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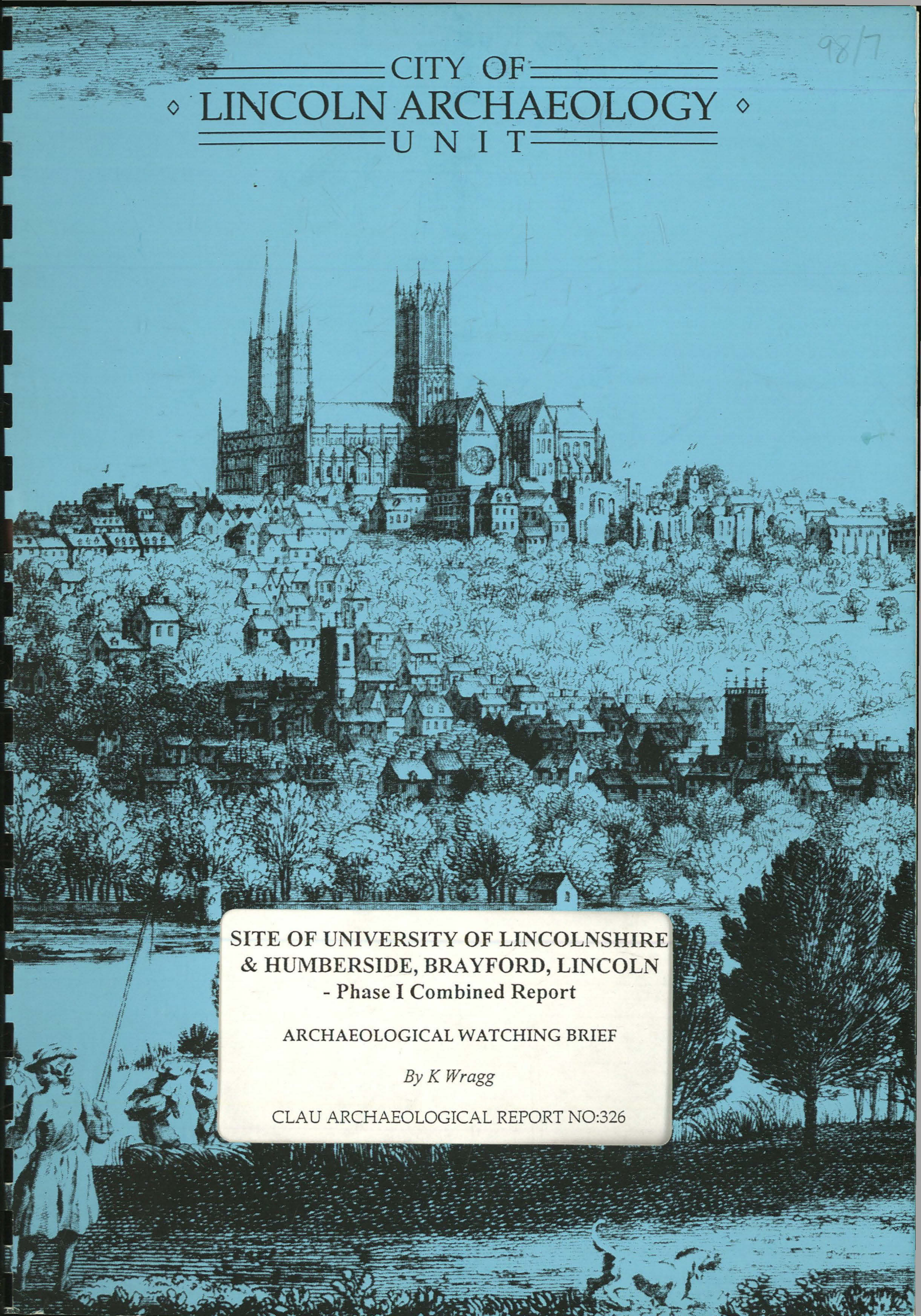

SITE OF UNIVERSITY OF LINCOLNSHIRE & HUMBERSIDE, BRAYFORD, LINCOLN - Phase I Combined Report

ARCHAEOLOGICAL WATCHING BRIEF

By K Wragg

CLAU ARCHAEOLOGICAL REPORT NO:326

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A

Report to

Project for a University for Lincolnshire Company Ltd.; Lincolnshire County Council; Lincoln City Council

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Archaeological Watching Brief

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ARCHAEOLOGICAL WATCHING BRIEF

NON-TECHNICAL SUMMARY

This report describes in detail the archaeological results from the initial preparation and construction works undertaken on the University of Lincolnshire & Humberside site adjacent to Brayford Pool, Lincoln. Also included are the results from the monitoring of the construction of the Ropewalk-Carholme Link road, which crosses the same site.

The results of the archaeological evaluation carried out on the site in January 1994 had shown that important environmental remains were present across the site. It was hoped that further opportunities for sampling and investigation of this material would be provided by the proposed construction groundworks. It was also a possibility that evidence for human activity and occupation of the site might be encountered, especially along the periphery of the Brayford Pool.

It was therefore decided by the City of Lincoln Planning Committee that an archaeological watching brief should be carried out in conjunction with all groundwork phases of the Site remediation, Phase I development, and Link road construction, and planning permission was conditioned appropriately.

The City of Lincoln Archaeology Unit (C.L.A.U.) was accordingly commissioned by: Lincoln City Council, the Project for a University for Lincolnshire Company Ltd., and Lincolnshire County Council, to undertake the required investigations during the redevelopment. Archaeological recording was carried out on the various disparate elements between January 1995 and December 1996.

In spite of the potential of this site, at least in archaeobotanical terms, very little new evidence was produced by the projects described in this report.

For the main elements of the site groundworks, the results can be summarised as follows:

1) Works undertaken on the main University site (bounded by Ropewalk, Brayford Wharf East, and the Fossdyke canal);

One of the main objectives of the archaeological work, controlled environmental sampling of buried organic deposits, was rendered largely impractical by a number of factors.

These included the following:

1) High levels of ground contamination in several areas across the site (notably in proximity to the former scrapyard and the railway engine shed). This resulted in a totally 'hands-off' policy being adopted by the archaeologists in these areas, to ensure minimal risk of injury/contamination (both to on-site staff during collection, and to laboratory staff during later analysis);

2) Groundwork methodology often resulted in the organic deposits revealed at lower depths (i.e., below 1.2m-1.5m) being unavoidably obscured by the trench shoring. In those areas where the trenches did remain unsupported, Health & Safety requirements precluded access to the trenches for sampling purposes;

3) Limited exposure of organic deposits in many cases meant that insufficient material was actually available to provide a valid sample. Often only the uppermost boundary of

the buried peat/organic horizon was revealed, precluding collection of the desired 'column' samples. Also it was found that there was considerable mixing/contamination of the uppermost parts of the organic deposits resulting from contact with the overlying layers, which could further bias the sample analysis.

Consequently, the results of the three projects have consisted largely of a record of the prevailing stratigraphic conditions across the site. In general, these have simply served to reiterate the findings of the earlier archaeological evaluation.

The earliest deposits recorded again appeared to be largely associated with the areas of marshland to the west, including layers of peat, and other organic horizons, overlying the natural sands.

Close to the Brayford Pool, the organic deposits were again revealed, but in this instance at a much greater depth, probably indicating the wider extent of the original lake, although this could not be positively confirmed.

Above this level, multiple bands of sand were present, either representing naturally occurring alluvial deposits, or later reclamation deposits associated with 18th and 19th century land-use.

The remaining deposits revealed during the groundworks all appear to relate to industrial and railway land-use (dating from the mid 19th century).

No evidence for ancient human occupation was recorded.

Regarding the methodology adopted during the archaeological investigation, it has quickly become apparent that the approach undertaken was not best-suited to effective sample collection.

The principle of observation in conjunction with the contractors' groundworks, while cost-effective, does not offer sufficient control and opportunity for the archaeologist to conduct a meaningful and, perhaps most importantly, a controlled sampling strategy.

It should therefore be considered a priority, if a controlled sampling programme is still desirable, that efforts should be made to allow an independent archaeological project to be undertaken in advance of any future developments on the site.

2) Excavation carried out along St.Mark's Street and Brayford Wharf East, for the main sewer connection.

As expected, and in contrast to the investigations on the main site, this element of the groundwork programme revealed archaeological remains dating from a range of periods of occupation.

Several metalled surfaces were present, almost certainly representing successive rebuilds of the Roman *Ermine Street*.

Above these, a substantial 'Dark Earth' deposit was present, probably relating to the land-use in the post-Roman period.

Finally, the remains of 19th century cellars was revealed, representing parts of buildings shown on the 1887 O.S. map.

Unfortunately, owing to the unavoidably confined nature and extent of the trenches, these features could only be identified in general terms, and a precise chronology could not be confirmed.

UNIVERSITY OF LINCOLNSHIRE & HUMBERSIDE, BRAYFORD, LINCOLN

Combined Report on: Remediation Works, Phase I Construction, & Ropewalk-Carholme Link Road

ARCHAEOLOGICAL WATCHING BRIEF

1.0 INTRODUCTION

This report describes in detail the archaeological results from the initial preparation and construction works undertaken on the University of Lincolnshire & Humberside site adjacent to Brayford Pool, Lincoln. Also included are the results from the monitoring of the construction of the Ropewalk-Carholme Link road, which crosses the same site.

The results of an archaeological evaluation carried out on the site in January 1994 had shown that important environmental remains were present across the site (Wragg, 1994; Hockley & Wragg, 1994). It was hoped that further opportunities for sampling and investigation of this material would be provided by the proposed construction groundworks. It was also a possibility that evidence for human activity and occupation of the site might be encountered, especially along the periphery of the Brayford Pool.

It was therefore decided, by the City of Lincoln Planning Committee, that archaeological watching briefs should be carried out in conjunction with all groundwork phases of: 1) Site remediation; 2) Phase I development; and 3) Link road construction, and planning permission was conditioned appropriately.

The major elements of the works comprised:

1.1 Site Clearance & Remediation (UCLA95)

This phase of the work included several separate elements, as follows:

i) Demolition of existing derelict buildings/structures;

ii) reduction of levels in the areas of the main construction;

iii) excavation and treatment/disposal of contaminated materials;

iv) provision of connection for Phase I Infrastructure to main foul water sewer in High Street (see Fig.3).

The works themselves were carried out by Linpave Construction Ltd. (with the exception of the sewer connection, which was undertaken by J.M.Hoyes Ltd.), on behalf of Lincoln City Council, and covered the majority of the site (see Fig.2).

The City of Lincoln Archaeology Unit (C.L.A.U.) was commissioned in January 1995, by Lincoln City Council, to provide an intermittent archaeological watching brief during the redevelopment.

Groundworks were, however, largely concerned with the removal of either modern intrusive features/structures or contaminated soils/materials, and as a result the opportunities for archaeological investigation were somewhat limited.

Archaeological observation began on the 30th of January, and continued until the 30th of November 1995, when the final elements of the excavation for the sewer connection were completed.

1.2 Phase I Construction (UCLB95)

involving:

i) Erection of the main University building;

ii) construction of accommodation blocks, adjacent to the Fossdyke canal;

iii) formation of access roadways connecting the site with Brayford Wharf East, and the new Ropewalk-Carholme Road link;

iv) establishment of the main infrastructure for the site (including drains/sewers, services etc.).

This phase of the construction was carried out by Balfour Beatty Construction Ltd., on behalf of the Project for a University for Lincolnshire Company Ltd. The development was situated along the northern edge of the site, between the Fossdyke canal/Brayford Pool and the railway line (see Fig.4).

The City of Lincoln Archaeology Unit (C.L.A.U.) was commissioned in January 1995, by Lincoln City Council, to provide an intermittent archaeological watching brief during the redevelopment. The site observation itself took place between the 15th of May and the 19th of October 1995.

1.3 Ropewalk-Carholme Road Link (ROA95)

requiring:

i) Relocation/diversion of a 'delph' (drain) running across the site (E-W), to the south of the railway line;

ii) Removal of all 'compressible' material in the area between the railway and Ropewalk;

iii) excavation and piling for bridge abutments and piers (including remodelling of the banks of the Fossdyke canal at the crossing point);

iv) formation of embankments, and main bridge construction.

