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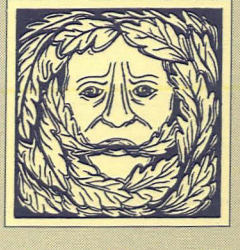
BOREHOLE SURVEY
NAVIGATION YARD,
SLEAFORD,
LINCOLNSHIRE
(SNY 04)
Planning Reference: N/57/0138/03



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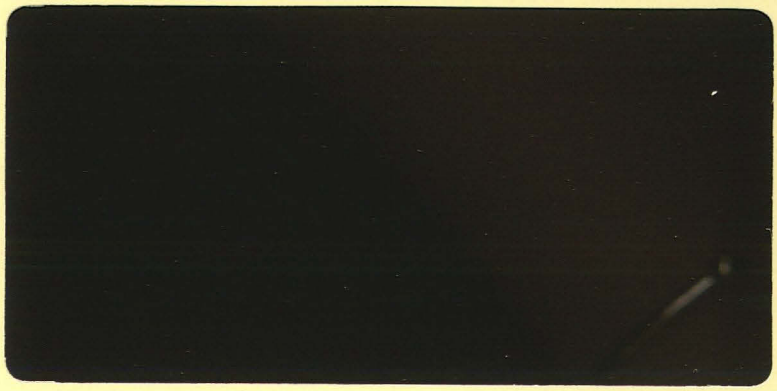

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BOREHOLE SURVEY NAVIGATION YARD, SLEAFORD, LINCOLNSHIRE (SNY 04)

Planning Reference: N/57/0138/03

Work Undertaken For
Westleigh

August 2006

Report Compiled by
Mark Peachey BA with a
contribution by D. J. Rackham and A. Snelling

National Grid Reference: TF 06928 45770
Accession Number: 2004.183

ARCHAEOLOGICAL PROJECT SERVICES

APS Report No. **13/06**

Quality Control

Archaeological Borehole Survey
Navigation Yard, Sleaford

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Surveying	Tobin Rayner
Finds Processing	Denise Buckley
Environmental Assessment	James Rackham, Andrea Snelling
Illustration	Mark Peachey, James Rackham
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Checked by Project Manager	Approved by Senior Project Manager
Mark Williams Mark Williams	Denise Drury
Date: 30 August 2006	Date: 30 August 2006

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1. SUMMARY

A borehole survey was undertaken at Navigation Yard, Sleaford, Lincolnshire as the first part of an archaeological investigation prior to development of flats at the site.

The condition was imposed because the site is archaeologically sensitive. Excavations in the area have revealed evidence of Iron Age, Roman, Saxon and medieval occupation.

The borehole survey found that apart from the northern end of the Rainbow Crafts building the archaeological deposits beneath the site all appear likely to be of post-medieval date, and potentially associated with the construction of the Navigation Yard complex. The three boreholes in the north end of the Rainbow Crafts Building, however, produced a range of ceramics from the 7-9th century up to the post-medieval period suggesting that deposition in this area has a much longer history than elsewhere on the site.

Following the borehole survey it was decided not to implement further stages of archaeological investigation at the site.

2. INTRODUCTION

2.1 Planning Background

Archaeological Project Services (APS) was commissioned by Westleigh to undertake an investigation, commencing with a borehole survey, at Navigation Yard, Sleaford, Lincolnshire. A planning application (N/57/0138/03) had been submitted to North Kesteven District Council for the erection of 21 flats at the site subject to a condition requiring the implementation of a borehole survey as the first stage of a scheme of investigation and assessment prior to groundworks commencing on site. This information will enable the Local Planning Authority to assess the potential impact of the development on these remains. The work was carried out on 7th and 8th October 2004 in accordance with a specification designed by APS (Appendix 1) and approved by the local planning authority.

2.2 Tography and Geology

Sleaford is located about 17km northeast of Grantham and 23km west of Boston in the North Kesteven District of Lincolnshire. The site lies in the town centre, on the eastern side of Carre Street and the north bank of the River Slea, centred on National Grid Reference TF 06928 45770. The site area covers approximately 0.09Ha, (0.25 acre). Warehousing and rebuilt stables occupied most of the ground surface. The remainder was road and car parking.

The site lies in a built-up area, on the north side of the River Slea, at approximately 15m OD. As an urban area the soils have not been mapped, however soils are likely to be of the Newsleaford Series, typically brown calcareous sand or the Aswarby Series, brown calcareous earths (George and Robson 1978).

2.3 Archaeological Setting

Sleaford is situated in an area of known archaeological remains dating from Neolithic times to the present. The town has expanded to cover several previous foci of settlement and other activity dating from the prehistoric. To the southeast of the site lies a Middle Iron Age enclosure, one of several in the vicinity of the town, and which may be associated with settlement of the period identified further to the east (Rayner 1999, 10). By the Late Iron Age, the focus centred on Old Place, 600m to the east of the site. High status pottery and a significant collection of coin pellet mould fragments were found adjacent to Old Place and has led to speculation that at this time Sleaford was

an important centre or *oppidum* of the *Corieltauvi*, a local tribe (Elsdon 1997, 75). Evidence for Roman occupation has been found along the route of the Roman road, Mareham Lane (Cope-Faulkner 2006).

Evidence of Anglo-Saxon occupation has been recovered, including evidence from a large Anglo-Saxon cemetery approximately 400m south of the site. Medieval remains from Sleaford include the former St Giles church that was founded during the late Saxon period. The site lies in the centre of the present town about 125m south of St Denys'church, the earliest portion of which dates from *c*1180. Excavations in the Market Place, adjacent to St Denys', revealed Anglo-Saxon structures and Late Saxon pits.

Sleaford is first mentioned in AD 825 in a charter relating to the leasing of land at Sempringham by Peterborough Abbey (Hart 1966, 100) and confirmed in the Anglo-Saxon chronicle (Swanton 1997, 65). Referred to as *Slioforda*, the name is derived from the Old English and means the ford over the '*sliowa*', meaning muddy water (Cameron 1998, 112).

The site occupies part of Navigation Yard, located on the northern bank of the diverted and canalised River Slea. Extensive evidence of Iron Age, Roman and Anglo-Saxon remains are known to the east, and Anglo-Saxon and medieval evidence relating to the origins and development of the present town are concentrated to the north and west.

Previous work along the River Slea, notably at the Hoplands to the east and the Tourist Information Centre on the west side of Carre Street, has revealed organic deposits in an excellent state of preservation. A radiocarbon date on a piece of worked wood from the Hoplands yielded a Mesolithic date. Further analytical work on the environmental samples from the Hoplands has not yet been carried out, but has the potential to contain important information about the development and nature of the settlement in the prehistoric and Roman periods.

Navigation Yard as a whole is undergoing a programme of redevelopment. The former seed warehouse is currently being converted and extended to accommodate an Arts Centre. New workshops have been constructed. Navigation House will be renovated as a Heritage Centre.

Archaeological monitoring of the groundworks associated with the above developments show that approximately 0.7m of 19th century and modern make up material exists throughout the site, overlying a former soil horizon. Deposits beneath this soil horizon have not been exposed during development. Archaeological monitoring of piling for the Seed warehouse extension observed organic material, silts, sands and gravels at depth.

3. AIMS AND OBJECTIVES

The main aim of the borehole survey was to :

Archaeologically examine, record and analyse the sequence of deposits that exist within the proposed development area and make the results available.

The objectives were to gather sufficient information to:

Characterize the sedimentary history of the development area.

Date the sequence

Establish the potential for archaeological remains to be present at depth.

Assess the archaeo-environmental potential of the sediments.

4. Revised assessment report on the results of a borehole survey by D.J. Rackham and A. Snelling

Introduction

A borehole survey was stipulated as a requirement for the archaeological assessment of the land at Navigation Yard, Sleaford. Archaeological Project Services commissioned the Environmental Archaeology Consultancy to carry out this survey. The following report details the results of the work.

Auger Survey

A series of boreholes (Fig. 3) were sunk over a two day period within the existing office building (formerly Rainbow Craft Fairs) and the adjacent warehouse to determine the strata beneath the concrete slab. A small caterpillar tracked Premier Track Rig was used in order to obtain access into the office building in which the ceilings were too low for a conventional rig. The initial series of eight exploratory boreholes were carried out using a window sampler which permitted the recording of the deposits as they were cored. Several samples were collected from the window sampler for subsequent washing to improve the efficiency of the recovery of pottery and any finds that would assist in dating the sediments that were cored (Appendices 2 and 3). Two locations were then chosen (boreholes 9 and 10) to remove intact undisturbed cores of the organic sediments encountered that would be suitable for post-excavation palaeoenvironmental study should this be required. The boreholes were cored until the natural glacial gravels were reached and then terminated.

The borehole logs are attached as an appendix (see Appendix 1 below).

Rainbow Crafts Building

Four boreholes were sunk along the length of this building (Figs. 3 and 4) and recorded on site. The whole sequence overlies calcareous river sands and gravels, with the basal depth rising from 3.4m in the south to 2.3m in the north towards the north bank of the river channel. A series of waterlain sands and silts overlie the gravels in all four of the boreholes indicating that this whole transect lay within the river system in the past. These sands and coarse silts are overlain by organic silts with numerous freshwater shells indicating deposits laid down under a reduced water flow, but still within the river system. These deposits are not necessarily synchronous. Post-medieval tile was recovered from Borehole 2 at a depth of 245-255cms in waterlain deposits while in Borehole 1 13-15th century ceramics were recovered at 130-160cms depth and in Borehole 10 immediately north of BH1 7th-9th century pottery was recovered at 159cms, although brick fragments were also recorded at this level. These waterlain deposits to the north of the site are likely to be earlier than those deposited at a similar level closer to the present river course.

In the northern two boreholes (BH1 and BH4) the deposits above the riverine sediments were disturbed, wet and included a mixture of waterlain, limestone rubble, sandy silts and some occupation debris such as brick, mortar and bone. These may be dump or make-up deposits accumulating on the edge of the river channel. They are overlain by what appears to be a garden soil, a sandy silt loam with brick/tile, clay pipe and pottery. Fragments of pottery from these deposits indicate a late 18th century date.

In contrast the southern part of the site (BH2 and BH3) has deposits that reflect fill overlying the riverine sediments. These comprise sandy silts with limestone rubble, pebbles, coal, occasional wood and brick fragments and coarse sand. These sediments directly underlie the concrete and hardcore covering the whole site. The post-medieval tile fragment at 245-255cm depth in BH2 suggests that most of these deposits were probably dumped in the post-medieval period to make up the ground for the early development of Navigation Yard.

