

**Evaluation of bioarchaeological remains from Lord Robert's Road,
Beverley, East Yorkshire (site code: LRB98)**

by

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Summary

Ten sediment samples (from seven contexts), one box of hand-collected bone, two small bags of hand-collected shell and eight timbers from excavations of medieval (11th-14th century) occupation deposits at Lord Robert's Road, Beverley, were submitted for a bioarchaeological evaluation.

The 13th/14th Century pit contained plants and invertebrates from a damp habitat where some litter accumulated, possibly with seasonal flooding, samples from the fill of a 13th century ditch appear to have originated under somewhat wetter conditions but with periods of seasonal drying, the earliest fill contained occupation waste and saw-sedge. Two contexts dated to the early 13th century contained plants (and in the case of 27, invertebrates) typical of urban occupation waste and wet, weedy habitats. The very small quantity of recovered shell consisted of oyster valves with marks characteristic of having been opened by a knife, probably to be eaten by humans. Beyond this the shell is of no further interpretative value.

Vertebrate material from fifteen contexts was presented and recorded. The most numerous species in both the 11th-13th century and 13-14th century phases were cattle and caprovids. A wider range of species was present in the 11th-13th century deposits. A few fish fragments were recovered. The small but tightly dated and well-preserved assemblage from the 11th-14th century deposits suggests good potential for the recovery of vertebrate remains. If further excavation were to take place, these deposits should yield a moderate-sized to large assemblage of bone, potentially useful for site interpretation and for zooarchaeological analyses. The post-medieval deposits are likely to yield a smaller quantity of bone but should provide useful information on the medieval/post-medieval transition.

The results accord very closely with those from other sites in Beverley such as at Well Lane, (Carrott et al. 1999) and it is suggested that an integrated study of all the medieval material from this area of Beverley would provide a greater insight into the activities and environment of the local population.

Keywords: EVALUATION; LORD ROBERT'S ROAD; BEVERLEY; EAST YORKSHIRE; WALKER BECK; MEDIEVAL; PLANTS; DYEPLANT; WOOD; VERTEBRATES; BONE; FISH; MOLLUSCS; INVERTEBRATES; INSECTS

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Introduction

Excavations were undertaken during 1998 by Northern Archaeological Associates on vacant land to the north of Lord Robert's Road, Beverley, East Yorkshire. The site is situated close to the former Walker Beck, a stream which ran through the centre of the town, creating a wide marshy valley probably subject to seasonal flooding (Mackey 1998). The excavation consisted of a single trench, sited on the line of a property boundary which appears to have been maintained from the early 13th century to the late 17th century.

Ten General Biological Analysis samples ('GBAs' *sensu* Dobney *et al.* 1992), from seven contexts, a single box (approximately 20 litres) of hand-collected animal bone, and two small bags of hand-collected shell, were submitted for an evaluation of their bioarchaeological potential. Eight timbers were sent to Ian Panter of York Archaeological Trust for examination; his results are presented in the Appendix.

Methods

Sediment samples

The material was initially inspected in the laboratory and described using a standard *pro forma*. Five subsamples were processed for extraction of plant and invertebrate macrofossils following procedures of Kenward *et al.* (1980; 1986). Notes on the treatment of the samples are presented in Table 4.

All invertebrate macrofossils were recorded semi-quantitatively using the scale described by Kenward *et al.* (1986) and Kenward (1992). Records were made on a paper *pro forma* for later transferal to a computer database (using Paradox software) for analysis and long-term storage.

Hand-collected shell

The few hand-collected shell remains were examined and identified to species where possible. Brief notes were made on their state of preservation and any other interpretable characters.

Hand-collected bone

For the vertebrate remains, data were recorded electronically directly into a series of tables using a purpose-built input system and *Paradox* software. For each context, subjective records were made of the state of preservation, colour of the fragments, and the appearance of broken surfaces ('angularity'). Additionally, semi-quantitative information was recorded concerning fragment size, dog gnawing, burning, butchery and fresh breakage for each context.

Where possible, fragments were identified to species or species group, using the reference collection at the Environmental Archaeology Unit, University of York. Fragments not identifiable to species were grouped into the following categories: large mammal (assumed to be cattle, horse or large cervid); medium-sized mammal (assumed to be caprovid, pig or small cervid); and bird.

Measurements for mammals and birds were taken (where appropriate) using the method outlined by von den Driesch (1976), with additional measurements following Dobney *et al.* (forthcoming).

Total numbers of fragments by species were recorded, together with the number of measurable fragments. Quantities of subadult, juvenile or neonatal bones, and numbers of mandibles and isolated teeth yielding ageing or sexing information, were also recorded. As well as counts of fragments, total weights were recorded for all identifiable and unidentifiable categories.