The major groundworks and construction of the Link road were carried out by Balfour Beatty Civil Engineering Ltd., on behalf of Lincolnshire County Council.

The road itself bisects the site on a roughly north-south axis. It runs from the new 'gyratory' junction at Ropewalk in the south, crosses both the railway lines and the Fossdyke canal by means of bridges, and ultimately connects to a redesigned junction at Carholme Road to the north (see Fig.5).

The City of Lincoln Archaeology Unit (C.L.A.U.) was commissioned by Engineering Consultancy Services, on behalf of the Lincolnshire County Council Department of Highways & Planning, to undertake the required watching brief. Archaeological recording was carried out on the site between the 30th of October 1995 and the 18th of December 1996.

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 with the terms of the Unit's Articles of Association, the Code of Conduct of the Institute of Field Archaeologists, and *The Management of Archaeological Projects 2* (English Heritage, 1991).

2.0 HISTORICAL AND ARCHAEOLOGICAL BACKGROUND

Lincoln is situated at the point where the Jurassic limestone ridge known as the Lincoln Edge is cut by a glacial gap, through which the River Witham now flows. At its junction with the River Till, canalised as the Fossdyke, flowing from the west, is a presumed natural lake, the Brayford Pool. Its extent was much greater in antiquity than at present, and it is known to have existed at the time of the Roman Conquest. The first syllable of the colloquial Roman name for the City of Lincoln, *LINDUM*, was derived from the Celtic word for "lake", "pool" or "marshy/water place" (Rivet & Smith, 1979).

2.1 Historical Evidence

The chronological breakdown of the historical and archaeological record for the location under investigation is as follows:

Pre-Roman

Although excavations on the east side of the Brayford Pool in 1972 produced Late Iron Age or early Roman pottery, together with traces of 1st Century B.C. activity, the case for any substantial prehistoric settlement remains unproven (Darling & Jones, 1988). However, to the east of Lincoln, chance finds have indicated a rich Late Iron Age culture, and several important objects have been found in dredging operations along the River Witham. While the earliest evidence recorded for settlement around the Brayford Pool dates to the 1st century BC, it is possible that any earlier Prehistoric occupation in this area may be illuminated by study of environmental remains.

The Roman Period

On historical evidence, the Roman army may have reached Lincoln by c.A.D.50 but dating of the earliest Roman structures excavated indicates a date no earlier than c.A.D.55 (Darling & Jones, 1988). By A.D.96 Lincoln had the status of a *Colonia*, utilizing the uphill site of the Neronian fortress. In the late 1st or early 2nd century a grid of streets was laid out on the ground to the south of the fortress with both timber and masonry buildings erected.

Probably at the end of the 2nd Century, the colonia wall was extended almost down to the river front and excavations have indicated that the south wall was probably close to the then river-line, c.50m north of the present Brayford Pool.

It is believed that the Foss Dyke canal connecting the Brayford Pool with the river Trent at Torksey was formed during the period of Roman occupation. The cutting of a channel for the first four miles from Lincoln, was probably achieved by straightening the course of the river Till. The early course of the Foss Dyke, and of the Till, and its junction with the Brayford Pool is unknown and it was considered possible that groundworks for the proposed development would reveal evidence of the early channel. In addition extensive reclamation has taken place along the banks of both the Witham and Brayford Pool since the Roman period.

Anglo-Saxon/Anglo-Scandinavian Lincoln

Abandonment of the Roman city seems to have accelerated in the 4th Century with former urban life reduced to a small community between the 5th and 9th centuries. Following the Viking take-over of Lindsey in 874, Lincoln became a "Viking" town which grew quickly during the 10th century.

Many Lincoln place names are of Scandinavian origin. Of particular interest is "Carholme" (derived from Old Norse, Kiarr - marshground and Holms - "islands in the land" near the river, which flooded in winter), and Brayford whose early form "Braytheford" and the associated "Braedmere" has origins in the Old English "Brad" or the Scandinavian "Breit" or "Breior" meaning broad (the broad ford or broad mere), the pool being much larger in the Middle Ages than now (Cameron, 1985).

The Medieval City

During the Medieval period a new suburb of Newland (="newly reclaimed" or "newly settled" land) occupied land to the north of Brayford Pool and the Foss Dyke beyond. There were probably several periods of reclamation as the waterfront was advanced,

and these operations may have commenced before the Norman Conquest.

By the end of the 13th century the west wall of the city incorporating the Newland Gate had been extended southward beyond the earlier south wall to Brayford Pool, terminating at a round stone tower on the Brayford bank which became known as the "Lucy Tower".

Excavations at three locations along Brayford North have revealed the Lucy Tower and an adjacent stretch of North-South city wall with a N-S ditch immediately west of the wall. A boundary wall ran east from the tower along the edge of the Brayford pool. Trenches excavated to the east of Lucy Tower Street provided useful information about the reclamation and the line of the waterfront in Medieval and later periods with substantial stone revetment walls occurring at 27.5m and 22.5m respectively north of the present edge of the pool (Jones, 1981; Gilmour, 1982, and Chitwood, 1990). Evidence of timber revetments and stone structures was also recorded, on the north side of the Brayford, and to the east, evidence of fish traps and/or farming was revealed in 1982 and 1985 (Guy, 1986).

Post-Medieval

The later recorded history of the area is most closely linked with the efforts to reopen the Foss Dyke and the further development of Brayford Pool from Newland along Carholme Road. The 14th-17th centuries saw a period of decay in the city with some abandonment of previously occupied areas. Silting of the Fossdyke was probably one of the factors which had led to the city's decline from the middle ages.

During the second half of the 18th century the Brayford Pool was rapidly turned into an inland port, and by 1817 substantial wharves, warehouses and coalyards had been established on both north and east banks where gardens had earlier stood.

19th century and later

The 19th century saw further development of the wider area resultant from the raising of the south bank of the Foss Dyke, related drainage works, the coming in mid-century of two railway companies, and further expansion of industry.

South of Brayford Pool, a low-lying area of land called the Holmes Common was probably waterlogged and marshy until the early 19th century drainage works, and the raising of the south bank of the Foss Dyke, which, together with associated drainage works, formed the Delph.

The most significant development in this area took place following the introduction of the Midland Railway to Lincoln in 1846, for which a low embankment was constructed across the South-west corner of "The Holmes". Maps of the period show the Delph formed by the south bank of the Foss Dyke and tracks or paths across the Holmes while further south the land is divided by drainage ditches and crossed by roads or tracks. A contemporary print from Williams' "Midland Railways" reproduced in the Railway History of Lincoln (Ruddock & Pearson, 1985), shows the low embankment across the Holmes and is captioned "...which was then more waterlogged then now".

Following mid-19th century acquisition of the area south of the Brayford Pool by the Great Northern Railway, the Foss Dyke ceased to be Lincoln's commercial highway, as waterborne trade gradually gave way to the age of steam. The acceleration of industrial development in the late 19th century led to rapid expansion of the railways with sidings and goods yards being constructed on land progressively reclaimed across Holmes Common south of the Brayford Pool.

The south bank of the Brayford was pushed further north by reclamation with new railway wharves and a boat-building yard being developed along the southwest bank early in the 20th century.

Changes in the use of this area of land up to the present day have been largely superficial, being principally allied to industrial/commercial development and the changing fortunes of local railway services in the East Midlands.

2.2 Archaeological Evidence

Only two archaeological projects have taken place across the actual development area, as follows:

1) Geotechnical trial pits excavated during February 1992 for the Highways and Planning Department of the Lincolnshire County Council (during the planning phase of the Ropewalk-Carholme Link road).

Nine trial pits were excavated, although only seven are of specific interest to this report, being contained within the overall boundaries of the site. The general stratigraphic sequence comprising sands, overlain by an organic horizon, which was in turn sealed by reclamation landfill and modern occupation layers (Hockley, 1992).

Environmental samples recovered from several trial pits suggested a partially forested wetland/swamp. Some very slight evidence for cereals (possibly indicative of farming/human activity on or close to the site) including cereal pollen and Hemp (cannabis) was also recorded.

2) Further geotechnical trial pits excavated in 1994, as part of the Lincoln City Council site investigations to assess the extent of contamination across the site.

During this evaluation the earliest deposits recorded appeared to be associated with the neighbouring Brayford Pool and the areas of marshland to the west, including layers of peat, and other organic horizons, overlying natural sands and clays. The remainder of the deposits seemed to be a result of industrial and railway activity dating from the mid 19th century, together with more modern land-fill dumping seen in the south-western quadrant of the development area. In the areas previously occupied by the railway engine shed, and its associated installations, considerable amounts of ash and clinker (a by-product of steam engine operation) were present together with areas of contamination caused by oils and fuels.

From an environmental point of view, while initial results show very promising biological conditions on the site relating to the fauna and flora surrounding the Brayford Pool and its attendant marsh/woodland environment, no evidence for prehistoric human occupation was recorded.

Peat found in some samples, mainly concentrated in the more northerly areas of the site, appeared to have been laid down in reed marsh and wet alder woodland, and radiocarbon dating of two deposits revealed close to the southern edge of the Brayford Pool indicate that these deposits may have accumulated during the period covering 2850 B.C. to 1150 B.C., i.e. late Neolithic to Bronze Ages.

Adjacent areas

Some archaeological investigation has also been undertaken in locations bordering the immediate area of the proposed development, including work to the west of the now disused S^{t}.Mark's railway station, and also to the south of Beevor Street.

During the work on the S^{t}.Mark's site, in 1989, four trenches were mechanically excavated to the west of the river Witham. All trenches investigated revealed reclamation and landfill deposits (the latter believed to be contemporary with the construction of the Midland Railway), overlying peaty riverine deposits close to the present line of the River Witham (suggesting that the river was much wider than at present). Below this, natural deposits of loose riverine sands and gravel were encountered (Dinnin & Buckland, 1990).

To the south of Beevor Street (now the site of a Morrisons supermarket) twelve test pits were mechanically excavated over the site area. Analysis of the results together with the existing documentary record indicate an extensive area of waterlogged river terrace sands extending south and west in the triangle formed between the river Witham and Brayford Pool. The sands were overlain by a well-defined organic/silt layer gradually sloping down to the north. Finds recovered from this layer were mainly post-medieval in date (Hockley, 1992).

It is, therefore, likely that the silt/organic horizon encountered at those sites reflects the existence of a Medieval/Post-Medieval water meadow environment, subject to seasonal flooding and probably used for the summer

grazing of livestock. Evidence of early attempts at land drainage were noted, but the most significant change took place with the 1846 construction of the railway embankment which bisects the site.

The Midland Railway map of 1846, as well as recorded seasonal flooding, indicates that at least part of the area remained as water meadow up to the time that industrial development commenced in the late 19th and early 20th Century.

Industrial waste was extensively spread over the site area to reclaim the waterlogged land; this process raised the ground by at least 1.2m to its present level.

3.0 COMBINED RESULTS

The majority of the works covered by this report; including remediation, Phase I building, and Link road construction, were contained within the physical boundaries of the main University site (i.e., that area bounded by Ropewalk, Brayford Wharf East and the Fossdyke canal). However, one element (the main sewer connection) extended well beyond these boundaries, and consequently exposed archaeological deposits markedly different from those seen on the main site. It is therefore proposed to present the results of the archaeological observations in two parts (to reflect the physical separation of the two elements), as follows:

3.1 Works undertaken on the main University site

Of these elements, the works associated with the main remediation programme, and the construction groundworks for the phase I accommodation blocks, were generally unproductive.

In the former case, the trial pitting largely duplicated the positions of earlier work (in some cases exactly), and the majority of the remaining groundwork was concerned with localised excavation/demolition of modern structures, or was situated in areas where, because of Health & Safety concerns, detailed observation was not carried out.

In the case of the accommodation blocks, all groundworks were contained within the limestone hardcore 'piling mat' laid down during the remediation, and consequently no new ground was exposed.