This contrast between the northern and southern halves of the site indicates two different histories. The northern half has clearly had a much longer history of occupation and activity and the incorporation of material dating from the 7-9th, 13-15th and late 18th centuries indicates local activity and possibly dumping along the northern river margin throughout the medieval period. Charred barley grains in deposits down to 180cms (see Appendix 2) reinforces the evidence for occupation debris. The sandy character of the basal deposits overlying the gravels indicates that the whole of the transect has at some time lain within the main channel of the river.

The Warehouse

Beneath the warehouse tarmac floor calcareous river gravels are recorded at depths below 2.8m (fig. 5). In contrast to the Rainbow Crafts Building the base level appears to drop slightly northwards, away from the present river course. A basal sequence of organic sands and coarse silts is recorded in all the boreholes and these are capped by waterlain organic silts with freshwater shells in a similar sequence to the boreholes to the west. In Borehole 5 at a depth of 246-257cm a stone, slag and ashy(?) layer occurs sandwiched by waterlain deposits. These riverine sediments are overlain by dark grey sandy silts, with a little clay and including brick fragments and limestone. These are interpreted as fill or levelling deposits and are capped by a thin soil layer (garden soil). The soil layer is covered with limestone hardcore and tarmac laid over this. A tile frament attributed to the late post-medieval period at a depth of 170-190cms in Borehole 8 on the west side of the warehouse suggests that the bulk of these upper deposits are post-medieval in date and are probably associated with the development of Navigation Yard. Borehole 7 initially hit horizontal limestone at a depth of 0.7m. This was clearly a large block of stone and the borehole had to be relocated 0.8m north. It is possible that the stone represented some earlier stone revettment to that of the present stone river revettment several metres to the south or perhaps another structure.

Discussion

Apart from the northern end of the Rainbow Crafts building the archaeological deposits beneath the site all appear likely to be of post-medieval date, and potentially associated with the construction of the Navigation Yard complex. The three boreholes in the north end of the Rainbow Crafts Building however have produced a range of ceramics from the 7-9th century up to the post-medieval period suggesting that deposition in this area has a much longer history than elsewhere on the site.

The two sample core series taken for potential post-excavation study of the palaeoenvironmental history of the site have been opened and described (Appendix 4). Borehole 9, taken within the warehouse, indicates a sequence of approximately 80cm of silty peats, organic silts and organic sands beneath the fill deposits and overlying the calacareous gravels. In Borehole 10 at the northern end of the Rainbow Crafts Building a sequence of approximately 90cm of silty peats, organic silts and organic sands is recorded. Both these sequences have a relatively high potential for analysing the local

vegetational history of the area during the build up of these sediments. Borehole 10 has been selected for further study and two radiocarbon samples from the base and top of the organic sequence in this core were submitted for analysis. The results are indicated in Table 1.

Table 1. Radiocarbon results on the samples submitted from Borehole 10. (The calibration curves are presented in Appendix 5)

Sample Data	Measured Radiocarbon Age	13C/12C Ratio	Conventional Radiocarbon Age(*)
Beta - 202508 SAMPLE : SNYBH10TOPPT ANALYSIS : Radiometric-Standard delivery MATERIAL/PRETREATMENT : (organic sediment): acid washes 2 SIGMA CALIBRATION : Cal AD 650 to 880 (Cal BP 1300 to 1070)	1350 +/- 60 BP	-28.7 o/oo	1290 +/- 60 BP
Beta - 202509 SAMPLE : SNYBH10BTMPT ANALYSIS : Radiometric-Standard delivery MATERIAL/PRETREATMENT : (peat): acid washes 2 SIGMA CALIBRATION : Cal AD 560 to 690 (Cal BP 1390 to 1260)	1460 +/- 50 BP	-28.5 o/oo	1410 +/- 50 BP

These results indicate that the organic sediments above the gravels in Borehole 10 date to perhaps less than a hundred years in the 7th century AD. This is consistent with the finds of Saxon pottery in the deposits above and indicates that the palaeoenvironmental evidence contained within these deposits is contemporary with the Saxon settlement evidence from nearby Quarrington and Holdingham (Taylor 2003; unpublished) and any middle Saxon activity within Sleaford itself.

Recommendations

The organic sediments in the core taken from Borehole 10 can give a picture of the local environment of Sleaford in the 7th century AD. The chances of finding similarly dated deposits suitable for palaeoenvironmental studies are low. With two known settlements in the area and a strong possibility of Saxon activity very nearby the pollen analysis of these sediments can be expected to give some information on the character of the landscape in the locale and evidence for local human impact in the middle Saxon period.

Acknowledgements

The boreholes and coring was undertaken by Site Investigation Services, Gainsborough. The surveying was carried out by Mark Peachey and Tobin Rayner of Archaeological Project Services (APS). Hilary Healey and Gary Taylor kindly identified the finds. The radiocarbon dates were undertaken by Beta Analytic Inc, Miami.

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5. APS ACKNOWLEDGEMENTS

Archaeological Project Services would like to acknowledge the assistance of James Rackham in carrying out the project. The work was co-ordinated by Tobin Rayner and Mark Williams and this report was edited by Mark Williams and Tom Lane.

6. PERSONNEL

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Site Supervisor: Mark Peachey
Surveying: Tobin Rayner
Photographic reproduction: Sue Unsworth
CAD Illustration: Mark Peachey
Post-excavation analysis: Mark Peachey

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8. ABBREVIATIONS

APS Archaeological Project Services

IFA Institute of Field Archaeologists

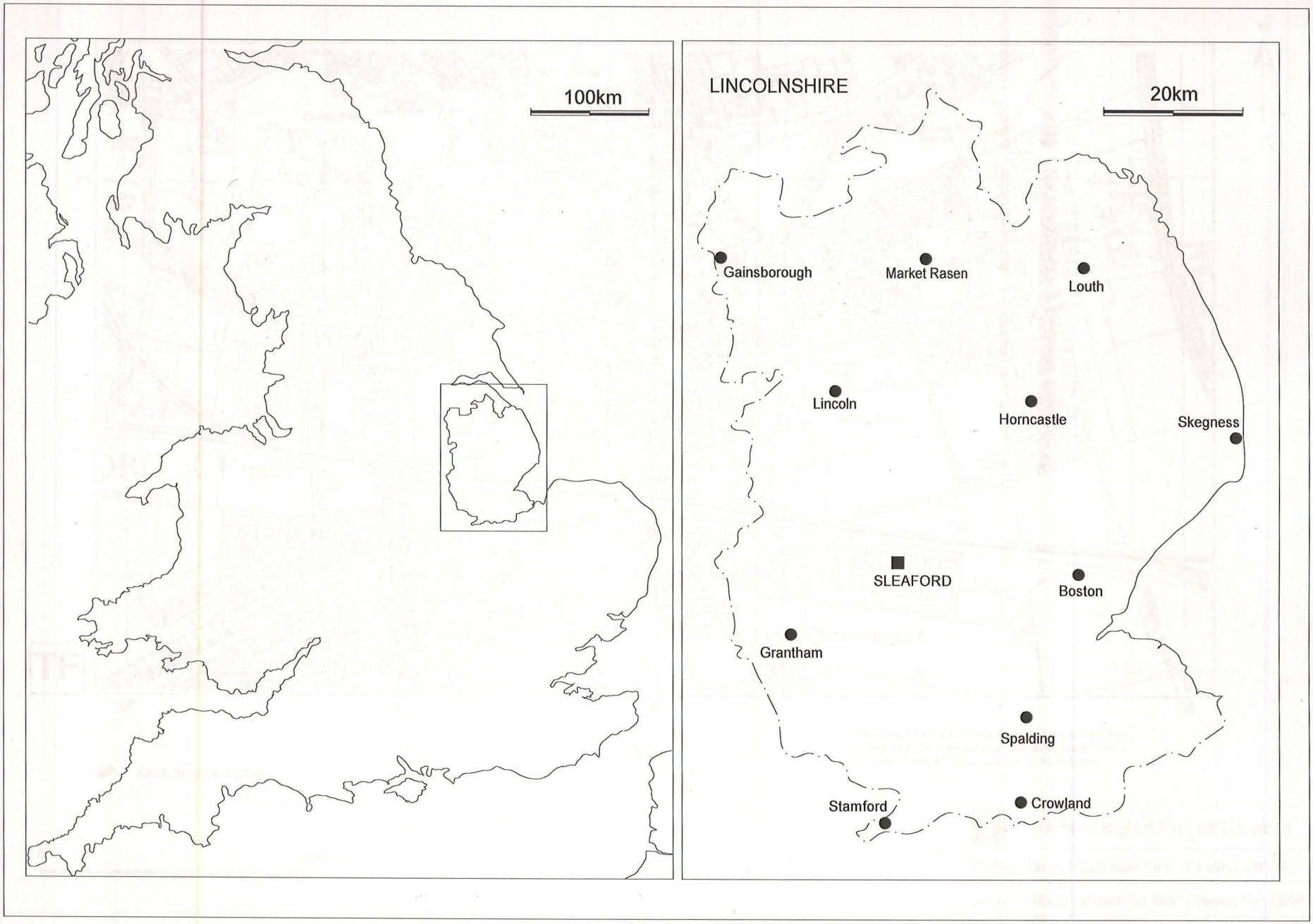
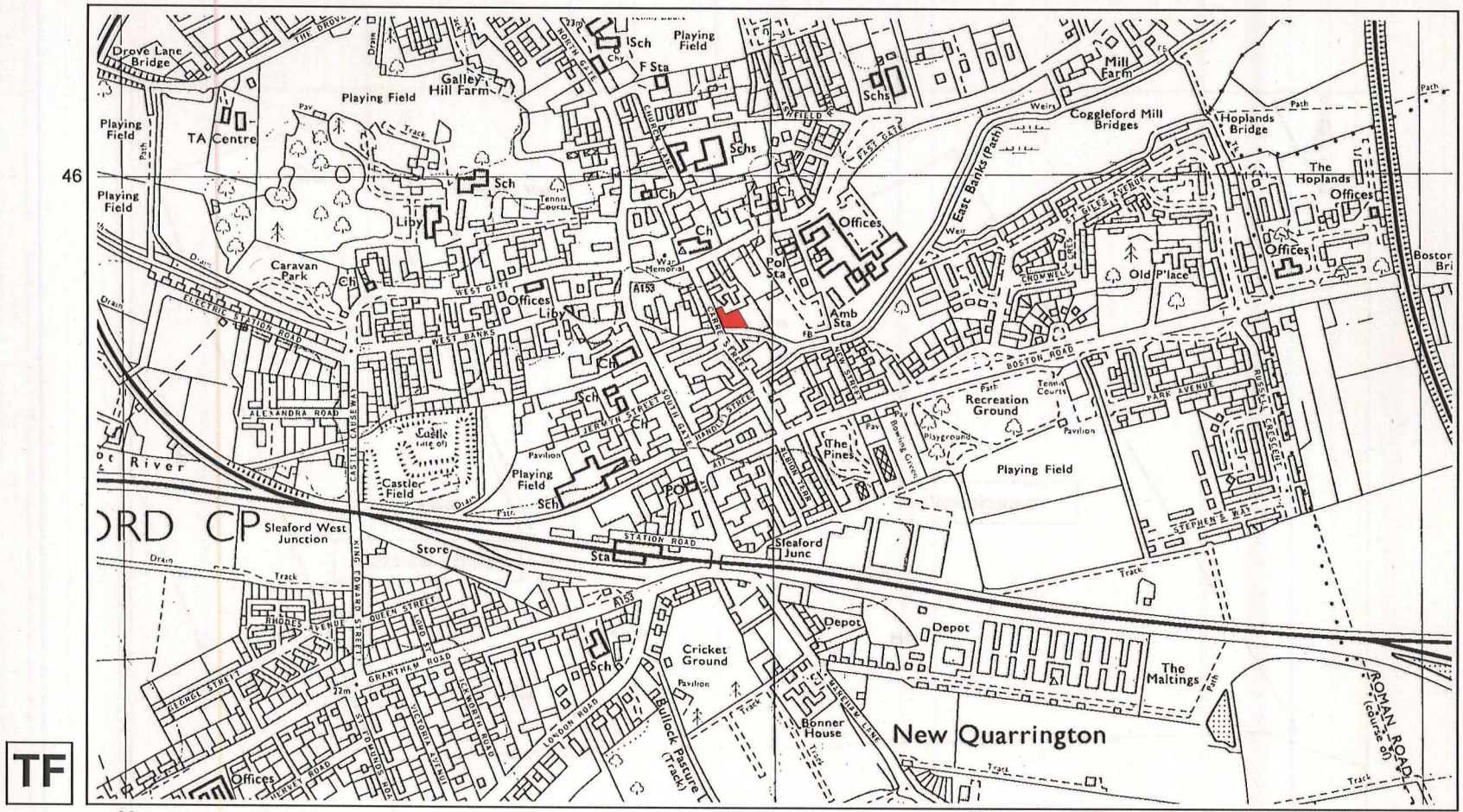


