate the

potential for further remains and evidence of Roman utilisation of the landscape.

5.2.3 Industry and Landscape

It is believed that ironstone mining (see AP5 & AP7 - Fig.3) and possibly quarrying of limestone at Greetwell has its origins in the Romano-British period,but firm evidence for this remains somewhat elusive.Further investigation in this area may provide important information and the vital dating evidence for such industrial activity.

While some Romano-British rural settlement in Lincolnshire has been shown to date from the late 1st century a very much larger number appeared for the first time after AD120.The greatest period of prosperity in rural Roman Britain appears to have been from about then until c.AD270.It is this period of more intense occupation of the hinterland,to serve the food needs of the city,that is associated with engineered canal and road systems and the rectilinear layout of fields,which were later much modified and overlaid with other systems.

In many areas of the country the arrangements of extensive Roman field systems and their ditched boundaries have been clearly revealed by air photography. However, except for linear ditch AP8 (Fig.3) no similiar evidence has been located along the bypass search corridor.This may stem from the reasons mentioned earlier in relation to aerial photographic coverage and/or soil and geological conditions,or truncation by deep ploughing,or even the further possiblity that in areas of well draining shallow soils over limestone it was not necessary to form ditched boundaries.

5.3 Anglo Saxon and Anglo Scandinavian Period (5th - 11th centuries)

Abandonment of the Roman City seems to have started in the late 4th Century with town life reduced to a small community between the 5th to late 9th centuries. Following the Viking take-over of Lindsey in 874, Lincoln became a centre for a Viking army and, subsequently, a Viking town. Evidence for increasing urbanisation in the 10th and 11th centuries has emerged from all parts of the former Roman city.

While fields were probably in continued use from the 5th century,rural settlement also appears to have gathered pace during this period as is later evidenced by the Domesday survey in the 11th century.

A 5-6th century iron smelting site at Cherry Willingham and evidence of iron working in Lincoln during the Saxon period may indicate continuation of ironstone mining at Greetwell.

5.4 The Medieval Period (late 11th - 15th centuries)

The origins of many modern place names in the vicinity, recorded by the Domesday survey of AD1086, indicate a broad spread of Anglo-Saxon and Danish settlement. It refers to Grentewelle being land of Roger de Bully including a church,two fisheries and a mill. Washingburgh was the King's land. Can(eu)uic included land held by the Bishop of Bayeux,Bishop of Coutances,Bishop of Lincoln and Roger de Poitou with a church and five fisheries and Wadintone/tune being the land of Earl Hugh with a church and two mills.

The only known medieval sites which lie within the survey corridor are the deserted medieval village at Greetwell(F2 - Fig.3) the possible site of Calscroft(F8 - Fig.4) and Sheepwash Grange (F13 - Fig.4) the site of a monastic property attached to Kirkstead Abbey and believed to date from the 13th century.

While it is possible that the bypass may impact upon the field systems and trackways associated with the Greetwell DMV and Sheepwash Grange the primary sites are not directly threatened by the proposed route.

The possible Calscroft site,where it is thought that a dock and warehouse was constructed,being closer to the proposed bypass,merits further investigation.The location of this site,which is believed to be associated with Sheepwash Grange may well indicate an early course of the river.

Linear ditch AP9 (Fig.4),the north-south branch of which follows the line of the present parish boundary,is probably a relic of medieval or post-medieval land division.

The limestone quarries at Greetwell were also in use during this period.

5.5 Post-Medieval (16th -18th centuries)

The late 14th to 17th centuries saw a period of decay in the city with some abandonment of previously occupied areas. Silting of the Witham and Foss Dyke was probably one of the factors which had led to the city's decline from the middle ages. Extensive flooding of the land to the east,west and southwest of the city is also recorded.

The 1731 report of a survey of the river Witham between Lincoln and Boston revealed that the river was very crooked and winding and very shallow.Only vessels of very shallow draft and small burden could pass from Lincoln to Boston for much of the year.When in flood the river placed thousands of acres under 3 - 4 ft of water for up to four months each year. In 1762 an Act was passed for restoring and maintaining the river.However, the work proceeded

slowly and flooding was still an annual event.

Enclosure acts were being introduced throughout the county but in many places agricultural methods were poor. An inspection by Arthur Young in 1771 reported that by Lincoln he found inadequate rotation of crops, scarcely any idea of improving poor soils, no folding of sheep, and that fen meadows were largely undrained.

The potential for evidence of a river crossing in proximity to the bypass route is further supported by the 1779 map of Lincolnshire by Andrew Armstrong which depicts a ferry crossing between the villages of Greetwell and Washingborough.

5.6 19th century and later

The principal impact on the area during the 19th century can be found in the straightening and embanking of the river Witham and associated drainage works carried out under the Lincoln and County Drainage Act of 1804 and the later introduction of railways and construction of the sewage works.

Except for the limestone quarries at Greetwell,no post-medieval sites of significance are contained within the bypass corridor.Such pottery and other artefactual material of the period as is recorded probably originates from the manuring of land.

6.0 DISCUSSION: THE SIGNIFICANCE AND POTENTIAL OF THE ROUTE

The documentary evidence and results from previous localised archaeological investigation east of the proposed bypass clearly indicate the potential for multi-period settlement and land-use in many locations along the bypass corridor and in particular the possibilities for illuminating the past environment from waterlogged samples at the river Witham.

Eleven areas of high archaeological potential have been identified,the locations of which (circled and annotated 'A' to 'K') are shown on the 1:10000 and 1:2500 scale plans (Figs.3 - 6) included in this report and summarised in Appendix:A.

Most prominent of the areas identified is the Witham Valley and its immediate environs.The valley peat fen and adjacent areas have been notable for the number of pre-historic finds that have been made.In 1787 parts of the river were dredged and in 1825-6 the river was canalised below the Stamp End locks at Lincoln.The 1826 discoveries seem to have come from the Witham in the vicinity of Washingborough.These include the Witham Shield,an antenna sword and an exceptionally fine post-Roman hanging bowl with Celtic decoration.Later discoveries of socketed axes and swords make up a group of pre-historic metalwork,rivalled in quality and quantity only by the discoveries from the Thames.Nineteen log boats have also been recorded,some of which were pre-historic in date.

More recent work in the upper Witham fen has identified areas of fine sand emerging as islands from beneath surrounding areas of peaty humic soils. Thought to represent part of an irregular sand and gravel buried valley floor of Pleistocene date,these sand islands must have provided convenient well drained sites for Neolithic and Mesolithic inhabitants.Three such islands exposed during a recent phase of ditch cleaning between Washingborough and Fiskerton possessed a surface scatter of worked flints and a polished stone axe.There is also increasing evidence that the area contains a large number of burial mounds or barrows,some of which may be represented by the circular cropmarks immediately south of the river (see AP8a & F10 - Fig.3).

