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ARCHAEOLOGICAL EVALUATION REPORT: CHURCH LANE/WILLINGTON ROAD, KIRTON, BOSTON

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SITE CODE: CLKB 05
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Report prepared for Robert Lowe Chartered Architect.

by

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Summary

- *An archaeological trial excavation was carried out in advance of development on land off Church Lane/Willington Road, Kirton, as a requirement of an outline planning permission.*

- *The site is 100m from the Church of St Peter and St Paul, situated in the historic core of the village of Kirton. Previous archaeological works within the village core have identified various levels of Saxo-Norman activity.*

- *At the current site, few archaeologically significant deposits were encountered in six trial excavation trenches. Three linear ditches of late 9th/late 10th century date were uncovered in the most southern extent of the proposed development area. The northern area yielded no evidence of archaeological activity or modern disturbance.*

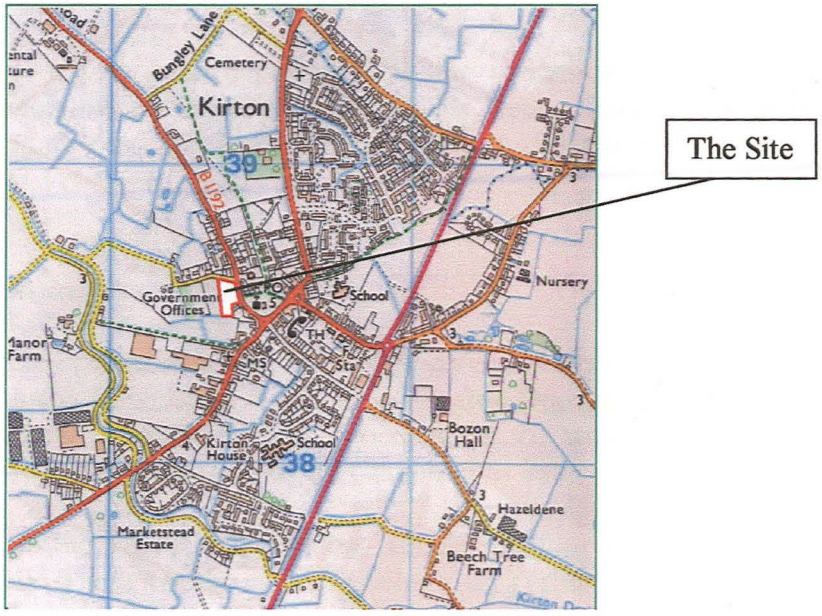

Fig.1: Site Location. (Scale 1:25000)
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1.0 Introduction

Pre-Construct Archaeology (Lincoln) was commissioned by Robert Lowe, Chartered Architect (on behalf of his client) to carry out an archaeological trial excavation on the site of a proposed residential development of land off Willington Road/ Church Lane, Kirton, Lincolnshire.

These works were undertaken to fulfil the objectives of a formal project specification prepared by Pre-Construct Archaeology (Lincoln). The fieldwork and reporting methodologies employed in this report are consistent with the recommendations of *Archaeology & Planning: Planning Policy Guidance Note 16* (Department of the Environment, 1990), *Management of Archaeological Projects* (English Heritage, 1991), *Standards and guidance for archaeological field evaluation* (IFA, 1999), and the Lincolnshire County Council document *Lincolnshire Archaeological Handbook: a manual of archaeological practice* (LCC, 1998).

Copies of this report have been deposited with the commissioning body and the County Sites and Monuments Record for Lincolnshire. Reports will also be deposited at the City and County Museum, Lincoln, along with an ordered project archive for long-term storage and curation.

2.0 Site location and description

The development site is situated within the village core of Kirton, approximately 3km south of Boston, in the administrative district of Boston Borough Council. The site, previously occupied by government offices, occurs off the west side of Willington Road, approximately 100m north-west of the Church of St Peter and St Paul.

The local soils are of the Tanvats Association; stoneless silty or silty over clayey soils (Hodge et.al, 1984). These overlie a drift geology of Terrington beds of younger marine deposits (Romano-British to present day), salt marsh, tidal creek and river deposits, over a solid geology of Ancholme group clay (British Geological Survey, 1995).

The central National Grid Reference is TF30378 38571.

3.0 Planning background

The proposed development site is considered to be of high archaeological potential. Consequently, the Boston Community Archaeologist, on behalf of the Borough Council, issued a brief for trial excavation; to be undertaken as a requirement for outline planning consent prior to development (Planning Reference B/04/0827/OUTL). The results of this evaluation may form the basis of a subsequent mitigation strategy that will seek to address the archaeological interest, and the interests of the developer. This approach is consistent with the recommendations of *Archaeology and Planning: Planning Policy Guidance Note 16 (PPG16)*, 1990.

4.0 Archaeological and historical background

No evidence of occupation at Kirton prior to the Saxon period has been identified: given the location of this settlement, being subject to marine inundation events, alluvial deposits may have masked evidence of earlier activity.

Archaeological works undertaken within the village core, c.200m to the south east of the current site exposed a pond and pit of late Saxon-early medieval date (Cope-Falkner, 1997). A single gully of Saxo-Norman/ early medieval date, containing domestic hearth waste was also uncovered within the village core (Rayner, 2002).

The first mention of Kirton is in the Domesday book; listed as *Chirchetune*, from the old English meaning Church and Village. Later Norse influence further changed the name to *Kirktone* (Cameron, 1998) thus providing the modification to the current form.

Listing within the Domesday Book suggests the settlement was established before the Norman Conquest. The lands at Kirton were the property of Count Alan and Guy of Craon. Count Alan was listed to have plough land of 10 bovates, (1 bovate being as much land as one ox could plough in a year's work, usually estimated at 16 acres), 8 acres of meadow; with a population of 4 households in addition to the tenant administrator, Toli the counts man.

Kirton Hundred, sokeland of Count Alan (jurisdiction of the manor of Drayton) was listed as 10 carucates (the area which could be ploughed with an eight-ox team in a year's work: usually 120 acres, but could vary according to the quality of the land) and 1 1/3 Bovates; 60 acres of meadow, 2 salt houses, a total of 46 households and a church.

Guy of Craon was listed to have at Kirton plough land of 14 bovates and 2 parts of a bovate and 16 acres of meadow. Guy of Craon himself administered the estate; there were 2 further households in addition (Morgan &Thorne, 1986).

The village appears to have enjoyed continuous occupation from the Saxon period to the present day. Kirton was reputed to be the third largest settlement in Lincolnshire during the reign of Elizabeth I. The settlement was greatly reduced in 1590, when disease wiped out 10% of the population (LFWI, 1990).

The enclosure act in the mid 17th century incited rioting over water fowling rights at Kirton. However, the resulting reclaimed land from the drainage project proved more habitable and profitable from which the people of Kirton ultimately benefited *(Ibid)*.

5.0 Methodology

The programme of evaluation initially required the excavation of five trenches, each 20m in length, and a further 10m long trench, across the proposed development area. Due to the presence of standing buildings and substantial tree cover on the site, allowances had to made in the positioning of these trenches. Subsequentially, two

15m trenches, three 10m trenched and one 5m trench were placed in the accessible areas (figure 2).

Initial excavation was carried out using a JCB fitted with a 1.6m wide toothless ditching blade. Topsoil and subsoil deposits were removed in spits not exceeding 0.2m, until the first archaeological or natural horizon was exposed. Where archaeological deposits were encountered, all further excavation was carried out by hand.

Archaeological features were sample excavated to establish depths and profiles and, where possible, date and function. Features were recorded in plan and in section at appropriate scales (1:50 and 1:20), with associated context information. A photographic record was maintained throughout the project, and selected prints have been reproduced in this report.

The author, who was assisted by a team of two experienced field archaeologists, supervised the fieldwork over a period of four days; Tuesday 3rd – Friday 6th May 2005.

6.0 Results

6.1 Trench 1 (Figures3 & 4)

A dark grey/brown loose clay-silt topsoil 101, occurring to a depth of 0.44m, was stripped away to reveal a mid-brown clay-silt subsoil 102. A single fragment of red glazed earthenware of mid 16th to mid 17th century date was recovered from topsoil 101. The subsoil sealed a layer of light brown clay-silt 103, interpreted as a naturally occurring alluvial deposit.

Sealed by the silt layer 103, a north-south orientated linear feature, 109, partially under the eastern bulk of the evaluation trench, contained four distinct fills (104, 110-112). Contexts 104 and 110 produced four fragments of animal bone. Evidence of butchery and carnivore gnawing was noted on the remains. The width of the feature and full profile was obscured by the baulk, although the depth was established to be 0.5m. Three fragments of pottery were recovered from deposit 104, providing a date of late 18th to 20th century.

The linear feature was cut into natural alluvial clayey-silts 108 and through a small isolated lens of light yellow clay silt 105, which occurred in the centre of the trench. A sondage was machine excavated at the southern end of the trench to establish further archaeological horizons. The sondage, to a total depth of 2.6m below ground surface, revealed a uniform deposit of mid-brown natural alluvial clay 108.

6.2 Trench 2 (figures 6 & 7)

The trench was overlain by a dark grey/brown clayey-silt topsoil 201, which was 0.4m deep. The topsoil sealed mid-orange brown clay silt subsoil 202, which displayed extensive root disturbance to the western extent of the trench. This

disturbance created a very diffuse horizon between the subsoil and the natural silts, 206 that lay directly below.

A north-south linear feature with a V-shaped profile 215 was cut through the subsoil. This feature was 1.02m wide, and 0.42m deep. It contained three distinct fills (203, 208, 209). Three fragments Lincolnshire kiln-type shelly ware pottery of late 9th to late 10th century date (Young, Appendix 3), were recovered from the basal fill 203. The stratigraphic relationship observed within the baulk section clearly shows linear 215 cutting a modern land drain, suggesting that these sherds were residual. A slight ridge on the same orientation as the linear was observable along the ground surface, possibly forming a bank along the eastern edge of the linear.

