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Technical Report: Plant and animal remains from excavations in Blanket Row, Kingston-upon-Hull (site codes BWH97-00)

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Summary

Plant and animal remains were investigated from a variety of deposits of medieval and post-medieval date revealed by excavations at Blanket Row, Kingston-upon-Hull.

Plant and invertebrate remains(other than marine shell) were only abundant in a few contexts from the earliest phases, but gave clear indication of the accumulation of rotting organic matter with a variety of kinds of litter, and probably including stable manure. Remains from the numerous floor deposits investigated were usually sparse but generally included rush seeds thought likely to have arrived in litter for strewing, or from mud on feet. The shell remains were primarily of oyster, with some minor components of other edible marine and estuarine taxa, representing human food waste.

Concentrations of well preserved fish remains were recovered from Phases 3 and 4 floor deposits. A diverse range of marine and estuarine species was present, but freshwater fish were scarce. It seems likely that most of the fish remains represent domestic refuse associated with food consumption. Seemingly inedible fish, such as sticklebacks, probably formed a small component of waste related to the gutting and the processing of edible fish for cooking. Although the species present were represented by small individuals, crushed and flattened (indicating possible ingestion) vertebrae of herring, eel, whiting and flatfish strongly suggest that these fish were eaten. The hand-collected vertebrate assemblage was dominated by the remains of the major domesticates, cattle, caprovids and pigs, with few other species present. A mixture of butchery and domestic refuse was indicated by the skeletal element representation for cattle and caprovids, with increasing proportions of household waste through time.

KEYWORDS: BLANKET ROW; KINGSTON-UPON-HULL; 14TH CENTURY TO EARLY MODERN; MEDIEVAL; POST-MEDIEVAL; PLANT REMAINS; CHARRED PLANT REMAINS; INVERTEBRATE REMAINS; SHELL; MOLLUSCS; OYSTER; VERTEBRATE REMAINS; FISH; STABLE MANURE; SALT WATER

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Introduction

Excavations on the Blanket Row, Kingston-upon-Hull, site were undertaken by Northern Archaeological Associates, on behalf of Yorkshire Water, in 1997 and 1998. A further smaller excavation was carried out in 2000, following the collapse of a modern sewer which crossed the site approximately east-west and in advance of the construction of new waste water treatment facilities. The areas excavated revealed deposits of medieval and post-medieval (and later) date, together with a number of associated buildings.

Investigation of biological remains from these excavations was undertaken to shed light on the nature of occupation through the phases of the site, including aspects such as diet and living conditions.

The deposits encountered were sampled for biological remains by means of general biological analysis (GBA) and bulk-sieved (BS) samples (*sensu* Dobney *et al*. 1992), a number of 'spot' samples, and by hand-collection (for bone and shell). Assessments of the biological remains from the 1997 and 1998 excavations were undertaken (Carrott *et al*. 1997a and Johnstone *et al*. 1999, respectively). No assessment was undertaken of the material recovered from the further excavation in 2000 (BWH00) but an additional seven samples and the hand-collected material from this excavation were included in the main phase of analysis for the 1997-8 material (though in the event, none of the samples from the 1997 excavation warranted further study).

A total of 33 boxes (each of approximately 16 litres) of animal bone, recovered from a range of excavated features excavated during 1997, 1998 and 2000, and seven boxes of hand-collected shell (from the 1998 and 2000 excavations), were available for study. Eight phases were identified and linked across the whole site (including excavations carried out in different years), which dated the material from the 14th century through to the early modern period (Table 17).

Practical methods

Sediment samples: The lithologies of the selected samples were described using a *pro forma* and subsamples of 1-28 kg were processed according to the methods of Kenward *et al*. (1980; 1986). In some cases several samples from the same context were combined to give a larger BS sample. The GBA samples selected for main phase analysis were examined to give material additional to that recovered from the assessment and to examine some additional contexts. The BS samples were mainly processed to recover bone, but were sieved to 300 microns and also examined for plant and insect remains, since the samples were mostly of floor deposits which seemed likely to offer small, but interpretatively useful, assemblages.

Results from the assessment phases have been included in this report where relevant but where they add nothing to material examined later no mention is made of them.

Plant remains: Plant remains and other components of the residues were recorded using direct input to a PC (via an input form and *Paradox* software). Abundance of all constituents (related to the original size of the subsample) was recorded using a four-point scale from 1 (one or a few individuals or fragments or a very small component of the matrix) to 4 (abundant remains or a major/dominant component of the matrix) for the GBA samples and a three-point scale for the BS and 'spot' samples.

Insect and other macroinvertebrate remains: Insects were identified by comparison with modern reference material and using the standard works. Adult beetles and bugs, other than aphids

and scale insects, were normally recorded fully quantitatively and a minimum number of individuals estimated on the basis of the fragments present. Other invertebrate macrofossils were generally recorded semi-quantitatively using the scale described by Kenward *et al.* (1986) and Kenward (1992), estimates being made for extremely abundant taxa.

Insect remains recovered from the residues during recording of plant remains were in most cases included in the record, although there were hardly ever any taxa additional to those from the flots and, indeed, rarely any additional individuals. Fossils from residues tended to be larger or denser than those in the flots.

The manuscript lists of invertebrates (other than molluscs) were entered to a *Paradox* database using systems written by JC, for analysis and long-term storage. The data were interrogated using *Paradox* to produce species lists in rank order for each assemblage and a species list for the site in taxonomic order, following Kloet and Hincks (1964-77).

Mollusc shell: All of the hand-collected shell remains were identified as closely as possible using the EAU comparative material and reference works. The weight (in grammes) of shell from each context was noted and its preservational condition recorded using two, subjective, four-point scales for erosion and fragmentation—scale points were: 0 – none apparent; 1 - slight; 2 - moderate; 3 - high. Average values for groups of contexts are given to one decimal place.

The data were initially recorded on paper and later entered into a series of *Paradox* data tables for subsequent interrogation. Both *Paradox* and *Microsoft Excel* were used in the production of summary and graphical presentations of the data. For oyster (*Ostrea edulis* L.) shell, by far the largest component of the mollusc assemblages, additional records were made regarding: numbers of left, right and indeterminate-sided valves; evidence of having being opened using a knife or similar implement; damage from other marine biota (polychaete worms and dog whelks); encrustation by barnacles. For those contexts for which the residuality had been determined to be low to medium, measurements of the valves were taken (using callipers) following Claassen (1998, 109).

Vertebrate remains: Vertebrate data (for selected deposits) were recorded electronically directly into a series of tables using a purpose-built input system and *Paradox* software. Subjective records were made of the overall state of preservation, colour of the fragments, and the appearance of broken surfaces ('angularity'). Additionally, semi-quantitative information was recorded for the hand-collected material and each sample residue concerning fragment size, dog gnawing, butchery and fresh breakage.

Identification was carried out using the reference collections of the Environmental Archaeology Unit. Detailed recording of the assemblage followed the protocol outlined by Dobney *et al.* (1999). Selected elements ('A' bones) were recorded using the diagnostic zones method described by Dobney and Rielly (1988). Remaining elements which could be identified to species ('B' bones) were merely counted. Other fragments, (classified as 'unidentified') were, where possible, grouped into categories: large mammal (assumed to be horse, cow or large cervid), medium-sized mammal (assumed to be sheep, pig or small cervid), medium-sized mammal 2 (assumed to be dog, cat, hare or equivalent sized mammal), unidentified bird, unidentified fish and totally unidentified. As well as counts of fragments, total weights were recorded for all identifiable and unidentifiable categories.

Caprovid tooth wear stages were recorded using those outlined by Payne (1973; 1987), and those for cattle and pigs followed the scheme of Grant (1982). Cattle, pig and caprovid mandibles were assigned to the general age categories outlined by O'Connor (1989) whilst, in addition, recording of caprovid mandibles and isolated teeth were assigned to the age categories detailed by Payne (1973; 1987).

Mammal bones were described as 'juvenile' if the epiphyses were unfused and the associated shaft

fragment appeared spongy and porous. They were recorded as 'neonatal' if they were also of small size. Epiphysial fusion data are presented using the categories of O'Connor (1984).

Measurements followed von den Driesch (1976) unless otherwise specified. Additional measurements, not detailed by von den Driesch, followed those described by Dobney *et al.* (1999). Withers heights were estimated using calculations devised by Foch (1966) and Matolsci (1970) for cattle, and Teichert (1975) for caprovids.

Interpretative methods

The interpretative methods employed in this study with regard to plant and invertebrate (other than mollusc) remains were essentially the same as those used in work on a variety of sites by Hall, Kenward and co-workers; see, for example, Kenward and Hall (1995).

Insects: For the insect remains, interpretation rests primarily on a number of 'main statistics' of whole assemblages of adult beetles and bugs, and on the recognition of ecologically-related groups of species (see Kenward 1978, with modifications outlined by, for example, Kenward 1982; 1988; Hall and Kenward 1990; and Kenward and Hall 1995). The main statistics used include: (a) a measure of species-richness (or diversity), α, of Fisher *et al*. (1943), for the whole assemblage and for components of it; and (b) proportions of 'outdoor' species (OB, calculated from taxa coded oa and ob), aquatics (W, w), waterside species (D, d), phytophages (plant-feeders) (P, p), species associated with dead wood (L, l), moorland/heathland taxa (M, m), and decomposers (species associated with decomposing matter of some kind). Decomposers are subdivided into (a) species primarily associated with somewhat dry habitats (RD, rd), (b) those found mostly in rather, to very, foul habitats (RF, rf), and (c) a residuum not easily assignable to one of these (rt). The category 'RT' includes all three of these groups of decomposers (rt + rd + rf). (In each case, the lower-case codes (e.g. 'rd') are those applied to species and the upper-case codes ('RD') are for the ecological group.)

A further ecological component quantified for the present site was the synanthropes, i.e. those species favoured by human activity (Kenward 1997). Taxa have been assigned codes for degree of synanthropy as follows: 'sf'— facultative synanthrope, common in natural as well as artificial habitats; 'st'— typically synanthropic, but able to live in nature; 'ss'—strong synanthrope, absent from or very rare in natural habitats in the relevant geographical area. These codes give rise to ecological groups SF, ST, and SS, which are summed to give SA (all synanthropes). A group of synanthropes regarded as particularly typical of buildings of various kinds has been termed 'house fauna' (Kenward and Hall 1995).

The index of diversity offers a guide to the presence or absence of remains of insects which bred in or on the developing deposit (autochthones), low values indicating breeding communities, high ones faunas of mixed origins. Note that 'significantly' low values differ for the various components of assemblages; the more inherently rich a component is, the higher the value of the index of diversity for a living community will be. Thus, 'outdoor' communities associated with natural vegetation tend to give a high value of alpha, while very specialised communities, such as those of decaying matter deposited by humans, or stored grain, have low or very low ones.

In the context-by-context accounts the words 'several' and 'many' in relation to macro-invertebrate data are used in the semi-quantitative sense of Kenward *et al.* (1986), i.e. estimates of more than three and less than ten individuals were recorded as 'several' and translated to '6' for statistical purposes, and estimates of ten or more were recorded as 'many' and translated as '15', unless the numbers were very large, in which case a rough approximation was used. Numbers of individuals of adult beetles and bugs are 'MNI's, calculated from the numbers of parts (heads, pronota, elytra, etc.) recorded.

Mollusc shell: Summary information on the hand-collected shell recovered from highly residual contexts (all from the 1998 excavations) is presented in Table 6. The mixed nature of these deposits precluded any investigation of changes in the oyster shell assemblage through time and so no measurements (or records of numbers of measurable valves) were taken. The remains from these deposits are not discussed further.

For the remaining material, patterns of distribution and disposal were examined by phase, period (medieval, medieval to early post-medieval, post-medieval), context type and grouped context types (as cut features and non-cut features). For oysters, changes to the size of individuals making up the assemblages were examined by period.

Vertebrate remains: Small assemblages and problems with residuality, has limited the exercise to a basic statistical analysis of the data. Thus, simple fragment counts, where calculation of the total number of bone fragments involves the counting of all recorded identifiable fragments (number of individual skeletal parts or NISP), were utilised. Additionally, minimum numbers of individuals (MNI) were determined using the zone system devised by Dobney and Rielly (1988). Unidentifiable fragments were recorded and quantified separately. An archive exists of the mandible wear stages and biometrical information.

Material recovered from the samples was recorded in a similar manner to that described above for the hand-collected material.

Results

The following account details the results firstly of analyses of sediment samples, then of the hand-collected shell and of the vertebrate remains. Species lists and derived statistics, together with the results of some analyses are presented in Tables 1-27 and Figures 1-15.

Sediment samples

1998 excavations (site code BWH98)

PHASE 1 (first half of 14th century)

Context 413 (organic material: fill of pit 414)

Sample 118/T1 (5 kg): moist, mid brown to mid grey-brown, soft (working plastic), slightly clay silt with localised lumps of black humic material.