It should be noted that statements on the potential and relative merits of any remains arise from the excercise of professional judgement and should be seen as comments designed to aid the formulation of response strategy and not necessarily as the only viable judgement that could be made.

6.1 Environmental Study

The potential for preservation of timber and other organic or environmental material in the waterlogged peat and sedimentary deposits in the Witham Valley,together with the varied soils and topography along the bypass route,presents an opportunity to investigate the urban-rural relationship in proximity to the city. This will enable a comparative study to be made of the various land-uses since the earliest human exploitation of the area.

Investigations in the Witham valley should also provide useful information on such matters as earlier river courses,canalisation,tidal influence and river levels.

Environmental studies are crucial to the understanding of past economic systems and climatic conditions,and it is therefore important that any programme of further evaluation incorporates provision for environmental sampling and analysis.

7.0 DEVELOPMENT PROPOSALS: IMPACT ON BURIED REMAINS

Except for 2.9km section of dual carriageway between Greetwell Road and the B1188 Lincoln Road the bypass will be single carriageway.The proposed scheme will be constructed at or near existing ground levels.However, there will be one section of deep cutting south of Washingborough Road and one major section of embankment between Washingborough Road and Greetwell Road where the road traverses the Witham Valley.Landscaping proposals include ground modelling, tree planting and extensive use of hedgerows.The bypass will cross the river Witham valley on a 4m high embankment and a bridge comprising two 45m spans. A wetland area will be formed on both sides of the river including four lagoons for surface water run off.

While it is important to note that detailed engineering drawings for the proposed bypass have not been studied, we believe that the following ground intervention will have considerable impact on the archaeological remains along the route:

a) Localised geotechnical investigation including machine excavated bore-holes and trial trenches. (the latter should be examined archaeologically)

b) The formation of compounds for contractors site accomodation and the possible excavation of Borrow Pits.

c) The formation of the working easement and the stripping of topsoil.

d) Excavation to form the cutting south of Washingborough Road.

e) Removal of waterlogged deposits to embankment formation level in the Witham Valley.

f) Construction works including piling and deep foundations for bridge abutments at the crossing of the river Witham.

g) Excavation for lagoons and trenches for drainage and other services.

h) Groundwork associated with landscaping,tree planting,etc.

Such groundwork together with attendant use of heavy-duty earth moving equipment, will almost certainly expose and probably destroy important archaeological remains. However,the lack of detailed information regarding the extent of archaeological remains along the route impose a severe limitation on the impact assessment process.Therefore, it is vital that adequate archaeological information of the area be secured at the earliest possible time so that all parties may proceed from a position of knowledge in terms of assessing possible impact and developing suitable proposals for the preservation of any important remains encountered.

8.0 CONCLUSIONS AND RECOMMENDATIONS

Although this study demonstrates significant archaeological potential the spacial extent, nature and survival conditions of remains is largely unproven,therefore, a detailed field evaluation along the bypass route is the next and, most important part of the assessment process. Such evaluation would provide site specific information, from which an archaeological impact statement and appropriate resource management strategy could be developed.

The magnitude, complexity and potential time scale of the project requires a substantial,well organised and ordered archaeological commitment to ensure that the archaeological resource is properly managed. It is equally important that the archaeological process is fully integrated with all aspects of the development and that all concerned parties are presented with the maximum quantity and quality of information at the earliest possible time. It is clearly desirable that all parties proceed from a position of knowledge, an objective that will only be achieved by a fully integrated response to all aspects of assessing and managing the archaeological resource.The importance of a carefully designed programme of archaeological field evaluation cannot, therefore, be overstated.

Recommendations for further investigation of the archaeology of the area are based upon:

a) The existing documentary and archive record for the area, including the results from previous archaeological investigations in proximity to the scheme.

b) Our current understanding of the proposed route.

c) The probable extent of ground disturbance to be caused by construction works and the possible shallow depth of suspected remains in many locations.

d) The principal assessment criteria contained in PPG16, including the 'importance' of remains known or thought to exist, the policy of preservation 'in situ' and the alternative of preservation by record i.e. excavation.

e) Our professional judgement on the merits of any possible remains, which should be seen as an aid to formulating stategy and not the only viable judgements that could be made.

8.1 Field Evaluation

This involves detailed examination of the archaeological resource through gridded fieldwalking, topographical survey, geophysical survey, machine or hand excavated trial trenches,drainage ditch section surveys and,where the early progamming of engineering investigation allows,the observation and

recording of geotechnical trial pits.

To allow sufficient time for the processing of evidence and preparation of the resultant report,a field evaluation must be carried out well in advance of earliest construction groundwork. As suitable ground conditions are a pre-requisite to certain aspects of effective field survey,particularly fieldwalking, the timing of such work becomes critical. As most of the route crosses arable land the winter months usually provide the most ideal fieldwalking conditions.

Having regard to the total area of the proposed development and the information revealed by this study, we recommend that an evaluation would best be carried out as a staged process with various levels of survey intensity related to the type and probable extent of remains thought to be contained along the bypass route.This would provide the most cost effective method of securing the maximum information in the shortest possible time.

An outline design for staged field evaluation would consist of :

STAGE I - *Fieldwalking and Drainage Ditch Section Survey.*

a) Low, medium and high intensity gridded field walking of the whole length of the bypass route to retrieve and plot surface displaced artefacts and record any other visible ground surface features.

b) Any necessary preliminary survey work to establish primary datums and survey grid for subsequent stages of evaluation.

c) Drainage ditch section survey in selected locations to record local stratigraphic sequences and evidence of archaeologically significant deposits or remains.

The results from Stage I would be correlated with the existing record, aerial photographic and other data, to produce a design for Stage II - Geophysical Survey.

STAGE II - *Geophysical Survey*

Using the information secured from Stages I and the desk-top study to target probable location of remains, a geophysical survey would be carried out to locate suspected buried features.

NOTE : The use of geophysical techniques would be subject to a preliminary investigation of site conditions and suitability for survey with particular reference to limiting factors such as geology, ground conditions, modern disturbances and,most important of all, the type of archaeological features expected.

STAGE III - *Trial Trench Excavation*

Using the combined results from all earlier stages of evaluation, localised trial trench excavation would be carried out to;

a) Identify the depth, nature and survival conditions of any archaeological remains in the area of proposed development.

b) Assess the importance of any remains encountered.

c) Assess the nature and quality of preservation of organic deposits which could contain evidence of early environmental conditions.

d) Assess the probable impact of development on surviving remains and recommend modification to development design which would enhance the insitu preservation of remains.

e) Assess the potential and possible need for further archaeological excavation or recording prior to, or during, the construction phase; recommend the appropriate course of action and provide designs and cost estimates for such work.