Therefore, the results are based only on observations carried out on:

i) construction works for the main University building (context number range [400]-[499]);

ii) groundworks associated with the Ropewalk-Carholme Road link (context number range [500]-[599]).

These results can be summarised as follows:

To the north of the railway line, an organic horizon, comprising a grey-brown sandy peat [406], was revealed at the limit of excavation (at a depth of c.2.0m below the existing ground level, nominally 3m O.D.) in trenches for the pile-caps and groundbeams of the main University building. This deposit was only partially revealed in this particular location, and therefore its thickness could not be determined (see Fig.10). Closer to the Brayford Pool, however (during trenching for the main drainage), [406] was again revealed, but in this case at a considerably greater depth of c.4m below the existing surface (at a nominal 1.8m O.D., see Fig.11). The differences in height seem to confirm that the Brayford Pool originally extended some way beyond its present boundaries.

Across the northern part of the site, [406] was overlain by [405], a multi-banded layer of sand between 1.2m and 3.2m in thickness. This deposit raised the ground level to between 4.3m and 5m O.D., and was sealed by a 200mm thick layer of brown sandy silt containing limestone pieces [404].

This latter deposit was in turn overlain by a thin layer of grey sandy-silt and ash ([403]), and a 200mm thick orange/yellow-brown sand layer, [402].

[402] appeared to form the highest remaining *pre-remediation* deposit, and was sealed beneath the limestone hardcore ([401]) deposited during that project.

Along the access route connecting the University to Brayford Wharf East (areas not affected by the remediation), the sand layer [402] was sealed by the hardcore bedding ([408]) and tarmac ([407]) forming the road surface (see Fig.11).

To the south of the of the railway line, the recorded stratigraphy was found to be slightly different from that to the north (but still very much in line with the results of the 1994 evaluation).

During excavations for the link road the earliest deposits revealed comprised [503], a layer of orange-brown sand, and [507], a mid grey-brown sand.

These deposits were present at c. 3.1m O.D. and 2.7m O.D. (respectively), and were both overlain by a layer of red-brown peat, [502]/[506].

This layer was between 200mm and 500mm thick, with its upper boundary present at c. 3.1m - 3.3m O.D. (at a common height with the majority of the organic deposits ([406]) present to the north).

Across most of the area to the south of the railway line, [502]/[506] was overlain by a 900mm thick layer of brown sand [501], which was in turn sealed by [500], a mixed layer of sand, silt and ash containing brick and other modern inclusions (see Fig.12).

In the location of the proposed 'gyratory' (see Fig.5), the peat layer was immediately beneath a 600mm thick modern landfill deposit [505], which formed the existing surface in this area (see Fig.12).

3.2 Excavation carried out along S^{t}.Mark's Street and Brayford Wharf East (main sewer connection)

The works required for the connection of the site to the main foul water sewer were concentrated to the east of the University site, in an area originally within the Roman suburb to the south of the Lower City.

While any evidence of human occupation revealed on the main site was only likely to be identified through analysis of environmental samples, this area held the possibility of much more substantial remains.

The actual connection to the main sewer took place at the junction of High Street and S^{t}.Mark's Street. Previous investigations suggested that it was likely that the remains of a Roman road, *Ermine Street*, would be present at this point. This road formed the main highway leading into the Roman city from the south, and the remains of commercial buildings fronting onto both sides of the street have been identified in several excavations undertaken since the 1970's.

Additionally it was possible that remains dating from the medieval period would also be present in this area, fronting onto later successors to *Ermine Street*.

In the event, some evidence for the Roman road was revealed at the extreme eastern end of the connection trench, but in the main the deposits appeared to represent relatively modern contexts.

The stratigraphic sequence (from earliest to latest) was as follows (see Fig.8):

Towards the eastern end of S^{t}. Mark's Street, a layer of mid-grey sandy silt, [306], was present (at a depth of c. 4.4m O.D.). This layer was c. 300mm thick to L.O.E. and contained occasional limestone inclusions.

At the extreme eastern end of the connection trench (approximately at the mid point of the northbound carriageway of High Street), layer [306] was overlain by a series of three metalled surfaces ([312]; [313]; and [314]). Each one of these comprised an upper surface of small limestone pieces, well bonded with mortar, overlying a coarser limestone foundation, producing a total thickness of c. 200mm.

The uppermost of these surfaces, [312], was approximately 1.5m below the modern street level (at a nominal 5.1m O.D.), and all three appeared to extend across most of the width of the modern northbound carriageway. Unfortunately, the western extent of the surfaces was not preserved, owing to truncation caused by the main sewer trench and associated backfill ([303]).

It would seem largely beyond doubt that these surfaces represent successive levels of the Roman *Ermine Street*, although no dating evidence was recovered to confirm a positive Roman date.

Approximately 10m to the west of the High Street, layer [306] was overlain by [305], a very indistinct layer of mid-light pink-brown lime mortar. This deposit was less than 100mm thick, but might possibly represent the remains of a floor surface belonging to a Roman roadside structure.

[305] was subsequently sealed by a layer of moderately compacted, mid-dark brown sandy silt, [304]/[311], containing only very infrequent flecks of limestone, tile and bone (see Figs.8 & 9). It is possible that this layer represents the so-called 'dark earth' deposit, representing accumulation during the post-Roman 'Dark Ages'.

This deposit was present along the entire length of S^{t}.Mark's Street, raising the ground level to between 5.4m and 5.6m O.D. It was overlain by a number of deposits and features, all of modern origin, as follows:

Towards the eastern end of S^{t}.Mark's Street, the remains of several brick-built cellars were revealed ([315]), belonging to buildings shown on the 1887 Ordnance Survey map (see Fig.7).

Further west, towards the western end of the street (at its junction with Brayford Wharf East), a further brick feature was revealed ([310]), overlain by a layer of 'terram' sheet [309]. The origins of these features are not clear, although they could be associated with the existing bridge over the River Witham, to the west.

Along the length of the street, various pipe trenches were present ([303]), together with the modern bedding layers ([302]/[308]), and the tarmac surface ([301]/[307]) for the existing road.

4.0 DISCUSSION OF RESULTS AND CONCLUSIONS

Notwithstanding the potential of this site, at least in archaeobotanical terms, very little new evidence of human occupation was produced by the projects described in this report.

4.1 The main University site

One of the main objectives of the archaeological work in the main part of the site, controlled environmental sampling of buried organic deposits, was rendered largely impractical by a number of factors.

These included:

1) High levels of ground contamination in several areas across the site (notably in proximity to the former scrapyard and the railway engine shed). This resulted in a totally 'hands-off' policy being adopted by the archaeologists in these areas, to ensure minimal risk of injury/contamination (both to on-site staff during collection, and to laboratory staff during later analysis);

2) Groundwork methodology often resulted in the organic deposits revealed at lower depths (i.e., below 1.2m-1.5m) being unavoidably obscured by the trench shoring. In those areas where the trenches did remain unsupported, Health & Safety requirements precluded access to said trenches for sampling;

3) Limited exposure of organic deposits in many cases meant that insufficient material was actually available to provide a valid sample. Often only the very upper boundary of the buried peat/organic horizon was revealed, precluding collection of the desired 'column' samples. Also it was found that there was considerable mixing/contamination of the uppermost parts of the organic deposits resulting from contact with the overlying layers, which could further bias the sample analysis.

Consequently, the results from this area have largely comprised the record of the prevailing stratigraphic conditions across the site. In general, these have simply served to reiterate the findings of the earlier archaeological evaluation.

The earliest deposits recorded again appeared to be largely associated with the areas of marshland to the west, including layers of peat, and other organic horizons, overlying the natural sands.

Close to the Brayford Pool, the organic deposits were again revealed, but in this instance at a much greater depth, probably indicating the wider extent of the original lake, although this could not be positively confirmed.

Above this level, multiple bands of sand were present, either representing naturally occurring alluvial deposits, or later reclamation deposits associated with 18th and 19th century land-use.

The remaining deposits revealed during the groundworks all appear to relate to industrial and railway land-use (dating from the mid 19th century).

No evidence for ancient human occupation was recorded.

Regarding the methodology adopted during the archaeological investigation, it has quickly become apparent that the approach undertaken was not best-suited to effective sample collection.

The principle of observation in conjunction with the contractors groundworks, while cost-effective, does not offer sufficient control and opportunity for the archaeologist to conduct a meaningful and, perhaps most importantly, a controlled sampling strategy.

It should therefore be considered a priority, if a controlled sampling programme is still desirable, that efforts should be made to allow an independent archaeological project to be undertaken in advance of any future developments on the site.

4.2 The main sewer connection

As expected, and in contrast to the investigations on the main site, this element of the groundwork programme revealed archaeological remains dating from a range of periods of occupation.

Several metalled surfaces were present, almost certainly representing successive resurfacings of the Roman *Ermine Street*.

Above these, a substantial 'Dark Earth' deposit was present, probably relating to the land-use in the post-Roman period.

Finally, the remains of 19th century cellars was revealed, representing parts of buildings shown on the 1887 O.S. map.

Unfortunately, owing to the unavoidably confined nature and extent of the trenches, these features could only be identified in general terms, and a precise chronology could not be confirmed.

5.0 ACKNOWLEDGEMENTS

The City of Lincoln Archaeology Unit would like to thank the following for their assistance during this project:

Messrs. K.Forth, D.Cook & D.Partridge of the Project for a University for Lincolnshire Company Ltd., Thorngate House, S[t].Swithin's Square, Lincoln, LN2 1HA; Mr G.D.J.Macaulay of GTMS, 33 Bedford Square, London, WC1B 3DP; Mr G.M.Finn of A.E.Thornton-Firkin & Partners, 98 West Parade, Lincoln, LN1 1JZ; Messrs. A.Salt, J.Calder & Ms S.Toulson of RMJM London Ltd., 83 Paul Street, London, EC2A 4NQ; Messrs. S.V.Roper, A.Brown & G.Wrigley of the Lincoln City Council (LCC) Engineer & Surveyor Department, City Hall, Beaumont Fee, Lincoln, LN1 1DN; Messrs. P.Scrafton, P.Boswell & J.A.Rae of the LCC Department of Planning; Mr T.Walsh, LCC Health & Safety Officer; Messrs. S.Catney & I.K.George of the Lincolnshire County Council Archaeology Section, 12 Friars Lane, Lincoln, LN2 5AL; Messrs. R.P.Wilson, R.H.Clifford, D.Chetwin & D.Cragg of Engineering Consultancy Services, Unit 16, Witham Park, Waterside South, Lincoln, LN5 7JN; Staff of the Department of Highways & Planning, Lincolnshire County Council, City Hall, Beaumont Fee, Lincoln, LN1 1DN; Messrs. R.Ashby & M.Pearson of Hydrotechnica; Messrs. A.F.Beatham, I.Sharpe, M.Glynn & B.Conner of Linpave Construction Group, Linpave Holdings Ltd., High Street, Saxilby, Lincoln, LN1 2JQ; Mr R.S.Carpenter, Lincoln Construction Safety Services Ltd., Quantum House, 32 Tentercroft Street, Lincoln, LN5 7DB; Staff of John Martin Hoyes Construction Ltd.; Messrs. P.N.Bennett & W.Turner of Balfour Beatty Construction Ltd., Northern Building Division, Wesley Drive, Benton Square Industrial Estate, Newcastle-upon-Tyne, NE12 9UN; Staff of Balfour Beatty Construction Ltd; Staff of Balfour Beatty Civil Engineering Ltd.