This large subsample yielded a small to moderate-sized residue of about 500 cm^3 of which about 200 cm^3 comprised tile fragments (to 50 mm in maximum dimension) and mineral sediment, the rest mostly being very decayed wood (to 40 mm). Within the grit-sized component were moderate amounts of iron-rich concretions which appeared not to be faecal in origin (certainly no organic debris were observed in a fragment treated with dilute acid and examined under the transmission microscope). Other components, all present in trace amounts in the mineral fraction, included eggshell, fish bone, marine shell, coal, cinders, mortar and pottery.

The coarser woody debris included a twig fragment which might have been *Prunus* sp. (but whose identification on wood anatomy was difficult), but also some material which was certainly elder (*Sambucus nigra*) and willow (*Salix* sp(p).). Some of the wood fragments might have been 'chips', but all were rather decayed and soft; some thin strips of yew (*Taxus baccata*) wood certainly seemed to have been worked.

There were also traces of peat fragments present in the form of a 'rootlet-rich' fen peat, a 'felted' type (with a texture like very decayed leather) and more amorphous types; one fragment appeared to be partly-charred, whilst some other material may have been fully charred peat.

Not surprisingly, given the residue of peat fragments in the sample, the identifiable plant remains, of which there was a large number (this was the second largest assemblage in terms of number of taxa, for the site as a whole) included some peatland remains in the form of traces of cotton grass (*Eriophorum vaginatum*) and bog-bean (*Menyanthes trifoliata*), with moderate numbers of leaves of the raised-bog forming

moss, *Sphagnum imbricatum* and the intermediate/poor mire species *Scorpidium scorpioides*.

For the rest, the plant remains were a mixture representing a wide range of habitats and sources, the bulk being weeds of cultivated ground and waste places, with traces of each of small range of food, oil or fibre plants—hazel nut, *Corylus avellana*, fig, *Ficus carica*, flax, *Linum usitatissimum*, and opium poppy, *Papaver somniferum*. Given the numbers of remains and the overall nature of the assemblage, however, none of these need indicate human domestic occupation in the immediate vicinity, and certainly do not suggest the deposit included primary waste. Also represented were grassland, wetland, woodland and salt-marsh, this last by moderate numbers of seeds of the mud rush, *Juncus gerardi*. Brackish water was indicated by two taxa, *Ruppia* and *Zannichellia*; whether this represents flooding from the nearby River Humber or plant remains brought with the rushes, for example, cannot easily be established.

Such heterogeneous assemblages are not uncommon in deposits formed in urban occupation contexts, of course. In this case, the presence of wood debris and peat perhaps points to some kind of litter, e.g. from a stable or byre, though the component one might expect in the form of hay- or straw-derived plants is noticeably restricted.

There were also in this assemblage remains of a plant which deserve special mention. Milk thistle, *Silybum marianum* was recorded as six whole, well preserved and very distinctive achenes and two fragments in this subsample (with a further collection of at least nine from the 2 kg subsample from the context examined during the assessment stage). This plant, apparently unknown in the British archaeological record until recently, has been noted from another site in Hull—in a floor of medieval date at the Magistrates' Courts site (Hall *et al.* 2000a)—as well as from York—from a probable medieval context at 58-9 Skeldergate (A. R. Hall, unpublished data), from a single 12th century dump at 16-22 Coppergate, York (*ibid*.) and from a medieval deposit at Layerthorpe Bridge (Hall *et al.* 2000b). It is likely to have been introduced to Britain from continental Europe, perhaps after the Norman Conquest, probably as a medicinal plant.

Invertebrate remains were abundant, 373 individuals of 128 beetle and bug taxa being accompanied by numerous other remains. Preservation was generally very good, with a few fossils which were more decayed (subjectively, the 'dry decomposers' were less well preserved than most others). There was a broad resemblance to the assemblage from Context 288 from the 2000 excavations (see below), with much the same range of numerous taxa. As for that deposit, mud rich in organic matter, or very decayed moist plant remains, were indicated by the most abundant species, *Platystethus nitens* (33 individuals). *Anotylus complanatus* (26) may have lived in moist rotting matter, but the numerous *Aphodius granarius* (17) and three *A.* ?*prodromus* perhaps tip the scales towards dung having been present (though apparently these dung beetles can both live in putrefying plant remains). This foul aspect of the deposit was carried on by less abundant taxa, including *Gyrohypnus fracticornis* (13), *Anotylus nitidulus* (12), *Xantholinus glabratus* (6) and *Acritus nigricornis* (5).

Aquatic insects were well represented (12% of the fauna), *Ochthebius dilatatus* being the most abundant (17), and there were numerous *Daphnia* ephippia and a few remains of other cladocerans. A salt-water influence was attested by a single foraminiferan (*Elphidium* sp.), the halophile beetles *Ochthebius dilatatus* (17),), *O* ?*lenensis* (2), and *Limnoxenus niger* (1) and fragments of colonial hydroid. (*L. niger* is halophilic in Britain but less so in continental Europe, Balfour-Browne 1958; Hansen 1987.)

A contrast with the material from Context 288 lay in the presence of a distinct house fauna component, including *Lathridius minutus* group (19), *Anobium punctatum* (9), perhaps two *Corticaria* species (8 and 7), *Atomaria nigripennis* and *Mycetaea hirta* (six of each), *Xylodromus concinnus* and a *Cryptophagus* species (five of each), and various others including three *Tipnus unicolor* and two

Crataraea suturalis. There were also two human fleas, *Pulex irritans*. This component included remains which seemed to be in poorer condition than most in this deposits, and some of the *M. hirta* and *T. unicolor* were very well rotted. It thus appears that the house fauna had been deposited elsewhere and transported to this pit.

A single specimen of the water beetle *Hydroporus scalesianus* seems likely to have originated with peat, as may a small number of other fossils (though all the remainder may have had a contemporaneous origin).

Overall, this deposit clearly includes waste from occupation, much of which may have been channelled through litter from the stabling or penning of livestock (most probably horses). The deposit formed where there was at least occasional flooding by seawater (there is nothing to support the alternative hypothesis that waste salt water from some process was discharged into it).
Preservation of the bone from this sample was recorded as good, but angularity (the nature of the broken surfaces) was rather variable, with some rounded fragments being recorded. In total, 25 fragments of bone (all <30 mm in maximum dimension) were recovered, of which 24 were fish remains. Four herring vertebrae were identified, the remainder of the fish representing unidentified fragments of finray, rib and head elements. The hand-collected material from this deposit was limited to only eight fragments. Too few fragments were present for any detailed interpretation, but these remains suggest food waste originating from domestic occupation.

Context 2537 (tipping of organic material, pre-buildings 5002 and 5001)

Sample 108/T (2 kg; assessment only): just moist, dark grey-brown, stiff (working plastic, and sticky when wet), clay silt.

On first inspection there was a rather small residue of about 275 cm^3, mostly undisaggregated silt. In view of this the sample was subjected to steeping in dilute sodium pyrophosphate solution for a few days, after which it was re-sieved; the residue now consisted of about 200 cm^3 of silt clasts and herbaceous detritus with traces of bark, wood, coal, pottery, charcoal, brick/tile, mortar, and chalk. Almost no identifiable plant remains were recorded amongst the herbaceous detritus.

There were only small numbers of insects in the flot, which consisted mainly of plant detritus. Earthworm egg capsules were rather numerous, as were mites. The beetles were species typical of urban occupation sites, but there were too few to allow any reconstruction of conditions as the deposit formed.

These observations call into question the excavator's suggestion that tipping of organic material had taken place in the formation of this deposit; the organic content was very small and could not be characterised in terms of its origin.

Context 2538 (tipping of organic material, pre-buildings 5002 and 5001)

Sample 105/T (2 kg; assessment only): moist, slightly pink grey-brown, plastic, slightly silty clay with medium-sized stones (20 to 60 mm) present.

There was a smallish residue of about 300 cm^3 of which about 70-80% by volume was wood fragments, some perhaps from wood-working (there were some wood 'chips'), with straw-like detritus, perhaps from stable manure. Seeds were not very abundant, though preservation was generally quite good: they were a mixture of plants from grassland, wetland and various weed communities (with a possible peatland component as in the sample from Context 413, see above).

The flot consisted mainly of plant detritus, some woody, and insect remains were rather numerous. There were further insect remains in the residue from flotation. The insect assemblage seems likely to have originated in stable manure. There were several grain weevils (*Sitophilus granarius*) and a range of species which may have lived in rather foul decaying matter (notably two *Carpelimus pusillus* group, and *Oxytelus sculptus*, *Cercyon atricapillus*, *C. terminatus* and *C. unipunctatus*, all as single individuals). There was a weak house

fauna component, including two human fleas, *Pulex irritans* (the latter emerging as rather typical of ancient stable manure assemblages, Kenward *et al.* 1998). A further group of remains regarded as typical of stable manure, having originated in hay, was represented by several *Sitona* sp., and single individuals of two *Apion* species; both genera include predominantly species found on clovers, vetches and their relatives and particularly likely to be imported in cut vegetation. An anomalous element was *Platystethus nitens*, which was abundant (it was also present in modest numbers in assemblages from Contexts 413 and 2539, see above and below). This tiny staphylinid beetle is generally found in organic-rich mud, but it may have found suitable conditions at the point of deposition if conditions were wet.
This deposit includes a substantial component of plant litter of various kinds, with associated insects, suggesting an origin in stable manure or similar material.

Context 2539 (secondary fill of pit 2542)

Sample 109/T (3 kg): a moist mixture of light grey 'buttery' clay, whitish to orangeish ?ash, and compressed herbaceous detritus with twigs and woody ?roots present.

There was a moderate-sized to large residue of about 800 cm^3 of which most was organic debris, some of it woody (with wood fragments, including chips, up to 10 mm), but mainly well preserved herbaceous material. The mineral fraction comprised just a few tens of cm^3 of sand and grit. The coarser herbaceous plant material had a distinctly 'strawy' nature, and it is not surprising therefore that in an analysis of the 'litter' components in samples from this site, Sample 109 gave the highest score for litter in general and for litter likely to indicate straw, in particular. But 'hay' indicators were also very well represented and there were also components from peatland (including peat itself) and grassland in the form of grazed plant material and/or turves.

Indeed, this was very much the richest assemblage for plant remains from the Blanket Row site, with a total of 74 taxa identified at least to genus (of which 56 were identified to species), and a wide variety of remains identified less closely but probably significant as components of plant-based materials used as litter. Preservation was generally very good. The more abundant remains, all uncharred, were grass/cereal stalk fragments, rachis (ear-stalk) of free-threshing wheat, and *Sphagnum imbricatum* leaves, with moderate amounts of a wide range of taxa (cf. Table 2), almost all of which could easily be placed with one or another kind of imported plant material. Plants which might have been used for human or animal feed comprised traces of hazel nut, fig, and opium poppy (as in Sample 118, see above), but with the addition of traces of charred peas (*Pisum sativum*), and uncharred grape (*Vitis vinifera*) seeds. Perhaps most telling, though, were the moderate amounts of uncharred grains of wheat/rye (*Triticum/Secale*) which might have arrived with straw or in animal feed.

Invertebrate remains were abundant and ecologically mixed. There were 183 individuals of 103 beetle and bug taxa, numerous mites and fly puparia, and a range of other remains. Although preservation was generally quite good, many remains appeared to have been fragmented in the ground or during recovery or processing.

Three species, as single individuals, testified to a saline influence: *Bembidion* ?*normannum*, *Cercyon depressus* and *Enochrus* ?*halophilus*.

There were indications that a stable manure component was present, for there was a distinctive mixture of (a) grain pests, (b) house fauna and (c) decomposers typical of open-textured foul matter. Notable in these categories were (a) *Sitophilus granarius* and *Oryzaephilus surinamensis* (this was the only assemblage from the site with more than traces of grain pests) ; (b) *Lathridius minutus* group, *Xylodromus concinnus*, *Cryptophagus* spp. and *Anobium punctatum*; and (c) *Cercyon terminatus*, *C. atricapillus*, *Philonthus ventralis*, *Monotoma picipes* and *Cercyon unipunctatus*. Hay may have been the origin of the rather abundant *Sitona lineatus* (although it may have come in other ways) and a range of other species (e.g. the bug *Megophthalmus* sp.), while some

aquatics may have originated in water for livestock.

Waste from human occupation may also have been present: while the three human fleas perhaps developed in a stable floor, there was also a single human louse (*Pediculus humanus*), and a sheep ked, together more indicative of a house floor.

Some of the insects probably arrived with the peat, among them *Dyschirius* ?*globosus*, *Hydroporus* ?*scalesianus*, *Olophrum* sp., *Acidota crenata*, two *Euaesthetus* spp. and a larva of the click beetle *Actenicerus sjaelandicus*.