Geotechnical Investigation

Where engineering investigation of strata and ground conditions is carried out early in the development programme the field evaluation can sometimes be augmented by observation and recording of deposits and features exposed during the excavation of geotechnical trial pits. The results from geotechnical test bores can also provide information useful to the archaeological evaluation.

While we understand that the locations for geotechnical investigation are determined by engineering requirements we recommend early liaision on the siting of trial pits so that the most cost effective geotechnical/ archaeological locations may be established.

8.2 Archaeological Impact and Resource Management

The resultant Archaeological Impact Statement would indicate the quality and sensitivity of the archaeology and probable impact the proposed development would have on surviving remains. The assessment of impact is highly site specific and demands a responsible and accurate approach.

Of the various critera to be considered, the 'importance'of remains within a local and national context and potential loss or damage by volume of archaeological deposit, are probably the most significant. Professional judgement will play a major part in establishing degree of impact and developing a suitable Resource Management Strategy.

The preliminary information thus secured, would provide the basis upon which informed decisions could be made and appropriate zoned response proposals developed in relation to the overall project design,construction programme and groundwork methodology. Such proposals might include the 'in-situ' preservation

of remains or archaeological excavation in advance of construction and a watching brief to monitor construction groundwork.

The City of Lincoln Archaeology Unit,Heritage Lincolnshire and Lindsey Archaeological Services would be pleased to undertake the field evaluation programme and, in this regard, we recommend further discussion to agree an appropriate archaeological specification, programme of work and cost based on the proposals outlined above.

In conclusion, we believe a thorough archaeological investigation of the area concerned is of vital importance in extending our understanding of the use and development of the landscape in close proximity to this major historic urban centre.

Compiled by John Hockley with contributions from D. Start, S. Haynes, N. Field, S. Catney and M. J. Jones.

9.0 REFERENCES

Cameron, K - *Place Names of Lincolnshire*, Vol. 1, Lincoln. 1985.

Coles, J M, et al - *Excavations of Late Bronze Age or Iron Age date at Washingborough Fen,* Lincolnshire History and Archaeology, vol 14, 1979.

DoE Planning Policy Guidance - *Archaeology and Planning, PPG16,* London, HMSO.

Field, N - *An Iron Age timber causeway at Fiskerton, Lincs.* Fenland Research 3, 1986.

Hill, J W F - *Medieval Lincoln,* Cambridge University Press, 1965.

Hill, J W F - *Tudor and Stuart Lincoln,* Cambridge University Press, 1956.

Hill, J W F - *Georgian Lincoln,* Cambridge University Press, 1966.

Hill, J W F - *Victorian Lincoln,* Cambridge University Press, 1974.

Hinde, T - *The Domesday Book, Englands Heritage - Then and Now,* London, Hutchinson, 1985.

Owen, D M - *Church and Society in Medieval Lincolnshire*, (History of Lincolnshire, Vol.V, Lincolnshire Local History Society).1981.

Simmons, B B - *The Lincolnshire Car Dyke: Navigation or Drainage?*, Britannia, vol X 1979.

Wheeler - *Fens of South Lincolnshire.*

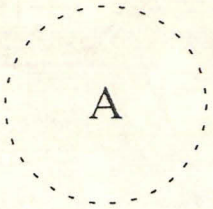
Whitwell, J B - *Roman Lincolnshire,* (History of Lincolnshire, Vol.II, Lincolnshire Local History Society, 1970; new edition 1992)

Wilkinson, T J - *Palaeoenvironments of the Upper Witham Fen: A Preliminary View* Fenland Research I, 1987.

Acknowledgements

This study has been a collaborative undertaking and I would therefore acknowledge,with grateful appreciation,the contributions made by Heritage Lincolnshire, in particular its Director,David Start and Contracts Manager, Steve Haynes for the land survey and provision of information from the SMR and NAR. Similar thanks are due to Naomi Field of Lindsey Archaeological Services who in addition to carrying out the aerial photographic research also provided much valuable advice and information and together with Mick Jones, Director of CLAU, jointly edited the text.

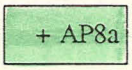
Last but by no means least the support of all my professional collegues, and in particular my research assistant Janet Hooper, for her dilligent scrutinty of maps and other documents, has been much appreciated.



AREA OF HIGH POTENTIAL

NB: circle indicates general location only; not precise area for further investigation.

FEATURES PLOTTED FROM AERIAL PHOTOGRAPHS



AREA FEATURE/S

LINEAR FEATURE

LOCALISED FEATURE

FINDS/FEATURES PLOTTED FROM SMR/NAR RECORDS

AREA FEATURE/S

FINDS SCATTER

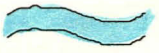
SINGLE FIND

BURIAL

INHUMATION OR CREMATION BURIAL

MISCELLANEOUS ANNOTATION

PARISH BOUNDARY



RIVER WITHAM

ROMAN ROAD

FIELD NUMBER (Land Use Survey)

BYPASS ROUTE

Key to annotation of Figs. 3 - 6.