Results

Sediment samples

Context information provided by the excavator is in square brackets.

13th/14th century

Context 30

Sample 30AA/T [black fill of small pit]
2 kg processed.

Laboratory description: Moist, very dark brown, firm and crumbly, fine herbaceous detritus in a matrix of mid grey/brown, slightly sandy silt with white flecks.

Plant macrofossils: The moderate-sized flot was rich in seeds, all somewhat eroded, together with some very decayed woody fragments (to 10 mm). The large residue of about 1.1 litres consisted mainly of roughly equal amounts of organic material rich in rootlets (perhaps a natural peat, but equally likely to be waste from human activity) and clasts of undisaggregated humic silt; there was also some fine-grained pale-coloured

material which may have been ash or a fullers' earth-like clay mineral. There was a markedly low concentration of seeds and other propagules, the most frequent being those of bog-bean (*Menyanthes trifoliata* L.), toad-rush (*Juncus bufonius* L.) and weld, the first probably representing waterside habitats (though perhaps originating in peat), the second indicating pond or ditch margins or wet tracks.

Invertebrate remains: The moderate-sized insect assemblage was rather poorly preserved (being both rotted and fragmented) and was judged to consist mostly of background fauna, probably originating on an external surface. While there were some aquatic beetles present they were insufficient to stand as evidence of a waterlain origin, although there may have been periodic flooding (alternatively, these and some of the other insects may have arrived in peat). There were only weak hints of occupation (*Mycetaea hirta* (Marshall), *Anobium punctatum* (Degeer)). The most abundant decomposer beetle, *Anotylus rugosus* (Fabricius) is as common in natural habitats as artificial ones, and the deposit probably represents backfill from an external surface rather than waste disposal.

Early 13th century

Context 36

Sample 36AA/T [reddish-brown peaty loam] 2 kg processed.

Laboratory description: Moist, dark grey, firm (working crumbly, then soft and plastic), humic, slightly sandy silt, with light flecks throughout. Stones in the size range 2-6 mm and ?fly puparia were present. The sediment had the appearance of well-rotted manure.

Plant macrofossils: The smallish flot consisted of a few cm³ of insect and plant detritus. The modest-sized residue (of about 500 cm³) was of about equal proportions of lighter and denser materials, the less dense part forming the 'washover' including much charcoal, rotted bark and undisaggregated humic silt. Seeds were rather frequent but often somewhat worn. They were dominated by abundant propagules of *Chenopodium* Section *Pseudoblitum* and *Ranunculus sceleratus* (as in Sample 34AC, and with similar interpretative implications) but with equally abundant achenes of blackberry/bramble (*Rubus fruticosus* agg.). That food remains may have formed part of the waste deposited at this time may be evidenced by the records for strawberry (*Fragaria* cf. *vesca*), sloe (*Prunus spinosa*) and hazel nut, as well as eggshell and eggshell membrane fragments and fish bones and scales, though none was abundant and they are perhaps no more than might be found in many heterogeneous urban occupation deposits containing materials from a variety of sources.

Invertebrate remains: The insect assemblage was of moderate size and probably composed largely of background fauna, with, in total, numerous individuals of species capable of exploiting damp, muddy conditions with just a hint of filth (e.g. *Platystethus nitens* (Sahlberg), *Neobisnius* sp., *Anotylus rugosus* (Fabricius), and *Clivina fossor* (Linnaeus)). The presence of many worm capsules also suggests a 'soil-like' deposit. There were few species which suggested intensive human occupation, and no indication of buildings.

Vertebrate remains: These consisted of a single cod (*Gadus morhua* L.) vertebra, three herring fragments (otic bulla, post-temporal and vertebra), two eel (*Anguilla anguilla* (L.)) vertebrae, seven unidentified

fish fragments and five unidentified mammal fragments (including one burnt)

13th century

Context 34

Sample 34AA/T [mixed silts from earliest ditch - top fill] 2 kg processed.

Laboratory description: Moist lumps of dark brown to black, compressed herbaceous detritus in a matrix of slightly heterogeneous, light-mid grey/brown, crumbly, slightly sandy silt. A trace of wood chips was also present.

Plant macrofossils: The large flot was rich in strawy herbaceous detritus, whilst the large residue (of not much less than 1 litre) was about 30% inorganic (sand and gravel, with some ashy concretions), the rest being woody and herbaceous detritus very much with the appearance of straw with some hay and other litter. There were very large numbers of extremely well-preserved achenes of a *Centaurea* species—probably cornflower, *C. cyanus* L. to judge from the presence of large numbers of involucre bracts which were very much more certainly this species. The heads of cornflower are easily harvested with straw, of course. Some other remains which may well have arrived as a concomitant of straw are fragments of legume pod perhaps from a species of tare or vetch (*Vicia* sp.). Another source for these, though, may be as waste from a crop of one of these plants (*V. sativa*) grown for fodder. Most of the other plant remains are consistent with the presence of straw and its accompanying weed flora, though with a smaller component of plants of wetland and grassland habitats which may indicate the presence of hay or herbivore dung, the whole deposit perhaps being rich in stable manure.