Figure 1: General Location Plan

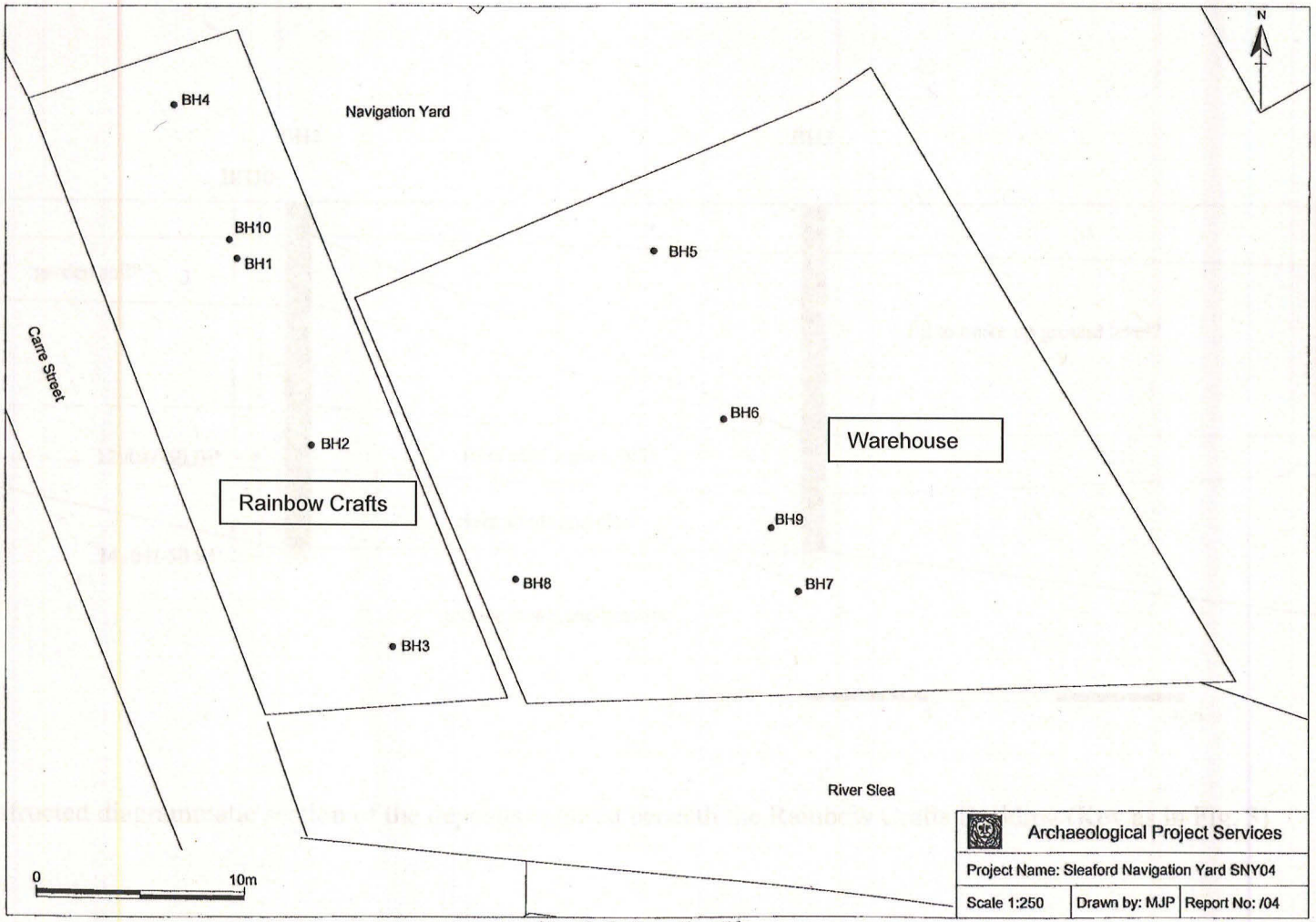


Area of development

0 500m

Archaeological Project Services		
Project Name: Navigation Yard, Sleaford SNY04		
Scale 1:10000	Drawn by: MJP	Report No: 13/06

Figure 2 - Site location plan



Borehole Location Plan

Figure 3. Location of the boreholes. Boreholes 9 and 10 were sampled cores.

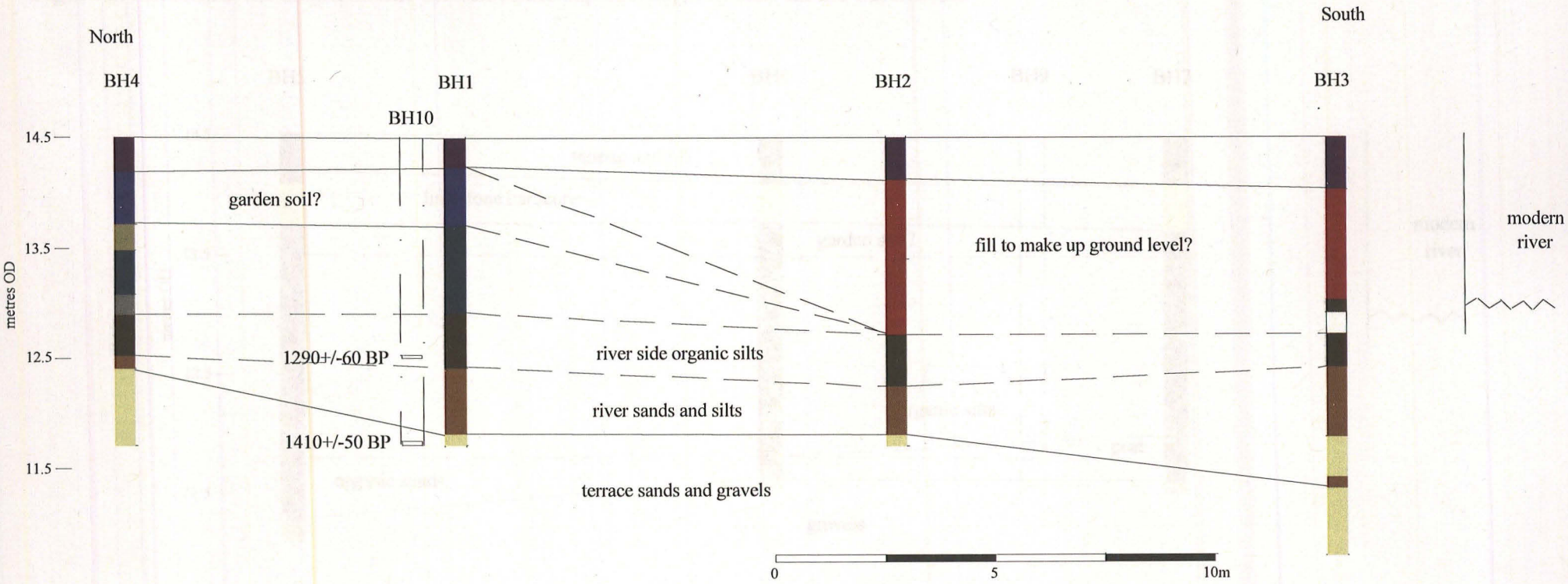


Figure 4. Reconstructed diagrammatic section of the deposits augered beneath the Rainbow Crafts Building (Key as in Fig. 3)

Figure 5. Reconstructed diagrammatic section of the deposits augered beneath the warehouse.