A total of seven bone fragments were recovered from this sample. Five fish fragments were noted, including a single herring vertebra. A number of unidentified bird remains were also recorded. This deposit did not produce any hand-collected bone.

In summary, this deposits seems largely to have consisted of stable manure, with a hint that a component originated in a domestic building.

Summary of Phase 1

The three assemblages rich in plant remains (two pit fills and a tipped layer) were generally rather similar in indicating abundant plant litter and associated insects representing stable manure or some similar material. There was a saline influence, most probably the result of flooding from the nearby Humber. The organic nature of the deposits points to disposal of a commodity which would not be tolerated on open surfaces in this part of the town. An urban community would presumably not have the connections which would lead to stable manure being transported for manuring of fields outside the town, though a proportion might be expected to have gone to gardens and orchards nearby. Vertebrate remains recovered from these samples were too rare for any valid interpretations to be made. They do, however, hint at the presence of waste associated with food consumption and, therefore, human occupation.

PHASE 2 (late 14th-early 15th century)

No samples from this phase were examined.

PHASE 3 (15th century)

Context 298 (fill of pit 299)

Sample 939496/BS (28 kg, amalgamation of Samples 93, 94 and 96, sieved to 300 µm): moist, mid to dark grey-brown (with a slight olive cast), brittle (working crumbly, and sticky when wet), gritty clay silt. Stones (2 to 60 mm), ?mortar, brick/tile and charcoal were present in the sample.

These three samples together yielded a moderate to large residue of about 4500 cm^3 of brick/tile (to 100 mm), grit, and sand, with a little stone, bone (including fish bone), pottery, marine shell (mostly cockle with a few oyster valves, a small common whelk, and fragments of mussel shell), and coal. There was a large washover of about 1100 cm^3 of 'char' (undense black, often vesicular material, probably formed from exudates during the burning of coal) and cinder with traces of charcoal and more coal. From the washover, a 'light' washover of the least dense material, all of it organic, was taken and this proved to contain very small amounts of identifiable charred and uncharred plant remains of a variety of kinds, including many poorly preserved mud rush seeds as well as traces of weeds (mainly charred cornfield types) and some uncharred remains pointing to wetland habitats or peat as a source (some small fragments of amorphous organic material recorded in the residue may well have been remains of peat).

The rest of the washover contained some charred cereal remains, the grains rather variable in their state of preservation, from very 'puffed' and fragmentary to well preserved, though often somewhat misshapen. Most were oats (*Avena*) but there were some bread/club wheat (*Triticum aestivo-compactum*) and traces of barley (*Hordeum*) and rye (*Secale cereale*); some charred chaff, probably of oats, was noted in the finer fraction.

Though sparse, given the very large size of the sample, the range of plant taxa recorded suggests that one component of the pit fill might have been burnt straw, whilst the association of uncharred rushes and cinders suggests that floor sweepings might have been discarded into the pit (see later discussion of floors). There were only traces of invertebrate remains: a ground bug and a single *Sitona* weevil, a few snails (two identifiable as *Hydrobia ventrosa*, and some *Daphnia* ephippia. The last two indicate water, but whether *in situ* or imported cannot be judged.

Identified vertebrate remains recovered from this sample amounted to 20 fragments, with a further 64 assigned to the 'unidentified' category. Preservation of the assemblage was mainly good, although some fragments were slightly battered in appearance. Some of the more delicate fish bones showed evidence of fresh breakage damage. More than 50% of the remains were <30 mm, with larger fragments (to 90 mm) restricted to the mammal remains.

Mammals were represented by cattle and caprovid bones, but fish remains were most numerous and included herring, rockling, gadid (such as cod and whiting) and fragments identified as ?plaice and ?Dover (or common) sole. Vertebrae were the most commonly identified fish bone, but the unidentified component contained another 22 (mostly <20 mm) fragments, some representing parts of head elements.

A moderate assemblage of hand-collected bones were recorded from this pit fill, dominated by the remains of cattle, although other major domesticates, such as caprovids and pigs, were present. Skeletal element representation for cattle showed that non-meat-bearing bones (mandibles, isolated teeth, metapodials and phalanges) were the most numerous, suggesting the presence of waste from initial carcass preparation. The few bird remains, identified as chicken, goose and duck, together with the fish bones from the sample, are more indicative of household refuse. This domestic component may add to the evidence indicated by the plant remains for the possible inclusion of floor sweepings within the pit. The larger mammal remains, particularly those of cattle, appear to represent butchery waste and are more likely to have come from a different source.

Context 382 (floor silts from building 538; tipped against the west side of wall 324)

Sample 113/T (2 kg; assessment only): moist, varicoloured (from light yellow-brown to mid to dark grey), crumbly (working soft and slightly sticky), slightly clay silt with a little ?slag, charcoal and ?eggshell.

The washover was mostly of charcoal and cinder (to 20 mm) with moderate numbers of rush (*Juncus*) seeds. There was some plant detritus and a few charred cereal grains. The only insects noted were two fly puparia; there were several earthworm egg capsules and two damaged snail shells.

The moderate-sized residue of about 500 cm^3 was mostly sand and undisaggregated silt clasts, with moderate amounts of mortar (to 30 mm) and traces of brick/tile, ?daub, pottery, oyster shell, mammal and fish bone and coal.

Context 390 (fill of gully 394)

Sample 117/T (2 kg; assessment only): moist, light grey-brown to mid to dark grey, crumbly, silty clay with very small stones (2 to 6 mm) and charcoal present.

The smallish residue of about 400 cm^3 was of ashy/mortary sand with some brick/tile and traces of bone, cinders, fish bone, chalk and oyster shell; the large washover was of charcoal to 20 mm, with traces of uncharred wood, snails (a single *Pupilla muscorum* and fragments of two other unidentified land snails), coal, earthworm egg capsules, a single charred ?bread/club wheat grain, and traces of ?mud rush seeds. The presence of *Heterodera*-type cysts and earthworm egg capsules in small numbers perhaps suggests that the deposits included soil, or that a soil had developed within the gully at some stage.

Context 2100 (part of sequence of floor silt lenses in area of building 5002; truncated by foundation 2031)

Sample 313233/BS (13.3 kg, sieved to 300 μm and subjected to paraffin flotation)

Moist, dark grey-brown, crumbly, slightly sandy slightly clay, ashy silt with cinder, fish bone and very rotted ?marine shell present.

The very large residue of about 7000 cm^3 consisted of cinders (to 35 mm), with some brick/tile (to 15 mm), sand, and fish bone (to 20 mm). The flot yielded a little 'char' with modest numbers of mud rush seeds and grass fruits, and a few other uncharred seeds representing a diversity of habitats but in numbers of taxa and individuals so small as to suggest differential decay since deposition. Remains from marginal aquatic habitats seemed to be best represented and may indicate cut plant material used for strewing on floors, perhaps consistent with the evidence from rush seeds and grass fruits.

Invertebrate remains were uncommon, and their preservation very poor (they were chemically decayed and pale, as well as fragmented, and there were abundant scraps of unidentifiable cuticle). The remains which were present seemed typical of those which survive where most fossils have rotted completely. The identifiable taxa were typical of occupation deposits, but cannot reasonably be interpreted further.

A large assemblage of well preserved fish bones was recorded from this sample. Approximately 900 fragments were recovered, but most were small (none were >20 mm). The majority of the identified fragments were herring (129 fragments), with substantial numbers of ?plaice and ?plaice/flounder remains also recorded. Vertebrae were the most commonly occurring element for these species, although for herring, small numbers of other elements, mainly associated with the oromandibular and hyoid regions of the skeleton, were also identified. Gadidae remains were quite scarce, but included whiting, cod, ?haddock and a range of elements (preopercular, subopercular, opercular and epihyal) which could only be identified as gadid. Additional species present included eel, ?sprat, thornback ray and single fragments identified as Dover (common) sole, stickleback, ?five-bearded rockling and ?thick-lipped grey mullet. The unidentified material, which amounted to over 400

fragments, included several broken vertebrae and some cranial and post-cranial fragments, but were mostly ribs and finrays. Mammal bones were represented by 280 very small (most <20 mm), unidentified fragments. A single fowl ulna, representing an immature individual, and several phalanges were also present.

The vertebrate assemblage recovered from this deposit was thus dominated by fish remains, mainly from small individuals. Amongst the identified fragments, vertebrae were clearly predominant, suggesting that the remains might represent table refuse. However, other elements were present and over 400 fish bones were recorded that were too fragmented for further identification. Taphonomic factors may have created a bias in favour of survival of the more robust vertebrae, as skeletal elements associated with the head can be more fragile and less likely to survive or remain sufficiently intact for identification.

Context 2280 (bedding for floor surface 2279 within Area f of building 5002)

Sample 35/T (5 kg): just moist, mid to dark greyish-brown, just brittle and locally laminated (working crumbly and soft), ?ashy, silty clay sand. Stones (2 to 6 mm), brick/tile, charcoal, extremely decayed marine mollusc shell and modern moss were present and white flecks were common in the sample.

The very large residue of about 1250 cm^3 contained about 170 cm^3 of cinders (to 10 mm) and coal (to 15 mm), especially in the <1 mm fraction. The remainder was largely sand and grit with some brick/tile (to 15 mm). A 'light' washover from the <1 mm fraction of the cinder/coal material yielded a few very poorly preserved beetle fragments and two small fragments of two different small woody seeds with thick walls, neither of which could be identified. The modest-sized flot was mostly coal with traces of poorly preserved or fragmentary seeds or fruits of a small range of plants of no particular interpretative significance, but including greater celandine (*Chelidonium majus*)—a species typically associated with human habitation—together with elder and mud rush. Traces of *Sphagnum* remains may indicate the presence of some very decayed peat. Invertebrate remains were present in small numbers (including single individuals of 14 beetle taxa). Preservation was very poor, and the remains were probably the resistant residuum from an assemblage which had mostly rotted away.

This sample produced over 250 bone fragments, most of which were of less than 20 mm. Preservation of the remains was good, although they were heavily fragmented. Fish bones (162) formed the largest component of the assemblage, but many were small finray and rib fragments which could not be identified. Those fragments (23 bones) which could be identified to species or family group included herring, eel, gadid (?cod, ?whiting and ?rockling), plaice, dab and ?thick-lipped grey mullet. As with other samples, vertebrae were the most common element recorded. Mammal and bird remains, whilst present, were mainly unidentifiable to species, although a single black rat metapodial was identified.

Although this assemblage was not as large as that from Context 2100 (the sample size was much smaller), its content was very similar. Most of the fish remains, even the gadid material, represented small individuals. A single herring vertebra showed damage characteristic of having been ingested.

Context 2336 (floor silts associated with hearth 2301 and covering hearth 2371)

Sample 29/T (5 kg): moist, mid to dark greyish-brown, brittle and layered (working crumbly, and rather sticky when wet), sandy clay silt with localised lenses of light reddish-brown, ?ashy clay. Fragments of chalk (20 to 60 mm), coal, mammal bone and marine mollusc shell (including cockle, mussel and very rotted oyster, to 25 mm) were present in the sample. Modern contaminant moss and algae, developed during storage, were also noted.

The large residue of about 1100 cm^3 was mostly brick/tile (to 50 mm), cinders (to 25 mm), sand and grit, with some gravel. The small washover of about 150 cm^3 was mostly fine (<1 mm) coal and cinder with two fragments which may have been burnt peat. There were also a few, mostly rather poorly preserved, seeds, some of them charred, and a few decayed beetle fragments. Amongst the identifiable material were some *Populus* catkin fragments, bearing hairs and thus presumably aspen (*P. tremula*) rather than black poplar (*P. nigra*), and also some seeds which seemed nearest to willow (*Salix*), perhaps indicating the proximity of at least some trees to the site, though their presence in a deposit with such poor preservation might warrant caution in accepting them as ancient. The only plant remains present in more than trace amounts were mud rush seeds, of which there were modest numbers (and more in the flot). The flot also contained a few, poorly preserved, invertebrates, probably all that remained from the decay of a richer assemblage.

The numerous vertebrate remains recovered from this sample were extremely well preserved, particularly the fish bones. Only a few fragments were greater than 50 mm in maximum dimension and most were less than 20 mm. Mammal and bird remains (with the exception of a pig tooth) were largely unidentified. Fish remains provided almost half of the assemblage, although 138 of the 234 fragments represented unidentified finray, rib and cranial elements. The identified fragments were dominated by herring vertebrae, whilst flatfish (including ?plaice/flounder, Dover sole and ?thickback sole) and eel were also quite numerous. Haddock, whiting and smelt were recorded, whilst freshwater fish were represented by three vertebrae tentatively identified as gudgeon.