Invertebrate remains: The flot contained many insect immatures, although the number of adult beetles was relatively modest. The deposit appears to have formed in the open under filthy and wet conditions.

A single puparium of the sheep ked *Melophagus ovinus* (Linnaeus) probably originated from the waste of fleece used in craft activities, rather than from locally grazed sheep. Other than this, there was only the weakest of indications of material from in or around buildings.

Vertebrate remains: There were two herring (*Clupea harengus* L.) vertebrae.

Sample 34AC/T [black silt in bottom of earliest ditch - bottom fill] 2 kg processed.

Laboratory description: Moist, black, soft and slightly crumbly (working slightly thixotropic and crumbly), sulphide-rich, amorphous organic sediment, with some light-mid grey/brown silt and sand. Also present were fragments (to 200 mm) of ?wicker/wattle.

Plant macrofossils: The small flot of about 1-2 cm³ comprised insect remains and herbaceous plant detritus, with quite a few well-preserved seeds. The modest-sized residue (of about 700 cm³) was about 60% sand and gravel, the rest woody detritus (including one large piece of willow, *Salix*, 'wattle' to 200 x 30 mm). The two most abundant kinds of seeds were those of *Chenopodium* Section *Pseudoblitum* (red goosefoot, etc.) and *Ramunculus sceleratus* L. (celery-leaved crowfoot), together probably indicative of a seasonally drying ditch or pond margins receiving disturbance and nutrient-rich waste. The moderately frequent charred leaf fragments of saw-sedge (*Cladium mariscus* (L.) Pohl), however,

must have originated in some other way, perhaps most likely as fuel or from material used in roofing and subsequently destroyed by burning. Amongst the many other taxa recorded in very small amounts were some likely to have been useful in some way: leaf fragments and fruits of sweet gale or bog myrtle (*Myrica gale* L.), a plant with uses *inter alia* in dyeing, brewing and medicine, and further receptacular bracts and fruits of teasel (see under Sample 27AA). Other remains from occupation waste, perhaps representing food, included hazel nut (*Corylus avellana* L.) and linseed (*Linum usitatissimum* L.).

Invertebrate remains: As with the plant remains, the insect assemblage had an element representative of dumped occupation waste which, together with one individual of *Tenebrio obscurus* Fabricius and several *Anobium punctatum* (Degeer), suggests the proximity of buildings. The fill does not appear to have been entirely aquatic in origin, although there may have been periodic flooding of the ditch; analysis of a larger subsample would certainly aid interpretation as the whole assemblage could equally have originated as background fauna.

Context 27

Sample 27AA/T [peaty loam - middle area] 2 kg processed.

Laboratory description: Just moist, mid-dark grey/brown, brittle to crumbly (working plastic), humic, slightly sandy silt, with local patches of herbaceous and woody detritus. Stones in the size range 6-60 mm, a trace of vivianite and bark (to 50 mm) were also present.

Plant macrofossils: The flot consisted mostly of small chunks of wood to about 25 mm, together with some pale-coloured

herbaceous (monocotyledonous) culm fragments, some of which showed black sulphide staining consistent with preservation in a reducing environment such as the bottom of a pond or ditch. The residue was rather large (about 800 cm³) and consisted of about 70% wood, bark and (mainly) herbaceous detritus, the rest chalk gravel and sand. Again there was black sulphide-staining, the plant remains often being pale when not stained.

There was a very rich assemblage of moderately- to well-preserved seeds of which the most abundant (recorded at abundances of 3 on a four-point scale) were goosefoots (*Chenopodium* Section *Pseudoblitum*) and stinging nettle (*Urtica dioica* L.) with smaller numbers (score 2) of a variety of probable weeds and wetland taxa. Overall, the assemblage was dominated by annual and longer-lived nitrophile weeds, not surprising within a medieval town, especially in the vicinity of a ditch into which occupation material was no doubt being thrown. Whilst it is possible that some food waste was included in this rubbish, the rather large numbers of celery seeds (*Apium graveolens* L.) recorded are perhaps just as likely to have come from plants growing on wet ditch banks. (Their excellent state of preservation is attested to by the fact that, on crushing, these seeds gave off their characteristic smell.)