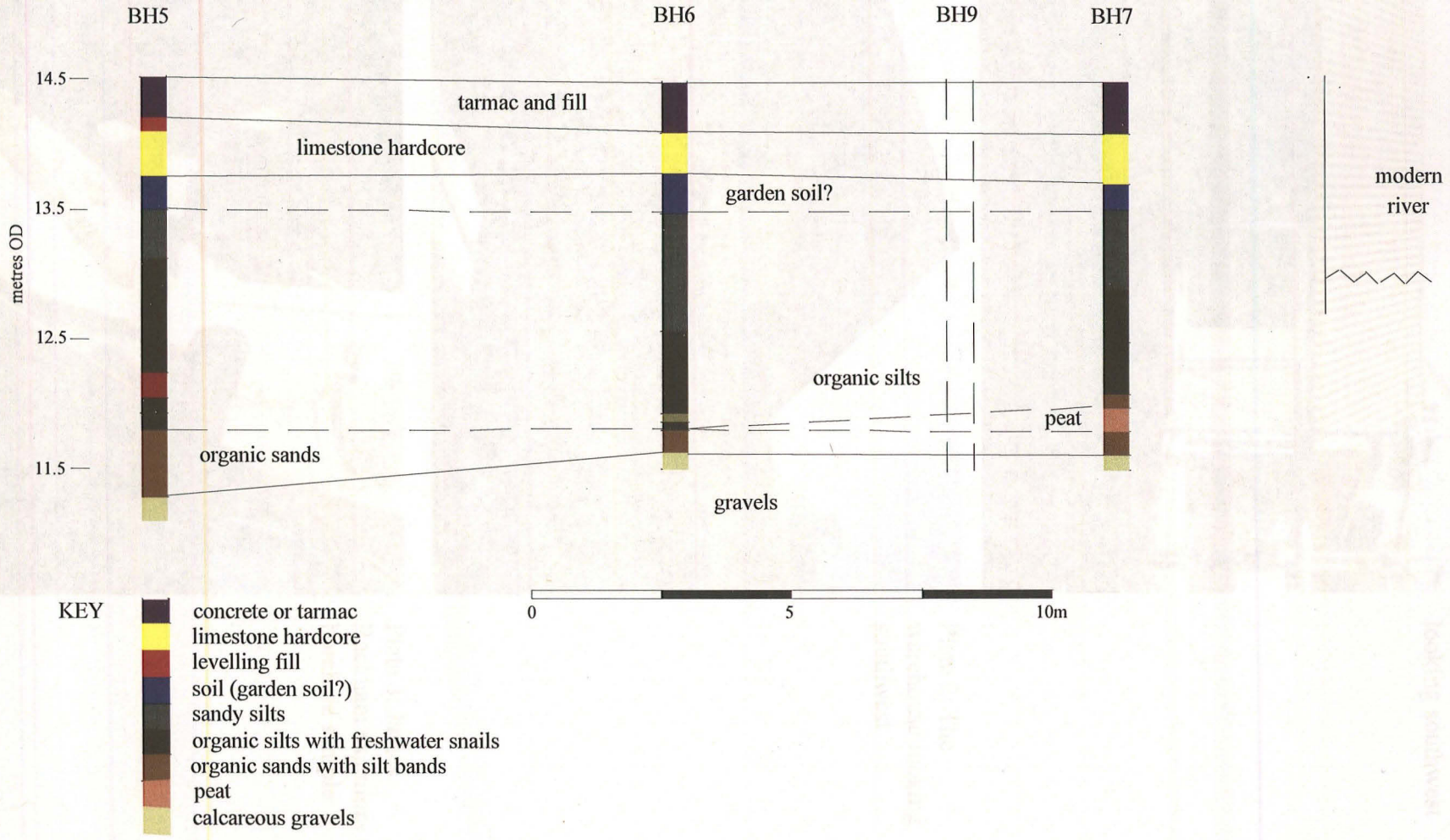


Plate 1: Rainbow Crafts Building looking southwest

Plate 2: The warehouse looking southwest

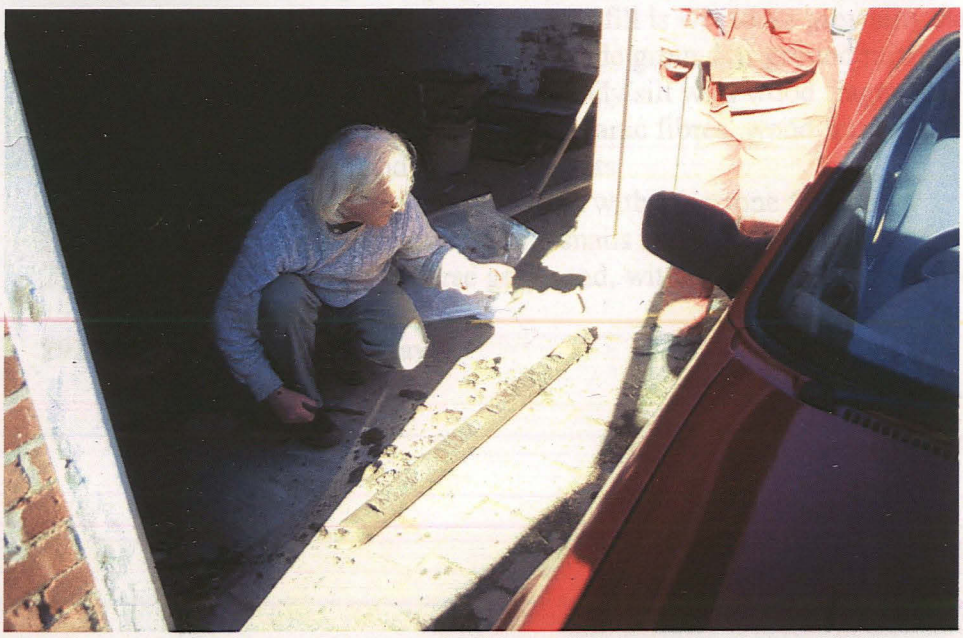


Plate 3: James Rackham examines a borehole sample

Appendix 1

Window sampled Borehole logs:

Office Building (Rainbow Crafts)

BH1

0-30cm	concrete and hardcore	
30-100	brown silty sandy loam, with occasional brick fragments, - siltier towards base - garden soil?	
100-115	void - compression loss	
115-123	loose damp silty sand and brick fragments	
123-165	damp sandy silt with inclusions of brick, stone, mortar - makeup?	
165-180	damp sandy silty with limestone rubble, bone, and occasional wood fragments at the base	
180-200	dark brown organic silt - natural river edge sediments?	
200-218	disturbed - fill taken down in new 1m core	
218-230	dark brown organic silt with wood fragments - unoxidised	
230-235	grey organic sands	banded river deposits
235-237	dark brown organic silt	
237-247	grey medium sand	
247-254	grey brown organic sand	
254-256	dark brown organic silt	
256-262	grey brown organic medium sands	
262-265	dark brown organic silt	
265-274	grey sand with organic rich lenses	
274-275	brown organic silty sand with wood fragments	
275-290	grey sand with thin organic lenses	
290-300	pebble gravel	terrace gravels?

BH2

0-40cm	concrete and hardcore - broken out by hand
40-90	limestone rubble in silty sand maxtrix with occasional pot and coal
90-100	soft damp fine grey sandy silty - made ground/fill?
100-200	voids at 160-175. The whole fill is wet loose grey silty sand with occasional limestone, pebbles, coal. Made ground or ground raising dumps?
200-210	dark grey brown slightly sandy silt with wood fragments
210-230	dark grey sandy silt with organic fibres, wood fragments, occasional stones, limestone and brick fragments
230-244	dark grey slightly sandy silt with limestone fragments
244-252	grey silty sand with pond snails and shell fragments
252-292	medium and coarse grey sand, with numerous thin bands of organic rich sediment
292-300	calcareous gravel

BH3

0-60cm	concrete and hardcore with coal	
60-100	grey sandy silt and silty sands, with plant roots and occasional limestone fragments - dumping?	
100-120	void	
120-132	silty sand with limestone fragments and coarse sand	
132-145	damp grey sandy silt - fill?	
145-155	loose- void	
155-170	grey silty fine sand	
170-180	dark brown organic silt	
180-185	lump of limestone	
185-200	void	
200-233	grey silty sand/sandy silt, with some organics	
233-237	coarse sand with stone fragments and a sheep metatarsus	river edge
237-254	grey medium sand with banded brown organic rich lenses	deposits
254-260	dark brown organic sand	
260-295	medium to coarse grey organic sand with wood fragments	
295-300	grey coarse sandy gravel and mudstone?	
300-315	medium coarse grey sand	
315-330	grey coarse sand and fine gravel	
330-340	medium and coarse sand with some organics	
340-400	calcareous light brown grey sandy gravel - terrace gravels?	

BH4

0-30cm	concrete and hardcore	
30-75		
75-100	damp grey, slightly iron mottled sandy silt with occasional brick fragments - soil?	
100-110	slop from above in new core	
110-123	light brown silty sand with limestone fragments	
123-145	black, slightly gritty sandy silt	
145-163	very dark grey to black sandy silts with limestone fragments - fill?	
163-180	slightly organic grey brown sandy silt with occasional limestone fragments (top of 'natural' sequence)	
180-200	dark brown organic silt, with shell fragments -	river edge?
200-218	as above	
218-224	coarse grey sand, with organic sand band	river deposits?
224-230	dark brown organic sand	
230-256	light grey brown coarse gritty calcareous sand with small limestone gravel and occasional larger limestone fragments	
256-263	light brown coarse sand with occasional limestone	
263-280	yellow brown sandy limestone gravel with some flint and pebbles	
280-290	coarse yellow orange sand	

Warehouse series

BH5

0-30cm	tarmac and hard core	
30-40	gravel, coal, ash, coke	
40-74	limestone hardcore	
74-100	dark grey sandy loam with some iron mottling and brick fragments	
100-120	compression void?	
120-137	grey soft sandy silt with grits, stone and occasional organics	
137-147	dark brown organic silt with a little sand	
147-184	void	
184-200	dark grey and dark brown patches soft slightly sandy silt	
200-210	compression void?	
210-223	dark brown organic slightly sandy silt	|
223-227	very dark grey/black organic silt	|
227-228	ash layer?	|
228-235	very dark grey/black coarse sandy silt	|
235-246	olive brown organic silt with woody fragments	| river deposits
246-257	stone, slags, grits, ash? layer	|
257-262	black silt	|
262-270	dark brown organic silt	|
270-283	brown organic fine to medium sands with grey patches	|
283-300	grey medium sand	|
300-320	grey fine to medium sand	|
320-323	brown organic silt band	|
323-330	grey sand	|
330-340	grey calcareous gravel - terrace gravels?	

BH6

0-40cm	tarmac and fill	
40-70	limestone hardcore	
70-100	dark grey slightly sandy silt loam with charcoal and brick fragments - garden soil?	
100-120	compression void?	
120-194	grey soft slightly sandy silt with occasional grits, but no significant organics - fill or natural?	
194-200	dark brown humified organic silt	|
200-225	some compression and slop from above	|
225-258	dark brown slightly fibrous humified silty peat with occasional shell fragments	|
258-263	medium grey sands	| river deposits
263-268	dark brown organic silt	|
268-273	medium to coarse grey sand	|
273-274	dark brown organic sand	|
274-286	grey medium sand with occasional brown organic sand bands	
286-300	grey calacreous small sandy gravel - terrace gravel?	