Fourteen fragments of bone were recovered by hand from this deposit. Fragment size was again small, although several bones were >50 mm. The bulk of the material represented medium-sized mammal rib and shaft fragments. Four identified fragments represented caprovid, goose and chicken remains, with a single cyprinid dentary also being identified.

Generally, the assemblage recovered from this deposit was similar to those from Contexts 2100 and 2280, although, a little less strongly fragmented. Additionally, mammal and bird remains were still not particularly numerous, but appeared to form a greater proportion of the assemblage. These remains are most likely to represent table waste and domestic refuse.

Sample 2830/BS (18.5 kg, amalgamation of Samples 28 and 30): sediment description as for Sample 29.

There was a large residue of about 3500 cm^3 of brick/tile (to 60 mm), sand and grit, with some cinder (to 10 mm) and a large washover of about 1300 cm^3 of fine cinder and coal. The 'light' washover included small numbers of identifiable plant remains and some insect fragments. Amongst the former were traces of fruits of carrot (*Daucus carota*), celery (*Apium graveolens*), and opium poppy (the last two, at least, perhaps food flavourings) and some remains perhaps derived from peat. Mud rush seeds were rather frequent. There were only a few invertebrate remains, and these were highly decayed.

The differences between the plant remains in these two samples are rather difficult to explain unless they simply reflect rather patchy deposition—perhaps not too surprising on a floor.
The residue from the amalgamation of samples 28 and 30 produced a far smaller assemblage of bone than from the other sample from this context. Preservation of the remains was very good, with most fragments again being <50 mm. Mammal and bird bones (136 fragments) were mostly unidentified, but included a pig third phalanx and a cow second phalanx representing a juvenile individual. Fragments of cod, whiting, eel, Dover sole and ?flounder were all identified.

Context 2376 (floor silts in Area f of building 5002; possibly associated with hearth 2244)

Sample 4951/BS (17 kg, Samples 49 and 51 amalgamated; assessment only): just moist, dark brown to dark grey-brown, crumbly and layered

(at mm-scale), ashy silt with mortar and brick/tile present. Sample 49 had more mortar and a large piece of chalk present.

The rather small residue was almost entirely of mineral fragments, mainly brick/tile and sand with traces of bone, chalk, cinders, coal, fish bone, unidentified marine shell, and mortar with some modern root fragments.

The residue yielded 545 vertebrate fragments, plus numerous unidentified fish remains (weighing 46.5 g). The preservation of the vertebrate remains was described as good, and the colour of the mammal bone fragments was fawn, and that of the fish ginger. The angularity was described as slightly variable, with most fragments being 'spiky', although some mammal fragments were more 'battered' in appearance. Green staining was noted on a few bones and a few burnt fragments were also present. A single caprovid tooth (0.2 g) was the only identified mammal fragment. The unidentified material consisted of two bird vertebrae, seven burnt fragments and 229 mammal fragments (34.8 g). Fish remains (11.7 g) were more numerous and included 103 pleuronectid, 152 herring, ten eel, eight ?cyprinid, five ?gadid, and six ?grey mullet vertebrae. Other fish vertebrae and skull fragments were noted (but not identified), along with abundant spine and rib fragments.

Sample 50/T (2 kg; assessment only): just moist, dark brown to dark grey-brown, crumbly and layered (at mm-scale), ashy silt with mortar and brick/tile present.

The smallish residue of about 350 cm^3 consisted mainly of sand and cinder, with traces of coal, brick/tile, and fish bone. The flot was mainly charcoal and cinder (to 20 mm), with some waterlogged plant detritus and a few elder seeds. Single individuals of three beetle taxa and several soil nematode (*Heterodera*-type) cysts were also noted.

Context 2415 (floor silts in Area g of building 5002; set against wall 2309)

Sample 70/T (5 kg): moist, dark greyish-brown, brittle and slightly layered to crumbly (working crumbly, and slightly sticky when wet), sandy clay silt. Modern moss, flecks of brick/tile, charcoal, mammal bone and very well rotted fragment of marine mollusc were present in the sample.

This subsample yielded a very large residue of about 900 cm^3 of brick/tile (to 50 mm), grit and sand with some mortar, and a washover of about 350 cm^3 of coal and cinder. A 'light' washover taken from the latter produced modest amounts of very poorly preserved invertebrate fragments and a few rather fragmentary or poorly preserved seeds of no particular interpretative value. The insects included a range of house fauna beetles and a few others, probably the tougher remains left by decay.

Vertebrate remains from this assemblage amounted to 159 fragments, all of which were less than 30 mm. Preservation was, for the most part, good. A range of fish was identified, mostly from vertebrae representing very small individuals. Species present included whiting, rockling, sprat, eel, herring, ?flounder and ?plaice. The unidentified component of the assemblage contained several tiny fragments of bird and mammal bone.

Sample 7172/BS (18 kg, amalgamation of samples 71 and 72): sediment descriptions as for Sample 70, though Sample 71 was rather paler with some ?ash/mortar.

These two samples produced a moderate-sized to large residue of about 3500 cm^3 of brick/tile (to 30 mm), mortar (to 55 mm), sand and grit, with some fine coal and cinder and a little shell and bone. The large washover was about 1700 cm^3 of mostly fine cinder and coal. It yielded a 'light' washover containing scraps of invertebrate cuticle, as well as some uncharred seeds representing a rather wide range of probable sources, including food waste, and cut vegetation (principally straw or wetland plants); the only taxon present in more than trace amounts was mud rush.

The invertebrate assemblage was of modest size (including 53 individuals of 36 beetle taxa and numerous fly puparia), the remains generally being in poor condition, with a tendency towards colour change to yellow then pale. It appeared likely that decay had produced a bias towards the more robust or distinctive taxa, and this is probably the reason why the top four ranks of abundance were occupied by taxa meeting both of these criteria. The assemblage was rather mixed ecologically and although including modest numbers of house fauna beetles (and even allowing for differential preservation) was not the fauna of a clean floor. However, species which live outdoors or indicate foul matter may all have had some special origin (e.g. ground beetles entering on foot, water beetles in imported water or mud, dung beetles in flight, perhaps attracted by light, and weevils with peas and beans). If these insects all entered in such ways, and allowing for some trample, the remaining fauna would be more typical of a well-kept floor in a reasonably sound, dry building. *Oxyomus sylvestris*, *Trox scaber* and the fly puparia may have been attracted to a small mount of rotting animal matter; no more than putifying food scraps or a dead mouse or bird might be required.

These amalgamated samples produced a total of 31 bone fragments, of which only two were identifiable: a duck humerus, with knife marks across the proximal articulation, and a whiting vertebra. The remaining bones were a mixture of unidentified mammal and bird remains which were well preserved and, although some fragments were slightly larger (to 90 mm), most were <50 mm in size.

Summary of Phase 3

These deposits were rather uniformly poor in plant and invertebrate remains, though in some cases it appeared likely that what was recovered represented the vestiges of a once richer organic content, probably lost through decay at or shortly after burial. The presence of mud rush (*Juncus gerardi*) seeds in floor and other deposits whose main components were otherwise coal, cinders and sand, calls for some comment. This plant has been repeatedly discovered to be one of the more frequent in deposits of this kind, as for example at the nearby Magistrates' Courts site (Hall *et al.* 2000a). This rush forms dense stands in the upper parts of salt-marshes and, with regard to the area in question, Robinson (1902) describes it as 'very common on the shores of the Humber from Hessle to Spurn' and Crackles (1990) as 'frequent and sometimes in quantity on salt-marshes between Hull and Spurn' and 'on the shore of the R. Humber between N. Ferriby and Yokefleet'; its seeds might thus be expected to occur in quantity in deposits formed in areas where traffic to and from such saltmarsh was frequent, though the presence of at least some other halophytes might be anticipated. The plant is large enough to be mown for strewing, though not as tall as the commoner 'pasture' rushes such as *JJgadid. inflexus*, *conglomeratus* and *effusus*. It forms a component of a commodity called salt hay collected from saltmarsh meadows on the eastern seaboard of the United States and used primarily as a mulch for suburban gardens and for packing, but evidence for its collection in the past along the Humber foreshore (perhaps for strewing on floors) is currently lacking, except via the records from this and other sites.

A feature of the floor deposits from building 5002 was high concentrations of mostly well-preserved fish remains, not unlike the assemblages recovered from floor silts from the nearby Magistrates' Courts site. Most fragments recovered from the Blanket Row deposits were less than 50 mm in size, with only a very small proportion of larger bones. Hand-collected material (where present) also showed a restricted size range. Material from pit fill 298 included a fish component, with a similar range of species to that recorded from the floor deposits. Size of fragments was mainly small, except for some of the mammal bones. However, this deposit also produced a large hand-collected assemblage, which included remains of major domesticates and chicken and geese. Large fragments were present. This assemblage could be interpreted as butchery waste and domestic refuse, and clearly originated from more than one source.

PHASE 3B (early to mid 15th century)

Context 2287 (floor silts in building 5001)

Sample 192021/BS (14.4 kg, Samples 19, 20 and 21 amalgamated)

Just moist, light grey-brown to dark grey-brown (somewhat jumbled), crumbly to unconsolidated, ashy, sandy silt with some coal (to 30 mm), fish bone and very rotted ?marine shell present.

These three samples were sieved to 300 um. There was a very large residue of about 5600 cm^3, especially in the <1 mm fraction, comprising mainly coal (to 30 mm) and sand, with some cinders, gravel, grit and heavily fragmented mussel (*Mytilus edulis*) and other shell (two periwinkles, and a few fragments of oyster and cockle). The washover of about 300 cm^3 was of 'char', charcoal and coal, and the only identifiable plant remains were a single charred oat grain and traces of uncharred elder seeds. The flot added traces of mud rush seeds. Non-marine invertebrates were extremely rare and of no interpretative significance.

A moderate-sized assemblage of bone, totalling 391 fragments, was recovered from these samples. Although well preserved, much of the material could not be identified because of the small size of the fragments (none being >50 mm). Thirty-five fragments were identified and included the remains of Gadidae, cod, whiting, eel, plaice and Dover (common) sole, mostly represented by vertebrae. A single vertebra was tentatively identified as an argentine. Part of a duck ulna was also recorded. Unidentified mammal remains included medium-sized mammal shaft and vertebra fragments.

Context 2338 (floor silts; confined between walls 2346 and 2295)

Sample 23/T (2 kg; assessment only): moist, dark grey-brown, layered (on mm-scale) and crumbly (working slightly plastic), clay silt with flecks of charcoal, rotted mammal bone and rotted shell present.

There was a moderate-sized residue of about 275 cm^3 of which the largest components (about 30% by volume) were coal (to 25 mm) and sand, with mussel shell, brick/tile, and cinders. Approximately 35-40 fish bone fragments were recovered, including herring and gadid vertebrae. Consisting mostly of charcoal (to 6 mm), and with a trace of slag, the small flot contained only one invertebrate: leg fragments of a poorly preserved *Trox scaber*.

Context 2354 (floor silts in passage of building 5001)

Sample 18/T (2 kg; assessment only): moist, mid brown, layered and compressed to brittle and crumbly, slightly silty ash. Cinder, ?charcoal and very rotted shell were present in the sample.

The rather small residue of about 400 cm^3 consisted mainly of sand, cinders and coal, with coal and cinder fragments (to 10 mm) making up the bulk of the small flot. No plant remains were recorded, though traces of bone (including fish and bird bone) and mussel shell were present. The fish remains included a rather crushed pleuronectid vertebra and a small quantity of tiny vertebrae, tentatively identified as smelt. The flot contained some plant detritus but there were no invertebrates.

Summary of Phase 3b

There were few plant and invertebrate remains in these deposits and the floors were presumably kept clean and probably reasonably dry. Vertebrate remains recovered from the floor deposits in building 5001 were subject to considerable fragmentation, with most fragments being <50 mm in size. Although few fragments could be identified closely, fish remains clearly formed the bulk of the assemblages. Vertebrae were the most frequently identified element, and a few showed damage consistent with having been chewed. Table or kitchen refuse would seem to be the most likely interpretation of the remains, but taphonomic bias in favour of the survival of the

more robust vertebrae may be causing other elements to be under-represented.

PHASE 4 (late 15th - 16th century)

Context 103 (extensive ash and cinder occupation layer; west room (a) of building 536)

Sample 9/BS (16 kg): Dry, mid to dark brown, just brittle (working crumbly, and slightly sticky when wet), slightly clay sandy silt with a ?ashy component. Coal, traces of bone and marine shell (mostly cockle with a few fragments of very rotted mussel shell), and modern moss were present in the sample.
The very large residue of about 6400 cm^3 consisted of cinders (to 30 mm), sand, and grit, with traces of bone, shell, and pottery. The large washover consisted of about another 1000 cm^3 of fine coal and cinder and yielded a light washover with modern rootlets, and some 'char' and charcoal. Identifiable plant remains were restricted to modest numbers of very decayed seeds of greater celandine and a single very decayed rush seed.