City of Lincoln Archaeology Unit

September 1992

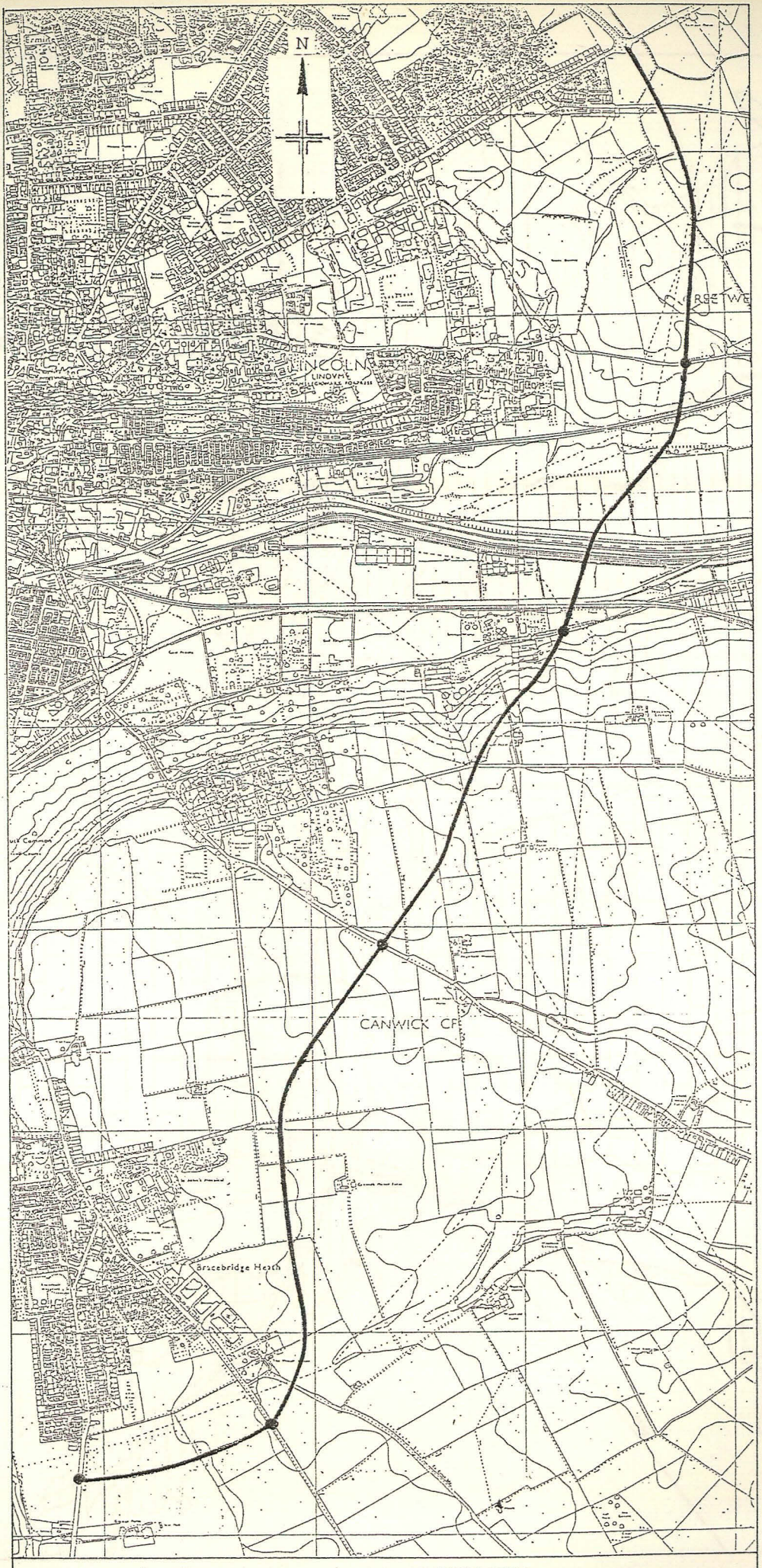


Fig.1 - Map Showing Stage I Route Alignment

City of Lincoln Archaeology Unit September 1992

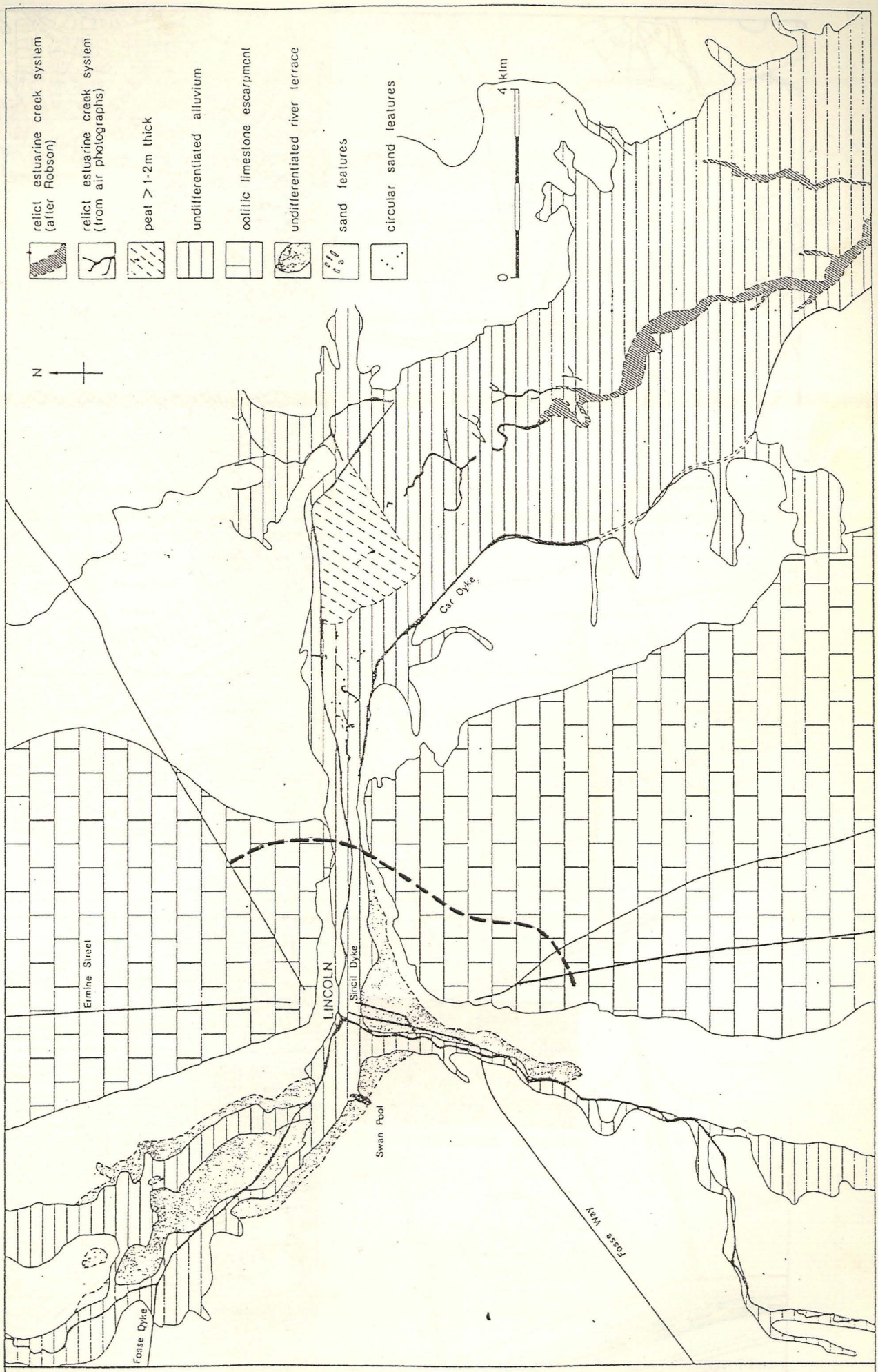
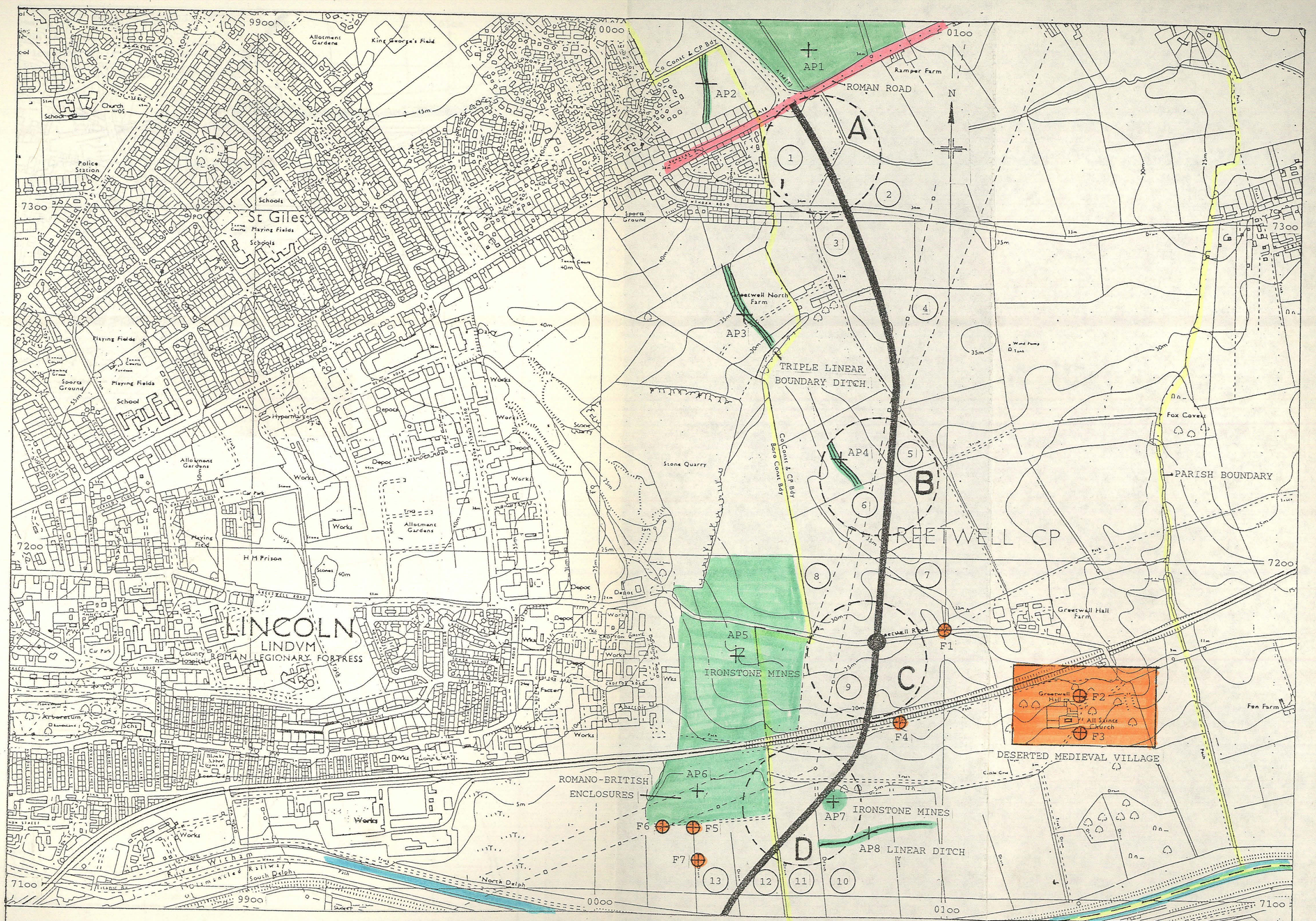