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7.0 LHA NOTE/ARCHIVE DETAILS

7.1 LHA NOTE DETAILS

CLAU CODE:	**UCLA95**	**UCLB95**	**ROA95**
PLANNING APPLICATION NO.:			
FIELD OFFICER:	K.Wragg	K.Wragg	K.Wragg
NGR (Approx. centre):	SK 6800/7120	SK 6800/7120	SK 6800/7120
CIVIL PARISH:	Lincoln	Lincoln	Lincoln
SMR No.:	N/A	N/A	N/A
DATE OF INTERVENTION:	30/01/95 - 30/11/95	15/05/95 - 19/10/95	30/10/95 - 18/12/96
TYPE OF INTERVENTION:	Watching Brief	Watching Brief	Watching Brief
UNDERTAKEN FOR:	Lincoln City Council	Project for a University for Lincolnshire Co.	Lincolnshire County Council

7.2 ARCHIVE DETAILS

SITE CODE:	**UCLA95**	**UCLB95**	**ROA95**
PRESENT LOCATION:	CLAU	CLAU	CLAU
FINAL LOCATION:	City and County Museum, Lincoln	City and County Museum, Lincoln	City and County Museum, Lincoln
MUSEUM ACCESSION No.:	11.95	49.95	161.95
ACCESSION DATE:			

APPENDIX A - PLATES

Plate 1: General view of ground conditions, former scrapyard area, Phase I(b) Remediation Works (UCLA95)

Plate 2: Extent of modern disturbance, St.Marks Street sewer connection (UCLA95)

APPENDIX A (continued)

Plate 3: General view of groundworks in progress, during construction of main university building (UCLB95)

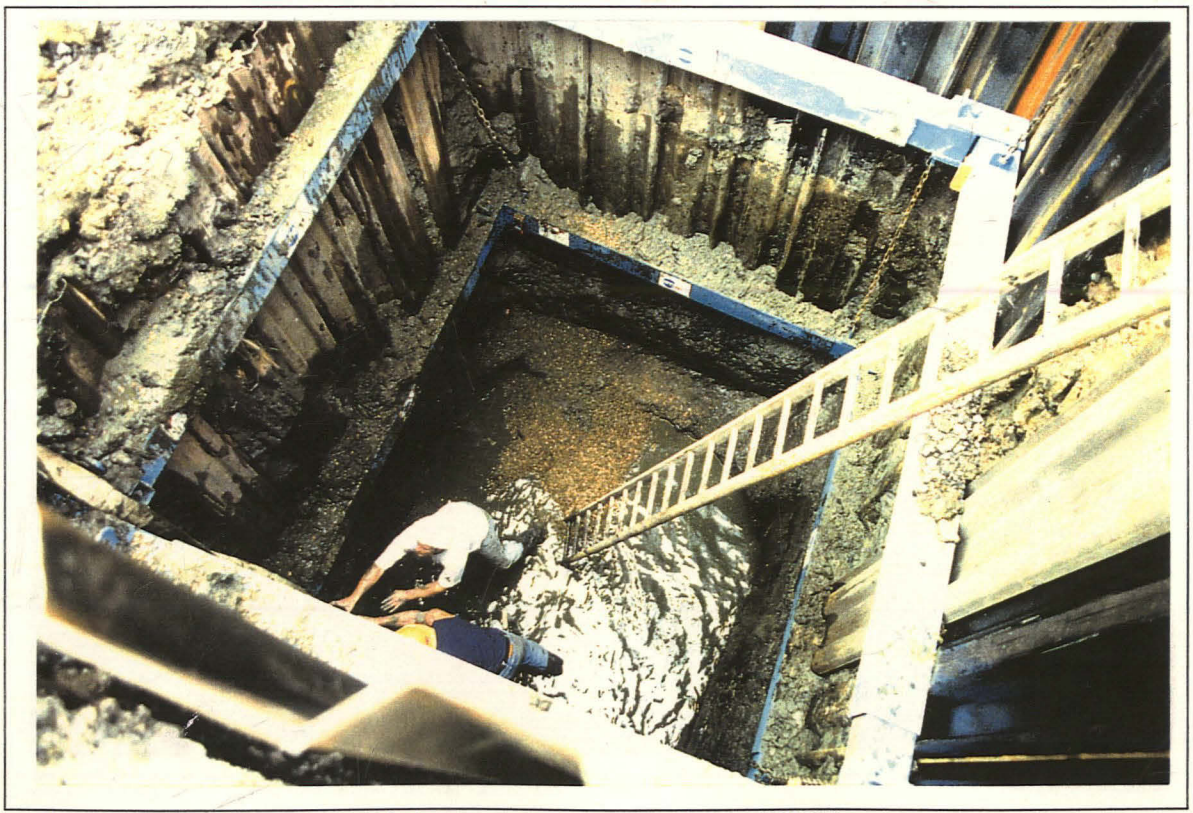


Plate 4: View of excavation in progress for sewer connection at eastern end of site (UCLB95)

APPENDIX A (continued)

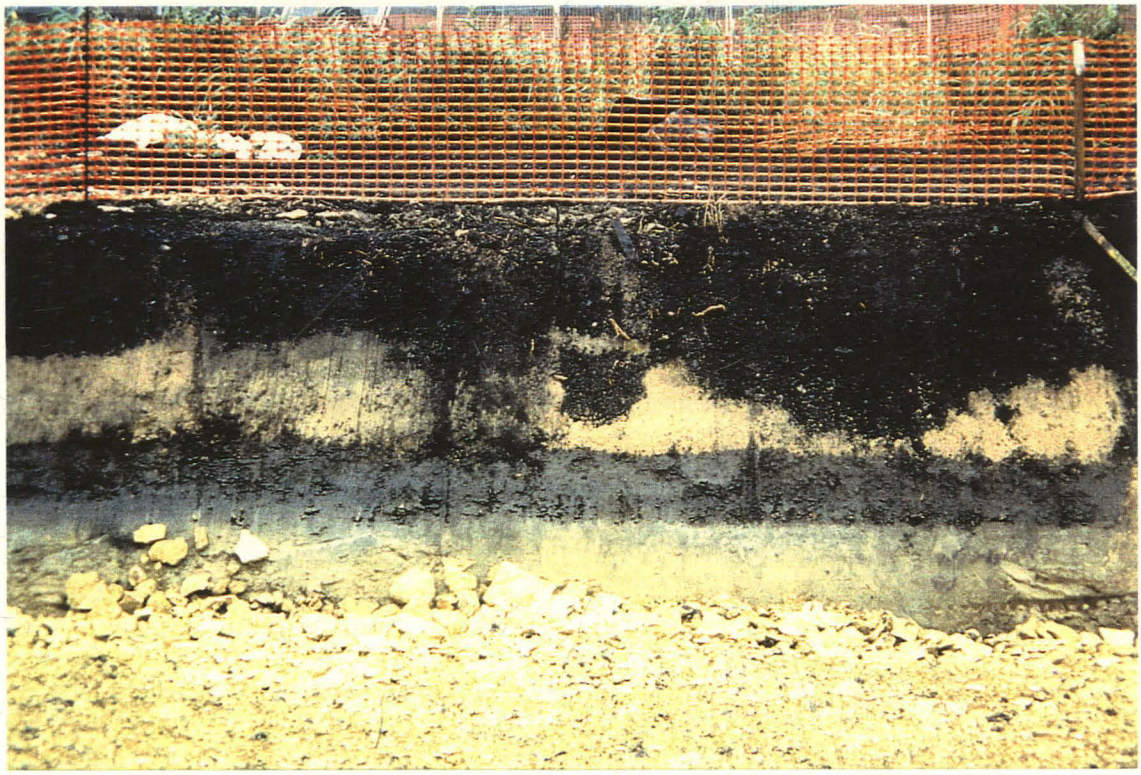


Plate 5: View of typical stratigraphic sequence encountered during groundworks to the south of railway line (ROA95)

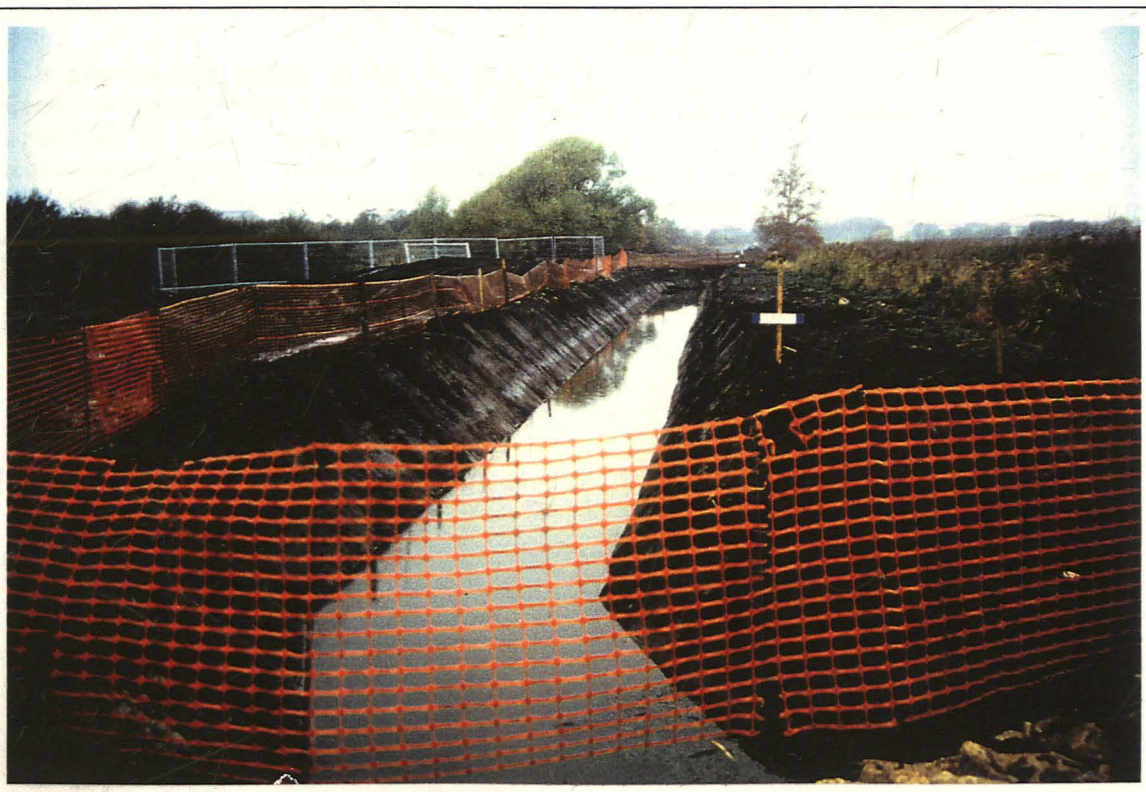


Plate 6: General view of diverted 'Delph', to south of railway (ROA95)

APPENDIX B - ARCHIVE DEPOSITION

1) UCLA95:

the archive consists of:

No.		Description
1		Site diary
1		Report
16		Context records
4		Site Plan drawings
2		Site Section drawings
1	set	Colour slides
1		Stratigraphic matrix

The primary archive material, as detailed above, is currently held by :

The City of Lincoln Archaeology Unit,
Charlotte House,
The Lawn,
Union Road,
Lincoln,
Lincolnshire,
LN1 3BL.

It is intended that transfer to the City and County Museum, Friars Lane, Lincoln, in accordance with current published requirements, under Museum Accession Number 11.95, will be undertaken following completion of this project.

2) UCLB95:

the archive consists of:

No.		Description
1		Site diary
1		Report
9		Context records
1		Site Plan drawings
2		Site Section drawings
1	set	Colour slides
1		Stratigraphic matrix

The primary archive material, as detailed above, is currently held by :

The City of Lincoln Archaeology Unit,
(address as above)

It is intended that transfer to the City and County Museum, Friars Lane, Lincoln, in accordance with current published requirements, under Museum Accession Number 49.95, will be undertaken following completion of this project.