BH7a

The initial borehole BH7 was blocked by a large piece of horizontal (laid?) limestone at 0.7m beneath the tarmac - possibly an earlier river revetment? The borehole was moved 0.8m north.

0-40cm	tarmac and debris	
40-80	limestone hardcore and soil	
80-94	slightly organic humified silt with mottling and iron stained root holes - soil?	
94-100	grey slightly mottled silt - alluvial soil?	
100-124	compression void?	
124-150	grey slightly sandy soft silts with black patches	|
150-160	as above but with less sand	|
160-200	dark grey silt, with freshwater bivalves, *Pisidium* sp., slightly organic and black patches	|
200-215	material taken down from above!	
215-240	black silt with freshwater shells	| river deposits
240-253	fine and medium grey sands with some organics and twig fragments	
253-272	rich dark brown fibrous unoxidised slightly silty peat with a cow rib	
272-277	grey organic sand	|
277-288	coarse sand and gravel	|
288-289	organic silt band	|
289-300	grey sandy calcareous gravel - terrace gravels?	

BH8

0-30cm	tarmac and fill	
30-50	rubbly soil with limestone and brick fragments	
50-70	void	
70-90	grey brown damp slightly sandy silt loam with limestone fragments and bone - soil?	
90-100	dark grey silt - waterlain - developing soil?	
100-118	compression void and mixed sediment	
118-155	dark grey silts with terrestrial snails and occasional grits	|
155-173	light grey soft fine slightly sandy silt	|
173-184	light grey silt with tile, shell, stone and wood fragments	|
184-192	black slightly sandy silt	|
192-200	black silt with small twigs	|
200-215	material taken down by sample tube!	| river deposits
215-233	black silt with occasional small twigs	|
233-238	fine grey sand with thin organic band	|
238-253	very dark grey sandy silt	|
253-273	medium coarse grey sand with tiny brick fragments	|
273-277	black and very dark grey brown organic silt	|
277-283	medium coarse organic grey sand	|
283-285	dark grey organic sand	|
285-300	grey wet calcareous sandy gravel, small gravel and coarse sand only -	

Appendix 2

Finds from washed samples taken from window sampler.

The samples taken from the window sampler were washed on a coarse sieve (2mm mesh) and all the finds were sorted and checked. The samples were not weighed of measured in any way since the exercise was primarily to find identifiable archaeological material that could be dated.

BH1

40-70 - the residue is composed of limestone fragments, coal, cinder and brick fragments with rare flint and pebbles. Finds include oyster, cockle, a barley grain, eggshell, pig, cat, glass, brick, cinder and coal.

This assemblage would be consistent with a garden soil.

70-100 - a residue of limestone fragments with coal and brick fragments and rare small rolled limestone pebbles. Finds include coal, cinder, brick fragments, mussel and oyster shell, animal bone, eggshell, glass, hulled barley (half dozen grains - some germinated) and snails.

This is similar to the assemblage above.

130-160 - a residue of limestone fragments with a little brick, and some small rolled limestone pebbles. Finds include brick and concrete and some has probably been taken down during coring. The coal content is much reduced, over 30 barley grains (several germinating) are present and other finds include a little bone including frog/toad, eggshell, a single small pot sherd and fragments of the snail *Helix aspersa.*

Apart from the probable contaminant concrete and brick, finds are less dense, more of the limestone is sub-rounded but the charred barley clearly indicates continued inclusion of rubbish.

160-180 - the residue is more consistent with the river deposits. Apart from several larger lumps of limestone the smaller residue comprises rolled and water worn limestone pebbles, worn brick fragments and occasional small flint and stone pebbles. Finds are much reduced with just a few tiny fragments of brick, a single piece of mussel shell, a little bone, including a chicken sternum and the operculum of the freshwater gastropod *Bithynia tentaculata.* A dozen charred grains of barley were noted with some germinated.

These deposits may constitute river side sediments with some archaeological debris entering the deposits.

BH2

210-230 - residue composed of sub-rounded limestone pebbles, ironstone, coal and brick fragments with occasional larger limestone fragments. Finds include coal, brick, a fragment of mussel shell, preserved wood, a spheroid of hammerscale and freshwater molluscs including *Valvata macrostoma* and *Bithynia tentaculata.*

The debris suggests river edge deposits receiving some archaeological material from the nearby bank.

230-245 - residue composed of limestone fragments with coal and occasional brick fragments and some washed and sub-rounded limestone. The finds included four grains of barley and a single oat grain, a little coal and cinder, a few indeterminate fragments of bone and brick fragments including a largish piece of tile.

245-255 - residue composed of washed limestone and mudstone gravel with one or two larger fragments. Finds include a fragment of cattle phalanx and sheep skull, a few tiny fragments of coal, a single tiny fragment of brick and a number of freshwater snails including *B. tentaculata*, *B. leachii*, *V. macrostoma*, *Planorbis carinatus* and *Viviparus fasciatus*.

These clearly represent river deposits.

BH3

235-240 - the residue is composed of washed limestone. Finds include a sheep metatarsus, some slag, a little cinder and coal and surviving organic fragments.

This deposit is clearly in the river.

BH4

50-75 - residue composed of limestone fragments, with brick and coal. Finds include brick, coal, cinder, a little bone, two splinters of glass, shell fragments, a splinter of post-medieval pottery and a clay pipe stem fragment.

This is consistent with a garden soil.

130-160 - the residue is largely composed of silty root concretions with some limestone crumb and a few larger fragments of limestone, with occasional sub-rounded pebbles. The finds are limited with a little indeterminate bone, a tiny fragment of water rolled glass and a single small piece of pottery.

BH5

245-255 - the residue is composed of mixed stone, limestone crumb, coal, tar/bitumen and brick fragments. The finds include tar/bitumen and brick, a piece of burnt flint, oyster shell, eggshell, some preserved wood and two small sherds of glass, one apparently modern. The tar, which is present in some quantity suggests a fairly recent date for the deposit.

BH6

70-100 - the residue is composed of limestone fragments, coal and occasional brick fragments. Finds include tar/bitumen, brick, coal, a little bone including frog/toad, oyster shell, eggshell, terrestrial snails and a few small fragment of preserved wood.

This appears to be a make up layer of recent origin.

BH8

170-190 - residue composed of limestone fragments, charcoal, wood and brick/tile. Finds include wood, charcoal, organic tempered daub, tile, brick/tile, oyster shell and two charred grain, one being wheat.

This deposit, although including waterlogged material, does not appear to be riverine although it may have formed on the edge of the river.

Appendix 3

THE FINDS
by Hilary Healey and Gary Taylor

Recording of the pottery was undertaken with reference to guidelines prepared by the Medieval Pottery Research Group (Slowikowski *et al.* 2001) and the pottery was quantified using the chronology and coding system of the Lincolnshire ceramic type series. A total of 8 fragments of pottery weighing 48g was recovered from 6 separate contexts. In addition to the pottery, a small quantity of other artefacts, brick/tile, fired clay and clay pipe, comprising 5 items weighing a total of 81g, was retrieved.

Provenance
The material was recovered from various boreholes (see above Appendix 2).

Range
The range of material is detailed in the tables. Each context number details the specific borehole, and the depth from the surface, the artefacts were recovered from.

Table 1: Pottery

Context	Fabric Code	Description	No.	Wt (g)	Context Date
BH1, 130-160cms	TOY	Toynton All Saints ware	1	1	13th-15th century
BH2, 60-90cms	BS	Brown stoneware, late 18th century	2	2	Late 18th century
	CBM	Brick/tile, post-medieval	1	1	
BH2, 245-255cms	CBM	Tile, oxidized throughout, 16mm thick	1	46	Post-medieval
BH4, 50-75cms	CRMWARE	Creamware, late 18th century	1	>1	Late 18th century
	Clay pipe	Stem, bore 5/64", 18th century	1	1	
BH4, 130-160cms	MISC	Unidentified medieval ware	1	1	13th-15th century
BH8, 170-190cms	CBM	Tile, oxidized throughout, late post-medieval	1	18	Late post-medieval
	Fired clay	Fired clay, vegetation tempered, reduce fired	1	15	
BH10, 91.5cms	NOTS	Nottingham stoneware	2(link)	6	Late 18th century
BH10, 159cms	MSAX	Middle Saxon ware	1	38	7th-9th century

Note: CBM = Ceramic Building Material

Late post-medieval artefacts were recovered from significant depth in Boreholes 2 and 8. Otherwise, post-medieval deposits appear to persist to about 90cms from ground surface (Boreholes 4 and 10), medieval deposits occur about 130-160cms beneath ground level (Boreholes 1 and 4), and Middle Saxon horizons at about 160cms depth.

Condition
All the material is in good condition and present no long-term storage problems. Archive storage of the collection is by material class.

Documentation

There have been previous archaeological investigations at Sleaford, including elsewhere in close proximity to the current site. Additionally, there has been reported study of the archaeological and historical evidence for the town and its vicinity. Details of archaeological sites and discoveries in the area are maintained in the files of the North Kesteven Planning Archaeologist and the Lincolnshire County Council Sites and Monuments Record.

Potential

In general, the assemblage is of limited local potential other than providing dating evidence for deposits recovered from boreholes. However, the Saxon fragment from BH10, 159cm depth is of moderate local potential and indicates deposits of this period at that depth at the site. The presence of late post-medieval material at significant depth suggests that either the artefacts themselves have been forced down by the boring or, more likely, that post-medieval deposits extend to these levels.

The lack of any material earlier than about the 7th century is moderately informative but, as the investigation was solely by borehole excavation, the lack of any earlier material cannot be taken as indicating that earlier deposits are absent from the area.

References

Slowikowski, A., Nenk, B. and Pearce, J., 2001 *Minimum Standards for the Processing, Recording, Analysis and Publication of Post-Roman Ceramics*, Medieval Pottery Research Group Occasional Paper 2

Appendix 4 - Core samples taken for potential post-excavation study

BH9 100-200cm

0-23.5cm empty

23.5-34cm very loose, sandy, stoney matrix with brick and charcoal fragments - 10YR 3/2 very dark greyish brown.

34-37cm void.