Fig.2 - Simplified Geological Map

City of Lincoln Archaeology Unit

September 1992

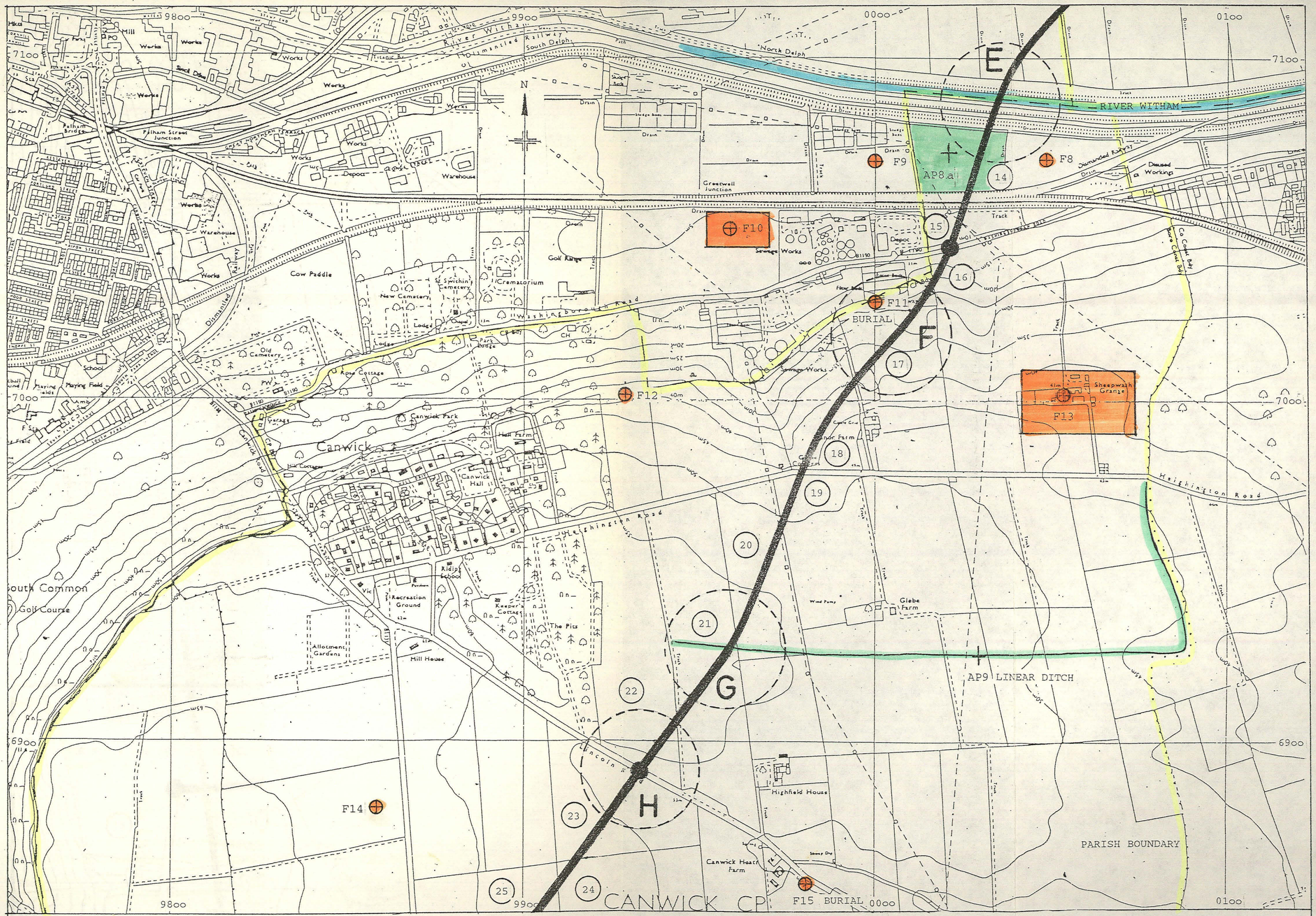


City of Lincoln Archaeology Unit

Fig.3 - North Section of Proposed Bypass showing location of known Archaeological Finds and Features & Areas of High Potential