Other plant remains which seem very likely to be from materials in use in the vicinity were traces of receptacular bracts and fruits of the fullers' teasel, *Dipsacus sativus* (L.) Honkeny, a plant recorded from Eastgate, Beverley (McKenna 1992) from deposits with abundant evidence of various kinds for textile working (the heads of teasel, from which the bracts and fruits come, were used extensively in the past to raise the nap on cloth during the finishing of textiles). It may

be no coincidence that seeds of the dyeplant weld (*Reseda luteola* L.) were also moderately frequent in this sample.

Invertebrate remains: A moderate-sized insect assemblage was recovered. The presence of aquatic beetles such as *Laccobius* sp. and *Hydrobius fuscipes* (Linnaeus) indicate the proximity of open water. There were several species associated with disturbed soil bearing weeds, including nettles (*Brachypterus* sp., *Cidnorhinus quadrimaculatus* (Linnaeus), *Apion* sp., *Ceutorhynchus* sp., *Gastrophysa viridula* (Degeer), *Tachyporus* sp., *Tachinus* sp.), and these probably originated in the adjacent vegetation.

11th-12th century

Context 37

Sample 37AA/T [dark brown peaty loam with chalk flecks]

Laboratory description: Moist, dark grey, firm (working crumbly, then soft and plastic), humic, slightly sandy silt, with light flecks throughout. Stones in the size range 2-6 mm and ?fly puparia were present. The sediment had the appearance of well-rotted manure.

11th-13th century

Context 38

Sample 38AA/T [dark grey-brown, chalky silty loam]

Laboratory description: Moist, dark grey, firm (working crumbly, then soft and plastic), humic, slightly sandy silt, with light flecks throughout. Stones in the size range 2-6 mm and ?fly puparia were present. The sediment had the appearance of well-rotted manure.

None of these
surely,
wrong!

Natural

Context 46

Sample 46AA/T [natural yellow-orange silty clay] 2 kg processed.

Laboratory description: Moist, light yellow-grey-brown, crumbly (locally working plastic), slightly silty, slightly clay sand with patches of veined grey or grey/brown clay silt and veins (probably root traces) in the sand. Stones were present in the size range 2-20 mm (flint was common).

Hand-collected shell

A very small quantity of moderately well-preserved hand-collected shell was recovered, consisting of five oyster (*Ostrea edulis* L.) valves (3 right valves and two left) and a single cockle (*Cerastoderma edule* (L.)) valve, from three contexts (016, 032 and 037).

Three of the oyster valves showed marks characteristic of having been opened with a knife or similar implement.

Hand-collected bone

Vertebrate material was recorded from all fifteen contexts presented for evaluation. Material labelled US1, US2 and US3 consisted of collections of bone recovered from deposits dug in 'spits' (depths of 0-1.2m, 1.2-1.9m and 1.9-3.1m respectively) rather than from discrete contexts. This material was, however, considered to be tightly enough dated to be of use in evaluating the potential of the vertebrate remains contained within the archaeological deposits.

Overall, preservation was variable between contexts but was mostly uniform within them, being described as 'good' or 'fair'. Colour was also variable (ranging from fawn to dark brown), both within and between contexts. Most deposits contained 'spiky' fragments, although some 'battered' material was also present.

The degree of fragmentation was moderate, with more than 50% of fragments in all contexts being between 5 and 20 cm in the largest dimension. Overall, 10-20% of fragments were affected by fresh breakage; material from only two contexts (026 and 034) was unaffected. Dog gnawing was noted on variable quantities of fragments in six contexts. Evidence of butchery was present on material from seven contexts, affecting, on average, 10-20% of the fragments. Particularly noteworthy were several horncores displaying chops at the base where the core had been removed from the skull.

A total of 249 fragments (weighing 7826.7g) was recorded, of which 118 (weighing 5511.5g) were identified to species (Table 1). The main domesticates (cattle, caprovid and pig) were present, together with other domestic species such as horse, dog and chicken. Both sheep and goat fragments were present and are included in the caprovid numbers. The only wild mammal represented was roe deer (*Capreolus capreolus* (L.)).

The duck fragments and most of the goose fragments were of sufficient size to indicate they may be from domestic individuals. A single goose humerus was smaller and consistent in size with barnacle goose specimens in the EAU reference collection. It is therefore likely that this bone represents a wild individual. A single bird humerus was identified as belonging to one of the larger

members of the family Alcidae, either a razorbill (*Alca torda* L.) or guillemot (*Uria aalge* (Pontoppidan)). Razorbill and guillemot bones have been previously identified from medieval deposits in both York (Bond and O'Connor 1999) and Beverley (Scott 1992). At these sites it was suggested that they were used as an occasional element of the diet.

A few fish fragments were recovered, including a very large ling (*Molva molva* (L.)) dentary. The unidentified fraction consisted mostly of the rib, shaft and cranial fragments of large and medium-sized mammals.