The subsoil sealed a shallow linear feature, 216,which was orientated north-south. It was 0.45m deep and 2.8m wide. The feature contained three distinct fills (204, 205 and 212). The deposits were rich with charcoal, fired clay, fish bone and burnt bone fragments. No evidence of utilisation of the fired clay was observed (Vince, Appendix 5). The animal bone from this feature is predominantly burnt and possibly represents hearth sweepings (Kitch, Appendix 7). The environmental remains from the feature were poorly preserved providing little information; the charcoal fragments were too fragmentary for identification (Lewis, Appendix 6). Eight fragments of Lincolnshire kiln-type shelly ware pottery, late 9th to mid/late 10th century (Young, Appendix 3), were recovered from context 205.

6.3 **Trench 3** (figures 8-10)

A 0.42m deep topsoil layer, 301, covered the extent of the trench and sealed a mid orange/brown clayey-silt subsoil 302. The subsoil in turn sealed two large east-west orientated linear features 309 and 313. 313 had been re-cut by 310 on the same orientation.

The east-west linear feature 309 was the latest feature within the trench, clearly cutting the upper fills of the linear re-cut 310. Ditch 309 was 3.2m wide and 1.12m deep with a moderately sloped V-shape profile. 309 contained two deposits: the primary fill was a mid grey clay-silt 314, which yielded a single sherd of Lincolnshire kiln-type shelly ware pottery of late 9th-late 10th century date (Young Appendix 3). The upper fill 303 was a mid brown clayey-silt, which produced a single fragment of late 9th/late 10th century Lincolnshire kiln-type shelly ware. The feature produced a total of 166 fragments of animal bone. The majority of the remains are fish bones recovered from the sieved assemblage, taken from the basal fill, including six fragments of eel. The remaining assemblage represents the main domestic species, displaying evidence of jointing and carnivore gnawing. The remains were typical of domestic refuse (Kitch, Appendix 7).

The samples taken from context 314 revealed a number of charcoal fragments, identified as oak. In addition, the sample was dominated by charred cereal grains; with the flot almost entirely composed of cereal grain with hardly any charred weed seeds or chaff present. It was dominated by wheat and rye, with a few charred barley grains. The cereal appears to have been partially cleaned (possibly winnowed) prior to combustion.

Context 310, a re-cut of 313, had a shallow U-shaped profile with a width of 3.2m and a depth of 0.51m. 310 contained one clear context of mid brown clay-silt 305. Nine fragments of animal bone were recovered from this feature indicating primary butchery waste.

Ditch 313 was the earliest feature within the trench, cut directly into the natural alluvial silts 307. The linear feature was irregularly U-shaped in profile reaching a depth of 0.6m. The full width of the feature was obscured by the baulk of the trench. It contained three fills (306, 307, 312). The basal fill 312 was a mid green-black soft organic silt with lenses of a mineralised substance, potentially cess. Deposit 312 produced nineteen fragments of Lincolnshire kiln-type shelly ware pottery of late 9th-late 10th century date and 42 fragments of animal bones. The majority of the remains were recovered from the sieved assemblage and were unidentifiable to species. The remains indicate a mixture of butchery and food waste (Kitch Appendix 7).

The bulk samples from 312 yielded evidence of food crops. Some of the cereal grains and seeds were very puffed and distorted, probably as a result of either combustion at an extremely high temperature or repeated episodes of burning. For cereals and other foodstuffs; Oat, barley and wheat grains were recorded, with barley being predominant (Lewis Appendix 6). In addition to the charred plant remains the sample yielded several snail shells predominantly open country species, particularly those species favouring dry calcareous grassland (Lewis Appendix 6).

A small spherical clay gaming piece was recovered from the bulk sample taken from context 312. The piece is thought to be an equivalent to a marble (Vince Appendix 5).

6.4 **Trench 4** (figures 11 &12).

A layer of topsoil 401, approximately 0.4m dep, directly overlay a large pit of modern date [406]. The full extent of the feature was not established. It contained two distinct fills (402, 403). The main fill 403 contained an abundance of modern pottery, glass, animal bone and brick rubble, with intermittent lenses of coal dust. The feature had been capped with a substantial layer of brick rubble 402, possibly acting as consolidation. The pit cut through the dark brown silty-clay subsoil 404, which sealed the mid-brown clay-silt of the natural alluvium layers 405.

6.5 **Trench 5** (figures 13 &15).

A layer of tarmac 501 occurring to a depth of 0.1m covered the extent of the trench. This sealed a levelling/consolidation layer of limestone chips in a matrix of sand and concrete 502. This directly overlay the natural alluvial silts 504. A section of the alluvial silts, towards the centre of the trench showed extensive staining, the colouration and aroma indicated the staining was a result of diesel spillage.

6.6 **Trench 6** (see figures 15 & 16)

A layer of tarmac 601 covered the full extent of the trench, occurring to a depth of 0.1m. Layer 601 sealed a layer of levelling/consolidation of limestone chips in a matrix of sand and concrete 602, as seen within trench 5. Within the Eastern extent of the trench, a thin layer, approximately 0.25m in depth, of dark grey-brown silt subsoil 603 lies directly below the levelling layer 602. The subsoil sealed natural mid-brown alluvial silts 604.

7.0 Discussion and conclusion

The earliest deposits encountered are the marine alluvial deposits, which appear uniformly over the investigated area of the site; providing evidence of successive marine inundations, which may have obscured or obliterated earlier archaeological activity.

The earliest phase of activity was recorded in the southern three trenches (1-3). North-south orientated shallow linear ditch/hollow way [215], and east- west ditch series [313], [310] and [309] were all of late 9th-late 10th century date. The artefactual materials recovered from the features suggest general domestic activity. As these trenches were situated close to the village core, where activity of a similar phase has been identified in earlier archaeological works, the presence of such features should not be unexpected.

The next phase of activity was observed within Trench 1. Ditch [109] is tentatively dated to the 18th-20th century, based on a single sherd of pottery. The function of the ditch is uncertain, however the deposits within it appear to be waterborne, which may indicate a function for drainage.

The final phase of activity was represented by the modern rubbish pit in trench 4, [406]. The deposits within this feature were post-Victorian and possibly contemporary with the old school building (DEFRA offices) that shares the development site. The large amount of brick rubble within the pit may suggest that deposits were generated during the destruction of an earlier building.

The two remaining trenches to the north of the development site were devoid of any archaeological activity. The ground here had been stripped and levelled for the construction of a car park for the 1950's government buildings that still stand on the development area, and this activity may have removed earlier archaeological deposits.

Kirton has enjoyed continuous occupation from the Saxon period onwards. However, at the current site there appears to be an absence of occupation between the Late Saxon period and the 18th century. This may suggest that the focus of the settlement moved away from the area incorporated within the proposed development zone (during the medieval period).

8.0 Effectiveness of methodology

The methodology chosen was appropriate to the scale of the proposed development. It allowed a rapid assessment of the archaeological potential of the site to be made, which is moderate to low.

9.0 Acknowledgements

Pre-Construct Archaeology (Lincoln) would like to thank Robert Lowe Chartered Architect, for this commission. Thanks also go to the field staff, Linda Hamilton and Mike Daley.

10.0 References

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11.0 Site archive

The documentary and physical archive for the site is currently in the possession of Pre-Construct Archaeology. This will be deposited at Lincoln City and County Museum within six months. Access to the archive may be gained by quoting the global accession number 2005.97