Scale 1:10000

September 1992

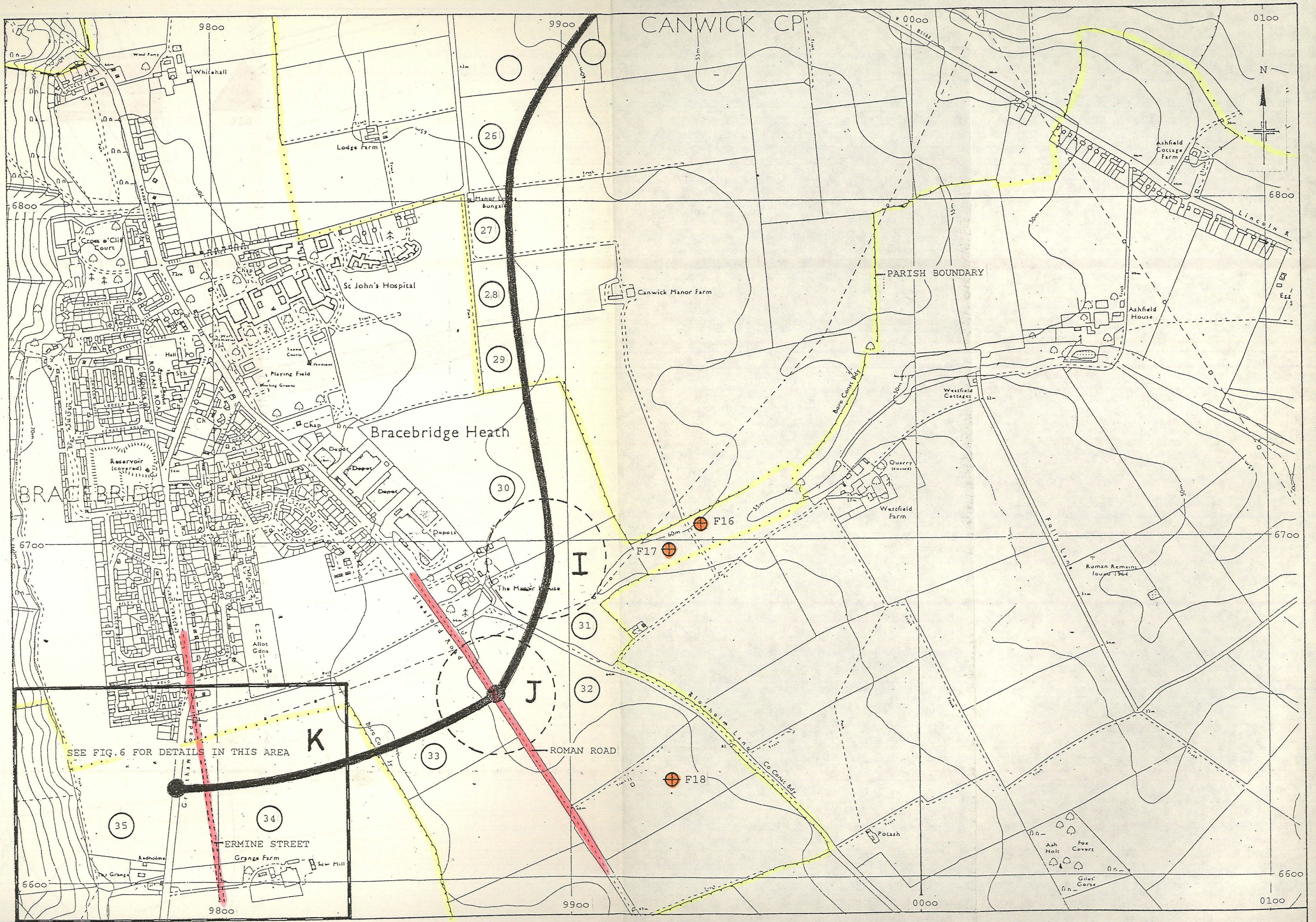


City of Lincoln Archaeology Unit

Fig.4 - Centre Section of Proposed Bypass showing location of known Archaeological Finds and Features & Areas of High Potential

Scale 1:10000

September 1992



City of Lincoln Archaeology Unit

Fig.5 - South Section of Proposed Bypass showing location of known Archaeological Finds and Features & Areas of High Potential

Scale 1:10000

September 1992

F19

F20

F21

F22 BURIAL

F23 BURIAL

F24

F25

F26

F27

AP12
OBLONG FEATURE

F28

F29

F30

F31

F32 at SK 97756585

AP11
CIRCULAR DITCH?

AP10
SUB-CIRCULAR DITCH?

PARISH BOUNDARY

ERMINE STREET (conjectured alignment)

N

9800

6600

30m

40m

60m

70m

80m

35

34

Archolme

New Grange

Grange Farm

Saw Mill

City of Lincoln Archaeology Unit

Fig.6 - High Potential Area 'K' showing location of Archaeological Finds and Features

Scale 1:2500

September 1992

ABOVE: Triple Linear Boundary Ditch System
at Greetwell - see also AP7 - Fig.3.

BELOW: Iron-Age Timber Causeway at Fiskerton

Fig.7

Appendix: A

LINCOLN EASTERN BYPASS STAGE I

AREAS OF HIGH ARCHAEOLOGICAL POTENTIAL

Summary description of areas of high archaeological potential based on examination of existing documentary records.

The Areas, which are described in a North - South direction, have been outlined on the 1:10000 and 1:2500 scale maps (Figs.3 - 6) included in this report.