Within the total of 118 identifiable fragments, 43 were measurable (Table 3), 13 were subadult and 3 juvenile. In addition, 13 mandibles yielding ageing or sexing information were recovered.

Analysis of skeletal element representation was limited by the small size of the assemblage. In Phases 1 and 2 there was an apparent preponderance of non meat-bearing bones (those of the head and lower limbs). However, in Phases 3 and 4 the balance between meat-bearing and non meat-bearing elements seems more even, suggesting a mixture of primary butchery and domestic refuse. The non meat-bearing bones from Phases 1 and 2 included eight horncores (from cattle, sheep and goats) and nine metapodials (sheep and caprovid), possibly indicating the presence of tanning and/or hornworking waste.

Table 2 gives the numbers of fragments by phase and reveals that most of the bones were from the earlier deposits. The most numerous species in both the 11th-13th century and 13-14th century phases were cattle and caprovids. A greater range of species were present in the 11th-13th

century deposits. There were too few fragments in any of the later phases (5-7) for any comment to be made.

Discussion

Sediment samples

The 13th/14th Century pit sample contained plants and invertebrates from a damp habitat where some litter accumulated, possibly with seasonal flooding; this could, for example, represent ditch margins or a wet track. The purpose of the pit itself is not entirely clear, but the fill probably originated locally.

The samples from Context 34, the fill of a 13th century ditch, appear to have originated under somewhat wetter conditions but with periods of seasonal drying. The earliest fill contained some occupation waste and remains of saw-sedge (*Cladium mariscus* (L.) Pohl), probably used either as a roofing material or as fuel. The other deposit examined from this period (Context 27), and another 'peaty loam' (Context 36) dated to the early 13th Century, contained plants (and in the case of 27, invertebrates) typical of urban occupation waste and wet, weedy habitats.

This area of medieval Beverley was probably occasionally flooded and rather damp most of the time; waterside vegetation, weeds and nettles would have flourished and an associated fauna developed. Such a place would have proved an ideal dumping ground for both domestic and industrial waste, as evidenced by the remains, amongst others, of teasels and weld (used in textile-working and dyeing respectively).

The results of evaluation of the sediment samples accord very closely with those from

Well Lane, Beverley (Carrott *et al.* 1999), as do the results of the bone analysis (discussed below); an integrated study of all the medieval material from this area of Beverley would provide a greater insight into the activities and environment of the local population.

Hand-collected shell

Knife marks were present on approximately half of the recovered oyster valves, indicating that the oysters were probably eaten by humans. These remains no doubt represent food waste but were too few in number to be of any further interpretative value.

Hand-collected bone

The quantity of vertebrate remains recovered from discrete contexts was small, but together with the material from spits US1-3, the assemblage provided some useful information. Phase 1 and 2 (11th-13th C) deposits produced a small quantity of horncores and metapodials, which may indicate that tanning and/or hornworking were being undertaken in the vicinity. A similar interpretation was put forward for material recovered from early medieval deposits at the nearby sites of Well Lane (Carrott *et al.* 1999) and Jack Taylor Lane (Carrott *et al.* 1998), reinforcing the suggestion that craft activities were undertaken in this area of Beverley. There was less evidence of this in later deposits, only the five caprovid metapodials in US1.

The small but tightly dated and well-preserved assemblage from the 11th-14th century deposits demonstrates good potential for the recovery of vertebrate remains. If further excavation were to take place, these deposits should yield a quite

substantial assemblage of bone, potentially useful for site interpretation and for zooarchaeological analyses. The post-medieval deposits are likely to yield a smaller quantity of bone but would provide useful information on the medieval/post-medieval transition, a period targeted by English Heritage (1992) as being one for which few data have so far been gathered.

Recommendations

Recommendations for the invertebrate and plant remains are presented in Table 5. As for vertebrate remains, a synthesis of data from this and related sites in Beverley is desirable.

The potential of the current vertebrate assemblage for further work is limited given the small size. However, the tight dating of the material would allow its inclusion in a synthetic project, concentrating on the medieval period and utilising a number of assemblages from Beverley, including those mentioned above, together with larger sites such as Lurk Lane and Eastgate (Scott 1991, 1992). A synthesis of medieval material from Beverley would then allow comparison with assemblages from York and elsewhere in the region.

If further excavation were to take place, provision should be made for the recovery, analysis and publication of a moderate to large bone assemblage. Provision should also be made for an extensive, systematic sieving program on-site (or adequate numbers of bulk-sieving samples to be taken) to recover smaller bones, including fish.

The marine shell assemblage so far recovered has no potential for further study, and it is unlikely that further excavation would produce more than limited amounts of shell.

Storage and disposal

With the exception of the marine shell and the sample from Context 46, all of the material should be retained for the present to allow further study.