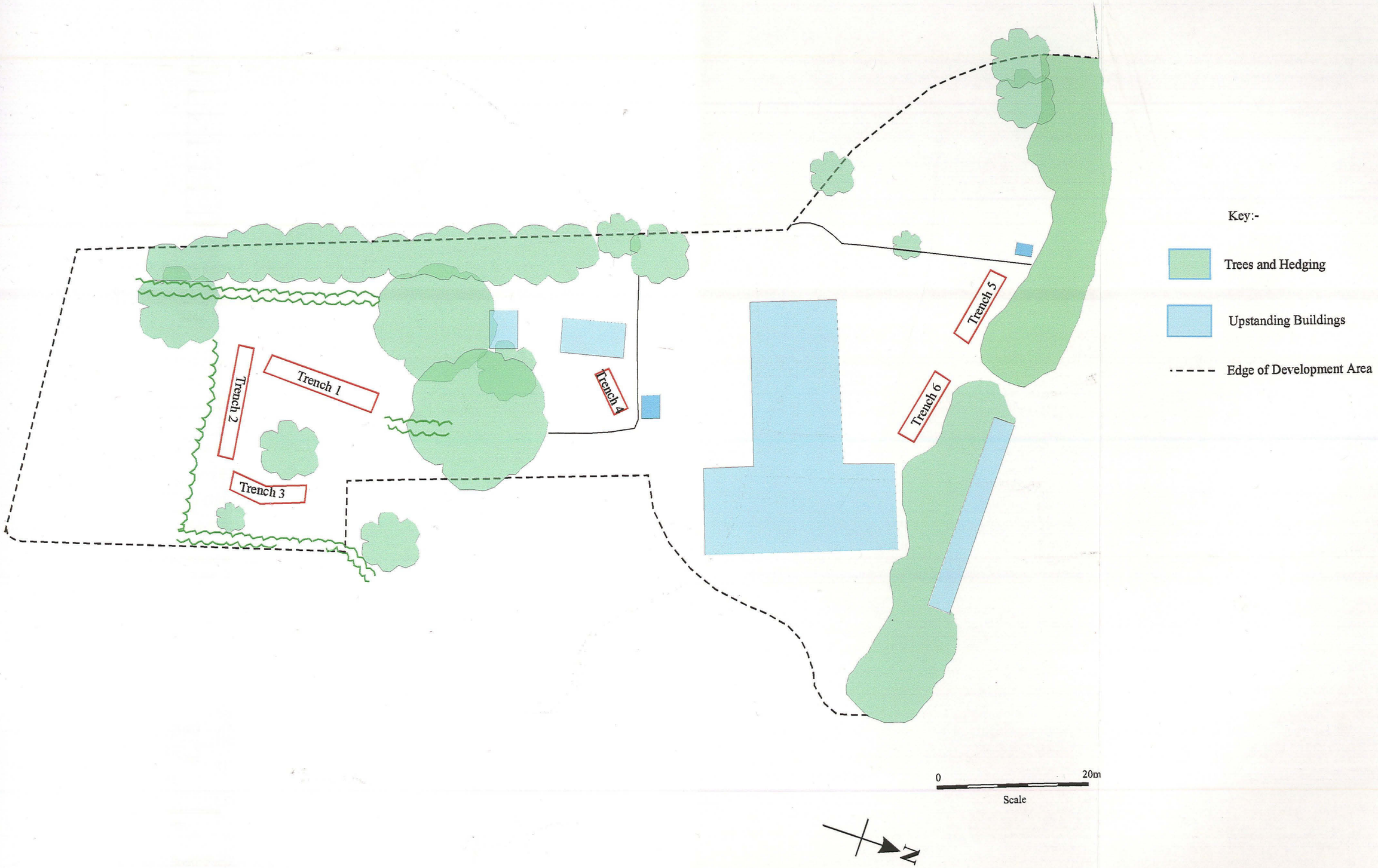

Figure 2. Location Plan of development area and evaluation trenches.
Scale 1:500

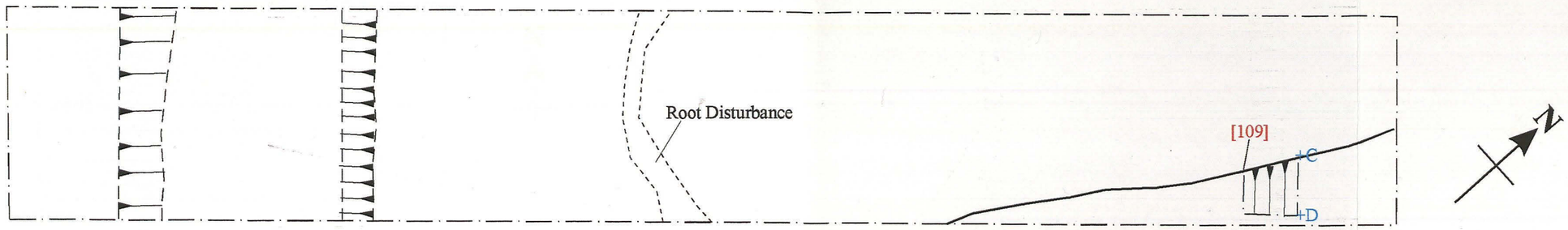

Figure 3. Plan of trench 1. Scale 1:50

0 2m

Scale

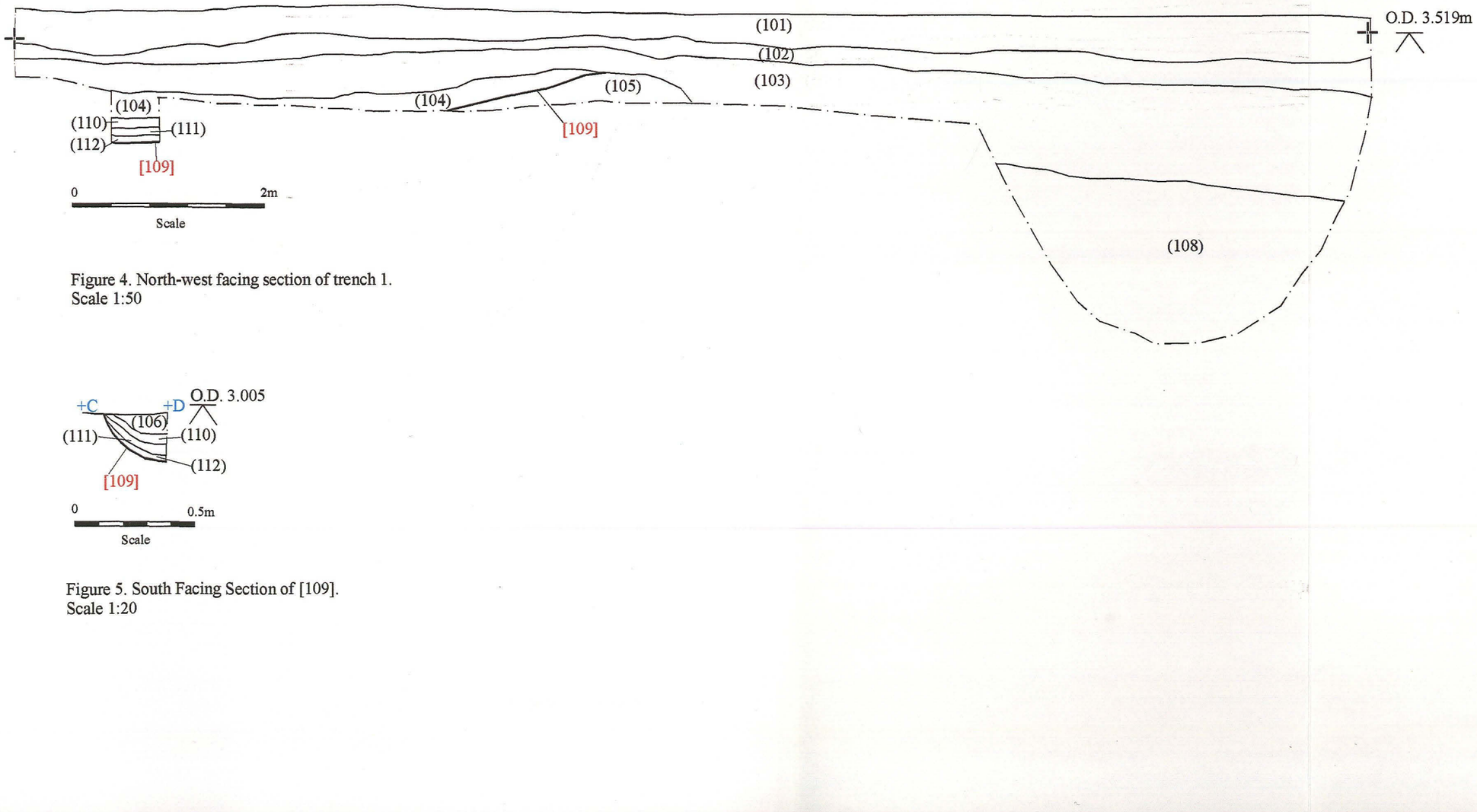

Figure 4. North-west facing section of trench 1.
Scale 1:50

Figure 5. South Facing Section of [109].
Scale 1:20

Figures 3-5. Trench 1

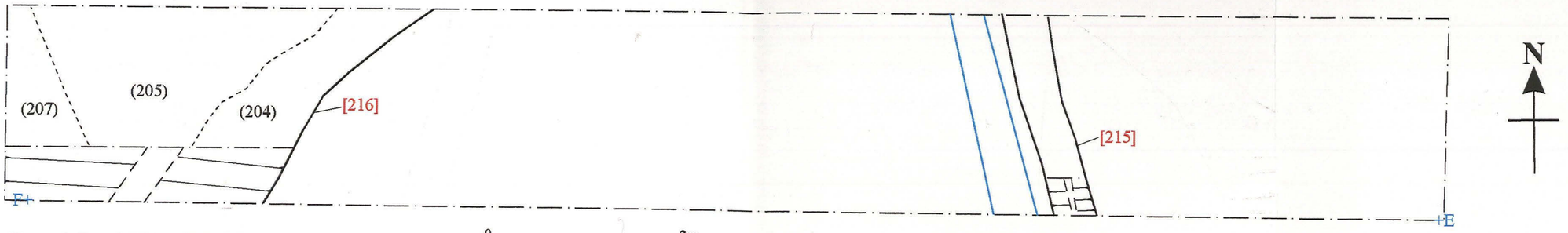

Figure 6. Trench 2 Plan. Scale 1:50

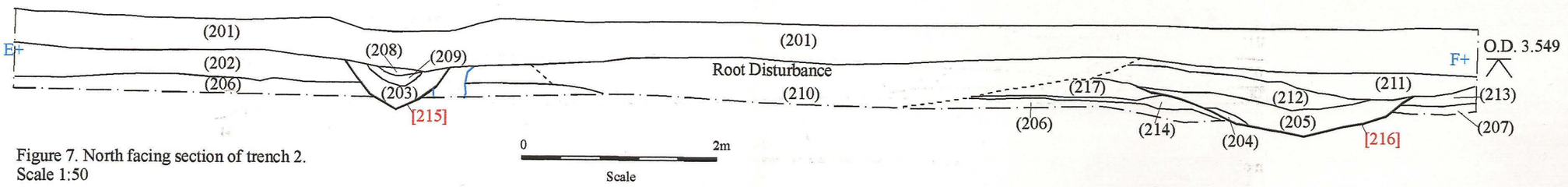

Figure 7. North facing section of trench 2.
Scale 1:50

Figures 6-7. Trench 2.