AREA REF.	FIG No.	NGR (centre)	DESCRIPTION
A	3	TF 007 731	Junction with Roman Road (A158Wragby Rd) and proximity to Iron Age enclosure and droveways (AP 1) and triple linear ditch system (AP 2 & AP 3).
B	3	TF 009 722	Proximity to possible line of triple linear ditch (AP 4).
C	3	TF 008 717	Proximity to area of Ironstone Mines (AP 5).
D	3	TF 006 712	Area of Ironstone mines (AP 7) and proximity to Romano-British settlement (AP 6 & F6), linear ditch (AP 7), deserted medieval village (F2) and Neolithic finds (F5 & F7).
E	4	TF 004 708	Witham Valley - early river course, possible river crossing (Note:bypass crosses the valleyclose to its narrowest point east of thecity); Site of suspected burial Barrows (AP8a) and proximity to possible site of Calscroft(F8). High potential for preservation of environmental, timber and other remains inwaterlogged ground and peat deposits.
F	4	TF 001 702	Rising ground south of Washingborough Road in proximity to 'E' above;Iron Age burial (F11)and other significant finds and features inthe vicinity.
G	4	SK 996 693	South East of Glebe Farm at crossing of linear ditch (AP 9).
H	4	SK 994 689	Crossing of B1188 Lincoln Road at head of shallow valley (spring-line and watercourse), burial (F15) recorded at Canwick Heath Farm.
I	5	SK 990 670	Area NE of the Manor House at head of shallow valley (spring-line and watercourse). Iron Age and Roman finds (F16 & F17) in the vicinity.
J	5	SK 988 665	Crossing of Roman road (A15 Sleaford Road).
K	5&6	SK 979 663	Area of extensive Romano-British (and possibly earlier) settlement. Roman burials and line of Roman Ermine Street. (See Fig.6 for details of finds and features recorded in this area).

Appendix: B

LINCOLN EASTERN BYPASS STAGE I

SITES AND MONUMENTS DATA

Details of finds and other archaeological features noted during examination of records held by the Lincolnshire Sites and Monuments Record Office and National Archaeological Record(RCHME).Based on examination of a 1km wide corridor centered on the proposed route,the locations, which are described in a North-South direction,have been plotted on the 1:10000 and 1:2500 scale maps (Figs.3 - 6)included in this report.

KEY

CARD No. - Lincolnshire SMR Office reference

NAR No. - National Archaeological Record reference

PAR - Parish

GW - Greetwell

LIN - Lincoln

CAN - Canwick

BH - Bracebridge Heath

WAD - Waddington

(LM) - in Lincoln Museum

(BM) - in British Museum

PLOT No.	FIG No.	NGR	CARD No.	NAR No.	PAR	DESCRIPTION
F1	3	TF010718	-	TF07SW19	GW	2 Roman brooches
F2	3	TF014716	-	TF07SW22	GW	Medieval deserted village.The site is clearly visible on the ground as earthworks.
F3	3	TF014715	AZ	-	GW	Late Anglo-Saxon Spear Head with Bronze Ring on ferrule.
F4	3	TF009715	BI	-	GW	Hoard of 200+ silver coins and two silver rings (William I,Henry II and Stephen c.1154 or 1189).
F5	3	TF003712	-	TF07SW27	GW	Butt end of Neolithic axe found in quarry.
F6	3	TF002712	CL	-	GW	Roman burials and various Roman finds in the Ironstone mines (OS Records)
F7	3	TF003711	AL	-	GW	Stone Axe found in ploughed field (LM).
F8	4	TF005707	BC	-	CAN	Probable site of Calscroft,where a dock and warehouse was constructed and tolls taken. Perhaps connected with Sheepwash Grange.(see F13)
F9	4	SK000707	AH	-	CAN	Two bronze palstaves with shield ornament below stop ridge.(BM)
F10	4	SK996705	AV	-	LIN	Circular cropmarks north of sewage works.Barrows?.
F11	4	TF000703	R	-	CAN	Middle Bronze Age cinerary urn (LM)
F12	4	SK99297002	BK	-	CAN	Roman bronze coin,extremely worn, probably of Vespasian.
F13	4	TF00557002	P	-	CAN	Sheepwash Grange (13th Century). An important monastic grange of Kirkstead Abbey.
F14	4	SK986668	M	-	CAN	Medieval belt-end. (LM)
F15	4	SK998686	-	SK96NE10	CAN	Cinerary urn from Canwick Fm.(LM)
F16	5	SK99396705	P	-	BH	Upper half of Roman beehive quern found 1960.(LM)

F17	5	SK99306697	-	SK96NE5	BH	Iron Age quern
F18	5	SK993663	BA	-	BH	Neolithic stone axe (in LM) also blackened stones in same area.
F19	6	SK975665	S	-	BH	Site of cropmarks - rectilinear enclosure.Much Roman pottery found and fragments of daub?.
F20	6	SK976665	CW	-	BH	Romano-British pot,tile and collection of c.300 worked flints of Mesolithic-Bronze Age date.
F21	6	SK977665	V	-	BH	Rim and outer sherds of Butt beaker and sherd of coarse shelly ware.
F22	6	SK97946652	CQ	-	BH	Human skeleton c.0.5m deep with layer of limestone slabs marking grave.Probably Roman.
F23	6	SK97926648	CP	-	WAD	Greyware jar containing cremation burial.
F24	6	SK977664	R	-	WAD	Roman settlement area.Extensive finds including pottery,coins and lower quern stone.Also ''Romano-Saxon'' pot from this site.
F25	6	SK97816635	BV	-	WAD	Extensive finds from this area including two coin hoards,pottery amphora stamp and sherds,bronze fragments,brooches,silvered bronze spoon,iron objects, stonework and building debris. Also butt of Neolithic stone axe and tip of Bronze Age spear or dirk.Substantial Romano-British (and possibly earlier)settlement.
F26	6	SK97726630	CB	-	WAD	Group of 16 denarii,Vespasian-Marcus Aurelius (161-180 AD).
F27	6	SK976663	CV	-	WAD	Roman coin,Romano-British tile fragments,pottery including Samian,greywares,mortaria,colour-coated wares,beaker sherds.Post-Medieval stone wares and Midland Black also found.
F28	6	SK97616622	BO	-	WAD	Extensive finds in this area including Neolithic flints,R-B pottery and medieval pottery,lead spindle whorl and fragments of 18th wine bottle
F29	6	SK977662	Y	-	WAD	Romano-British pottery and box and roofing tile.Large limestone blocks noted.
F30	6	SK97656612	BB	-	WAD	Two leaf shaped and one barbed and tanged arrowhead, also scrapers and waste flakes.
F31	6	SK99726606	BW	-	WAD	Blade fragment from stone axe, group VI (Great Langdale type).
F32	6	SK97756585	BX	-	WAD	Roman roof and flue tiles in abundance,including one waster (site of tile kiln?).Low ridge visible in field.Much R-B pottery and one sherd of medieval pot.

OTHER FEATURES

Roman Road	TF006733	-	-	GW	Line of present A158 Wragby Road.
Roman Road	SK988665	-	-	BH	Line of present A15 Sleaford Road
Roman Road	SK979663	-	-	WAD	Conjectured line of Ermine Street east of A607 Grantham Road.