37-52cm very dark grey - very dark greyish brown (10YR 3/1-3/2), slightly sandy silt with occasional charcoal flecks, small stones, and some black patches (degraded organics?).

52-100cm very similar to above. 10YR 3/1, dark grey silt becoming sandier and with some clay in the matrix, small brick fragments becoming more evident, as well as charcoal and bigger fragments of limestone up to 30mm. Limestone approximately 50mm at 88cm. Evident charcoal concentration at 62cm with brick and limestone fragments.

BH9 200-300cm

0-4cm Very compacted silt with angular stones <30mm, forming 50% of the matrix. 10YR 5/3 (brown) with 10YR 3/2 (very dark greyish brown) silt mixed in irregularly.

4-15cm 10YR 3/1 (very dark grey) clay silt with occasional angular stones <5mm 15%. Occasional patches of 10YR 5/3 gravelly sand.

15-19cm 10YR 3/2 – 2/2 (very dark greyish brown – very dark brown) slightly smelly, very silty peat with occasional obvious organic fragments.

19-26cm 10YR 3/1 slightly sandy silt with patches of silty peat as above but <20%. Very occasional gravel.

26-35cm 10YR 3/1 slightly sandy clay silt with occasional (<10%) woody fragments <5mm and very occasional (<5%) angular gravel <5mm.

35-42cm 10YR 3/2 very dark greyish brown slightly fibrous peaty silt with obvious snail shell <5%

42-46cm As above but more silty, snail shell is less frequent and in smaller fragments.

46-47.5cm As above, but slightly paler in colour and little to no fibre.

47.5-53cm 10YR 3/3 dark brown fibrous silty peat with obvious mollusc shell 10%, fairly well smashed up.

53-64cm 10YR 3/2 fibrous silty peat, with less obvious mollusc fragments, approx. 5%.

64-73cm 10YR 3/2 very fibrous silty peat, fibrous matter appears quite reedy. Sparse snail shell fragments.

73-78.5cm Sharp boundary to 10YR 5/2 greyish brown sands with bands of 10YR 3/2 silts/silty peats and a patch of 10YR 2/1 silt clay at 76cm.

78.5-84.5cm Sharp boundary to 10YR 3/2 slightly peaty sandy silt, with occasional obvious organics.

84.5-89cm Sharp boundary to 10YR 5/1-5/2 grey – greyish brown sand, very occasional reed fragments <5%.

89-92cm 10YR 3/2 slightly sandy, slightly peaty silt.

92-96.5cm 10YR 3/2 silts merging with 10YR 5/1 sands, becoming sandier and with angular gravel <4mm.

96.5-98cm Very compacted sandy angular gravel, gravel forms approx. 75% of the matrix and is <20mm.

98-100cm 10YR 4/1 dark grey sands with occasional gravel <10%

BH 10 50 – 150cm

0-20cm Empty
20-44cm 10YR 4/1 dark grey slightly sandy silt clay with an abundance of calcareous, brick and charcoal fragments, approx. 30% of the matrix. A piece of pottery at 41.5cm 30-50mm long.
44-50cm As above but appears to be iron stained, approx. 40%
50-57cm As above but less iron staining.
57-68.5cm 10YR 4/2 dark greyish brown sandy silt clay with 2.5Y 5/4 light olive brown silt mottled within the matrix. Large pieces of stone (limestone) 40-60mm within matrix and matrix is very loose.
68.5-74cm 2.5Y 3/2 very dark greyish brown sandy silt clay with charcoal fragments. More compact structure than 57-68.5cm.
74-84cm 2.5Y 3/2 very soft sandy silt clay with brick, charcoal and stone fragments. Matrix more compact.
84-100cm 2.5Y 3/2 sandy silt clay, sandier than previous entry. Small stones and fragments of charcoal present. Looks very much like topsoil.

BH 10 150-240cm

0-7cm Empty
7-20cm 2.5Y 3/2 very dark greyish brown sandy silt clay with brick, charcoal and stone fragments. A piece of pottery was found at 9-13cm.
20-26cm 2.5Y 3/2 sandy silt clay with gravel fragments and charcoal present. Matrix is moist and sticky.
26-44cm 10YR 3/1 very dark grey sandy clay silt gravel with charcoal fragments. There are larger pieces of stone at 40cm, 50-60mm in size and towards the bottom 20-30mm. Appears to be limestone.
44-59cm 10YR 2/2 very dark brown, slightly smelly silty fibrous peat with occasional shell fragments. There is a large stone at 46-49cm. The matrix has a loose structure. A pollen sample was taken at 50cm and a C-14 sample at 48-51cm. - **Cal AD 650-880 (2 sigma)**
59-86.5cm 10YR 3/2 – 3/3 very dark greyish brown-dark brown silty peat, fairly fibrous structure, but more compact than above. There are very occasional shell fragments.
86.5-88.5cm 10YR 4/1 slightly silty sand.
88.5-90.5cm silty peat as 59-86.5cm
90.5-91.5cm 10YR 3/2 silty sand
91.5-95cm peat as above, but some organic reed matter visible.
95-96.5cm 10YR 4/1 silty sand.
96.5-100cm Silty peat as above.

BH10 240-310cm

0-5.5cm empty

5.5-10cm 10YR 3/2 very soft silty peat with some fibrous material and occasional shell fragments.

10-16cm Peaty silt as above, banded with 10YR 5/2-6/2 greyish brown-light brownish grey coarse sands. The bands are fairly mixed and not well defined.

16-41.5cm 10YR 5/2-6/2 coarse sand with occasional shell and some gravel fragments <3mm. Matrix becomes slightly more gravelly towards the base.

41.5-43cm 10YR 3/2 slightly sandy silty peat.

43-45.5cm silty peat of above becomes sandier 10YR 4/1-4/2. There is a thin silt peat band 10YR 3/2 at 44.5cm approx 3mm thick. A pollen sample was taken at 42cm and all of this layer taken for C-14. – **Cal. AD 560-690 (2 sigma)**

45.5-47cm Sandy angular gravel <5mm. Gravel = 70% of matrix.

47-56cm 10YR 5/2 greyish brown coarse sand with small <2mm calcareous gravel <15%.

56-60cm sand matrix of above with larger gravel pieces, angular and calcareous <20mm.

Appendix 5. Calibrated radiocarbon results.

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-28.7:lab. mult=1)

Laboratory number: **Beta-202508**

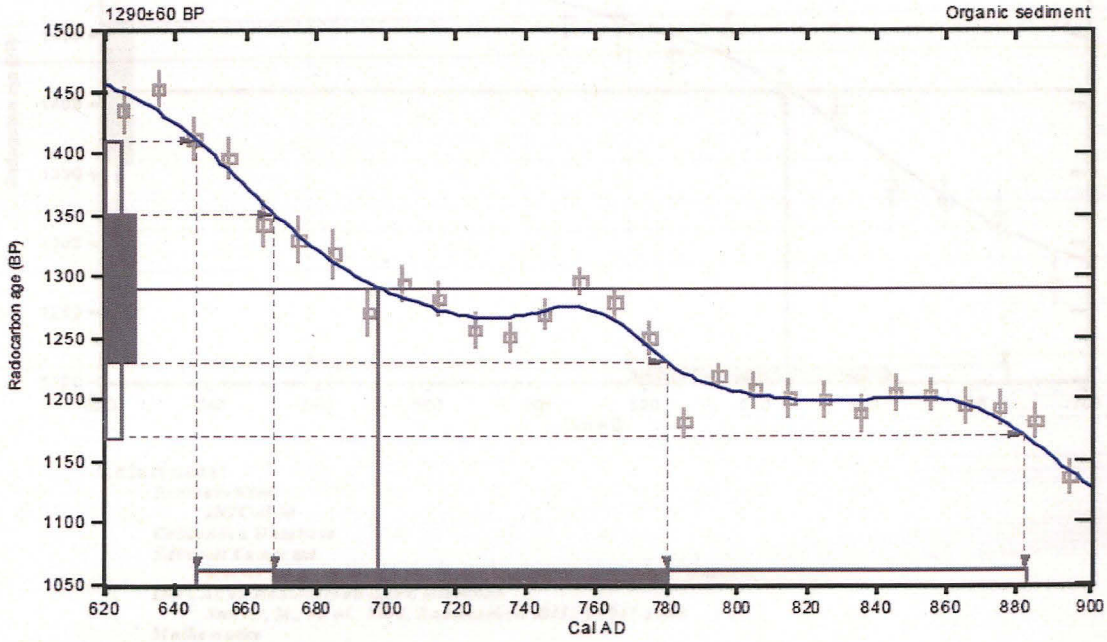
Conventional radiocarbon age: **1290±60 BP**

2 Sigma calibrated result: (95% probability) **Cal AD 650 to 880 (Cal BP 1300 to 1070)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal AD 700 (Cal BP 1250)

1 Sigma calibrated result: (68% probability) Cal AD 670 to 780 (Cal BP 1280 to 1170)



References:

Database used
INTCAL98
Calibration Database
Editorial Comment
Stuiver, M., van der Plicht, H., 1998, Radiocarbon 40(3), pxii-xiii
INTCAL98 Radiocarbon Age Calibration
Stuiver, M., et. al., 1998, Radiocarbon 40(3), p1041-1083
Mathematics
A Simplified Approach to Calibrating C14 Dates
Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

Beta Analytic Radiocarbon Dating Laboratory
4985 S.W. 74th Court, Miami, Florida 33155 • Tel: (305)667-5167 • Fax: (305)663-0964 • E-Mail: beta@radiocarbon.com

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-28.5:lab. mult=1)