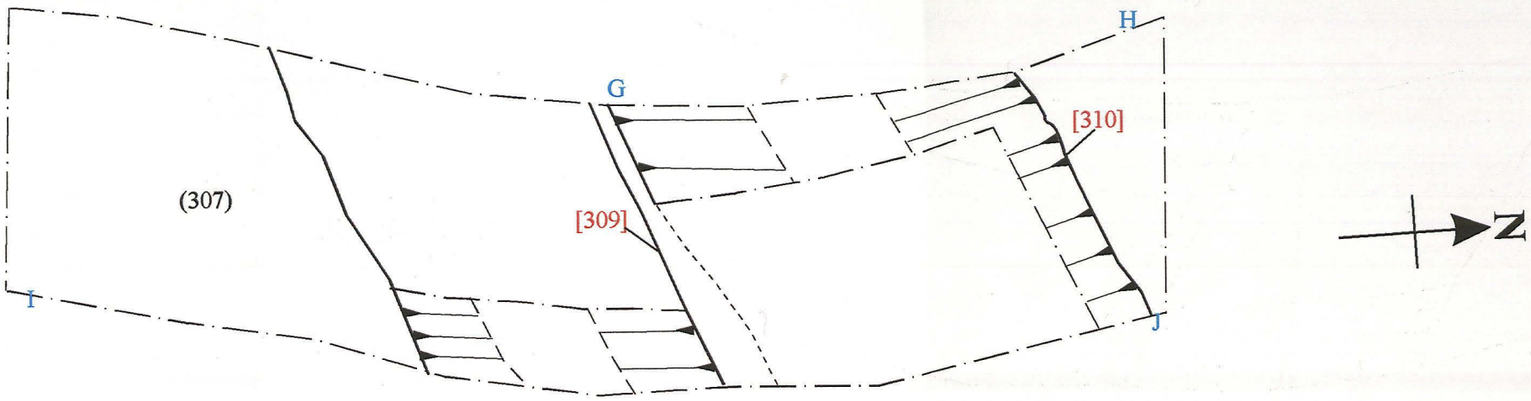

Figure 8. Plan of Trench 1. Scale 1:50

0 2m

Scale

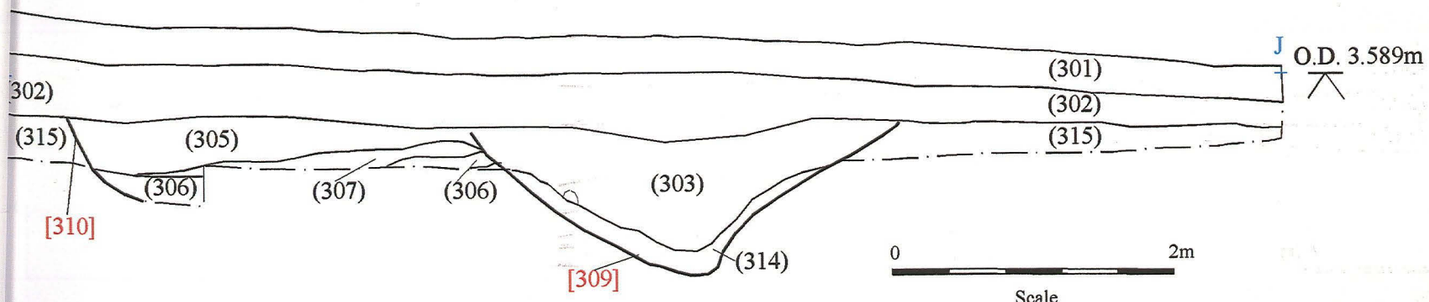

Figure 9. West facing section of trench 3. Scale 1:50

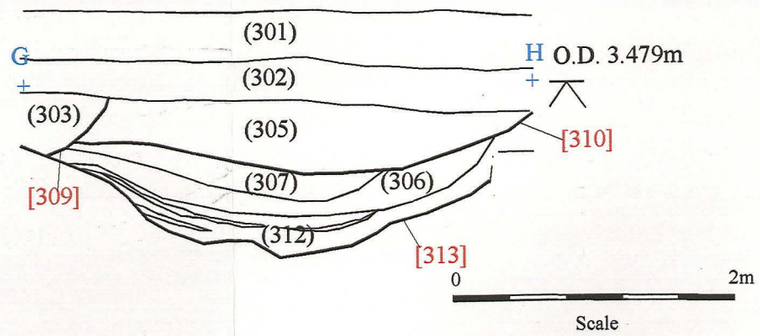

Figure 10. East facing section of [313] with re-cut [310].
Scale 1:50

Figures 8-10. Trench 3

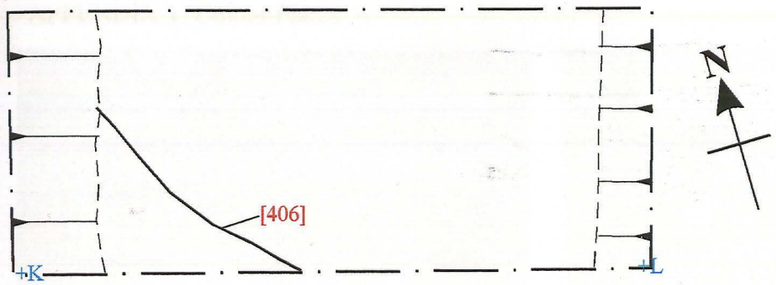

Figure 11. Plan of Trench 4. Scale 1:50

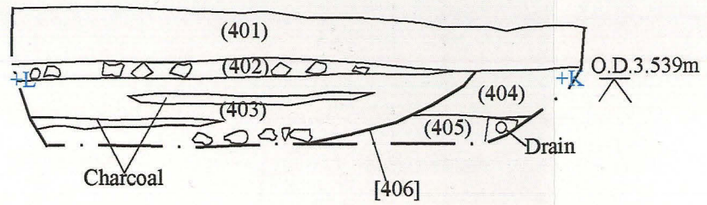

Figure 12 . North facing section through trench 4.
Scale 1:50

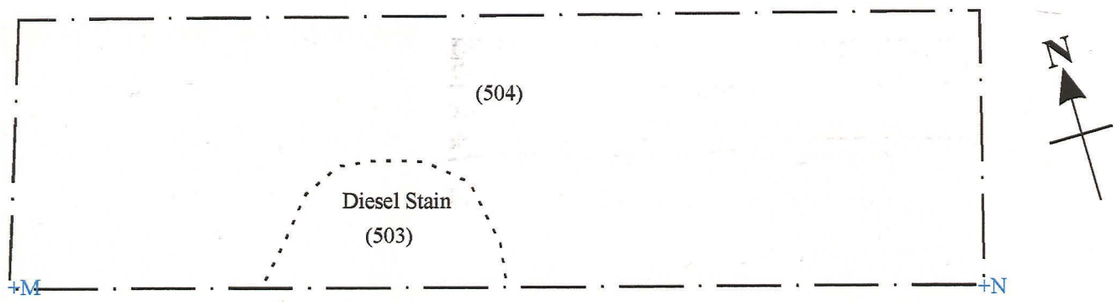

Figure 13 . Plan of Trench 5. Scale 1:50

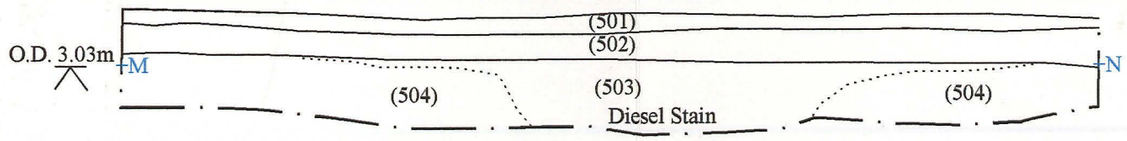

Figure 14. North-east facing section through trench 5. Scale 1:50

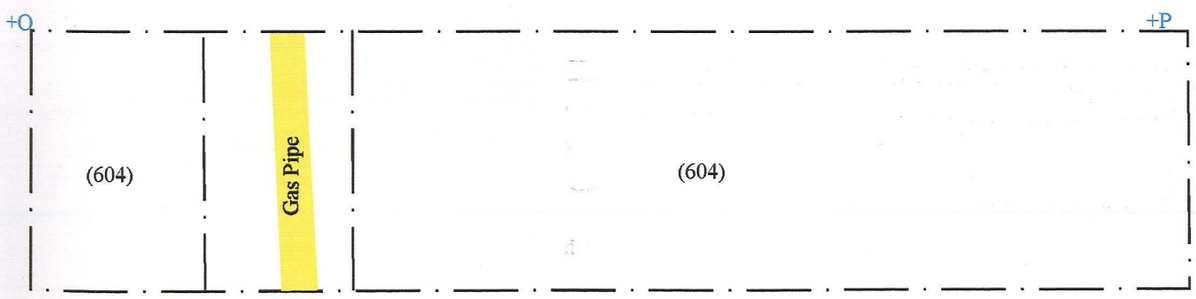

Figure 15 . Plan of Trench 6. Scale 1:50

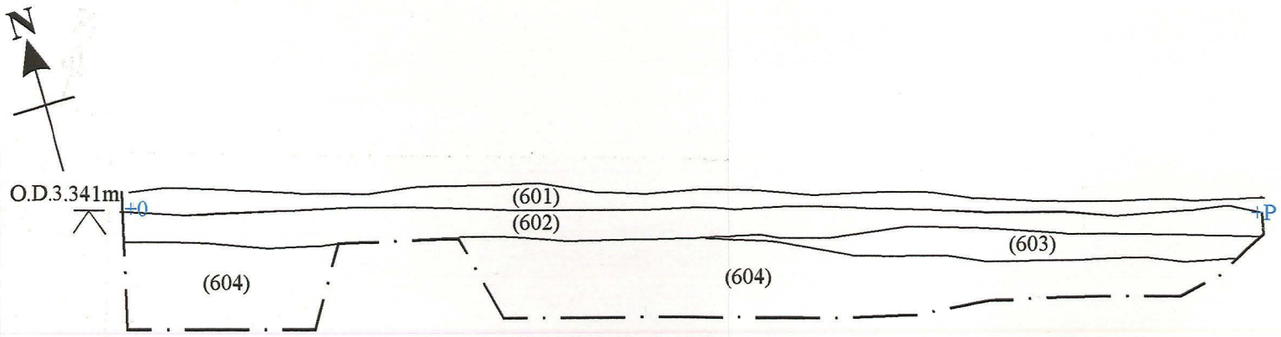

Figure 16 . South-west facing section through trench 6. Scale 1:50

Figures 11-16. Trenches 4-6.