2) ROA95:

the archive consists of:

No.		Description
1		Site diary
1		Report
8		Context records
2		Site Plan drawings
1		Site Section drawings
1	set	Colour slides
1		Stratigraphic matrix

The primary archive material, as detailed above, is currently held by :

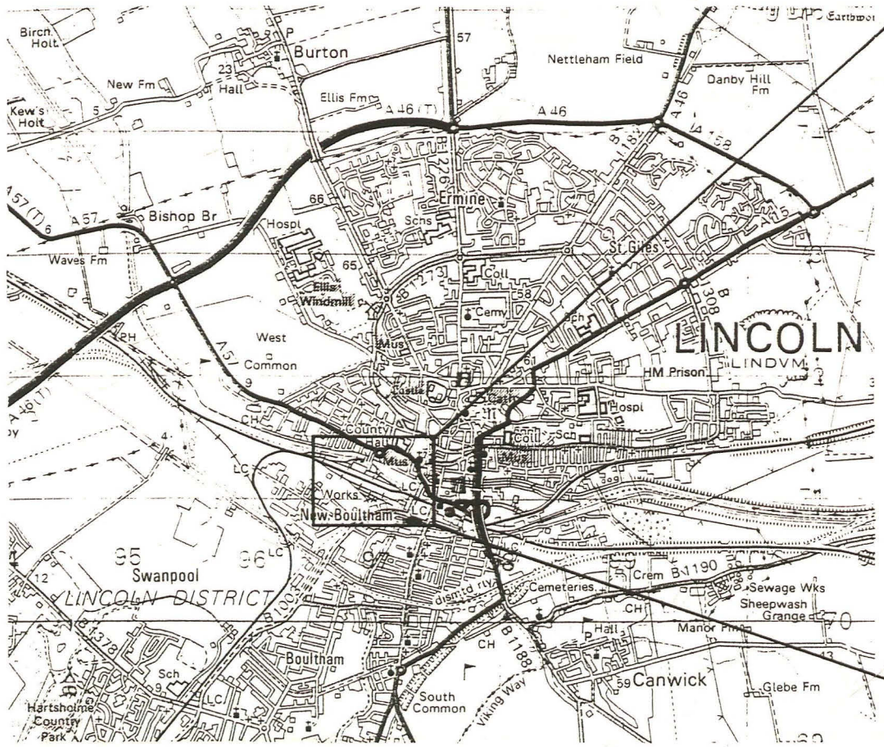
The City of Lincoln Archaeology Unit,
(address as above)

It is intended that transfer to the City and County Museum, Friars Lane, Lincoln, in accordance with current published requirements, under Museum Accession Number 161.95, will be undertaken following completion of this project.

CITY OF LINCOLN ARCHAEOLOGY UNIT		
SITE CODE:	PLAN/ELEV/SECTION NO:	
CLIENT:		
DESCRIPTION: Site Location Plan		
SCALE:	ARCHIVE NO:	
DRAWN BY:	CHECKED:	DATE:
MUSEUM ACCESSION NO:		

N

1:50 000



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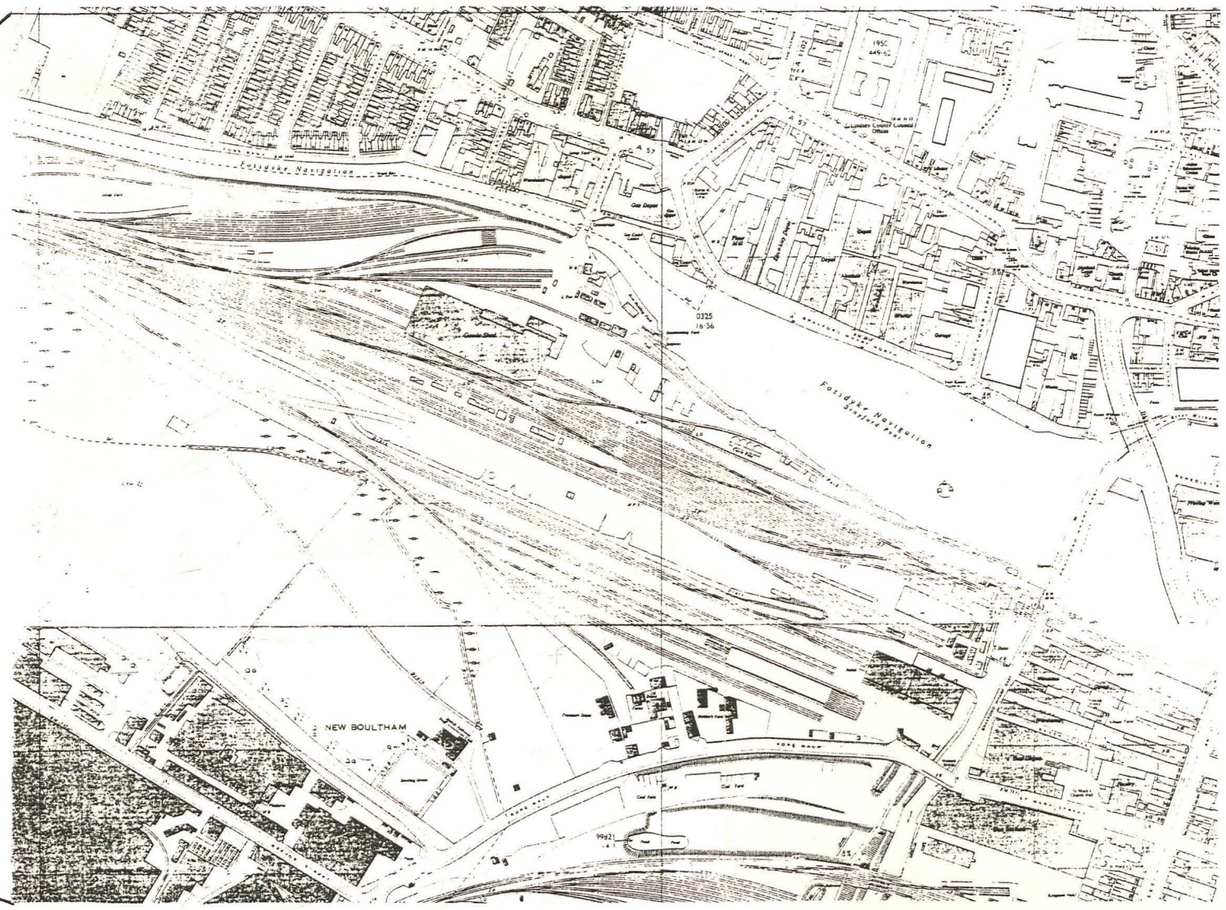

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Fig.1

CITY OF LINCOLN ARCHAEOLOGY UNIT		
SITE CODE: UCLA95	PLAN/ELEV/SECTION NO:	
CLIENT: Lincoln City Council		
DESCRIPTION: Plan Showing Extent of Remediation Works		
SCALE: 1:2500	ARCHIVE NO:	
DRAWN BY:	CHECKED:	DATE:
MUSEUM ACCESSION NO: 11.95		

N

PHASE 1B

PHASE 2A

PHASE 1A

PHASE 2B

PHASE 1C

KEY

- Extent of Phase 1A
- Extent of Phase 1B
- Extent of Phase 1C
- Extent of Phase 2A
- Extent of Phase 2B

Based upon City Engineers & Surveyors Department drawing No.4040/01

Fig.2

N

CITY OF LINCOLN ARCHAEOLOGY UNIT		
SITE CODE: UCLA95	PLAN/ELEV/SECTION NO:	
CLIENT: Lincoln City Council		
DESCRIPTION: Plan Showing Sewer Connection (Brayford Wharf East to High Street)		
SCALE: 1:2500	ARCHIVE NO:	
DRAWN BY:	CHECKED:	DATE:
MUSEUM ACCESSION NO: 11.95		

KEY

Route of Sewer

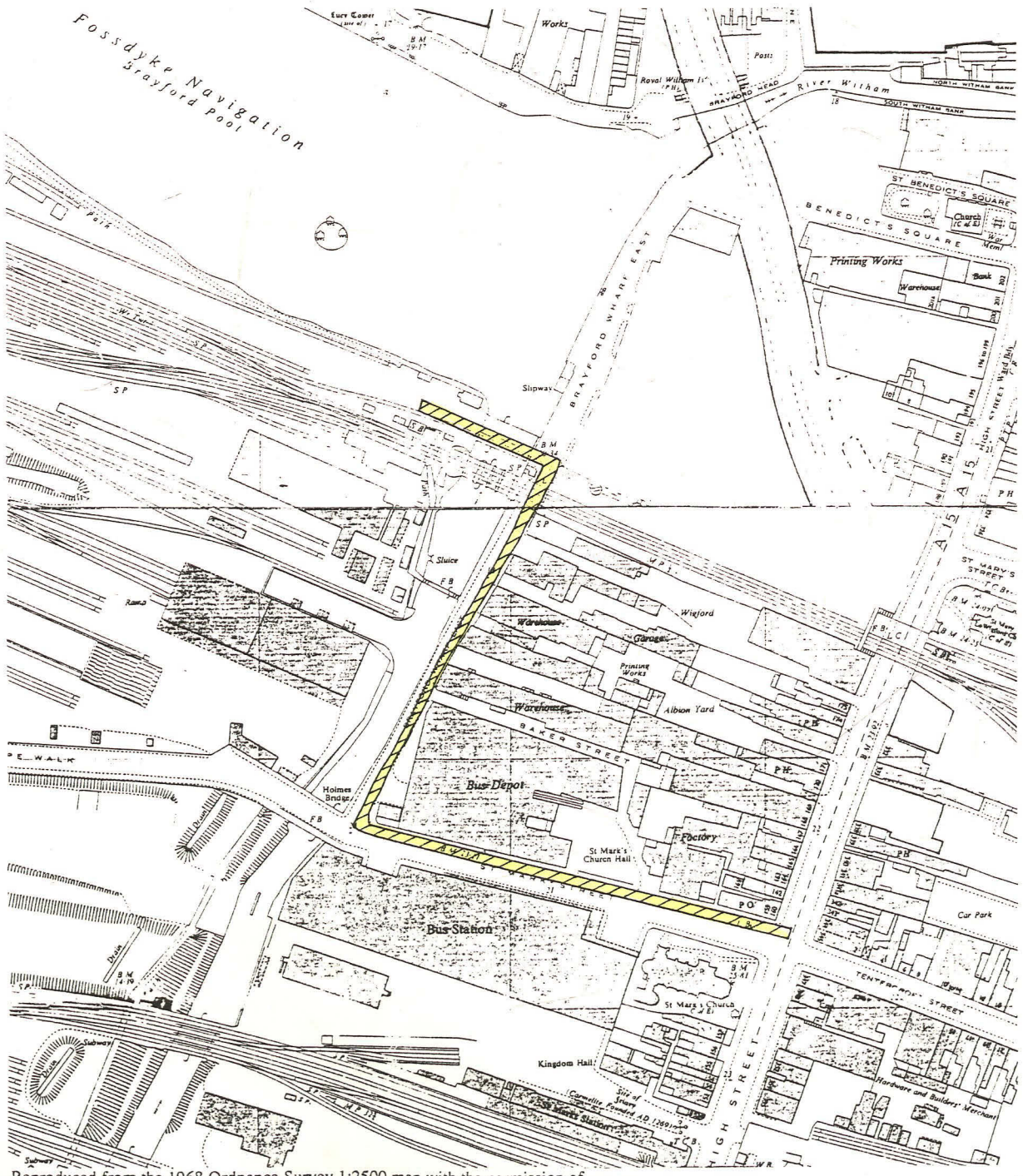
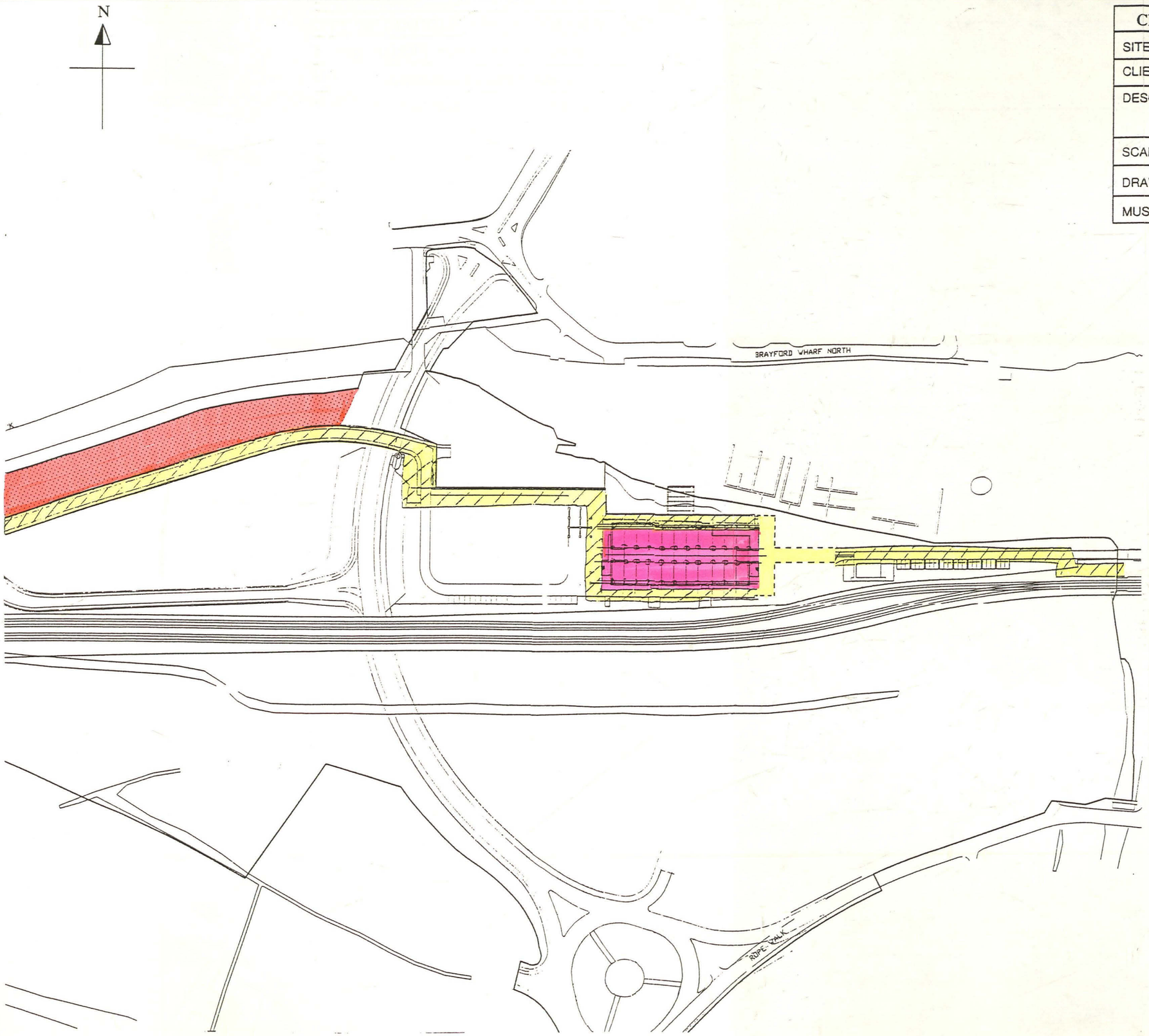