This sample produced a small assemblage of vertebrate remains, totalling 63 fragments. Most fragments were quite well preserved but small (with few >50 mm). Caprovid remains were identified amonst the bones, and the unidentified fraction included a number of medium-sized mammal vertebrae. A chicken humerus was also identified. Fish remains were present and included fragments identified as haddock, other members of the gadid family and a single ?plaice vertebra. Some of the fish vertebrae represented larger individuals.

A small hand-collected assemblage, amounting to 49 fragments was also recovered from this deposit, mostly appearing domestic in nature. Although few bones were recovered, there were a number of chicken bones, with single fragments of goose and duck, and these remains tend to reflect the presence of kitchen refuse or table waste. The unidentified component was composed mainly of large and medium-sized mammal rib, shaft and vertebra fragments, again possibly the waste from meals rather than butchery refuse.

Context 216 (possible 'rakings' from hearth 90)

Sample 38/T (5 kg): just moist, mid grey-brown (with a golden cast), brittle (working crumbly, and soft when wet), clay sand. Modern algae, brick/tile, very fine fragments of chalk (less than 2 mm), charcoal and fragments of marine mollusc were present in the sample.

This subsample gave a large residue of about 1100 cm^3, of which about 800 cm^3 comprised a heavy residue, a few cm^3 being taken off as a 'light' washover. The denser washover material consisted of coal and bone (especially fish) with some cinders; the residue was mainly sand with a little brick/tile. The rather large flot was of herbaceous detritus (which proved to be modern roots) with occasional poorly preserved seeds or seed fragments; the light washover was much the same material. Identified remains included a single poorly preserved greater celandine seed and a small range of other plant taxa of no particular interpretative value; invertebrates were limited to two mites.

A large accumulation of bone, mainly fish, was recovered from this sample. The material was reasonably well preserved, although some fragments were rather battered in appearance. A high degree of fragmentation was noted, with no bones being >35 mm in largest dimension. A total of 517 fragments were counted, of which 253 were identified. Fish remains were numerous and included a range of marine and estuarine species. Herring, eel and rockling (?four- or five-bearded) made up the bulk of the assemblage, with sprat and flatfish, including Dover sole, plaice, ?plaice/flounder and long rough dab, also providing a substantial proportion of the fragments. Scutes and spines of stickleback were recorded, along with small quantities of gadid (including whiting and ?cod) fragments. As with material from previous samples, vertebrae were the most commonly occurring element. Other elements, mainly representing the oromandibular region of the skeleton, were also present but in far

smaller numbers. Unidentified fish bones included numerous small fragments of finrays, rib and other broken elements. Additionally, only a caprovid phalange and a magpie tibiotarsus could be identified, although the unidentified fraction contained several bird phalanges.

A small assemblage of hand-collected remains was also recorded from this deposit. Of the 131 fragments recovered, 43 were identified, including seven ling vertebrae. The major domesticates—cattle, caprovids and pigs—were all represented, along with a few goose and fowl bones. A possible fallow deer astragalus was also noted. The hand-collected assemblage was fairly fragmented, but still included fragments of up to 200 mm.

Sample 394053/BS (28 kg; Samples 39, 40 and 53 amalgamated): sediment descriptions as for Sample 38.

There was a large residue of about 4250 cm^3 of sand and grit with some brick/tile (to 60 mm), mortar (to 25 mm), cinder (to 10 mm), bone (including fish to 30 mm), marine shell fragments (of oyster, cockle, mussel and periwinkle, to 30 mm), and a very large washover of about 4300 cm^3 of cinder, 'char', and charcoal, with a few modern root fragments. Few plant remains were recorded, though greater celandine was again present, along with two charred pea cotyledons (seed leaves). There were traces of amorphous ?peat and ?burnt peat, perhaps indicating material used for fuel, whilst the presence of at least one duckweed (*Lemna*) seed and a single Characeae oogonium may indicate the incorporation of imported fresh water.

Amalgamated samples, 39, 40 and 53 produced another large assemblage of vertebrate remains amounting to 502 fragments, of which 209 could be identified. Fish again dominated the assemblage, with a similar range of species to those identified from Sample 38. Additional species present included haddock, smelt and ?bib. Remains of the different flatfish were most numerous, although herring bones were present in some quantity. Skeletal element representation showed a comparable pattern to the previous sample. Mammal fragments included 'medium-sized' shaft and rib, with a few fragments >50 mm.

Context 230 (floor silts; east room (b) of building 536)

Sample 575859/BS (21.2 kg, Sample 57, 58 and 59 amalgamated): just moist, mid brown to dark grey-brown, crumbly, ashy silt with traces of rotted marine shell.

This large sample was sieved to 300 µm. It gave a very large residue of about 5700 cm^3 of sand with brick/tile, cinder, coal and fish bone and traces of pottery and marine shell, but no identifiable plant and invertebrate remains.

Substantial quantities of bone, amounting to 785 fragments, were recovered from the three combined samples taken from this floor silt. Preservation of the bones was recorded as good, with most fragments being <50 mm in size. All of the 434 identified fragments, except two (a pig incisor and a wren humerus) represented fish remains. Marine and estuarine fish, including herring, a range of Gadidae (cod, whiting, haddock and rockling) and various different flatfish species (sole, plaice and flounder) formed the largest component of the assemblage. Remains of stickleback and a single fragment of sand goby were also identified. Few freshwater species were noted. As previously observed from other samples, most of the fish remains appeared to represent small individuals. A number of fragments representing plaice and flounder, with overall body lengths of approximately 100-120 mm, were recorded. Additionally, a whiting articular represented an individual of approximately 150 mm in length.

Overall, parts of the skeleton representing the body of the fish (vertebrae and pectoral girdle fragments) predominated, constituting 85% of the identified remains. This suggests that the assemblage is more likely to represent table waste, with a small component of kitchen refuse from the removal of the fish heads prior to cooking. However, approximately 100 unidentified fish fragments, including many ribs, finrays and other damaged and broken elements (including those representing the cranial regions of the skeleton) were recorded. Numerous unidentified mammal and bird fragments (to 50 mm but most >25 mm) were noted, most of which were rather battered and fragmented.

Hand-collected vertebrate material amounted to 53 fragments, of which 11 were identified to species. Caprovid, pig and chicken remains were present, along with a single gadid fragment. The unidentified component was composed mainly of large and medium-sized mammal rib and shaft fragments. Bird and fish bones were also noted. Most fragments (excluding fish) were 50-140 mm in size.

Context 251 (floor silts; east room (b) of building 536)

Sample 68/BS (6 kg): just moist, mid brown to dark grey-brown, crumbly, ashy silt with traces of rotted marine shell.

The large residue of about 1000 cm^3 was chiefly of sand and grit, with some coal, cinder, brick/tile, fish bone, and a few fragments of cockle and mussel shell, with about another 1100 cm^3 of washover of fine coal and cinder. A 'light' washover from the latter proved to be mainly fine (<2 mm), granular, very humified organic material, perhaps very decayed peat. There were also a few very decayed seeds, including greater celandine, and charred cereals (barley, bread/club wheat) in tiny numbers.

This sample produced another assemblage of bones very similar in content to those from the earlier floor silts in building 5002. Of the 332 fragments recovered, 115 were identified and, with the exception of one duck bone, all were fish. Herring bones were most prevalent, but the remains of sprat, flounder, plaice, smelt, stickleback and a number of gadids were also present. A single pike vertebra was also identified from this deposit. Skeletal representation again showed the predominance of vertebrae within the assemblage. However, some other elements were recorded, albeit in far smaller quantities. A further 200 fish fragments were recorded in the unidentified fraction, most of which were small and fragmented bits of vertebra, rib, finray and a

few cranium fragments. Some fish scales were also present.

The small hand-collected assemblage also recovered consisted of nine identified and 35 unidentified fragments, representing remains of the major domesticates, cattle, caprovids and pigs.

Vertebrate remains from this deposit mostly indicate the presence of domestic or kitchen refuse, with the larger mammal remains possibly implying a small component of butchery waste.

Context 273 (fill of pit 274)

Sample 77/T (2 kg; assessment only): just moist, mid gingery grey-brown, crumbly, ashy silt with some shell fragments.

The small residue of about 250 cm^3 was mostly sand, with traces of gravel, coal, brick/tile, mortar, bone and cockle shell fragments. The small flot was mostly charcoal, with charred seeds and cereal grains and a little waterlogged plant detritus, including modern root fragments. There appeared to be no ancient invertebrates present, those noted (three ants and a ?*Stegobium paniceum* (Linnaeus)) appearing to be modern contaminants.

Context 348 (primary fill of privy 349)

Sample 88/T (2 kg; assessment only): moist, mid to dark greyish-brown, with a slightly olive cast (locally more grey or more brown), crumbly (working plastic), slightly stony silty clay with brick/tile fragments and flecks of ?mortar present.

The smallish residue of about 450 cm^3 consisted largely of glassy concretions (to 20 mm), which could not definitely be identified as faecal in origin, and sand, with traces of cinders, bird and fish bone, coal, brick/tile and mortar. The small amount of bone (23 fragments, weighing 1.3 g) recovered from the residue included a wader tibiotarsus (similar in size and morphology to a jack snipe (*Lymnocryptes minimus*), a ?amphibian pectoral girdle fragment, and a juvenile small mammal tibia. Single herring and ?cyprinid vertebrae were also recovered, together with 12 unidentified fish and six unidentified mammal fragments.

A very small flot was recovered, consisting of charcoal and cinder (to 10 mm), a trace of charred seed, an elder seed, and four fly puparia (the last being orange-yellow in colour and thus having endured poor preservational conditions). No other invertebrates were present.

Context 2316 (gravel and silt in between cobbles of 2285 and 2307)

Sample 6263/BS (16 kg, Samples 62 and 63 amalgamated; assessment only): just moist, very heterogeneous, mid grey-brown, crumbly (working plastic), silty clay. Small and medium-sized stones (6 to 60 mm), pot and marine mollusc shell were present, mammal bone was common, and brick/tile fragments were abundant in the sample

There was a very large residue of about 10,000 cm^3 consisting mainly of brick/tile (to 50 mm) with some bone (to 60 mm) and sand, four periwinkles (*Littorina littorea*) and traces of mussel, oyster and cockle shell, cinders, coal, and gravel. It yielded 52 vertebrate fragments identified to species or species group (weighing 152.5 g), together with numerous unidentified fish, bird and mammal remains (weighing 255.2 g). The preservation of the vertebrate remains was variable (mostly fair), with variability also in colour (mostly light brown, few dark brown and ginger) and angularity (appearance of broken surfaces: some spiky, some battered). The identified mammal remains included caprovids (11 fragments), cow (6), pig (2), and cat (1). A single bird bone was identified as goose (*Anser* sp.), with 22 unidentified bird fragments. Fish remains included 13 gadid, three pleuronectid, one eel and three herring vertebrae. Eleven other fish vertebrae were recovered, together with numerous unidentified fish fragments.

Context 2353 (floor silts east of wall 2345)

Sample 11/T (2 kg; assessment only): moist, mid to dark brown, crumbly and layered (in places) to unconsolidated (working soft), sandy clay silt with patches of light brown ?rotted mortar, and white patches of ?mineral deposition. Very small stones (2 to 6 mm) and fish bone were present in the sample.

The smallish residue of about 400 cm^3 was composed mainly of sand, cinders and coal with some other occupation debris (brick/tile, fish bone, mortar). The fish bone included a salmonid vertebra which had been chopped transversely. Devoid of invertebrates, the small flot contained a few fragments of plant detritus and moderate numbers of rush seeds, probably mud rush, but mostly comprised charcoal and cinder.

Summary of Phase 4

Like the samples from Phase 3b, these floor silts contained very few plant and invertebrate remains, though with greater celandine recorded from three contexts. This is a plant very typical of habitats close to buildings and often recorded in small amounts from excavations with evidence for medieval and post-medieval structures—indeed, almost all its fossil records are from urban sites of Roman to post-medieval date. Given its various herbal uses in the past, it may well have been introduced into and protected in built-up areas.

Vertebrate remains from the samples of this phase are characterised by quantities of fish representing a diverse range of species. These deposits produced very similar assemblages to those recovered from the earlier floor silts in building 536. Although mammal and bird remains were recorded, particularly from the hand-collected assemblages (where present), fish were the dominant component within the material. Small individuals were again represented, although the remains of slightly larger gadids were noted in the material from occupation layer Context103. It is highly likely that the remains recovered from this phase represent household and domestic refuse. Some evidence for small quantities of butchery waste was indicated by the presence of larger mammal remains, particularly within the assemblage from Context 216.

PHASE 5 (16th century)

No samples from this phase were examined.