APPENDIX 1: Colour Plates

Plate 1. General Shot of trenches 1-3, looking southeast

Plate 2. General Shot of trenches 5-6, looking southwest

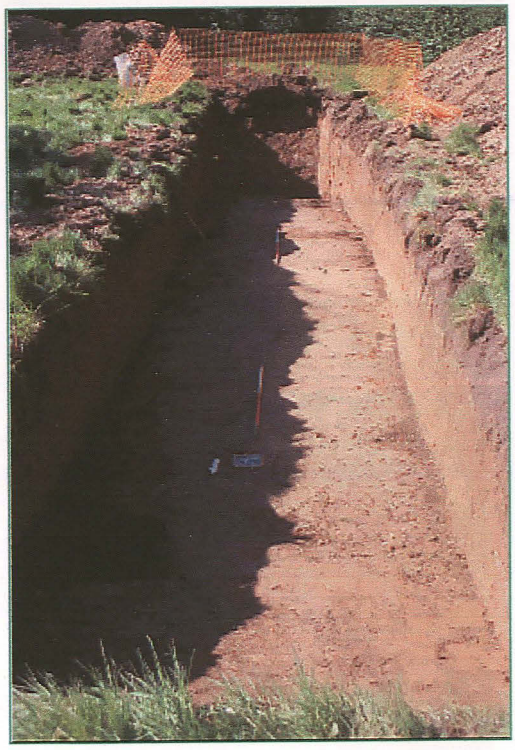

Plate 3. Shot of excavated Trench 1, Looking South

Plate 4. South facing section of ditch [109]

Plate 5. Shot of Trench 2, looking East

Plate 6. North facing section of Ditch [215]

Plate 7. Shot of Excavated Trench 3, looking South

Plate 8. East facing section of ditch [313] and re-cut [310]

Plate 9. Trench 4, Looking East

Plate 10. Trench 5, Looking East

Plate 11. Trench 6, Looking West

APPENDIX 2: List of archaeological contexts

Trench 1

Context	*Type*	*Description*
101	Layer	Dark grey/brown loose clay silt. Topsoil
102	Layer	Mid Brown Clay/silt, Subsoil
103	Layer	Light Brown Clay/silt, Alluvium
104	Deposit	Grey/ Brown Clay/Silt, fill of ditch [109]
105	Layer	Light Yellow/Grey Silt
106	Deposit	Fill of ditch same as (104)
107	Deposit	Root disturbance
108	Layer	Light Brown clay/silt, alluvial clay
109	Cut	NE-SW orientated ditch cut
110	Deposit	Light yellow/brown clay/silt, water borne fill of ditch [109]
111	Deposit	Dark brown clay silt, organic fill of ditch [109]
112	Deposit	Mid Brown clay/silt, Primary fill of ditch [109]

Trench 2

Context	*Type*	*Description*
201	Layer	Dark grey/brown loose clay silt. Topsoil
202	Layer	Mid Brown Clay/silt, Subsoil
203	Deposit	Fill of [215], dark grey brown clayey/silt
204	Deposit	Fill of [216], burnt clay/dawb deposit
205	Deposit	Fill of [216], dark grey/ brown clayey/silt with occasional charcoal and mussel
206	Layer	Brown/orange clay silt
207	Layer	Mottled grey/brown clayey/silt
208	Deposit	Fill of [215], Dark brown clayey silt
209	Deposit	Fill of [215], Mottled orange/brown silt mixed deposit
210	Layer	Root disturbance
211	Layer	Mid brown clayey/silt
212	Deposit	Mottled grey/brown clayey silt, Fill of [216]
213	Layer	Possible re-deposited natural, yellow/orange silty clay
214	Layer	Possible old ground surface? Dark grey/brown clay silt

215	Cut	Linear ditch N-S orientation, V-shape profile
216	Cut	Shallow linear N-S orientation ditch/Holloway
217	Deposit	Possible re-deposited natural, yellow brown clayey/silt

Context	*Type*	*Description*
301	Layer	Dark grey/brown loose clay silt. Topsoil
302	Layer	Mid Brown Clay/silt, Subsoil
303	Deposit	Fill of [309], Mid brown clayey silt
304	Void	
305	Deposit	Fill of [310], Mid-brown clay silt, Same as (308)
306	Deposit	Dark grey soft clay silt, fill of [313]
307	Deposit	Mid-yellow brown silt, fill of [313]
309	Cut	Linear ditch E-W orientated, V shape profile
310	Cut	Linear ditch E-W orientated, straight sides and concave base, Re-cut of [313]
311	Void	
312	Deposit	Fill of [313], layers of laminated dark grey silt clay with lenses of organic cess-like material
313	Cut	Linear ditch E-W orientation, shallow sloping sides, concave base
314	Deposit	Fill of ditch [309], mid grey clay silt

Context	*Type*	*Description*
401	Layer	Dark grey/brown loose clay silt. Topsoil
402	Layer	Brick Rubble, Consolidation layer over modern pit [406]
403	Deposit	Black sandy silt, Large quantities of brick, glass and post-Victorian pottery, Fill of Pit [406]
404	Layer	Dark brown clay/silt, Subsoil
405	Layer	Mid Brown Clay/silt, Natural alluvium
406	Cut	Pit cut, shallow sloped concave base extent not uncovered. Modern rubbish pit

Context	*Type*	*Description*
501	Layer	Tarmac Car park Surface
502	Layer	Mid orange/yellow sand with limestone chips and concrete, consolidation/levelling layer
503		Diesel Stain

504	Layer	Mid-brown clay/silt, natural alluvial silts

Context	*Type*	*Description*
601	Layer	Tarmac Car park surface
602	Layer	Mid orange/yellow sand with limestone chips and concrete, consolidation/levelling layer
603	Layer	Dark grey-brown clay/silt, occasional small pebbles, Subsoil
604	Layer	Mid-brown clay/silt, natural alluvial silts

APPENDIX 3: Pottery Archive CLKB05

Jane Young

context	cname	full name	form type	sherds	vessels	weight	decoration	part	ref no	description
100 Plot 1	GRE	Glazed Red Earthenware	bowl	1	1	24		rim		mid 16th to mid 17th
106	EMHM	Early Medieval Handmade	?	1	1	8		base		
106	LANG	Langewehe stoneware	drinking jug	1	1	6		BS		underfired
106	LERTH	Late earthenwares	flower pot	1	1	2		BS		
203	LKT	Lincoln kiln-type shelly ware	?	1	1	6		base		thin walled
203	LKT	Lincoln kiln-type shelly ware	small vessel	1	1	12		base		thick walled;soot ext
203	LKT	Lincoln kiln-type shelly ware	?	1	1	16		base		soot ext
205	LKT	Lincoln kiln-type shelly ware	jar	1	1	11		BS	sample 16	soot int & ext
205	LKT	Lincoln kiln-type shelly ware	?	1	1	1		BS	sample 16	
205	LKT	Lincoln kiln-type shelly ware	?	3	3	1		BS	sample 16	soot
205	LKT	Lincoln kiln-type shelly ware	jar	1	1	21		BS	sample 16	part int soot ?
205	LKT	Lincoln kiln-type shelly ware	jar	1	1	10		BS		thin walled;soot
205	LKT	Lincoln kiln-type shelly ware	jar	1	1	14	diamond roller stamping	BS	sample 16	
207	BOU	Bourne D ware	jug/jar	1	1	10		BS		internal deposit
303	LSH	Lincoln shelly ware	bowl	1	1	20	rim	inturned rim;soot		

context	cname	full name	form type	sherds	vessels	weight	decoration	part	ref no	description
312	LKT	Lincoln kiln-type shelly ware	small jar	1	1	4		BS		thick int & ext soot
312	LKT	Lincoln kiln-type shelly ware	jar/bowl	2	1	64		base		part sooting
312	LKT	Lincoln kiln-type shelly ware	small jar	1	1	11		base		soot ext and over breaks
312	LKT	Lincoln kiln-type shelly ware	small jar	2	1	14		base & BS		soot int & ext;very abraded
312	LKT	Lincoln kiln-type shelly ware	?	5	5	2		BS	sample 1	
312	LKT	Lincoln kiln-type shelly ware	small jar	1	1	12		BS	sample 1	abraded;internal soot
312	LKT	Lincoln kiln-type shelly ware	?	1	1	4		BS	sample 1	
312	LKT	Lincoln kiln-type shelly ware	?	4	4	8		BS	sample 1	
312	LKT	Lincoln kiln-type shelly ware	jar	2	1	30		BS		internal fe slip;soot
314	LKT	Lincoln kiln-type shelly ware	small jar	1	1	1		BS	sample 16	soot int & ext

Dating Archive CLKB05

Jane Young

context	date	comments
100 Plot 1	mid 16th to mid 17th	date on single sherd
106	late 18th to 20th	
203	late 9th to late 10th	
205	late 9th to mid/late 10th	
207	mid 15th to 16th	single sherd and single brick
303	early/mid to late 10th	date on single sherd
312	late 9th to late 10th	
314	late 9th to late 10th	date on single sherd

APPENDIX 4: Brick Archive CLKB05

Jane Young

context	cname	fabric	frags	weight	description	date
207	BRK	calcareous	1	21	handmade	14th to 16th

APPENDIX 5: Fired Clay

Assessment of the Fired Clay from Church Lane/Willington Road, Kirton, Lincolnshire (CLKB 05)

Alan Vince

A small collection of fired clay from an archaeological evaluation carried out on land at Church Lane/Willington Road, Kirton, Lincolnshire, by Pre-Construct Archaeology (Lincoln) Ltd was submitted for identification and assessment.
The finds include a clay ball, presumably used for gaming, as well as indeterminate fired clay, some of which may be associated with salt extraction whilst other pieces are probably from daub structures.

Description

Fired Clay

All of the fragments present were made from a silty clay, typical of the Lincolnshire Fens and Lindsey Marshes. The fragments could, however, be grouped together into four fabric groups:

a) Fine silt with no other inclusions visible
b) Coarse silt with sparse rootlet holes/animal burrows.
c) As (b) with brown mottles
d) As (b) with abundant organic inclusions
e)

The ball is approx 32mm diameter and has slight facets due to the forming process. Nevertheless, it was highly spherical and when complete could have rolled well. The surface of the ball has spalled/chipped away over about half of the surface.

The remaining fragments have no signs of their use except for the piece from context 314 which has reed impressions and appears to have been squeezed between two wattles. It is therefore probably a piece of daub. The other examples with abundant organic inclusions are probably also daub fragments.

The fragments without abundant organic inclusions include two large lumps from context 312. These have no faces and show no signs of being worked by man at all. It may be that these are burnt "turf" blocks, a type of debris often found in association with salt extraction (the turf was spade-cut and used to support a trough). All have been fired to a similar temperature in oxidizing conditions. This too is consistent with the salt extraction theory. However, there are no fragments of overfired clay, which by their distinctive range of colours indicate heating of a calcareous clay in contact with salt. Such fragments would have been conclusive evidence for salt extraction.

Assessment

The ball was presumably used for gaming. Clay is not often used for this purpose because of the brittleness of the material (as indeed can be seen in this example). The size of the ball suggests a game such as "marbles" rather than bowls. Given the date of the associated finds (late 9th to 10th centuries) it would be worth undertaking some research to see if similar balls, of any material, occur on Scandinavian sites of this date.