Archive

All material paper and electronic records pertaining to the work described here are currently stored in the Environmental Archaeology Unit, University of York.

It is recommended by the EH-funded staff that long-term storage of bioarchaeological remains should be in the local receiving museum, to whom a letter has been sent stating what material to expect.

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*Table 1. Total numbers of vertebrate fragments, together with numbers of measurable and subadult bones, numbers of mandibles and isolated teeth yielding ageing and sexing information and weights, by species, from Lord Robert's Road, Beverley. * - combined weight of all unidentified categories.*

Species		No. measurable	No. unfused	No. juvenile	No. mandibles	Total no. fragments	Weight (g)
Dog	<i>Canis f. domestic</i>	-	-	-	1	1	4.3
Horse	<i>Equus f. domestic</i>	6	-	-	-	8	1303.8
Pig	<i>Sus f. domestic</i>	1	3	-	1	8	191.6
Cow	<i>Bos f. domestic</i>	10	7	2	3	33	2731.8
Roe deer	<i>Capreolus capreolus (L.)</i>	-	-	-	1	1	21.0
Sheep/ goat	Caprovid	16	3	-	7	45	1151.0
Goose	<i>Anser sp.</i>	2	-	-	-	7	47.5
Duck	<i>Anas sp.</i>	2	-	-	-	2	1.7
Chicken	<i>Gallus f. domestic</i>	5	-	1	-	7	16.0
Razorbill/ guillemot	Alcidae	1	-	-	-	1	2.2
Ling	<i>Molva molva (L.)</i>	-	-	-	-	1	25.1
Fish		-	-	-	-	4	15.5
Subtotal		43	13	3	13	118	5511.5
Bird		-	-	-	-	6	
Medium sized mammal		-	-	-	-	56	2315.2*
Large mammal		-	-	-	-	69	
Subtotal		-	-	-	-	131	2315.2
Total		43	13	3	13	249	7826.7

Table 2. Numbers of vertebrate fragments by phase from Lord Robert's Road, Beverley.

Species		Phases 1 & 2 (11th-13th C)	Phase 3 & 4 (13th-14th C)	Phases 5-7 (16th-18th C)	Total
Dog	<i>Canis f. domestic</i>	1	-	-	1
Horse	<i>Equus f. domestic</i>	3	4	1	8
Pig	<i>Sus f. domestic</i>	2	5	1	8
Cow	<i>Bos f. domestic</i>	15	15	3	33
Roe deer	<i>Capreolus capreolus</i> (L.)	1	-	-	1
Sheep/ goat	Caprovid	22	15	8	45
Goose	<i>Anser</i> sp.	4	3	-	7
Duck	<i>Anas</i> sp.	1	1	-	2
Chicken	<i>Gallus f. domestic</i>	1	6	-	7
Razorbill/ guillemot	Alcidae	1	-	-	1
Ling	<i>Molva molva</i> (L.)	-	1	-	1
Fish		3	-	1	4
Subtotal		54	50	14	118
Bird		4	2	-	6
Medium sized mammal		37	13	6	56
Large mammal		38	25	6	69
Subtotal		79	40	12	131
Total		133	90	26	249

Table 3. Measurements for bones recovered from Lord Robert's Road, Beverley.