Laboratory number: **Beta-202509**

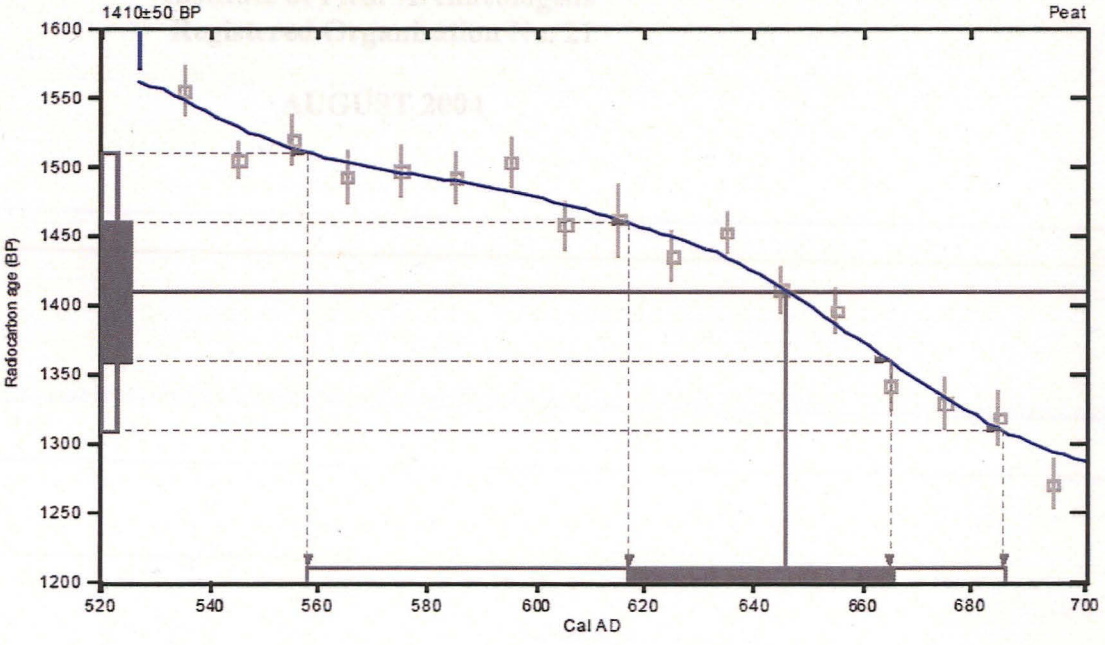
Conventional radiocarbon age: **1410±50 BP**

2 Sigma calibrated result: (95% probability) **Cal AD 560 to 690 (Cal BP 1390 to 1260)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal AD 650 (Cal BP 1300)

1 Sigma calibrated result: (68% probability) Cal AD 620 to 660 (Cal BP 1330 to 1280)



References:

Database used

INTCAL98

Calibration Database

Editorial Comment

Stuiver, M., van der Plicht, H., 1998, Radiocarbon 40(3), pxii-xiii

INTCAL98 Radiocarbon Age Calibration

Stuiver, M., et. al., 1998, Radiocarbon 40(3), p1041-1083

Mathematics

A Simplified Approach to Calibrating C14 Dates

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Appendix 6:

LAND AT NAVIGATION YARD CARRE STREET SLEAFORD LINCOLNSHIRE

SPECIFICATION FOR ARCHAEOLOGICAL BOREHOLE SURVEY

PREPARED FOR WESTLEIGH

BY ARCHAEOLOGICAL PROJECT SERVICES
Institute of Field Archaeologists'
Registered Organisation No. 21

AUGUST 2004

1 SUMMARY

1.1 *Archaeological work is required prior to development at Navigation Yard, Carre Street, Sleaford, Lincolnshire.*

1.2 *The development site lies in an archaeologically sensitive area. Excavations in the area have revealed evidence of Iron Age, Roman, Saxon and medieval occupation.*

1.3 *This archaeological work will consist of a borehole survey as the first stage of a scheme of investigation prior to development on the site.*

1.4 *On completion of the fieldwork a report will be prepared detailing the results of the borehole survey. The report will consist of a narrative supported by illustrations and photographs.*

2 INTRODUCTION

2.1 This document comprises a specification for an archaeological borehole survey prior to development on land at Navigation Yard, Carre Street, Sleaford, Lincolnshire. The site is located at National Grid Reference 506928 345770.

2.2 This document contains the following parts:

2.2.1 Overview.

2.2.2 Stages of work and methodologies.

2.2.3 List of specialists.

2.2.4 Programme of works and staffing structure of the project

3 SITE LOCATION

3.1 The proposed development area comprises the southwest part of Navigation Yard. It is located in Sleaford town centre, on the eastern side of Carre Street and the north bank of the River Slea. The site area covers approximately 0.09Ha, (0.25 acre). Warehousing and rebuilt stables occupy most of the ground surface. The remainder is road and car parking.

4 PLANNING BACKGROUND

4.1 A planning application (N/57/0138/03) was submitted to North Kesteven District Council for the erection of 21 flats. Permission is subject to a condition requiring the implementation of a borehole survey as the first stage of a scheme of investigation and assessment prior to groundworks commencing on site. This information will enable the Local Planning Authority to assess the potential impact of the development on these remains.

5 SOILS AND TOPOGRAPHY

5.1 The site lies in a built-up area, on the north side of the River Slea, at approximately 15m OD. As an urban area the soils have not been mapped, however, soils are likely to be of the Newsleaford Series, typically brown calcareous sand or the Aswarby Series, brown calcareous earths (George and Robson 1978).

6 ARCHAEOLOGICAL OVERVIEW

6.1 Sleaford is situated in an area of known archaeological remains dating from prehistory to the present. The town has expanded to cover several previous foci of settlement and other activity dating from the prehistoric. Evidence of Iron Age settlement has been identified around the town and excavations at Old Place have also produced evidence of a major Late Iron Age centre. Evidence for Roman occupation has been found along the route of the Roman road, Mareham Lane.

6.2 Evidence of Anglo-Saxon occupation has been recovered, including evidence from a large Anglo-Saxon cemetery approximately 400m south of the site. Medieval remains from Sleaford include the former St Giles church that was founded during the late Saxon period. The site lies in the centre of the present town about 150m south of St Denys' church, the earliest portion of which dates from *c*1180. Excavations in the Market Place, adjacent to St Denys', revealed Anglo-Saxon structures and Late Saxon pits.

6.3 The site occupies part of Navigation Yard, located on the northern bank of the diverted and canalised River Slea. Extensive evidence of Iron Age, Roman and Anglo-Saxon remains are known to the east, and Anglo-Saxon and medieval evidence relating to the origins and development of the present town are concentrated to the north and west.

6.4 Previous work along the River Slea, notably at the Hoplands to the east and the Tourist Information Centre on the west side of Carre Street, has revealed organic deposits in an excellent state of preservation. A radiocarbon date on a piece of worked wood from the Hoplands yielded a Mesolithic date. Further analytical work on the environmental samples from the Hoplands has not yet been carried out, but have the potential to contain important information about the development and nature of the settlement in the prehistoric and Roman periods.

6.5 Navigation Yard as a whole is undergoing a programme of redevelopment. The former seed warehouse is currently being converted and extended to accommodate an Arts Centre. New workshops have been constructed. Navigation House will be renovated as a Heritage Centre.

6.6 Archaeological monitoring of the groundworks associated with the above developments show that approximately 0.7m of 19th century and modern make up material exists throughout the site, overlying a former soil horizon.

Deposits beneath this soil horizon have not been exposed during development. Archaeological monitoring of piling for the Seed warehouse extension observed organic material, silts, sands and gravels at depth.

7 AIMS AND OBJECTIVES

7.1 The aims of the borehole survey will be:

7.1.1 To archaeologically examine, record and analyse the sequence of deposits that exist within the proposed development area and make the results available.

7.2 The objectives of the borehole survey will be to gather sufficient information to:

7.2.1 Characterize the sedimentary history of the development area;

7.2.2 Date the sequence;

7.2.3 Establish the potential for archaeological remains to be present at depth, and

7.2.4 Assess the archaeo-environmental potential of the sediments.

8 SITE OPERATIONS

8.1 General considerations

8.1.1 All work will be undertaken following statutory Health and Safety requirements in operation at the time of the borehole survey.

8.1.2 The work will be undertaken according to the relevant codes of practise issued by the Institute of Field Archaeologists (IFA), under the management of a Member of the institute (MIFA). Archaeological Project Services is IFA registered organisation no. 21.

8.1.3 Any and all artefacts found during the investigation and thought to be 'treasure', as defined by the Treasure Act 1996, will be removed from site to a secure store and promptly reported to the appropriate coroner's office.

8.2 Methodology

8.2.1 The borehole survey will be undertaken prior to the groundworks phase of development.

8.2.2 A window sampler will be used and cores retrieved under direct archaeological supervision. A rig will be hired specifically for the archaeological work and any geotechnical information available will

be referred to in order to provide as much information as possible to inform the analysis and results.

8.2.3 The boreholes will be located to gain a comprehensive cross-section of the development area from the present course of the river to the northern site boundary.

8.2.4 The archaeological deposits encountered will be recorded on Archaeological Project Services pro-forma context record sheets. The system used is the single context method by which individual archaeological units of stratigraphy are assigned a unique record number and are individually described and drawn.

8.2.5 The site will be inspected by a recognised geoarchaeologist who will advice on the appropriate method of recording the sediment sequence.

8.2.6 The geoarchaeologist will device a programme of sampling for further laboratory analysis, where applicable, this will include a programme for the retrieval and assessment of the preservation conditions and potential for analysis of all biological remains.

8.2.7 If appropriate samples will be taken for radiocarbon dating.

8.2.8 Any finds recovered will be bagged and labelled for later analysis.

- Throughout the borehole survey a photographic record will be compiled. The photographic record will consist of:

$ the site during work to show specific stages.

8.2.9 Any human remains encountered must be left *in situ* and only removed if absolutely necessary. The contractor must comply with all statutory consents and licences regarding the exhumation and interment of human remains. It will also be necessary to comply with all reasonable requests of interested parties as to the method of removal, re-interment or disposal of the remains or associated items. Attempts must be made at all times not to cause offence to any interested parties.

8.2.10 The precise location of the boreholes within the site and OD heights on top of every borehole will be established by an EDM survey.

9 POST-EXCAVATION

9.1 Stage 1

9.1.1 On completion of site operations, the records and schedules produced during the borehole survey will be checked and ordered to ensure that they form a uniform sequence forming a level II archive. A stratigraphic matrix of all the deposits present on the site will be

prepared. All photographic material will be catalogued and labelled, the labelling referring to schedules identifying the subject/s photographed.

9.1.2 All finds recovered during the fieldwork will be washed, marked and packaged according to the deposit from which they were recovered. Any finds requiring specialist treatment and conservation will be sent to the Conservation Laboratory at the City and County Museum, Lincoln.

9.2 Stage 2

9.2.1 Detailed examination of the stratigraphic matrix to enable the determination of the various phases of activity on the site.

9.2.2 Finds will be sent to specialists for identification and dating. Artefacts, biological samples and soils will be assessed for evidence of site formation and taphonomy, and especially for evidence of recent changes that may have been caused by alterations in the site environment. Significant quantities of artefacts (if any) are not expected to be recovered in this investigation, however, if found, assessment will include x-radiography of all iron objects, (after initial screening to exclude obviously recent debris), and a selection of non-ferrous artefacts. An assessment of all excavated material will be undertaken by conservators and finds researchers in collaboration. Where necessary, active stabilisation /consolidation will be carried out, to ensure long-term survival of the material, but with due consideration to possible future investigations. Once assessed, all material will be packed and stored in optimum conditions, as described in *First Aid for Finds*. Waterlogged organic materials will be dealt with following the documents *Guidelines for the care of waterlogged archaeological leather* (English Heritage/Archaeological Leather Group 1995) and *Waterlogged wood: the recording, sampling, conservation and curation of structural wood* (Brunning 1996).