REFNO:	Action:	Context:	Form:	SUBFABRIC:	Nosh:	NoV:	Weight:	Description:
SF16		205		SILTY;A ORGANICS	4	4	5	
SF16		205		SILTY;ROOTLETS/BURROWS	5	1	12	
SF01	DR;PH	312	BALL	SILTY	1	1	26	32MM DIAM;HAND MOULDED
		312		SILTY;ROOTLETS;MOTTLED	1	1	108	EVENLY OXIDIZED
		312		SILTY;ROOTLETS;MOTTLED	1	1	76	EVENLY OXIDIZED
		312		SILTY;ROOTLETS	4	4	37	EVENLY OXIDIZED
		312		SILTY;ROOTLETS;MOTTLED	3	3	20	EVENLY OXIDIZED
SF02		314		SILTY;A ORGANICS	1	1	3	BLACK THROUGHOUT

APPENDIX 6:Environmental Report

Evaluation of biological remains from evaluation trenches at Church Lane, Kirton, Lincolnshire (site code: CLKB05)

By Edward Lewis

Methods

Three sediment samples from separate contexts were recovered from the deposits. All of the samples were processed 'in-house' by Pre-Construct Archaeology (Lincoln). Each sample was floated and wet sieved at fractions of <10mm, 9-5mm and 4-2mm, the flots were collected on a nylon mesh of 300 microns. The residues were dried and then sorted by eye; environmental and archaeological finds were picked out, noted on the assessment sheet and bagged independently.

The residues and flots were then subjected to specialist analysis. The residues were quickly examined for invertebrate and large plant macrofossil remains. A small magnet was run through the residues to look for metallic by-products and waste (such as hammerscale, prill and slag). The flots of each sample were studied using a low power binocular microscope (Olympus VMT 1x, 4x). The presence of environmental finds (i.e. snails, charcoal, carbonised seed, bones etc) was noted and their abundance and species diversity recorded on an assessment sheet.

Table 1 shows a list of the submitted samples.

Results

The results are presented in context order (where applicable). Sample numbers were allocated in the field. The numbers used in this report are derived from the Context and sample numbers (e.g. Context 312, sample 1 gives Sample 312/1).

For those samples yielding identifiable plant remains, qualitative summary information is given in Table 2. Nomenclature follows Clapham *et al.* (1987). Seed identification comes from Körber-Grohne (1967) and habitat information comes from Stace (1991). Charred wood was present in some of the samples and was identified (where possible) without the aid of keys.

For those samples yielding identifiable snail remains semi-quantitative summary information is provided in Table 3. Nomenclature follows Kerney (1976) for freshwater molluscs and terrestrial snails. Identification and habitat information comes from Wardhaugh (1989), Kerney *et al.* (1979) and Cameron (2003).
For those samples yielding small animal bone (small mammal) a brief description of taxa present is presented in Table 4. No identification keys were used (identification provided by the author).

Archaeological information is provided by the excavator. Cut or feature numbers are presented in square brackets while fill numbers are presented in curved brackets.

Contamination does not seem to have presented a major problem. However, it must be remembered that archaeological features ought not to be considered as entirely sealed contexts. Intrusive items up to at least 5mm in diameter could be present; entering contexts by such means as falling down cracks and earthworm burrows. Moreover, some animal species should be viewed with caution (see below for *Cecilioides acicula*).

The Blind Snail (*Cecilioides acicula*) is a subterranean species, living in calcareous soils. Due to the deep burrowing activities of this species, it may well be intrusive and its presence in any archaeological context should be viewed with some caution. *Cecilioides acicula* was found in the

ditch samples analysed (samples 312/1 and 205/16). For the purposes of this study, the frequency of this species was noted in each sample, but its significance was discounted.

Sediment samples

Context (312). Fill of ditch [309].
Sediment sample 312/1 (30L)

An ashy dark grey clay/silt. The flots and residues of both were free of modern contaminants. No metallic residues or objects were found.

A few charred pieces of wood were noted, including one small section of twig. Unfortunately, none of the charcoal could be identified.

Cereal grains/chaff and/or seeds of common weed species were noted at moderate densities in the sample. Preservation was generally good. Some of the cereal grains and seeds were very puffed and distorted, probably as a result of either combustion at an extremely high temperature or repeated episodes of burning. For cereals and other foodstuffs; Oat (*Avena* sp.), barley (*Hordeum* sp.) and wheat (*Triticum* sp.) grains were recorded with barley being predominant. Asymetrical grains of six-row barley (*Hordeum vulgare*) were noted, along with barley rachis nodes. Chaff elements of other cereals were rare, but bread wheat *(Triticum aestivum-compactum*) type rachis nodes were recovered from the sample. Two possible field bean (*Vicia fabia*) seeds were recorded. Seeds or fruits of common weed species were rare and poorly preserved. Segetal taxa present included goosefoot (*Chenopodium* sp.), dock (*Rumex* sp.), indeterminate grasses (*Graminacea* sp.) and vetch/vetchling (*Vicia/Lathyrus* sp.). Wetland plants macrofossils were absent.

The flot contained a number of snail shells, of which *Cecilioides acicula*, the burrowing blind snail, is the most abundant, but because of its burrowing habit the shells may be intrusive. Other shells were noted at a low density in the sample with the majority being well preserved, yet often charred or burnt. A few specimens of *Carychium minimum*, three specimens *of Vallonia pulchella* and a single, burnt shell of the rams-horn snail (*Planorbis planorbis*) represented aquatic or wetland habitats. Open country species were predominant, however, particularly those species favouring dry calcareous grassland. Four specimens of *Pupilla muscorum* and a few fragments (possibly one individual) of *Vallonia costata* were recorded.

Possible dietary residues included a number of indeterminate small vertebrate bones, bird shell fragments and numerous pieces of marine mollusc shell, most notably *Mytilus edulis* (mussel). However, it must be noted that the shells might be residual in the marine silts that form the natural on the site. Fragments of black porous 'cokey' material and black tarry material may be derived from the combustion of organic remains, including cereal grains, at extremely high temperatures.

A number of burnt or heat-discoloured stones were present, and the sample also contained a few fragments of fired earth and/or burnt clay. The slightly sandy silt fabric of the fired earth is consistent with the firing of natural estuarine silts. The fragments do not display the pinkish-mauve colouration often associated with salt production. The majority (by count) are small rounded to sub-angular pieces up to 8mm diameter, with a light red to orange colour. The material does not appear to be structural daub.

Given the range and mixture of the above materials, it is likely that the deposit is derived from a hearth or domestic oven.

Context (314). Fill of Ditch [313].
Sediment sample 314/2 (30L)

A laminated ashy dark grey clay/silt with possible cess material. The flot was clean and free of modern contaminant roots.

A number of charred wood fragments were examined. Three large pieces of what appears to be oak (*Quercus* sp.) were recorded. The wood seems to have come from branches or, possibly, coppiced trunks. One of the fragments gave a date at felling of +3 years. The flot and residue also contained frequent small charcoal fragments. The fragmentary nature of the charcoal material precluded identification, although it is more than likely derived from the same source as the larger pieces (i.e. *Quercus* sp.).

The sample is dominated by charred cereal grains, with the flot almost entirely composed of cereal grain with hardly any charred weed seeds or chaff present. The material is well preserved, and does not appear to have been burnt more than once. It is dominated by wheat (*Triticum* sp.) and rye (*Secale cereale*), with a few charred barley (*Hordeum* sp.) grains. Wild flower seeds were restricted to a few charred goosefoot (*Chenopodium* sp.) and chickweed (*Stellaria media*) specimens. The cereal appears to have been partially cleaned (possibly winnowed) prior to combustion.

Numerous pieces of *Mytilus edulis* (mussel) were noted in the residue. The shells are probably derived from marine silts that form the natural on the site. Small mammal bones (ranging from unburnt to fully cremated) were also recorded, but not identified.

A few burnt stone and frequent burnt clay fragments were noted. The fired clay fragments ranged from spherical to sub-angular in shape, were up to 5mm diameter and had a reddish to reddish brown colouration. The 'cessy' material noted by the excavator appears to be composed of mineralised clay and fired earth particles, and may well be a natural accretion product.

A few very small metallic nodules of hammerscale (or prill) was recovered from the sample. Its is possible that metal smithing or smelting occurred in the vicinity, but the remains alone are not enough to prove this.

Context (205). Fill of shallow linear [216].
Sediment sample 205/16 (30L)

An ashy dark brown clay/silt containing daub fragments and charcoal. The material is comprised of fine silty sand with numerous rootlets (possibly modern).

A few fragments of indeterminate charcoal, 'daub' and accreted ash particles were recorded. The charcoal fragments possibly derived from the combustion of organic remains including straw or grass at very high temperatures. The 'daub' particles were very porous, lightweight and vesicular and appeared to be an accretion of ash, silica and burnt organic remains. Overall, the deposit appears to be 'natural' in origin and could be part of an *in situ* burning episode.

Plant macrofossils were very sparse and poorly preserved. The sample contained a few charred grains of wheat (*Triticum* sp.), a single clover (*Trifolium* sp.) seed and some indeterminate grass (*Graminaceae* sp.) seeds. The flot contained numerous fragments of what appears to be indeterminate sedge (*Carex* sp.) and grass (*Graminaceae* sp.) roots, stems and chaff.

The flot contained numerous shells of the burrowing snail (*Cecilioides acicula*) and one specimen of *Vallonia pulchella*. Both may well be contaminants.

It is possible that the deposit was formed in eutrophic or acidic conditions (in which plant material was poorly preserved) or that the physical conditions for preservation was not present. As such,

the material could represent the basal part of a ditch or gully that was, for the most part dry or intermittently wet (even in winter months).