Appendix: C

LINCOLN EASTERN BYPASS STAGE I

AERIAL PHOTOGRAPHIC DATA

Features of potential archaeological significance were noted during searches of the main aerial photographic collections at the University of Cambridge, the National Monuments Record(Swindon) and the offices of Lindsey Archaeological Services(Lincoln).Based on examination of a 1km wide corridor centered on the proposed route,the features,which are described in a North-South direction, have been plotted on the 1:10000 and 1:2500 scale maps (Figs. 3 - 6)included in this report.

PLOT No.	FIG No.	NGR	PHOTO REF.	DESCRIPTION
AP 1	3	TF006735	PLE2958/27	Iron Age? enclosure & droveways
AP 2	3	TF003734	PLE2973/7A	Triple linear boundary ditch
AP 3	3	TF004727	DNR347/12.13	Triple linear boundary ditch
AP 4	3	TF007723	PLE2958/18	Triple linear boundary ditch
AP 5	3	TF004717	CAP8255/74	Ironstone mines north and south of Greetwell Road.Roman/Medieval origin?.
AP 6	3	TF003713	PLE2958/16.17	Series of rectilinear cropmarks, Romano-British enclosures?.
AP 7	3	TF007713	PLE2958/16.17	Ironstone mines?.Roman?.
AP 8	3	TF007712	PLE2973/25A	Linear ditch
AP 8a	4	TF002707	-	Group of three (possibly four) circular cropmarks.Barrows?.
AP 9	4	TF003692	PLE2973/19A	Linear boundary ditch (part on alignment of parish boundary)
AP 10	6	SK983661	CCC8504/7288	Circular pale area containing sub-circular ditch?
AP 11	6	SK979662	CCC8504/7288	Circular ditch?
AP 12	6	SK977663	CCC8504/7288	Oblong pale feature - mound or quarry pit?

Appendix: D

LINCOLN EASTERN BYPASS STAGE I

LAND USE SURVEY

Details of general and current/recent land use along the proposed route based on survey conducted in August/ September 1992.For clarity,a numerical system has been used to identify each field.Described in a North-South direction the field numbers have been plotted on the 1:10000 and 1:2500 scale maps (Figs.3 - 6) included in this report.

FIELD NO.	GENERAL USE	CURRENT/RECENT USE
1	Arable	Stubble (Wheat)
2	Arable	Stubble (Wheat)
3	Arable	Stubble (Wheat)
4	Arable	Stubble (Wheat)
5	Arable	Ploughed
6	Arable	Ploughed
7	Arable	Ploughed
8	Arable	Beet
9	Arable	Stubble (Wheat)
10	Not accessible	-
11	Not accessible	-
12	Not accessible	-
13	Not accessible	-
14	Pasture	Grass/rough pasture
15	Pasture	Grass/rough pasture
16	Arable	Part Wheat,part stubble
17	Industrial	Sewage works
18	Arable	Wheat
19	Arable	Wheat
20	Arable	Wheat
21	Arable	Wheat
22	Arable	Wheat
23	Pasture	Hay
24	Arable	Wheat
25	Arable	Wheat
26	Arable	Part Wheat,part stubble
27	Arable	Part Wheat,part Beet
28	Arable	Stubble (Wheat)
29	Arable	Beet
30	Arable	Wheat
31	Arable	Wheat
32	Arable	Wheat
33	Arable	Beet
34	Arable	Beet
35	Arable	Stubble (Wheat)

Appendix: E

LINCOLNSHIRE COUNTY COUNCIL - ARCHAEOLOGY SECTION

ARCHAEOLOGICAL GUIDELINES FOR ROAD SCHEMES

PHASE 1 - ROUTE CORRIDOR SELECTION - INITIAL CONSULTATION

County Archaeological Officer (CAO) shall: Present guidelines and discuss scope and timescale of archaeological input and establish provision for archaeology in project programme • Present preliminary appraisal of possible archaeological content of proposed corridor including Scheduled Ancient Monuments/Listed Buildings or other sites having legal protection and recommend contact with appropriate bodies or agencies • Prepare assessment brief and secure cost estimate for same.

PHASE 2 - INITIAL ROUTE SELECTION - DESK TOP ASSESSMENT - Commissioned by developer to specification by CAO an assessment shall include a search of all available documentary sources,SMR, aerial photographs,maps and archives.

THE ASSESSMENT REPORT shall: Identify ALL sites/areas of archaeological importance • Assess their significance and potential and identify areas for further evaluation • Recommend evaluation strategy,methods,cost and time scale and options for preservation of remains (including route alterations if appropriate) • Consider possible development impact on buried remains.

CIRCUMSTANCES PERMITTING THE ASSESSMENT TO BE SUPPLEMENTED WITH RESULTS FROM: Preliminary fieldwalking of proposed route and/or observation and recording of geotechnical trial pit excavation and results from test bores.

CAO shall: Present assessment report and discuss results and recommendations with developer/planners/consultants • Prepare brief/specification for field evaluation and secure cost estimate for same.

PHASE 3 - FINAL ROUTE SELECTED - FIELD EVALUATION - Commissioned by developer to brief by CAO and monitored by CAO a Field Evaluation shall secure all information on the spatial extent,nature and survival condition of remains by means of fieldwalking, topographical, geophysical and auger survey,drainage ditch section recording and trial trench excavation.

THE EVALUATION REPORT shall: Address primary objectives outlined above • Provide an assessment of archaeological impact(to be incorporated into an Environmental Assessment where appropriate) • Propose strategies to mitigate the destruction of archaeological remains including options for the preservation of remains either in-situ or by means of pre-construction excavation and/or a watching brief during construction groundwork.

IF NOT INCLUDED AT THE ASSESSMENT STAGE THE EVALUATION TO BE SUPPLEMENTED WITH RESULTS FROM: Observation and recording of geotechnical trial pit excavation and results from test bores (circumstances permitting).

CAO shall: Present evaluation report and discuss results and recommendations with developer/planners/consultants • Prepare brief/specification for recommended works and secure cost estimate for same.

PHASE 4 - SUBMISSION OF PLANNING APPLICATION SUPPORTED BY ASSESSMENT AND EVALUATION REPORTS AND PROPOSED MITIGATION STRATEGY.

PHASE 5 - PLANNING PERMISSION GRANTED/FINAL ROUTE APPROVED - Archaeological work commissioned by developer in accordance with the requirements of planning permission to brief by CAO and monitored by CAO.

ARCHAEOLOGICAL WORK SHALL INCLUDE: Pre-construction excavation and recording • Watching brief recording and any subsidiary excavation and recording of features or remains exposed during construction groundwork • Post-excavation processing,conservation and analysis of artefactual and other material recovered • Production of client report and final archive report • An assessment of the site archive and proposals for further research and/or formal publication of results together with specification,time scale and cost estimate • Accession to archive,County Sites and Monuments Record and arrangements for long-term storage of finds and, if approved,further research and formal publication of results.