PHASE 6 (17th century)

Context 136 (organic waste and ash fill of pit 111)

Sample 4/T (1 kg; assessment only): moist, slightly heterogeneous, dark grey-brown to dark brown, crumbly (working plastic locally), slightly stony humic silt with small patches of light brown gritty clay. Charcoal, ?mortar, wood fragments and mammal bone were present in the sample.

The rather large residue (of about 800 cm^3) consisted largely of decayed wood and herbaceous detritus and other organic material (about 70% by volume). The woody fragments were small and had something of the appearance of debris from woodworking rather than the decay of larger fragments. The herbaceous material had the appearance of grass stems, perhaps straw and/or hay. A few of the identifiable plant taxa recorded were consistent with either of these two latter materials, and there were traces of two plants which may have been utilised in food preparation: ?dill (cf. *Anethum graveolens*) and opium poppy. The mineral component of the residue was largely sand and grit, whilst the large flot was of 'grassy' herbaceous detritus.
The flot consisted mostly of woody plant detritus. A few tens (MNI) of beetles were present, together with a range of other insects, an unidentified snail, and some mites. The beetles were ecologically rather mixed, indicating a predominance of decaying plant matter (*Lathridius minutus* group, with several individuals, and *Anotylus complanatus*, with at least three, were the most numerous). The only other abundant beetle was the woodworm, *Anobium punctatum*, of which there were several, probably from nearby structural timbers. There

were also numerous fly puparia, doubtless of species exploiting decaying matter. Two grain weevils, *Sitophilus granarius*, were noted.

The plant and invertebrate remains in this deposit suggest mixed origins for the material but with a source in human occupation which may have included woodworking and food preparation.

2000 excavations (site code BWH00)

PHASE 1 (first half of 14th century)

Context 288 (organic layer)

Sample 28801/T (5 kg): moist, mid grey-brown (locally orange-brown and black), crumbly (working plastic), clay silt with some white flecks and patches of ?organic material. Modern contaminant moss was also present.

This large subsample produced only a moderate-sized residue of about 550 cm^3 of mainly organic debris, of which about 150 cm^3 was sand, gravel and brick/tile (to 20 mm). The organic fraction was mainly of wood fragments (to 50 mm) and herbaceous debris, the overall texture being somewhat 'flaky' (there were a few wood chips) and 'strawy'. Peat fragments (to 10 mm) were moderately common. As in the more organic deposits from Phase 1 at the BWH98 site, we seem here to be dealing with a litter-rich deposit probably representing, at least in part, something like stable manure. The more abundant plant taxa (Table 2) are certainly consistent with an origin in peat or grassland/cut vegetation, and the values for the various litter components were intermediate between those for the assemblage from Sample 109 from Context 2539 at BWH98 and those for Sample 118 from Context 413 at that site.

Invertebrate remains were abundant; there were 263 individuals of 113 beetle and bug taxa and a range of other forms. Chemical preservation was good, although many remains were fragmentary and this sometimes limited identification.

While a proportion of the taxa may have exploited something like stable manure, their numbers were not large and there was no sign of a classic stable fauna as seen at various other sites (Hall and Kenward 1990; Kenward and Hall 1997). Grain pests were rare, a strong contrast with stable manure at many other sites. Indeed, the indications were that this was predominantly the fauna of open air habitats (over half of the fauna being unlikely to live within a building). A quarter of the outdoor fauna was contributed by aquatics, particularly *Ochthebius dilatatus, O.* ?*marinus, O. minimus* and a *Helophorus* species (there were also some water flea resting eggs). Thus, if this was indeed a surface-deposited layer either (a) it consisted of material dug from waterlain deposits or (b) large amounts of water containing invertebrates were poured onto it, or (c) these invertebrates entered in dung, having been drunk accidentally. The last explanation is perhaps favoured by the record of the bryozoan, *Lophopus crystallinus*, likely to have originated in a long-lived body of fairly clean water. On the other hand, two species that are halophilic contributed a substantial proportion of the aquatics: *Ochthebius dilatatus* (13) and *O.* ?*marinus* (8).

Very foul matter was represented by a range of taxa, among which the dung beetles *Aphodius granarius* and *O.* ?*prodromus*, and *Platystethus arenarius* were notable. These, together with the abundant *Platystethus nitens* and *Anotylus nitidulus*, and the smaller numbers of taxa such as *Anotylus tetracarinatus*, *Carpelimus bilineatus* and *Gyrohypnus fracticornis*, may have lived in very moist putrefying plant remains, perhaps lying on richly organic mud, rather than dung, however. The invertebrates do not rule out the presence of stable manure providing it either remained fairly dry or extremely wet before clearance, or was cleared after a few weeks at most.

The records of weevils of the genera *Sitona* and *Apion* are relevant to the issue of stable manure. There were eight *Sitona lineatus*, one *S. lepidus*, and a third *Sitona* species, and two *Apion* species (two and one individuals, one freshly emerged), all most likely to have originated on vetches or clovers and elsewhere regarded as evidence of hay (e.g. Kenward and Hall 1997). A few other taxa

may have had the same origin, particularly the tortoise beetle *Cassida flaveola*. All of these taxa, and many others in the assemblage, may have lived on plants growing on waste ground, such as on a ditch edge, however. In addition, *Sitona lineatus* is particularly problematic in this part of Hull, being very abundant at the Magistrates' Courts site (Hall *et al.* 2000a).

The interpretation of this assemblage is further complicated by the presence of three human fleas (*Pulex irritans*) and of the sheep ked *Melophagus ovinus* (one adult and one puparium, the former perhaps released from the latter during processing). These may have come from a house floor, but typical house fauna (as defined by Kenward and Hall 1995 and Carrott and Kenward in press) was rare apart from *Lathridius minutus* group, which may have had other origins.

It seems very likely that this deposit is another one containing stable manure or similar litter-rich material, but certainly with some other components.

Sample 288/SPT: The assorted organic 'spot' finds from this deposit consisted of what had been labelled by the excavator as 'wood' (5 samples) and 'wattle' (1). On examination, they proved mostly to consist of small clods of grey- or red-brown-stained or deeply black (euxinic and sulphide-rich) clay silt with fragments of wood of various kinds in them: twig fragments and fragments from working, as well as single larger fragments (a quarter piece of oak, *Quercus*, roundwood) and wood chips. Most of the material was oak, but there was also some 'softwood': silver fir (*Abies alba*), presumably imported at this period, pine (*Pinus*), and yew. One specimen was a large walnut (*Juglans regia*) shell, amounting to about one-quarter of a whole nutshell and extremely well preserved.

Context 294 (organic layers associated with 288 and 287)

Sample 294/SPT: a single unidentified fragment of coarse bark (up to 40 mm in maximum dimension).

PHASE 2 (late 14th-early 15thcentury)

Context 291 (burnt deposit south of brick surface 292)

Sample 29101/T (5 kg): moist, dark grey, crumbly (working slightly plastic and somewhat sticky), ?ashy sandy silt with inclusions of light to mid brown silty clay. Bone and modern moss were present in the sample.

There was a very large residue of about 1700 cm^3, consisting very largely of cinders (to 40 mm), with much sand and some coal (to 50 mm) and fish bone. No identifiable plant or invertebrate remains were detected either in this or in the modest-sized flot.

Vertebrate remains recovered from this sample amounted to 206 fragments, of which 50 were identified to species. Fish bones formed the largest component of the identifiable fragments (46), with herring remains (31) being the most numerous. Flatfish (Pleuronectidae) and sprat vertebrae and single fragments of three-spined stickleback and ?wrasse were also identified. Skeletal element representation for the fish suggests that vertebrae were prevalent and, therefore, the remains could be interpreted as table waste. However, an additional 50 unidentified fragments, mainly of head, rib and finray were recorded, and these might represent the parts of the fish not present amongst the identified bones. Mammal remains were noted in some numbers, but were mainly small (<30 mm) and unidentifiable; some fragments were calcined. No hand-collected vertebrate remains were recovered from this deposit.

A small number of the herring vertebrae showed characteristic (crushing) damage consistent with their having been consumed. This may represent human consumption or alternatively the vertebrae may have been eaten by a dog.

The bone identified as stickleback, a species which is unlikely to have been eaten, may represent the gut contents of a larger fish or may have been caught accidentally during the netting of other species.

PHASE 3 (late 14th to early 15th century)

Context 216 (burnt deposit north of wall 204)

Sample 21601/BS (11 kg): moist, mid to dark grey-brown, crumbly and plastic (locally brittle), ?ashy, sandy clay silt. Modern moss, rotted ?mortar, brick/tile and coal were present in the sample.

This sample was sieved to 300 µm, leaving a large residue of about 2500 cm^3 of cinders (to 30 mm), brick/tile (to 65 mm), chalk (to 65 mm), and sand, with traces of bone and other occupation material. The small washover of about 60 cm^3 was mainly of 'char' and modern moss, with some rush seeds (mud rush and *J. inflexus/effusus/conglomeratus*) and very decayed insect material.

This sample produced 118 well-preserved fragments of bone, of which ten were identified to species. A large proportion of the assemblage consisted of small (<50 mm in size), unidentified mammal remains, whilst 26 fragments could be identified only as 'fish'. The identified component included whiting, herring, eel, possibly halibut, and ?halibut/flounder fragments, together with a few unidentified flatfish vertebrae. Hand-collected remains from this context amounted to three unidentified mammal fragments.

Context 239 (ash layer outside structure 205)

Sample 23901/T (5 kg): moist, dark grey-brown (locally somewhat lighter), crumbly with some internal lamination (working more or less plastic), ?ashy, sandy silty clay (to sandy clay silt). Mortar and modern moss were present in the sample.

The very large residue of about 1750 cm^3 was mainly coal (to 25 mm), and cinder and brick/tile (both to 30 mm), mortar and sand. A tiny 'light' washover from it consisted of 'char', charcoal and further coal and cinder, with some elder seeds. The flot was mainly modern moss and 'char' with more elder; apart from moderately large numbers of earthworm egg capsules (of uncertain date), invertebrates were effectively unrepresented.

The vertebrate material recovered from this sample was well-preserved, although some of the edges of the bones were a little rounded. Most fragments were less than 30 mm in maximum dimension and many were unidentifiable. A few fragments had been burnt. Of the 186 fragments, 22 were identified to species, whilst a further 60 fragments were recorded only as 'fish' and these mainly included rib, finrays and broken vertebra fragments. With the exception of a single ?house mouse femur, the identified remains were all of fish, including whiting, herring, eel and flatfish (flounder and plaice).

Hand-collected vertebrate remains were recovered from this deposit, but were rather scarce, amounting to only five mammal fragments.

PHASE 5 (16th century)

Context 105 (ash fill of feature 109)

Sample 10514/SPT: this spot find was of fragments of coprolite to 25 mm; after washing and drying they were clearly seen to be bone-rich concretions and were probably produced by a dog.

Comments on BWH00 material

The earliest of the deposits investigated was rather richly organic and similar to those from some of the other Phase 1 deposits in the BWH98 area. This suggests an extensive layer or a commonly deposited material. The other deposits examined produced only very small numbers of plant and invertebrate fossils. It is suspected that this is the result of deposition under conditions which allowed rapid decay mainly in what may have

been floors, rather than subsequent in-ground degradation.

Hand-collected shell

Summary information on the hand-collected shell recovered from highly residual contexts (all from the 1998 excavations) is presented in Table 6. The mixed nature of these deposits precluded any investigation of changes in the oyster shell assemblage through time and so no measurements (or records of numbers of measurable valves) were taken. These deposits are not discussed further.

Summary data for the shell from context with low to medium residuality are presented by excavation year in Tables 7 and 8, by phase in Table 9, and by period (grouped phases) in Table 10. Additional measurement information for oyster valves is summarised by phase, period and excavation year in Tables 11-16.

UNPHASED

There were no unphased shell-bearing contexts from the 1998 excavations, whereas approximately one third of the shell-bearing contexts (11 from 32) from the 2000 excavations were unphased.

PHASE 1 (first half of the 14th century)

No shell-bearing contexts from the 1998 excavations were attributed to Phase 1 whereas the 2000 excavations gave eight contexts of this earliest phase. Most of the contexts (seven from eight) were described by the excavator as 'layers', four of which were associated with make-up/levelling or consolidation for road surfaces (116, 203 and 210). The remaining context (502) was the fill of a post-hole.

The remains (with a total weight of 367 g) were mostly of moderately well-preserved oyster (average erosion: 1.3; average fragmentation: 1.9) with a few remains of cockle and mussel. The oyster remains were more or less evenly divided between left and right valves (13 and 14 respectively) but the more robust left valves provided most of the metric data (11 of the 14 measurable valves). One third of the oyster valves showed clear evidence of having been opened by humans in the form of characteristic 'V'- or 'W'-shaped notches in the valve margins caused by a knife (or similar implement). One valve showed traces of damage caused by the burrowing of polychaete worms, but this was the only evidence of damage or encrustation by other marine biota.