Conclusions

It is probably best to look at the samples individually:

For sample 312/1, the material recovered appears to be derived from domestic hearth waste that had been dumped into a shallow ditch (or gully). There is no indication that this deposit represents a domestic fire *in situ*. Although the remains contain common grains/grain fragments, chaff elements and weed seeds are relatively rare. However, it is of note that the sample shows evidence of either single combustion at a very high temperature or repeated episodes of burning. Both events would certainly destroy delicate chaff elements and small seeds, and it is, therefore, possible that the sample is biased towards the more robust macrofossils and may not be truly representative of the original pre-combustion material. Probable dietary residues, including bird eggshell and mussel shell fragments were present in the sample. These may indicate that deposit was derived from low-density domestic refuse, possibly hearth waste. This would be consistent with the heavily burnt condition of the grains and may suggest that the latter are derived from accidental spillages during food preparation, or from waste material used as kindling/fuels for the fires. The moderate density of fired clay or daub noted in the sample may be derived from material at the base of a hearth. The finds indicate that oat, barley and possibly wheat were consumed. Similar assemblages have been recovered from contexts at earlier evaluation excavations in the area (Fryer, 2002). It is unlikely that hearth waste would be transported any great distance prior to deposition and therefore the samples may indicate the close proximity to the excavation of domestic activity in the Saxo-Norman period. The presence of snails typical of grassland habitats implies that the activity represented in the feature was being carried out on open grassland, the former salt marsh having being drained and reclaimed.

For sample 314/2, the material was almost entirely composed of charred cereal grain, most of it wheat and rye, with very little in the way of cereal waste or by-products. It appears to be the product of a single combustion with no evidence for repeated firings. Frequent charcoal, large charred wood fragments and fired earth/clay was present, yet wild flower/weed seeds, molluscs and dietary residues were largely absent. As such the material, therefore, would appear to be a partially cleaned crop and, potentially, the burnt (dumped) residue from corn-drying activity in the immediate vicinity of the site.

Sample 205/16 appears to be natural in origin, yet was surprisingly devoid of preserved plant macrofossils. It is possible that the deposit formed in stagnant, eutrophic or acidic conditions (in which plant material was poorly preserved) or that the preservation conditions were unsuitable. The presence of contaminant snail shell and rootlets mitigates against further study and the sample could be discarded.

Recommendations for further work

As Sample 314/2 produced a quantifiably viable assemblage (i.e. 200+ specimens) further analysis is recommended. A quantified account of the species identified in the samples should help in our understanding of the late Saxon and medieval diet in the village and, potentially, that of other Fenland settlements. Certainly, the results of this assessment should be compared to those from other excavations in the village and included in any future synthesis of material from Kirton.

The significant quantities of charred cereal would permit radiocarbon dates to be obtained. In the absence of clear dating evidence, a radiocarbon date obtained from sample 314/2 would be of particular importance.

Overall, a moderate to high potential exists for the survival of charred organic remains in the vicinity of the site. The proven survival of environmental remains indicates the potential to enhance the information provided by the surviving physical (archaeological) record. Information related to local domestic activities would greatly supplement existing data, especially as material of Saxo-Norman date is currently underrepresented within the archive. It is, therefore recommended that, prior to further excavation work, a comprehensive environmental sampling policy should be discussed with the relevant specialists.

Acknowledgements

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Table 1. List of sediment samples from excavations at Church Lane, Kirton, Lincolnshire (CLKB05). CPR = Charred Plant Remains

Sample Number	Context Number	Cut Number	Description / Reason Taken	Volume (L)
1	312	309	Dark grey clay silt. Charcoal and ash. CPR and molluscs	30
2	314	313	Dark grey clay silt. Laminated charcoal and ash. CPR	30
16	205	216	Dark brown clay silt. Ash and daub fragments. CPR	30

Table 2. List of plant taxa from sample residues and flots by context (for examined contexts containing identified plant remains) from excavations at Church Lane, Kirton, Lincolnshire (CLKB05). Nomenclature and taxonomic order of vascular plants follow Clapham et al. (1987). ***Key:*** *+ = present; - = not present; +? = probable; ? = indeterminate/uncertain.*

	Context		
Taxon	**312/1**	**314/2**	**205/16**
Quercus sp(p). (oak)	-	+?	-
Rumex sp(p). (docks)	+	-	-
Chenopodium sp(p). (goosefoots)	+	+	-
Stellaria media (chickweed)	-	+	-
Vicia/Lathyrus sp(p). (vetch/vetchling)	+?	-	-
Vicia fabia (field bean)	+?	-	-
Gramineae (grasses)	+	-	+?
Trifolium sp(p). (clovers etc)	-	-	+
Triticum aestivum-compactum (bread wheat)	+	+	+
Triticum sp(p). (wheat)	+	+	+
Secale cereale (rye)	+	+	-
Secale sp(p). (ryes)	+	+	?
Hordeum vulgare (six-row barley)	+	?	-
Hordeum sp(p). (barley)	+	+?	-
Avena sp(p). (oats)	+	-	-

Table 3. List of mollusc taxa from sample residues and flots by context (for examined contexts containing identified mollusc remains) from excavations at Church Lane, Kirton, Lincolnshire (CLKB05), with semi-quantitative estimates of numbers of individuals. Nomenclature and taxonomic order of non-marine molluscs follow Kerney (1976). ***Key:*** *f = less than 10; s = 11 to 25; m = more than 25 individuals.*

	Context		
Taxon	**312/1**	**314/2**	**205/16**
Mytilus edulis (Linnaeus)	***m***	***m***	-
Planorbis planorbis (Linnaeus)	***f***	-	-
Carychium minimum (Müller)	***f***	-	-
Pupilla Muscorum (Linnaeus)	***f***	-	-
Vallonia costata (Müller)	***f***	-	-
Vallonia pulchella (Müller)	***f***	-	***f***
Cecilioides acicula (Müller)	***s***	-	***m***

Table 4. List of vertebrate taxa from sample residues and flots by context (for examined contexts containing identified vertebrate remains) from excavations at Church Lane, Kirton, Lincolnshire (CLKB05). No keys used. ***All tentative identifications are marked with a ?***

	Context		
Taxon	**312/1**	**314/2**	**205/16**
Indeterminate bird shell	+	-	-
Indeterminate small vertebrate	+	+	-
Indeterminate small mammal	+	+	-

APPENDIX 7: Animal Bone Report

Church Lane/Willington Road, Kirton (CLKB 05)

The Animal Bone

By Jennifer Kitch

Introduction

A total of 34 (705g) re-fitted fragments of animal bone were recovered from the evaluation excavation at Church Lane/Willington Road, Kirton. A further 266(36g) fragments were recovered from the bulk environmental samples.

Methodology

Identification of the bone was undertaken at PreConstruct Archeology (Lincoln) with comparison to a reference collection and published guides. Each fragment was counted and weighed. Where possible the bones were identified to species, element, side and zone (Serjeantson 1996). Ageing criteria, butchery marks, pathologies, gnawing and burning were noted when present. Undiagnostic bones, vertebra and ribs were recorded as micro mammal (mouse sized), small mammal (rabbit size), medium mammal (sheep size) or large mammal (cattle size). The separation of sheep and goat bones was done using the criteria of Boessneck (1969) and Prummel and Frisch (1986). Where distinctions could not be made, the bone was recorded as Sheep/Goat.

Tooth eruption and wear stages were measured using a combination of Halstead (1985) and Grant (1982). Measurements of fully fused, adult, bones were taken according to the methods of von den Driesch (1976).

The bone condition was recorded in accordance with criteria outlined by Lyman (1996). Grade 0 being the best preserved bone and grade 5 indicating that the bone had suffered such structural and attritional damage as to make it unrecognisable.

Results

The remains were recovered from three of the trenches, 1, 2 & 3. The hand collected bone was in good condition with a general average of grades 1 and 2 within the Lyman criteria, allowing for the full recording of butchery, pathology, measurements and gnawing where present.

The sieved assemblage was of a moderate to poor condition, averaging at grades 3 and 4 of the Lyman criteria. The condition of the sieved assemblage is generally poorer due to the smaller and more fragile nature of the bone collected.

Table 1, Hand collected Assemblage

	Trench		
Taxon	1	3	Total
Cattle	2	6	8
Sheep/Goat	3	2	5
Pig		4	4
Large Mammal	3	8	11
Medium Mammal		5	5
Unidentified		1	1
Total	8	26	34

Table 2, Sieved Assemblage

	Trench		
Taxon	2	3	Total
Sheep/Goat	1		1
Domestic fowl	1		1
Bird	1	2	3
Amphibian		3	3
Eel		6	6
Fish	15	77	92
Medium Mammal	9	5	14
Micro Mammal		1	1
Unidentified	48	97	145
Grand Total	75	191	266

Trench 1
A total of 8 fragments were recovered from this trench. Four fragments (Sheep/Goat scapula, Sheep/Goat Metacarpal, Cattle ulna and a large mammal sized long bone) were recovered from the topsoil (101). A fragment of cattle humerus, a Sheep/Goat humerus and two fragments of large mammal long bone was recovered from possible early medieval ditch [109]. Butchery evidence consistant jointing and meat removal were noted on three of the fragments. Carnivore gnawing was noted on the distal shaft of the cattle humerus.

Trench 2
The remains recovered from trench 2 were from a single feature [215]. The bone was recovered solely from the sieved assemblage. The majority of the assemblage was unidentifiable, however, contained a number of fish bones that were unidentified further to species. Many of the fragments display evidence of burning which would suggest that the remains could be from a cleaned out hearth.

Trench 3
A total of 26 fragments were recovered from this trench. 15 fragments were recovered from ditch [309]. A young male pig mandible had been chopped through the midline as part of the jointing process. Additionally a cattle humerus displayed cut marks also consistent with jointing. The cattle humerus also displayed evidence of carnivore gnawing on the distal shaft.
The sieved assemblage (151 fragments) contained a large number of fish remains, 6 fragments were positively identified as eel.

Ditch re-cut [310] contained a total of 9 fragments. This small number of fragments consist primarily of large and medium sized mammal ribs and vertebra, in addition to a Sheep/Goat mandible from an animal aged 3-5 years and a cattle metacarpal. The skeletal representation of the group is indicative of primary butchery waste.

The remaining fragments from this trench were recovered from ditch [313]. These few fragments represent a pig tibia, and a complete cattle metatarsal. The measurements of the metatarsal provided a withers height of 1.1m. Carnivore gnawing was noted on two of the fragments, one of the unidentifiable fragments from the sieved assemblage was burnt. Three further fragments of fish bone were recovered from the sieved assemblage The remains indicate domestic waste.