Fig.3

CITY OF LINCOLN ARCHAEOLOGY UNIT		
SITE CODE:UCLB95	PLAN/ELEV/SECTION NO:	
CLIENT: The Project For A University For Lincolnshire Company		
DESCRIPTION: Plan Showing Extent of Phase 1 Construction		
SCALE: 1:2500	ARCHIVE NO:	
DRAWN BY:	CHECKED:	DATE:
MUSEUM ACCESSION NO: 49.95		



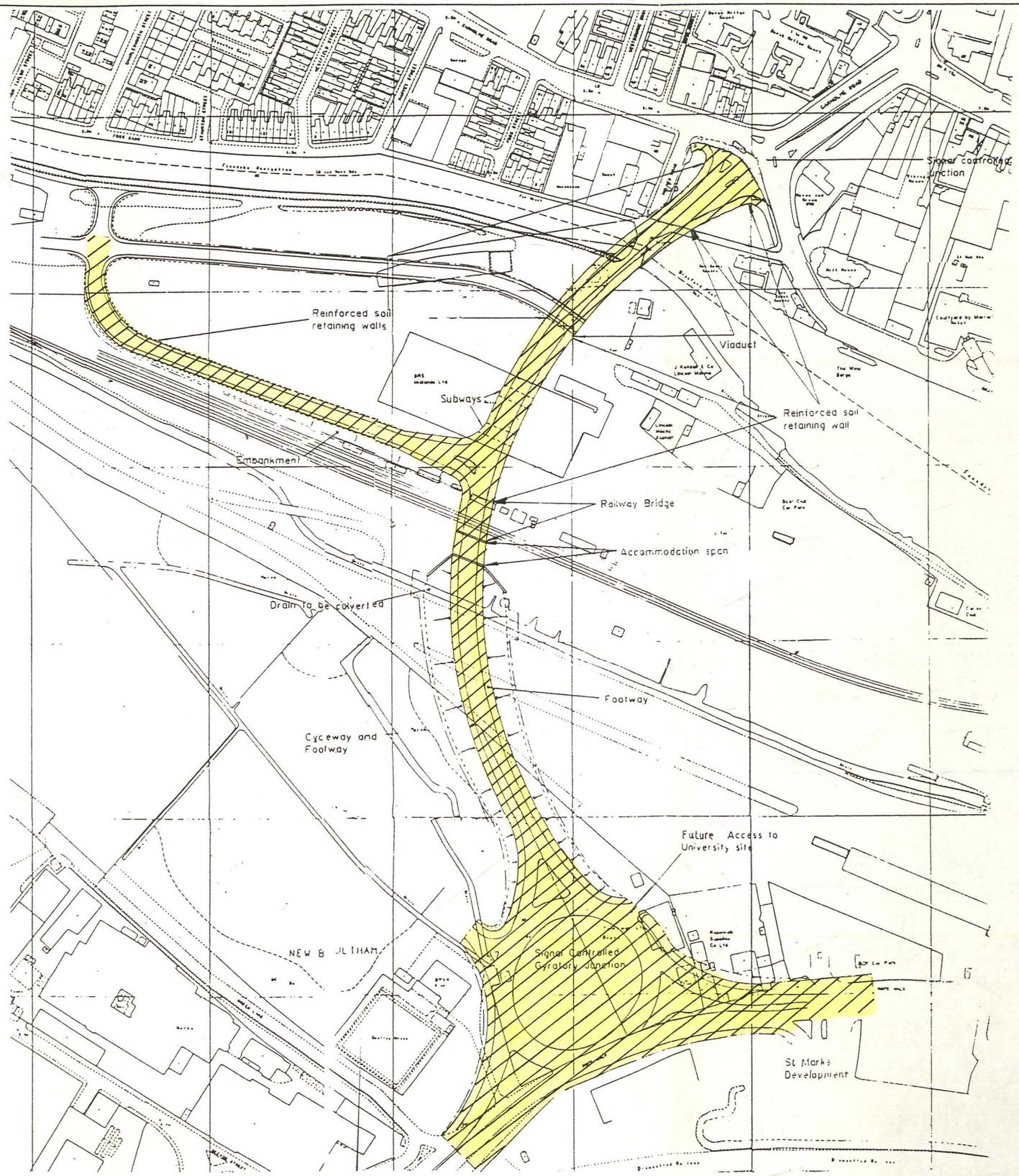
KEY

- Infrastructure Package
- Main Building
- Student Accommodation

Based upon RMJM London Ltd drawing No.LA-2005

Fig.4

N



Based upon Engineering Consultancy Services drawing No.A/N1613/273

CITY OF LINCOLN ARCHAEOLOGY UNIT		
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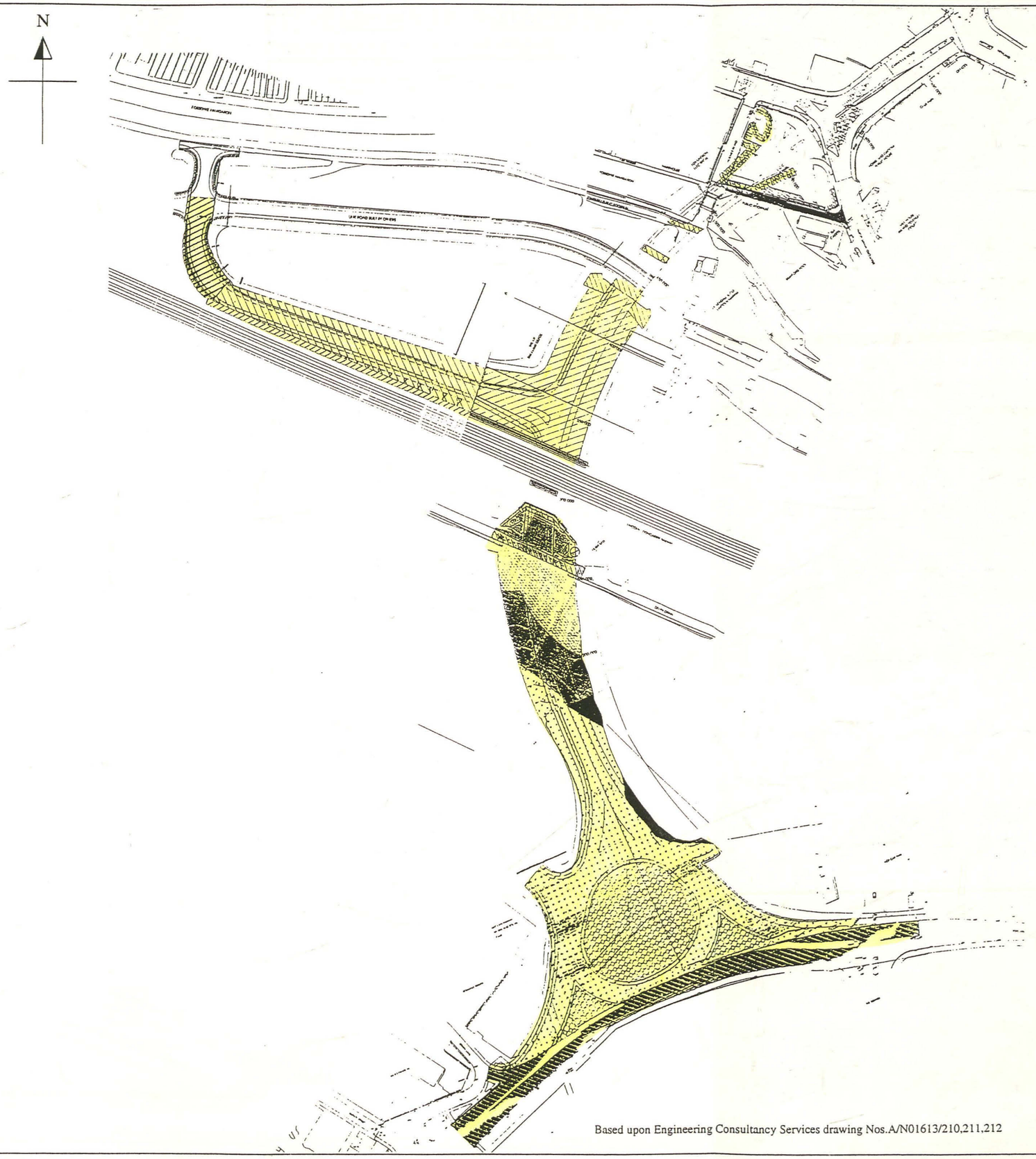
CLIENT: Lincolnshire County Council		
DESCRIPTION: Plan Showing Route of Rope Walk to Carholme Road Link		
SCALE: 1:2500	ARCHIVE NO:	
DRAWN BY:	CHECKED:	DATE:
MUSEUM ACCESSION NO: 161.95		

Fig.5



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CLIENT: Lincolnshire County Council		
DESCRIPTION: Plan Showing Excavation Requirements for Rope Walk to Carholme Road Link		
SCALE: 1:2500	ARCHIVE NO:	
DRAWN BY:	CHECKED:	DATE:
MUSEUM ACCESSION NO: 161.95		