There were no terrestrial or freshwater taxa in the assemblage.

PHASE 2 (late 14th to early 15th century)

Only five shell-bearing contexts (three from the 1998 excavations and two from the 2000 excavations) were attributed to this phase, yielding a total of 328 g of material. Three of the five contexts were interpreted as floors: one (359) was the fill of a pit, and one was a layer.

The remains of ten common whelks (Context 359, 1998 excavations) formed a significant part of this assemblage, the remainder being mostly well-preserved (average erosion: 1.4; average fragmentation: 1.4) oyster shell with a few cockle valves. Most of the oyster valves for which 'side' could be determined (15 of the 17 valves) were measurable (six from ten of the left valves and all five of the right valves) and 'knife' marks were recorded from just under one third (five valves). The only evidence of damage to the oysters by other marine biota was some burrowing by polychaete worms on one valve from Context 359.

There were no terrestrial or freshwater taxa in the assemblage.

PHASE 3 (15th century)

Eighteen shell-bearing contexts were attributed to Phase 3, of which 14 were from the 1998 excavations and the remainder from the works undertaken in 2000; they yielded a total of 2166 g of shell. One context from the 2000 excavations (235) was a fill of a construction/robber cut, the others being 'layers'. Four of the deposits from the 1998 excavations were interpreted as floors, two as occupation/domestic debris, two as pit fills (from pits 299 and 301, with an associated capping layer of clay—Context 310), and one was a dump of oyster shell in road 255/256. Two further layer deposits, a drain (2109) fill, and a fill of a ?soakaway (2396) also gave some hand-collected shell.

The assemblage was dominated by remains of oyster with some other edible shellfish remains (236 cockle valves, 15 common whelks, and the remains of three mussels). Preservation of the remains was generally good (average erosion: 1.4; average fragmentation: 1.3) with only four of the 151 oyster valves recovered being of indeterminate side and approximately two-thirds of the 'sided' valves (70 left valves and 77 right valves) being measurable. Forty-three percent of the oyster valves showed clear evidence of having been opened and presumably eaten by humans. One oyster valve showed traces of burrowing by polychaete worms but this was the only evidence of damage by other marine biota. A single fragment of edible crab claw was also recovered from Context 360.

Terrestrial taxa were represented by the remains of two *Helix aspersa* from Context 2102 (1998 excavations).

PHASE 3B (early to mid 15th century)

Only one context (2287, floor silts in building 5001 from the 1998 excavation) from this Phase gave any hand-collected shell, the remains amounting to one 'knife-marked' left oyster valve, three cockle valves, a fragment of ?dog whelk, and fragments of a single mussel.

No remains of terrestrial taxa were recovered.

PHASE 4 (late 15th-16th century)

Phase 4 gave a total of 24 shell-bearing contexts (23 from the 1998 excavations), the largest number from any one phase, as well as the highest numbers of individual remains and the greatest total weight (2896 g) of hand-collected material. Almost half of the deposits excavated in 1998 from this Phase were associated with building 536 (four floor deposits, a dump, two layers, and three deposits associated with hearth 90). Three deposits were associated with another hearth (229), two with ovens (200 and 268), six were pit or gully fills, and one (348), was the primary fill of a privy. The single shell-bearing context from the 2000 excavations was a fill of construction trench 231.

Large numbers of remains were recovered, including cockle (331, mostly from four contexts (Context 286—163 valves; Context 216—63 valves; Context 103—42 valves; Context 251—26 valves) and oyster valves (199, 95 left valves, 96 right valves and eight for which side could not be determined). Other marine taxa were represented by only a very few remains (two common whelk, one red whelk and one mussel). Preservation was not quite so good as that seen in earlier phases (average erosion: 2.1; average fragmentation: 2.0) but just over half of the oyster valves were sufficiently well-preserved to provide at least some measurements. Approximately 45% of the oyster valves showed characteristic damage indicating that they had been opened by humans and, once again, only trace levels of damage by other marine biota were recorded in the form of polychaete worm burrowing on five valves.

No remains of terrestrial taxa were recovered from this phase.

PHASE 5 (16th century)

Thirteen shell-bearing contexts were attributed to Phase 5 (11 from the 1998 excavation and two from the 2000 excavation), yielding a total of 1030 g of remains. Both of the contexts from the 2000 excavations were fills of pit 109. The

deposits from the 2000 excavations were mostly described as 'layers' (seven contexts) two of which were floor silts, the remainder being from cut features including one pit fill (Context 66, fill of rubbish pit 67).

The vast majority of the remains were of oyster (89 valves; 41 left, 43 right and 5 for which side could not be determined), with some remains of other edible marine taxa (16 cockle valves, 3 mussels and a single common whelk). Preservation was similar to that observed in Phase 4 (average erosion: 2.0; average fragmentation: 2.1) with just over half of the oyster valves providing some metric data but rather less (approximately one third) showing clear evidence of having been opened by humans. Again, only traces of damage by other marine biota were recorded (polychaete worm burrowing was evident on two oyster valves).

Remains of at least 84 land snails, all *H. aspersa*, were also recorded. These were mostly concentrated in Context 2194 (74 individuals) from the 1998 excavations.

PHASE 6 (17th century)

There were 20 shell-bearing contexts from Phase 6 (all from the 1998 excavation) which gave a total of 1191 g of remains. Twelve of the deposits were pit fills (in pits 74, 111, 138, and 2107), with one robber trench fill (2189) and the remainder mostly levelling/bedding/foundation layers. A single floor surface (Context 2182) was also identified.

Erosion and fragmentation of the remains were both moderate (average erosion: 1.9; average fragmentation: 2.0). Oyster remains formed the major component of the assemblage with a total of 70 valves (37 left, 28 right, and five of indeterminate side) recorded with some other marine taxa present in small numbers (six cockle valves, the remains of seven mussels, and a single red whelk).

Nine *H. aspersa* were recovered from four contexts (115, 121, 136, and 137).

PHASE 7 (18th century)

Only two well-preserved (average erosion: 1.0; average fragmentation: 1.5) left oyster valves (total weight 35 g) were recovered, one from each of two contexts (2065 and 2129), both from the 1998 excavation. Both of the valves were measurable and neither showed any damage caused by opening or other marine organisms. The two shell-bearing deposits were interpreted as a bedding layer (Context 2065) and a pit fill (Context 2129, sealing pit 2128).

PHASE 8 (19th and 20th century)

Four contexts from the 2000 excavation were attributed to this phase. Two of the contexts (101 and 108) were levelling layers below a layer of concrete and two were from cut features—Context 207, a fill of sewer trench 206, and Context 107, a fill of pipe cut 120.

Most of the remains were of oyster (three left and four right valves), with a single mussel also represented. Two of the right and two of the left valves were measurable, and three of the valves showed damage consistent with having been opened by humans. No remains of other taxa were recovered.

Hand-collected vertebrate remains

A total of 33 boxes (each box approximately 16 litres) of animal bone, recovered from a range of features excavated during 1997, 1998 and 2000, was available for study. Eight phases were identified and linked across the whole site (including excavations carried out in different years), which dated the material from the 14th century through to the early modern period (Table 17).

An assessment of the vertebrate remains (Johnstone *et al.* 1999) highlighted the preservational variability of the material from most deposits and throughout the periods represented. Neither phase nor context type

appeared to reflect the differences in preservation, with the overall implication that the vertebrate assemblage included redeposited or residual material in varying amounts. The assessment concluded that whilst the material showed some potential "... however, with the possibility that redeposited/residual material is present, further work on the pottery and other finds may be necessary to address the problems of residuality and to provide a more secure dating framework This would need to be undertaken prior to further work on the vertebrate remains." (Johnstone *et al.* 1999).
Subsequent work on the pottery and stratigraphy has enabled the excavators to construct a scale for the degree of residuality expected within each deposit, using three categories. These were defined as outlined below: high—redeposited material which could have been imported onto site from anywhere in Hull; modern intrusions; wide date-range of pottery; deposit appeared churned up or trampled; medium—secondary deposits such as pitfill or hearth rakings; low—*in situ* deposits, mainly floor silts.

Not surprisingly for an urban site, a large number of the deposits proved to have a high residual content and for the purposes of this report the vertebrate remains from these deposits have been excluded. Additionally, bones from the early modern periods, Phases 7 and 8, were omitted. Material from contexts that were categorised as 'low' or 'medium' were recorded in detail (as outlined below). In total, vertebrate remains from 142 deposits were recorded, representing phases 1 to 6. This has produced only very limited datasets which are not able to address to any great extent the original objectives suggested by the assessment.

Species representation and relative abundance

Table 18 shows the range of species represented throughout the phase groups. Whilst small quantities of bird and fish remains were present, the hand-collected assemblages are clearly dominated by the major domestic species (cattle, caprovids and pigs).

PHASES 1-3 (first half of the 14th to 15th century)

Recorded vertebrate remains from Phases 1 and 2 provided very few data. As a result of this, data from the early phases (1-3), dating to the late medieval period (see Table 18), were amalgamated.

In total, deposits from these three phases produced an assemblage amounting to 623 fragments, of which 201 were identified to species or family group. Of the 58 bone-producing contexts, many, particularly those from Phase 3, were floor silts, with occupation layers, pitfills and post-holes also being represented. Over half (56%) of the assemblage was recovered from two pit fills (Contexts 298 and 359) and a domestic debris layer (Context 360) from the 1998 excavations.

When considering only the major domestic species, cattle remains formed 57% of the assemblage (Figures 11 and 12). Few other species were recovered, but included several dog and cat bones. Birds were represented by both chicken and goose remains and single fragments of ?mallard and ?jack snipe were identified. A small number of gadid bones and a cyprinid dentary were also recorded. Context 377 (domestic debris layer) produced a possible human bone fragment.

The unidentified fraction was dominated by large mammal remains, rib and shaft fragments being particularly numerous, further augmenting the significance of cattle in the diet.

PHASE 4 (late 15th-16th century)

The vertebrate assemblage recovered from deposits of this date amounted to 613 fragments, of which 178 were identified. A range of deposits produced bone, including pit fills, floor silts and a number of layers associated with hearths. Five contexts (103, 216, 230, 251 and 286) produced much (61%) of the vertebrate assemblage, with 131 of the fragments recovered from 'possible 'rakings' from hearth 90' (Context 216). Sediment samples taken from this last deposit contained high concentrations of mainly well-preserved fish

bone. This was also a characteristic of sample material from Contexts 230 and 251.

As with the previous phase, the major domesticates (cattle, caprovids and pigs) were the most commonly occurring taxa, with chicken remains also providing significant numbers of fragments (Table 18). The proportion of caprovid remains increased considerably from the earlier period, rising from 22% to 41% of the main domestic mammals, whilst pig remains decreased to 12% (Figure 11).

A single dog bone was identified, whilst a ?fallow deer astragalus was the only wild mammal fragment present. A small number of goose remains were identified, but it was impossible to determine whether they represented wild or domestic individuals. Morphologically, the bones of the various species of geese are very similar and the overlap in size renders confident (conclusive) identifications almost impossible.

PHASE 5 (16th century)

A vertebrate assemblage of similar size to that from Phase 4 was produced from the Phase 5 deposits. Bones were recovered from a range of context types, including trench, pit, and hollow fills, although a single pit fill (Context 66) and the fill of a 'tank' (Context 2194) yielded approximately a third of the assemblage from this phase.

Bird remains were scarce, as in the earlier phases, and small numbers of fish bones, mainly representing gadids, were identified. When comparing the proportions of the three main domestic mammals, it is apparent that caprovids again increase in frequency, accounting for 54% of the assemblage (Figure 11). This is a change from the earlier periods, where cattle were prevalent. Pigs are less abundantly represented than either of the previous phase groups, decreasing their frequency to just 4% of the assemblage. MNI counts increase the significance of caprovid remains in this period, with a corresponding fall in the importance of cattle (Figure 12).

PHASE 6 (17th century)

Hand-collected material was recovered from 27 deposits dated to this phase. Pit fills produced the largest quantities of bone, with over 80% of the assemblage being retrieved from the fills of pits 74, 111, 138 and 2107.

A total of 794 fragments were recorded, of which 236 were identified to species or family group. As with the material from the earlier phases, the major domesticates dominated the assemblage, with some chicken and geese remains also being recorded. A small number of larger fish fragments representing ling and gadids were present. Frequencies for the major domesticates, calculated by using the basic fragment counts, show an almost identical picture to Phase 5, with caprovid remains predominant (Figure 11). Estimations of MNI increase the importance of pig within the assemblage from 3% (as suggested by NISP) to 17%. Corresponding decreases were estimated for cattle and caprovids (Figure 12).