Interpretation
The assemblage recovered from the site is small and therefore can only provide limited information. The remains represent general domestic waste, with evidence for on site butchery and food waste consistant with domestic activity. Little aging data was present within the assemblage to suggest husbandry practices, save the utilisation of Cattle, sheep/goat, pig and domestic fowl.

The fish remains identified within the sieved assemblages are typical of medieval domestic assemblages, especially within proximity to the coast.

Any further excavation is liable to yield much more bone of a moderate condition, with very good potential for establishing information on animal husbandry and utilisation on this site.

Recommendations

In the event of further excavation it is recommended that environmental sampling should be considered. To recover smaller bones such as small mammal, bird and fish. These should contribute to increasing the understanding of the local environment and diversity of the diet of the inhabitants of the site.

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Ctxt No.	Smp No.	Taxon	Element	Side	Z1	Z2	Z3	Z4	Z5	Z6	Z7	Z8	P	D	Path	Butch	Burnt	Gnaw	Fresh Break	Art	Measur'd	Tooth Wear	Surface	Cond	No.	(g)	Notes
101	0	Cattle	Ulna	L	N	Y	Y	Y	N	N	N	N	X	X	N	N	N	Y	N	N	N	N	X	2	1	34	Possible carnivore/omnivore gnawing on the proximal end
101	0	Sheep/ Goat	Metacarpal	R	N	N	Y	Y	Y	Y	N	N	X	X	N	N	N	N	N	N	N	N	X	2	1	13	
101	0	Sheep/ Goat	Scapula	R	N	N	N	N	Y	N	N	N	X	X	N	N	N	N	N	N	N	N	X	1	1	2	
101	0	Large Mammal	Scapula	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	X	1	1	8	
314	0	Cattle	Humerus	L	Y	N	Y	N	N	N	N	N	F	X	N	Y	N	N	N	N	N	N	X	2	1	94	Chopped longditudinally
314	0	Medium Mammal	Thoracic	B	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	X	1	1	2	
314	0	Large Mammal	Cervical	B	N	N	N	N	N	N	N	N	X	X	N	Y	N	Y	N	N	N	N	X	2	1	29	Chopped through the right side, possible carnivore gnawing on the art facet
314	0	Large Mammal	Rib	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	X	1	1	14	
314	0	Large Mammal	Vertebra	X	N	N	N	N	N	N	N	N	X	X	N	N	Y	N	N	N	N	N	X	2	1	3	Burnt grey/white
104	0	Sheep/Goat	Humerus	R	N	N	N	N	Y	Y	Y	Y	X	F	N	Y	N	N	N	N	Y	N	X	2	1	20	Chopped mid-shaft, cuts above condyles
104	0	Large Mammal	Long Bone	X	N	N	N	N	N	N	N	N	X	X	N	Y	N	N	Y	N	N	N	X	2	1	10	Several chop marks on the shaft
104	0	Large Mammal	Long Bone	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	X	3	1	7	
303	0	Pig	Mandible	R	Y	Y	N	N	N	N	N	N	X	X	N	Y	N	N	N	N	N	N	X	2	1	24	Young male, Chopped through midline of the mandible
303	0	Large Mammal	Rib	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	X	2	2	16	
303	0	Cattle	Tooth	R	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	X	2	1	27	Upper M2 and some maxilla
303	0	Pig	Phalanx (I)	R	Y	Y	Y	Y	Y	Y	N	N	F	U	N	N	N	N	N	N	N	N	X	1	1	2	
303	0	Pig	Fibula	X	N	N	Y	Y	Y	Y	N	N	X	X	N	N	N	N	N	N	N	N	X	1	1	3	

Ctxt No.	Smp No.	Taxon	Element	Side	Z1	Z2	Z3	Z4	Z5	Z6	Z7	Z8	P	D	Path	Butch	Burnt	Gnaw	Fresh Break	Art	Measur'd	Tooth Wear	Surface	Cond	No.	(g)	Notes
303	0	Cattle	Humerus	R	N	N	N	N	Y	Y	N	N	X	X	N	Y	N	Y	N	N	N	N	X	2	1	64	Chopped mid-shaft, carnivore gnawing on distal end (N condyles)
303	0	Sheep/ Goat	Tooth	L	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	X	1	1	4	Upper M3
303	0	Medium Mammal	Long Bone	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	X	3	1	4	
303	0	Medium Mammal	Skull	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	X	1	1	1	
312	0	Cattle	Metatarsal	R	Y	Y	Y	Y	Y	Y	Y	Y	F	F	N	N	N	N	N	N	Y	N	X	2	1	147	
312	0	Pig	Tibia	R	N	N	Y	Y	Y	Y	N	N	X	X	N	N	N	Y	N	N	N	N	X	2	1	26	Cacrnivore gnawing on the proximal and distal ends
110	0	Cattle	Humerus	L	N	N	N	N	Y	Y	N	N	X	X	N	Y	N	Y	N	N	N	N	X	2	1	59	Chopped mid-shaft, carnivore gnawing on the distal shaft
305	0	Sheep/ Goat	Mandible	R	Y	Y	Y	Y	Y	Y	N	Y	X	X	N	Y	N	N	N	N	N	Y	X	1	1	11	Chopped on the goneal angle and process removed
305	0	Large Mammal	Rib	X	N	N	N	N	N	N	N	N	X	X	N	Y	N	N	N	N	N	N	X	1	1	27	Chopped through the medial side of the rib blade
305	0	Medium Mammal	Rib	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	X	2	1	4	
305	0	Medium Mammal	Costal Cartilage	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	X	2	1	0	
305	0	Large Mammal	Rib	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	X	1	1	2	3
305	0	Unidentifie d	Unidentifie d	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	X	3	1	3	5
305	0	Cattle	Atlas	R	N	N	N	N	Y	N	N	N	X	X	N	Y	N	Y	N	N	N	N	X	1	1	18	Chopped though, carnivore puncture marks
305	0	Large Mammal	Lumbar	X	N	N	N	N	N	N	N	N	X	X	N	Y	N	N	N	N	N	N	X	3	1	9	Chopped through
305	0	Cattle	Metacarpa l	L	N	N	N	N	N	Y	N	N	X	X	N	N	N	N	N	N	N	N	X	2	1	18	
314	2	Eel	Vertebra	B	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	X	3	3	0	

Ctxt No.	Smp No.	Taxon	Element	Side	Z1	Z2	Z3	Z4	Z5	Z6	Z7	Z8	P	D	Path	Butch	Burnt	Gnaw	Fresh Break	Art	Measur'd	Tooth Wear	Surface	Cond	No.	(g)	Notes
314	2	Eel	Unidentifie d	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	X	3	2	0	
314	2	Fish	Vertebra	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	X	3	8	0	
314	2	Fish	Vertebra	X	N	N	N	N	N	N	N	N	X	X	N	N	Y	N	N	N	N	N	X	3	2	0	1 burnt white, 1 charred black
314	2	Fish	Vertebra	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	E	3	1	0	Encrusted with cess
314	2	Amphibian	Femur	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	X	2	1	0	
314	2	Amphibian	Humerus	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	X	2	1	0	
314	2	Amphibian	Long Bone	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	X	3	1	0	
314	2	Fish	Ray	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	X	3	50	1	
314	2	Unidentifie d	Unidentifie d	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	X	3	30	1	
312	1	Eel	Vertebra	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	X	2	1	0	
312	1	Fish	Vertebra	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	X	2	1	0	
312	1	Fish	Ray	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	X	3	6	0	
312	1	Micro Mammal	Tibia	X	N	N	Y	Y	Y	Y	N	N	X	X	N	N	Y	N	N	N	N	N	X	3	1	0	burnt grey
312	1	Unidentifie d	Unidentifie d	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	X	3	14	0	
205	16	Fish	Vertebra	X	N	N	N	N	N	N	N	N	X	X	N	N	Y	N	N	N	N	N	X	3	1	0	burnt grey
205	16	Fish	Otolith	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	X	3	8	0	
205	16	Fish	Ray	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	X	3	6	0	
205	16	Unidentifie d	Unidentifie d	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	X	4	27	0	
205	16	Sheep/Goa t	Phalanx (III)	L	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	X	3	1	0	
205	16	Medium Mammal	Long Bone	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	X	3	2	0	
205	16	Medium Mammal	Long Bone	X	N	N	N	N	N	N	N	N	X	X	N	N	Y	N	N	N	N	N	X	3	2	1	burnt grey
205	16	Bird	Long Bone	X	N	N	N	N	N	N	N	N	X	X	N	N	Y	N	N	N	N	N	X	3	1	0	charred black
205	16	Unidentifie d	Unidentifie d	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	X	3	17	2	
314	2	Fish	Vertebra	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	X	3	2	0	
314	2	Fish	Ray	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	X	3	2	0	
314	2	Fish	Unidentifie	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	X	3	5	0	

Ctxt No.	Smp No.	Taxon	Element	Side	Z1	Z2	Z3	Z4	Z5	Z6	Z7	Z8	P	D	Path	Butch	Burnt	Gnaw	Fresh Break	Art	Measur'd	Tooth Wear	Surface	Cond	No.	(g)	Notes
			d																								
314	2	Unidentified	Unidentified	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	X	4	43	8	
312	1	Medium Mammal	Long Bone	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	X	3	5	10	
205	16	Medium Mammal	Long Bone	X	N	N	N	N	N	N	N	N	X	X	N	N	Y	N	N	N	N	N	X	3	4	4	burnt grey
205	16	Medium Mammal	Carpal/Tarsal	X	N	N	N	N	N	N	N	N	X	X	N	N	Y	N	N	N	N	N	X	3	1	2	partly charred
205	16	Unidentified	Unidentified	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	X	3	4	4	
205	16	Fowl	Ulna	L	Y	Y	Y	Y	N	N	N	N	F	X	N	N	Y	N	N	N	N	N	X	4	1	1	Burnt black
312	1	Bird	Long Bone	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	X	3	2	0	
312	1	Unidentified	Unidentified	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	X	3	10	2	