KEY

Areas Requiring Excavation

Based upon Engineering Consultancy Services drawing Nos.A/N01613/210,211,212

Fig.6

N

KEY

Approximate Line of Sewer Trench

Cellar Remains Revealed by Trenching

CITY OF LINCOLN ARCHAEOLOGY UNIT		
SITE CODE: UCLA95	PLAN/ELEV/SECTION NO:	
CLIENT: Lincoln City Council		
DESCRIPTION: Extract from 1887 Ordnance Survey Map Showing Buildings/Cellars Revealed in Sewer Connection Trench		
SCALE: 1:500	ARCHIVE NO:	
DRAWN BY:	CHECKED:	DATE:
MUSEUM ACCESSION NO: 11.95		

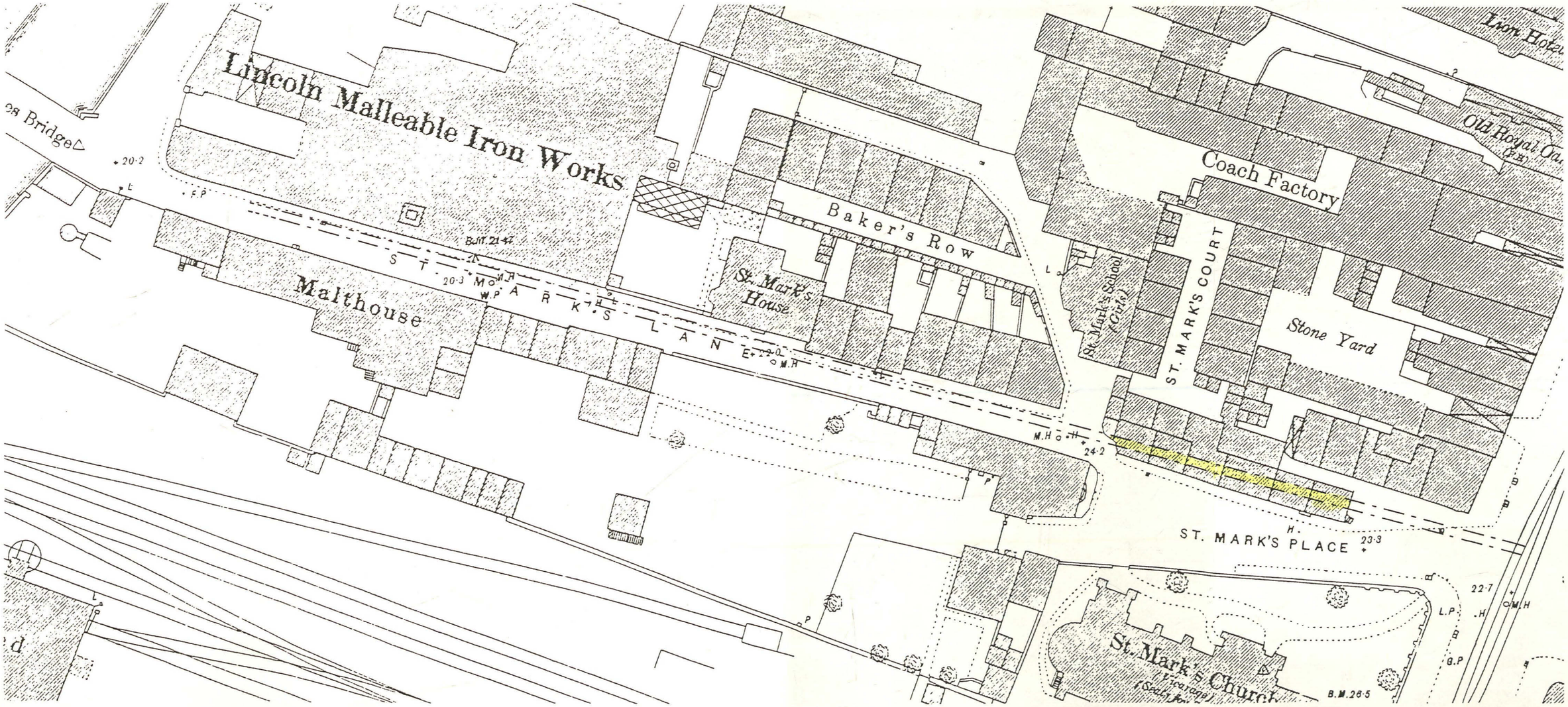

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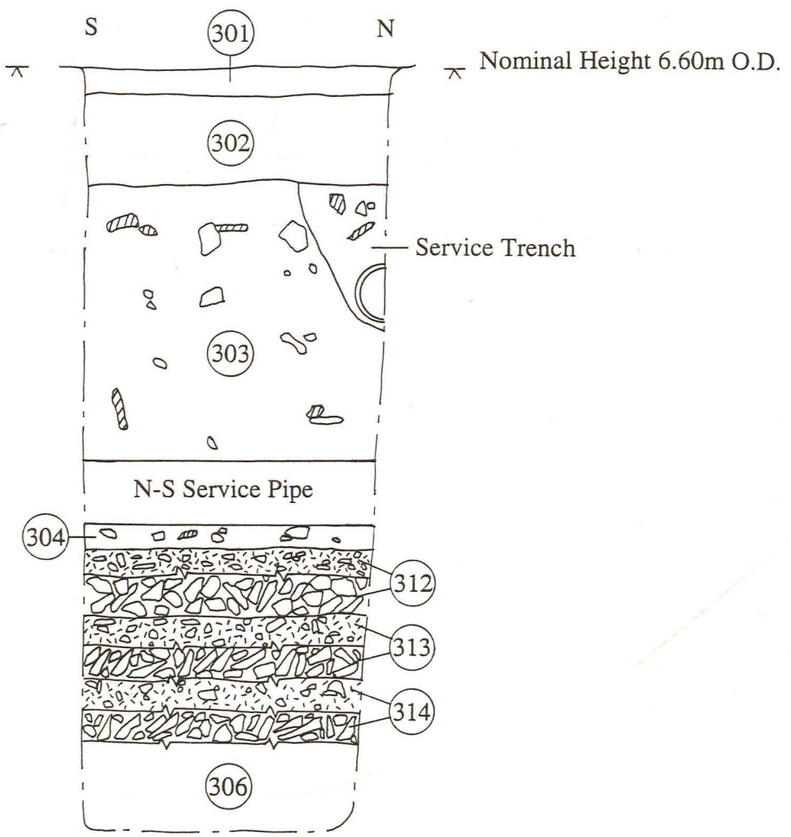
Fig.7

CITY OF LINCOLN ARCHAEOLOGY UNIT		
SITE CODE: UCLA95	PLAN/ELEV/SECTION NO:	
CLIENT: Lincoln City Council		
DESCRIPTION: E- and N-Facing Sections (1) and (2)		
SCALE: 1:20	ARCHIVE NO:	
DRAWN BY: K.W.	CHECKED:	DATE: 29&31/10/95
MUSEUM ACCESSION NO: 11.95		

KEY

- Mortar
- Brick/Tile
- Limestone

Section (1)



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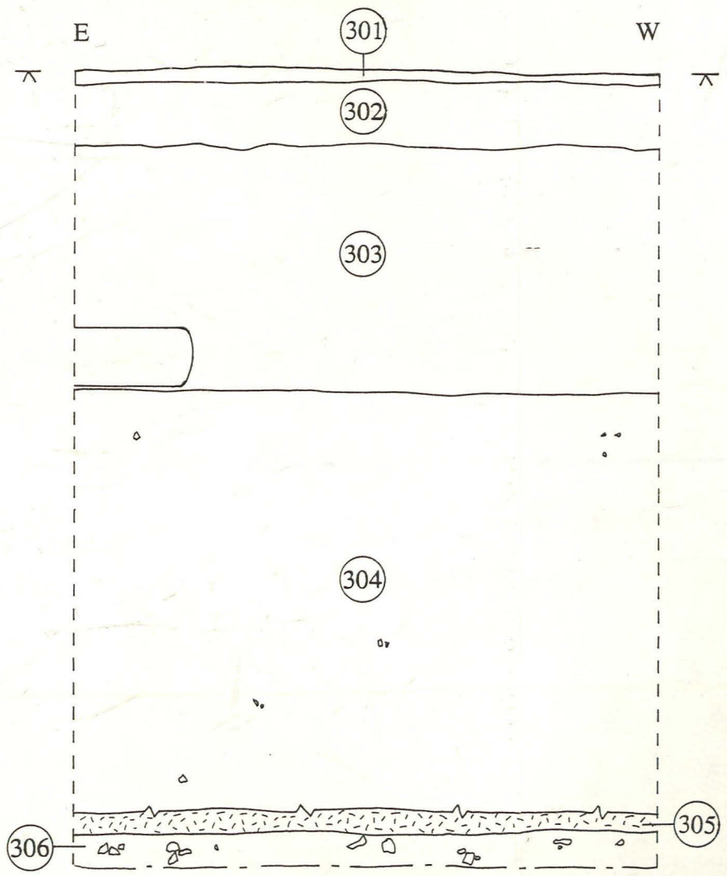

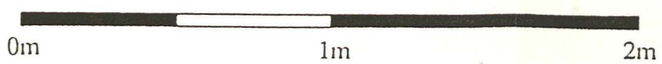

Fig.8

KEY

Brick

Limestone

CITY OF LINCOLN ARCHAEOLOGY UNIT		
SITE CODE:UCLA95	PLAN/ELEV/SECTION NO:	
CLIENT: Lincoln City Council		
DESCRIPTION: N- and W-Facing Sections (3) and (4)		
SCALE: 1:20	ARCHIVE NO:	
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MUSEUM ACCESSION NO: 11.95		

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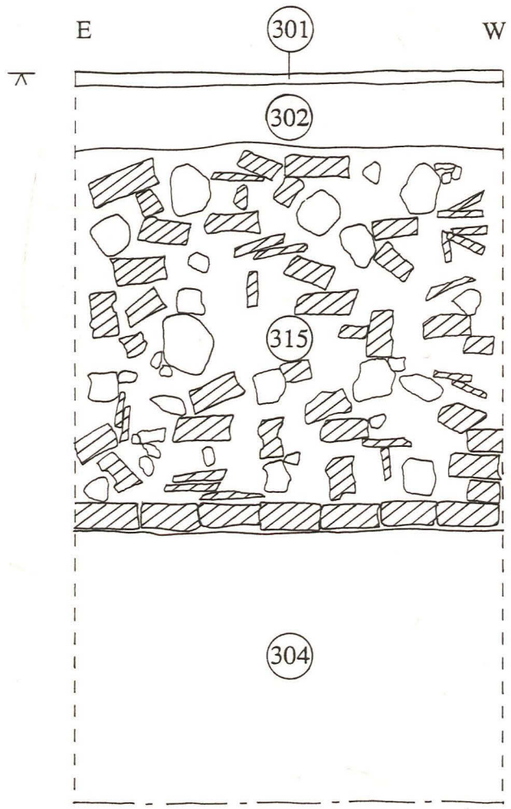

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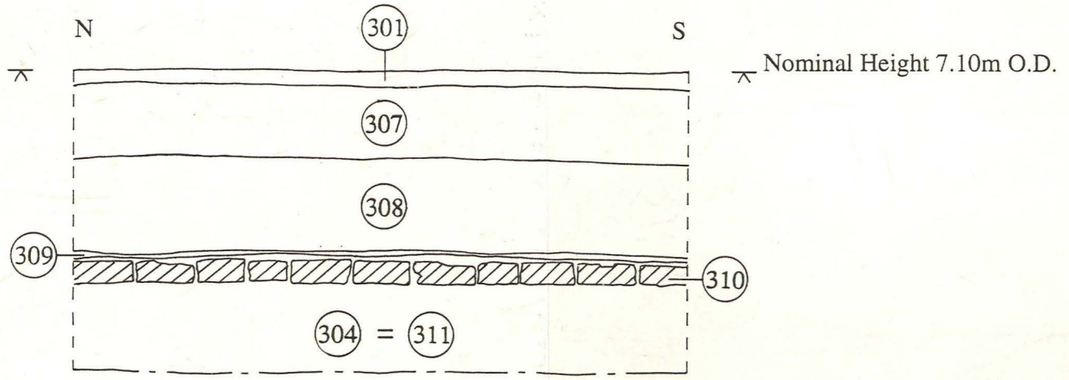