Context	Date	Species	Element	Side	Measurement				
37	11th/12th C	Sheep/goat	Calcaneum	r	GL=50.88	DS=16.49	C=11.40	C+D=20.03	
US3	11th-13th C	?guillemot/razorbill	Humerus	l	Bp=16.1	SC=3.94			
US3	11th-13th C	Goose	Carpometacarpus	l	GL=86.93	Bp=21.52	Dd=11.13		
US3	11th-13th C	Duck	Radius	r	GL=67.67	SC=2.32	Bd=6.28		
US3	11th-13th C	Pig	Radius	r	BFp=26.88	SD=16.33			
US3	11th-13th C	Horse	Tibia	r	GL=257.6	SD=25.32	Bd=46.98	Dd=31.23	
US3	11th-13th C	Horse	Scapula	l	GLP=87.56	SLC=59.3	LG=53.44	BG=48.8	
US3	11th-13th C	Goat	Horncore	l	41=50.93	42=34.31	BC=132	43=181	
US3	11th-13th C	Goat	Horncore	l	41=51.44	42=33.72	BC=141	43=188	
US3	11th-13th C	Sheep/goat	Radius	r	Bp=30.60	BFp=27.33	SD=17.06		
US3	11th-13th C	Sheep/goat	Metacarpal	l	Bp=22.32	Dp=16.82			
US3	11th-13th C	Sheep	Metacarpal	l	GL=109.47	SD=12.01	Bp=20.21	Dp=15.15	Bd=22.78
					Dd=13.59	Dem=9.57	Dvm=14.01	Dim=11.63	
US3	11th-13th C	Sheep/goat	Metatarsal	l	Bp=19.48	Dp=18.46	SD=10.98		
US3	11th-13th C	Sheep/goat	Metatarsal	l	GL=130.50	Bp=21.08	Dp=21.26	SD=10.92	
US3	11th-13th C	Sheep	Metatarsal	r	GL=122.10	Bp=19.92	Dp=20.10	SD=12.88	Bd=23.93
					Dd=15.50	Dem=10.10	Dvm=15.61	Dim=12.29	
US3	11th-13th C	Cow	Calcaneum	r	GL=120.03	BS=36.45	C=23.48	C+D=41.70	
US3	11th-13th C	Cow	Horncore	r	41=51.30	42=38.44	BC=143		
US3	11th-13th C	Cow	Horncore	r	41=51.09	42=42.06	BC=156		43=147
US3	11th-13th C	Cow	Horncore	r	41=55.15	42=40.73	BC=156		43=145
US3	11th-13th C	Cow	Horncore	l	41=40.13	42=28.16	BC=110		43=97
36	E13th C	Goose	Humerus	r	Bp=33.11				
27	13th C	Sheep	Tibia	r	Bd=24.7	Dd=19.38	SD=11.32		
27	13th C	Cow	Astragalus	l	GL=58.71	Bd=37.00	Dl=32.22		
27	13th C	Cow	Metacarpal	l	Bd=65.93	Dd=32.76	Dem=26.65	Dvm=33.43	Dim=30.51
27	13th C	Cow	Horncore	l	41=52.81	42=40.55	BC=156		
27	13th C	Fowl	Radius	r	GL=57.74	SC=2.38	BD=6.46		
27	13th C	Fowl	Tarsometatarsus	l	GL=70.90	Bp=12.50	SC=6.02	Bd=12.82	
24	13th-14th C	Horse	Humerus	l	GLC=241.7	SD=27.73	Bd=70.31	BT=66.31	
24	13th-14th C	Horse	Tibia	r	Bp=83.73				
24	13th-14th C	Horse	Metatarsal	r	Bp=44.51	Dp=40.17	SD=24.19		
US2	13th/14th C	Fowl	Tibiotarsus	r	GL=104.43	Dip=18.24	SC=5.6	Bd=10.85	Dd=11.26
US2	13th/14th C	Cow	Horncore	r	41=37.91	42=30.01	BC=114		43=130

Context	Date	Species	Element	Side	Measurements
16	?13th/14th C	Cow	Metacarpal	l	Bd=52.56 Dd=29.70 Dem=22.78 Dvm=29.8 Dim=26.68
16	?13th/14th C	Duck	Femur	r	GL=52.23 Lm=49.20 Bp=11.82 Dp=8.54 SC=4.35 Bd=11.62 Dd=8.85
16	?13th/14th C	Fowl	Tibiotarsus	l	SC=6.71 Bd=13.03 Dd=13.22
16	?13th/14th C	Fowl	Ulna	l	GL=67.93 SC=3.57 Bp=7.88 Dip=12.25 Did=8.05
22	15th-E17th C	Sheep	Humerus	r	SD=15.74 BT=29.62 HT=19.57 HTC=14.57
US1	16th-18th C	Cow	Metatarsal	l	Bp=47.47 Dp=47.83
US1	16th-18th C	Horse	Tibia	l	Bd=76.28 Dd=46.32
US1	16th-18th C	Sheep	Metacarpal	r	GL=107.95 Bp=24.71 Dp=19.24 SD=12.52 Bd=24.92 Dd=15.08 Dem=9.51 Dvm=15.01 Dim=12.18
US1	16th-18th C	Sheep/goat	Metacarpal	l	Bp=22.21 Dp=16.53 SD=14.34
US1	16th-18th C	Sheep/goat	Metacarpal	l	Bp=23.77 Dp=17.53 SD=13.67
US1	16th-18th C	Sheep/goat	Metatarsal	r	Bp=18.75 Dp=19.53 SD=12.18
US1	16th-18th C	Sheep/goat	Tibia	l	Bd=26.30 Dd=19.91 SD=10.88

Table 4. List of sediment samples from Lord Robert's Road, Beverley (with notes on their treatment).