9.2.3 Assessment of any technological residues will be undertaken.

9.2.4 Samples for dating will be submitted to promptly, and prior agreement will be made with the laboratory on turn-around time and report production, so as to ensure that results are available to aid development of specifications for subsequent mitigation strategies.

9.2.5 Processing of all soil samples collected for biological assessment, or sub-samples of them, will be completed. The preservation state, density and significance of material retrieved will be assessed, and consideration will be given to any evidence for recent changes in preservation conditions that may have been caused by alterations in the site environment. Unprocessed sub-samples will be stored in conditions specified by the appropriate specialists.

9.2.6 Samples collected for geoarchaeological assessment will be processed as deemed necessary by the specialist, particularly where storage of unprocessed samples is thought likely to result in deterioration. Appropriate assessment is to be undertaken. Where preservation *in situ* is a viable option, consideration will be given to the possible effects of compression on the physical integrity of the site and to any hydrological impacts of development.

9.2.7 Animal bone assemblages, or sub-samples of them, will be assessed by a recognised specialist.

9.3 Stage 3

9.3.1 On completion of stage 2, a report detailing the findings of the borehole survey will be prepared.

9.3.2 This will consist of:

- A non-technical summary of the results of the investigation.
- A description of the archaeological setting of the borehole survey.
- Description of the topography of the site.
- Description of the methodologies used during the borehole survey.
- A text describing the findings of the borehole survey.
- A consideration of the local, regional and national context of the borehole survey findings.
- A cross section of the site to show sedimentary history as far as can be reconstructed from the borehole survey.
- Interpretation of the buried topography within the surrounding landscape.
- Specialist reports on the finds from the site.
- Appropriate photographs of the site and specific archaeological features.

10 REPORT DEPOSITION

10.1 Copies of the report will be sent to the Client; the North Kesteven Heritage Officer; North Kesteven Council Planning Department; and to the County Council Archaeological Sites and Monuments Record.

11 ARCHIVE

11.1 The documentation and records generated during the borehole survey will be sorted and ordered into the format acceptable to the City and County Museum, Lincoln. This will be undertaken following the requirements of the document titled Conditions for the Acceptance of Project Archives for long-term storage and curation.

12 PUBLICATION

12.1 A report of the findings of the borehole survey will be presented as a condensed article to the editor of the journal *Lincolnshire History and Archaeology*. If appropriate, notes on the findings will be submitted to the appropriate national journals: *Proceedings of the Prehistoric* for Prehistoric finds, *Society Britannia* for discoveries of Roman date, *Medieval Archaeology* and the *Journal of the Medieval Settlement Research Group* for findings of medieval or later date, and *Geoarchaeology* for geo-archaeological data.

13 CURATORIAL RESPONSIBILITY

13.1 Curatorial responsibility for the archaeological work undertaken on the site lies with the North Kesteven Heritage Officer. They will be given seven days notice in writing before the commencement of the project.

14 VARIATIONS AND CONTINGENCIES

14.1 Variations to the proposed scheme of works will only be made following written confirmation of acceptance from the archaeological curator.

14.2 In the event of the discovery of any unexpected remains of archaeological importance, or of any changed circumstances, it is the responsibility of the archaeological contractor to inform the archaeological curator (*Lincolnshire Archaeological Handbook* 1998, Sections 5.7 and 18).

14.3 Where important archaeological remains are discovered and deemed to merit further investigation additional resources may be required to provide an appropriate level of investigation, recording and analysis.

14.4 Any contingency requirement for additional fieldwork or post-excavation analysis outside the scope of the proposed scheme of works will only be activated following full consultation with the archaeological curator and the client.

15 PROGRAMME OF WORKS AND STAFFING LEVELS

15.1 The work will be directed by Tom Lane MIFA, Senior Archaeologist, Heritage Lincolnshire.

15.2 An archaeological supervisor with experience of borehole surveys will undertake the work.

15.3 The specialists to be used by the archaeological body will be members of the IFA, and/or members of the appropriate finds group. A competent and experienced environmental archaeologist will be involved in this investigation.

15.4 Post-excavation analysis and report production is expected to take 8 person-days within a notional programme of 10 days. Post-excavation analysis and report production will be undertaken by the archaeological supervisor, or a post-excavation analyst as appropriate, with assistance from an experienced environmental archaeologist.

15.5 Contingencies have been specified in the budget. These include: Pollen sample analysis; Radiocarbon dating: the activation of any contingency requirement will be by the archaeological curator (North Kesteven Heritage Officer).

16 SPECIALISTS TO BE USED DURING THE PROJECT

16.1 The following organisations/persons will, in principle and if necessary, be used as subcontractors to provide the relevant specialist work and reports in respect of any objects or material recovered during the investigation that require their expert knowledge and input. Engagement of any particular specialist subcontractor is also dependent on their availability and ability to meet programming requirements.

Task	Body to be undertaking the work
Conservation	Conservation Laboratory, City and County Museum, Lincoln
Pottery Analysis	Prehistoric - Trent & Peak Archaeological Trust
	Roman - B Precious, Independent Specialist
	Anglo-Saxon - J Young, Independent Specialist
	Medieval and later - G Taylor, APS in consultation with H Healey, Independent Archaeologist
Non-pottery Artefacts	J Cowgill, Independent Specialist
Animal Bones	Environmental Archaeology Consultancy
Environmental Analysis	J Rackham, Environmental Archaeology Consultancy
Human Remains Analysis	R Gowland, Independent Specialist

17 INSURANCES

17.1 Archaeological Project Services, as part of the Heritage Trust of Lincolnshire, maintains Employers Liability Insurance of £10,000,000, together with Public and Products Liability insurances, each with indemnity of £5,000,000. Copies of insurance documentation can be supplied on request.

18 COPYRIGHT

18.1 Archaeological Project Services shall retain full copyright of any commissioned reports under the Copyright, Designs and Patents Act 1988 with all rights reserved; excepting that it hereby provides an exclusive licence to the client for the use of such documents by the client in all matters directly relating to the project as described in the Project Specification.

18.2 Licence will also be given to the archaeological curators to use the documentary archive for educational, public and research purposes.

18.3 In the case of non-satisfactory settlement of account then copyright will remain fully and exclusively with Archaeological Project Services. In these circumstances it will be an infringement under the Copyright, Designs and Patents Act 1988 for the client to pass any report, partial report, or copy of same, to any third party. Reports submitted in good faith by Archaeological Project Services to any Planning Authority or archaeological curator will be removed from said planning Authority and/or archaeological curator. The Planning Authority and/or archaeological curator will be notified by Archaeological Project Services that the use of any such information previously supplied constitutes an infringement under the Copyright, Designs and Patents Act 1988 and may result in legal action.

18.4 The author of any report or specialist contribution to a report shall retain intellectual copyright of their work and may make use of their work for educational or research purposes or for further publication.

19 BIBLIOGRAPHY

George, H and Robson, JD, 1978 *Soils in Lincolnshire II: Sheet TF04 (Sleaford)*, Soil Survey Record No. **51**

Appendix 7

GLOSSARY

Anglo-Saxon	Pertaining to the period when Britain was occupied by peoples from northern Germany, Denmark and adjacent areas. The period dates from approximately AD 450-1066.
Context	An archaeological context represents a distinct archaeological event or process. For example, the action of digging a pit creates a context (the cut) as does the process of its subsequent backfill (the fill). Each context encountered during an archaeological investigation is allocated a unique number by the archaeologist and a record sheet detailing the description and interpretation of the context (the context sheet) is created and placed in the site archive. Context numbers are identified within the report text by brackets, e.g. [004].
Cut	A cut refers to the physical action of digging a posthole, pit, ditch, foundation trench, etc. Once the fills of these features are removed during an archaeological investigation the original 'cut' is therefore exposed and subsequently recorded.
Domesday Survey	A survey of property ownership in England compiled on the instruction of William I for taxation purposes in 1086 AD.
Fill	Once a feature has been dug it begins to silt up (either slowly or rapidly) or it can be back-filled manually. The soil(s) that become contained by the 'cut' are referred to as its fill(s).
Iron Age	A period characterised by the introduction of Iron into the country for tools, between 800 BC and AD 50.
Layer	A layer is a term used to describe an accumulation of soil or other material that is not contained within a cut.
Medieval	The Middle Ages, dating from approximately AD 1066-1500.
Mesolithic	The 'Middle Stone Age' period, part of the prehistoric era, dating from approximately 11000 - 4500 BC.
Natural	Undisturbed deposit(s) of soil or rock which have accumulated without the influence of human activity
Old English	The language used by the Saxon (q.v.) occupants of Britain.
Post-medieval	The period following the Middle Ages, dating from approximately AD 1500-1800.
Prehistoric	The period of human history prior to the introduction of writing. In Britain the prehistoric period lasts from the first evidence of human occupation about 500,000 BC, until the Roman invasion in the middle of the 1st century AD.
Romano-British	Pertaining to the period dating from AD 43-410 when the Romans occupied Britain.

Saxon	Pertaining to the period dating from AD 410-1066 when England was largely settled by tribes from northern Germany

Appendix 8

THE ARCHIVE

The archive consists of:

1 Photographic record sheet
2 Day record sheets
1 Box of finds

All primary records and finds are currently kept at:

Archaeological Project Services
The Old School
Cameron Street
Heckington
Sleaford
Lincolnshire
NG34 9RW

The ultimate destination of the project archive is:

The Collection
Art and Archaeology in Lincolnshire
Danes Terrace
Lincoln
LN2 1LP

The archive will be deposited in accordance with the document titled *Conditions for the Acceptance of Project Archives*, produced by the Lincolnshire City and County Museum.

Lincolnshire City and County Council Museum Accession Number: 2004.183

Archaeological Project Services Site Code: SNY 04

The discussion and comments provided in this report are based on the archaeology revealed during the site investigations. Other archaeological finds and features may exist on the development site but away from the areas exposed during the course of this fieldwork. *Archaeological Project Services* cannot confirm that those areas unexposed are free from archaeology nor that any archaeology present there is of a similar character to that revealed during the current investigation.