Fig.9

CITY OF LINCOLN ARCHAEOLOGY UNIT		
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CLIENT: Project For A University For Lincolnshire Company		
DESCRIPTION: South-Facing Section (1)		
SCALE: 1:20	ARCHIVE NO:	
DRAWN BY: K.W.	CHECKED:	DATE: 15/05/95
MUSEUM ACCESSION NO: 49.95		

KEY

Sand

Limestone

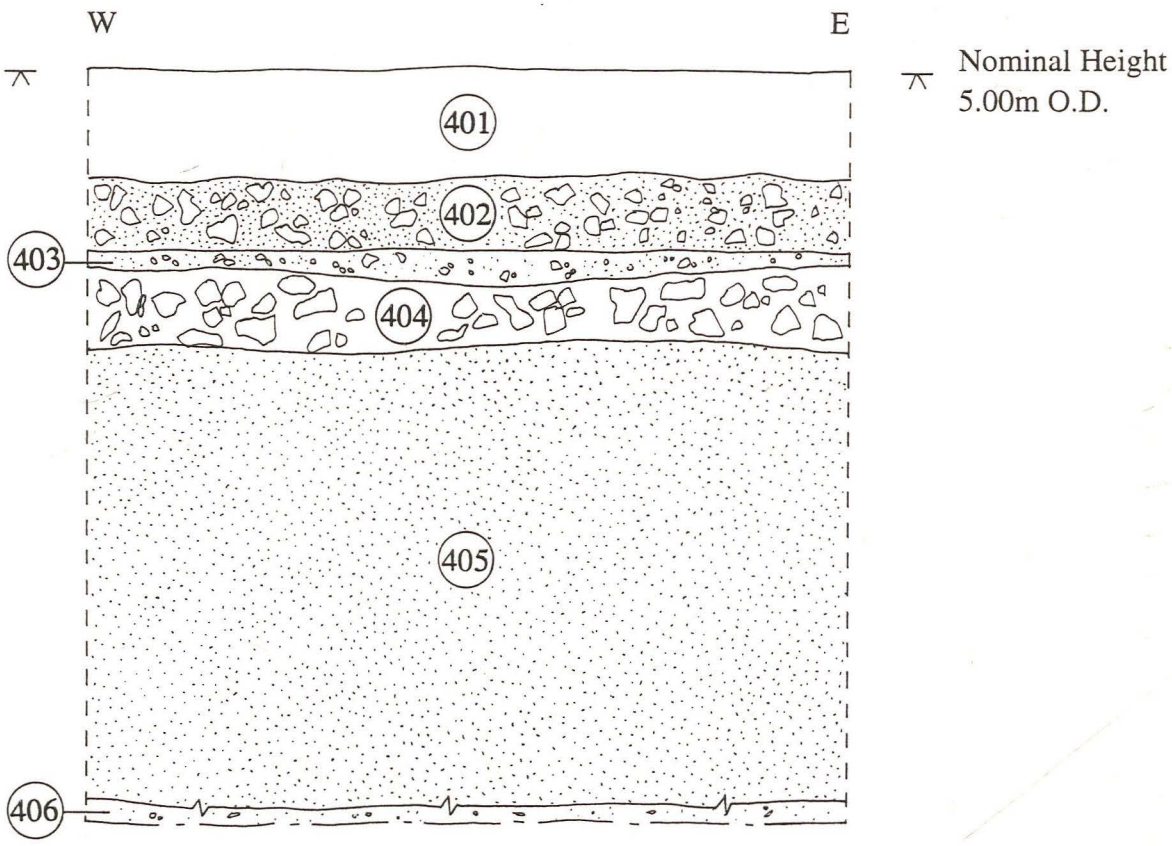
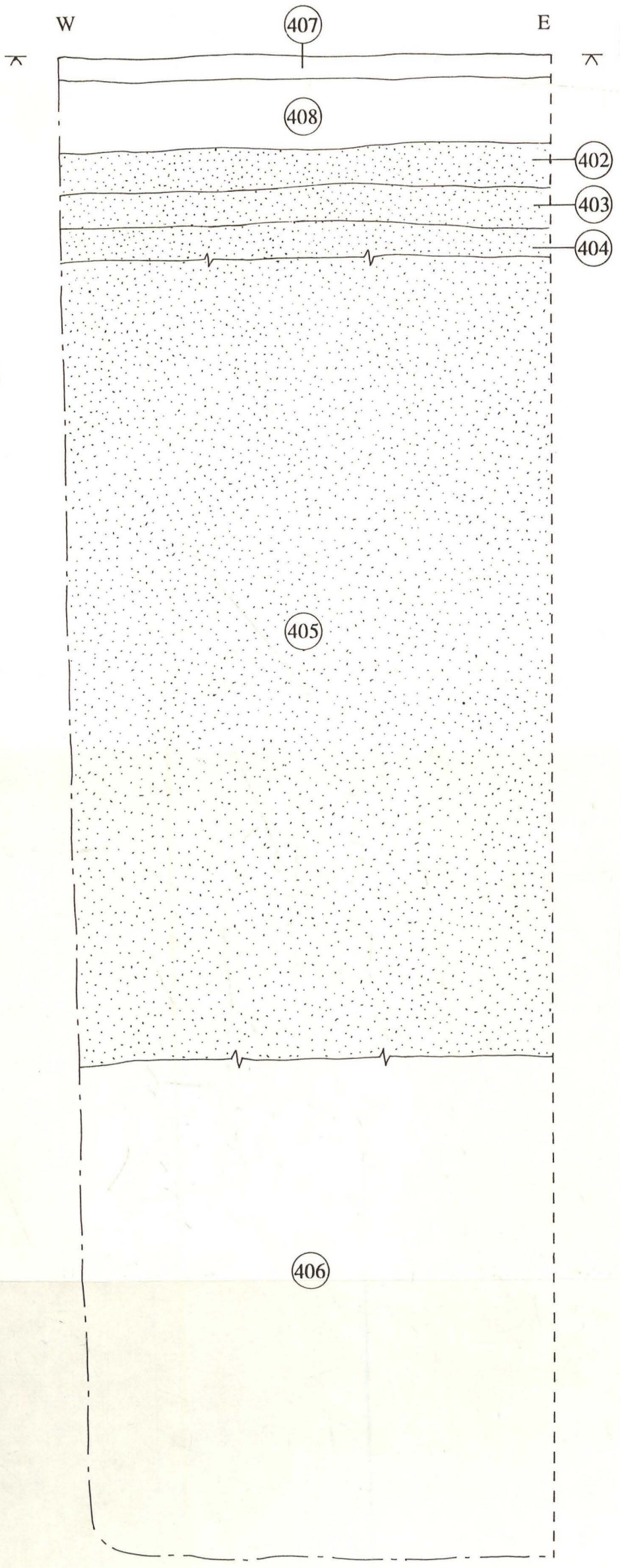


Fig.10



KEY

Sand

CITY OF LINCOLN ARCHAEOLOGY UNIT		
SITE CODE:UCLB95	PLAN/ELEV/SECTION NO:	
CLIENT: The Project For A University For Lincolnshire Company		
DESCRIPTION: South-Facing Section (2)		
SCALE: 1:20	ARCHIVE NO:	
DRAWN BY: K.W.	CHECKED:	DATE: 01/09/95
MUSEUM ACCESSION NO: 49.95		

Fig.11

KEY

Sand

Brick

Limestone

CITY OF LINCOLN ARCHAEOLOGY UNIT		
SITE CODE: ROA95	PLAN/ELEV/SECTION NO:	
CLIENT: Lincolnshire County Council		
DESCRIPTION: N- and W-Facing Sections (1) and (2)		
SCALE: 1:20	ARCHIVE NO:	
DRAWN BY: K.W.	CHECKED:	DATE: 10/11/95 & 04/12/95
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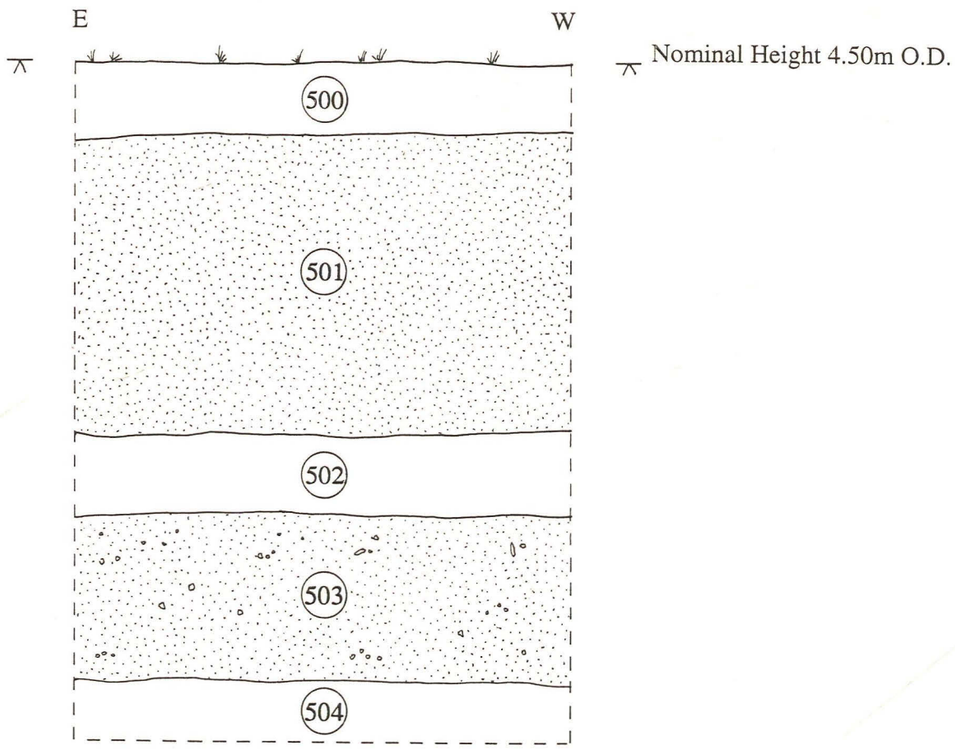

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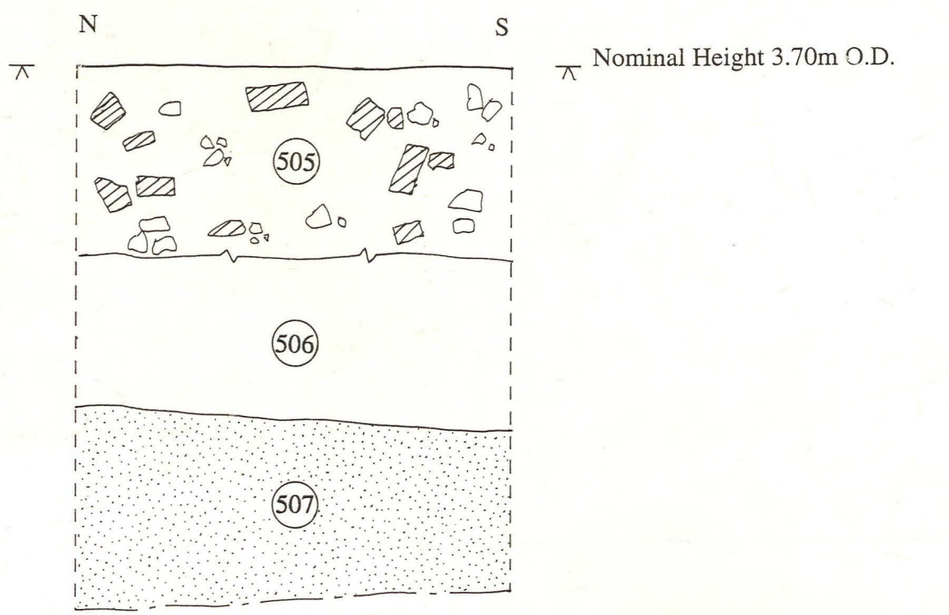

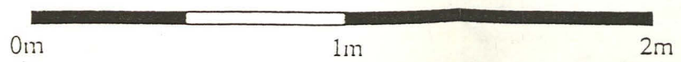

Fig.12