Sample	Context	Context description	Date	Treatment
27AA	27	peaty loam containing remains of wattle fence	13th century	examined, described 2kg processed to 300 μ m, paraffin flot
30AA	30	black fill of flat-bottomed pit	13th century	examined, described 2kg processed to 300 μ m, paraffin flot
34AA	34	mixed silts from earliest ditch	13th century	examined, described 2kg processed to 300 μ m, paraffin flot
34AB	34	organic material from earliest ditch	13th century	examined, described
34AC	34	black silt from bottom of earliest ditch	13th century	examined, described 2kg processed to 300 μ m, paraffin flot
34AD	34	peaty material from silt of earliest ditch	13th century	examined, described
36AA	36	reddish brown peaty loam	early 13th century	examined, described 2kg processed to 300 μ m, paraffin flot
37AA	37	dark brown peaty loam	11th-12th century	examined, described
38AA	38	dark grey-brown, chalky silty loam	11th-13th century	examined, described
46AA	46	natural yellow-orange silty clay	Natural	examined, described

Table 5. Recommendations for future analysis of sediment samples from Lord Robert's Road, Beverley.

Sample	Context	Date	Recommendations
27AA	27	13th century	Larger subsample (at least 5 kg) for further analysis of plants and invertebrates
30AA	30	13th century	Larger subsample (at least 5 kg) for further analysis of plants and invertebrates
34AA	34	13th century	Larger subsample (at least 5 kg) for further analysis of plants and invertebrates
34AB	34	13th century	Sediment should be retained for future analysis
34AC	34	13th century	Larger subsample (at least 5 kg) for further analysis of plants and invertebrates
34AD	34	13th century	Sediment should be retained for future analysis
36AA	36	early 13th century	Larger subsample (at least 5 kg) for further analysis of plants and invertebrates
37AA	37	11th-12th century	Sediment should be retained for future analysis
38AA	38	11th-13th century	Sediment should be retained for future analysis
46AA	46	Natural	No further action required

Appendix: Assessment of timber from Lord Roberts Road, Beverley

by Ian Panter, York Archaeological Wood Centre

The timbers were washed, then examined visually for evidence of conversion, methods of working and suitability for dendrochronology. Thin sections were taken where applicable for species identification.

Timber 025AA context 25

This is an oak plank, radially converted, probably by splitting. Feint axe or adze dressing marks visible. Slow grown with approximately 80 growth rings, which may be sufficient for dendrochronology.

Timber 029AG context 29

In two pieces. Radially split oak board, with four elliptical holes which are intact, and two eroded holes positioned on one edge, and the remains of a large semi-circular cut, with an existing diameter of 180mm. The edge of this larger hole is chamfered.

The nearest parallel to this plank is the latrine seat from Coppergate, York, which has a similar sized chamfered hole (225mm). The presence of slightly angled holes within the board suggests reuse, as do the ?peg holes along the one surviving true edge.

Timber 041AA context 41

Two oak posts. One is a split roundwood conversion, having been axed to produce a chisel end. The wood is in a poor state of preservation, and is cracking. The other post is in several fragments and is a tangential conversion. No tool marks survive. Both posts have insufficient rings for dendrochronology.

Timber 051AA context 51

These are three willow roundwood stakes, presumably upright sail elements surviving from the wattle structure. All stakes still have bark remaining and have been worked with an axe to produce multi-faceted tips. Many of the facets have tool signatures surviving, which are dissimilar on each stake. This could indicate that more than one tool was being used, or more likely, that different areas of the blade was striking the wood, hence giving the impression of more than one axe being employed.

Timber 052AA context 52

Radially split oak, with sapwood intact. The stem is curved slightly and has been worked to produce a tip using several blows of an axe. The overall appearance of this stake suggests that the wood has been reused as a stake, unfortunately its original function remains unknown. There are insufficient rings for dendrochronology.

Timber U/S3AR context U/S3

Three timbers included in this group. One is a block fashioned from quarter squared oak, by splitting, and then axe dressed. The working on three faces suggests that the block could have been used as a wedge, although it would be expected that hammer marks would survive. One facet has been cut at a sharper angle than the others with a broad axe having a minimum blade width of 96mm. This may be the felling scar from the original tree trunk, and the block may simply represent working waste, rather than an intentionally made artefact.

The other two items are a small hazel stake with a chisel point, and a fragment of oak showing no evidence of working.

Recommendations for further analysis of timber:

1. Further detailed recording, including scale drawing, and conservation, should be carried out on timber 029AG, the putative latrine seat. This will allow for further study at a later date. The dendrochronologists based at Sheffield University should be consulted as to the feasibility of obtaining a date from the timber. Conservation should include consolidation with polyethylene glycol wax, and freeze-drying. The cost would be in the region of £150 + vat.

2. Timber 025AA has sufficient rings for dendrochronology, although dating from single timbers can be problematic. Any date obtained may relate to the earlier phase of construction (phase 3), assuming the timber was not imported onto the site along with the other dump materials.

3. Timber record sheets have been produced for all the examined timbers, which include rough sketches, dimensions, ring counts where applicable as well as tool mark measurements. Therefore it is recommended that the remaining timbers which require no further analysis should be discarded. A copy of the timber record sheets should be placed in the site archive.