The deposits appeared to contain a range of elements for both cattle and caprovids, and although non-meat-bearing bones (lower limb and isolated teeth in particular), probably representing butchery waste, were most prevalent, meat-bearing elements (such as humeri and radii) and other remains (such as those of geese, chickens and ducks), suggesting domestic/household refuse, were also present. Part of the lower front leg of a dog was identified from Context 70 (pit 74). These bones represented a medium-sized dog, probably similar in stature (height) to a modern collie. Shallow chop marks were recorded on the ulna and radius, which may indicate the dog had been skinned. Whatever the initial function of these pits, they proved to be very useful for the disposal of general rubbish from a variety of activities.

Skeletal element representation

Initial observations, undertaken during the assessment (Johnstone *et al*. 1999) of body part representation suggested that skeletal elements for caprovid, cattle and pig were present in proportions that reflected the whole animal. Most urban archaeological assemblages, not unexpectedly, tend to include a variety of rubbish, representing primary and secondary butchery waste, and domestic household refuse, as well as waste from craft and industrial activities—in general, reflecting a myriad of human activities. It was hoped that further analysis would provide clearer information regarding specific activities; unfortunately, mixed deposits and the presence of quantities of residual material has somewhat limited such analysis. Some observations on the data have been made, however.

Examination of the skeletal element representation for cattle shows that for most phases non-meat-bearing elements are prevalent. From the NISP counts (Table 22), the earliest material (Phases 1-3) is clearly dominated by mandible fragments and isolated teeth, followed by metatarsals and phalanges. A similar trend for the later phases is also apparent, although cattle remains from Phase 6 show a slight increase in the proportion of meat-bearing elements compared with non-meat-bearing bones. With the exception of the earliest material, MNI counts (Table 23) reduce the significance of mandibles in the assemblage, but still show for Phases 4 and 5 that lower limb elements predominate. Phase 6 MNI counts increase the proportion of major meat-bearing elements to 50% of the cattle remains.

Tables 24 and 25 show the element ranges and fragment and MNI counts for caprovids from all phases. Numbers of fragments for the early phases (1-3) are limited but suggest that this assemblage is dominated by head fragments, minor meat-bearing elements (e.g. tibiae) and metapodials. Fragment counts for Phases 4 and 5 show an increase in the proportion of distal limb elements, particularly metapodials, whilst, in contrast, major meat-bearing elements (scapulae, humeri and radii) are significantly more common in Phase 6, forming 44% of that assemblage. This pattern can also be clearly observed from the MNI estimations in Table 25.

Pig remains were few in number and no clear patterns of concerning body part representation were discernible.

The 'unidentified' fraction from Phases 1-3 was mainly composed of large and medium-sized mammal rib and shaft fragments, with a smaller component of vertebrae. These fragments may represent additional meat-bearing elements absent from the identified remains. Later phases showed a similar picture, with the Phase 6 material including a greater proportion of both large and medium-sized mammal skull fragments.

Age-at-death

The small numbers of mandibles with teeth *in situ* for cattle, caprovid and pig preclude any detailed analysis of the age-at-death profiles as reconstructed from mandibular tooth wear patterns.

Less than half of the 20 cattle mandibles from which mandibular tooth eruption and occlusal wear were recorded could be assigned to an age category. The data suggest that in all phases most mandibles could be assigned to the general age categories of adult or elderly (as suggested by O'Connor 1988) and that most cattle reached maturity before being slaughtered. Only a single mandible from Phase 2 was categorised as subadult. Additional data supplied by a small number of isolated teeth also indicated the presence of both adult and elderly individuals.

Fusion data, although again rather limited, show a somewhat different picture to that drawn from the teeth. For most phases, epiphysial fusion data show that 45-60% of intermediate fusing elements remained unfused, suggesting a higher proportion of individuals being slaughtered prior to maturity, a phenomenon which was not observed in the tooth wear data. Twenty-seven percent of early-fusing elements from cattle bones of Phase 6 date were also unfused, indicating that some calves were being killed in their first year. This pattern, too, seems to be absent from the mandibular tooth row data. A higher proportion of juvenile and immature individuals is not unexpected from the later post-medieval period (Phase 6) as this trend has been observed elsewhere at this time. A marked increase in young cattle was noted from the 16th century onwards at Exeter (Maltby 1979), whilst assemblages from York (O'Connor 1993) and other sites, such as Launceston Castle, Cornwall (Albarella and Davis 1996), also show a preponderance of juvenile individuals during this period. It has been suggested (Albarella and Davis 1996; Dobney *et al.* 1996) that during the post-medieval period there was a general trend away from cattle being used primarily as multi-purpose beasts towards a more intensive husbandry regime centred on beef, veal and dairying.

Tooth wear stages for caprovids reflect a similar pattern to that seen for cattle, with most mandibles being from adult individuals. Age groups, suggested by Payne (1973), place most mandibles in categories E (2-3 years) and F (3-4 years), with two which could represent older individuals of 4-8 years. One subadult individual is represented in the Phase 3 assemblage. Isolated teeth recovered from Phases 4 and 5 indicated a comparable age profile.

Data regarding epiphysial fusion for the earliest phases were rather scarce, but largely supported the age distribution seen from the mandibles, which indicated that most of the individuals from this period were approximately 3 years or over when slaughtered. Numbers were slightly higher for Phase 5, but the pattern remains generally the same, although 27% of late fusing elements were unfused. Phase 6 fusion data show a completely different picture, with 50% of individuals killed before intermediate 1 stage (1-2 years). This greater emphasis on younger animals in the later post-medieval period was also noted for caprovids in the vertebrate assemblage of this period from Lincoln (Dobney *et al.* 1996).

Both mandible wear stage and epiphysial fusion data were extremely limited for pigs for all phases. The few mandibles and isolated teeth recovered represented both adult and immature individuals. Most early-fusing elements were fused and it appears that many individuals were killed between 1 and 2 years.

Biometry

Once split by element and phase, there were insufficient cattle fragments for biometrical analysis. Two withers heights were estimated using the greatest length measurement from metatarsals from Phase 6. These produced heights of 1159 and 1221 mm. Compared with a mean height of 1236.1 mm estimated from cattle remains from post-medieval deposits at Lincoln (Dobney *et al.* 1996), the bones represent small individuals for the period (17th century). Their size is more akin to that of medieval cattle as evinced at Lincoln (mean height 1129.8) or from Coppergate, York (Bond and O'Connor 1999), where the mean reconstructed withers height was 1130 mm (Anglo-Scandinavian) and 1107 mm (medieval).

The caprovid biometrical dataset was also limited, but included measurements from a number of metapodials, mainly recovered from deposits of Phases 5 and 6. These phases cover a time period when many agricultural changes, including the improvement of stock, were being undertaken. At other sites (Albarella and Davis 1996), biometrical data have been used to provide evidence of increases in the size of livestock at various periods. Figure 13 shows data from the Blanket Row metacarpals compared with 16th century data from North Bridge, Doncaster (Carrott *et al.* 1997b) and from Lincoln (Dobney *et al.* 1996). It can be seen that, whilst there is some overlap between the data from Doncaster and those from Blanket Row, a large proportion of proximal breadth and depth measurements of metacarpals from Lincoln are well outside the range of the values from the other two sites. These larger sheep from Lincoln have tentatively been interpreted as early evidence for stock improvement and perhaps for the introduction of a new breed from elsewhere (Dobney *et al.* 1996). The small size of the individuals from Blanket Row, however, suggests that the sheep in Hull at this period were still unimproved varieties.

Material surveyed by O'Connor (1995) of univariate data from contemporaneous sites in the region suggests that, with the exception of Lincoln, the presence of small unimproved sheep continued until the early modern period (Table 26). Mean withers heights for caprovid material from these sites (Table 27) also appears to confirm this hypothesis.

Pig biometrical data were too limited for any interpretation to be made. All the measurements can be found in the archive.

Discussion

Sediment samples

Assessment proved that preservation by waterlogging was limited to a few contexts, so these were main target of study of plant and insect remains. Vertebrate remains were sought in a much wider range of samples. Examination of plant remains in those samples intended primarily for recovery of small bones has proved useful in indicating the frequency with which floors contained rush seeds, usually the mud rush (*Juncus gerardi*), together with abundant, well-preserved, small fish bones. These assemblages are very reminiscent of some (but not all) from the floor deposits of medieval date examined at the nearby Magistrates' Courts site (Hall *et al.* 2000a).

The few richly organic deposits seemed to be full of litter of various kinds, mainly wood chips, peat, straw, hay, and so on, with just a background of food (probably casual waste from occupation, not primary storage or disposal of waste). It is possible that these may all have been 'processed' by or through animals if these are stable manure deposits.

There are certainly some similarities with the results from studies of the nearby Magistrates' Courts and Sewer Lane sites (Hall *et al.* 2000a; Williams 1977). The presence of peat through much of the earlier, Phase 1, deposits at the former site (and reworked through many of the Phase 2 deposits there) resonates with the evidence from Blanket Row, for example. At Sewer Lane, many of the deposits contained concentrations of remains of grassland taxa which, whilst not interpreted in terms of hay or stable manure by the original author, seem, with

hindsight, very likely to be further examples of this kind of material. The evidence for brackish water remains at both the present site and that at the Magistrates' Courts site is also noteworthy.

The record of the water beetle *Limnoxenus niger* from Phase 1 (Context 413) deserves further comment. This beetle is described by Balfour-Browne (1958) as southerly in the British Isles, its main range being south of the Wash to Bristol Channel line, with very rare outliers in Lincolnshire and Lancashire. Similarly, Hansen (1987) suggests that it is climatically limited in Scandinavia and thermophilic. This record is in accordance with an accumulating body of evidence from insect remains for climate change over the past 2000 years (Kenward 2001). In this respect, the records of *Platystethus* ?*degener* and *P. nitens* may be mentioned as contributing to an emerging pattern of abundance in the north of these little beetles, which today appear to be only common further south (*ibid.*).

The general rarity of grain pests at Blanket Row is notable: only one sample produced more than one or two. Almost all of the records were of *Sitophilus granarius*, the grain weevil, with rare specimens of *Oryzaephilus surinamensis*. This is in accord with a general pattern of changing relative abundance of the various grain pests, and the general tendency for *S. granarius* to become progressively dominant through the medieval period, probably as a result of better grain cleaning and storage. The overall rarity of these beetles may be a result of poorly-stored cereals not having been used as horse feed at this site; such low-grade cereals are postulated to have been a major source of these pests elsewhere. Records of the weevil *Sitona lineatus* may offer a clue as to an alternative feedstuff: this weevil may have been introduced with 'horse beans'. Although it is stated that these weevils feed on the root nodules of papilionaceous plants (e.g. Morris 1997), the adults are often carried along with collected pods and large numbers may find their way into modern houses as a result. In the past they may have arrived with pulses used for human or animal feed. The possible sources of this weevil, which was abundant at the nearby Magistrates' Courts site and frequent and sometimes abundant at the present one, are discussed in detail by Hall *et al.* (2000a).

The land snails recovered from the samples were too few to be of any interpretative value.

Hand-collected shell

Of the 282 contexts yielding hand-collected shell remains, 177 were determined to have a high residual content and, as such, were of no value in the investigation of patterns of disposal of the material or of any changes in the character of the assemblage through time. Additionally, eleven of the low to medium residuality contexts from the 2000 excavations were unphased and so also of no intepretative value. In all, 32% of the recovered shell (by weight) representing 34% of the contexts was used in the analysis and percentages given in the following text refer to this component of the assemblage.

Some distortion of the oyster valves, and occasional fusing of valves of different individuals, was noted during the assessment of the 1998 material (Johnstone *et al*. 1999), possibly caused by over-crowding. Fusing of valves was recorded from only two of the phased, low to medium residuality contexts (BWH98 Context 385 Phase 3, and BWH00 Context 105 Phase 5) and a morphological study of the distortion of the valves was considered to be beyond the scope of this report—also, in the light of the large number of highly residual contexts (identified post-asessment), it is likely that very little well-provenanced material would have been available for such a study. This aspect of the assemblage has not been considered further.

Further investigation of the shell assemblage has been undertaken by period groups defined as follows: medieval—Phases 1 through 3b; late medieval to early post-medieval—Phase 4; post-medieval—Phases 5 and 6; modern—Phases 7 and 8. The later (modern, 18th-20th century) material and remains recovered from unphased deposits are not discussed in detail but are included in the summary tables and figures.

The vast majority of the recovered remains were of oyster with a few other marine species present including cockle (occasionally in fairly large numbers), mussel, common whelk , edible crab and red whelk. All but the last of these are edible species, this, and the evidence of the oyster valves having been opened by humans (41% of the valves showing characteristic 'V'- or 'W'-shaped notches in their margins), indicating that these remains are primarily food waste. This percentage almost certainly indicates a minimum value as post-depositional erosion and fragmentation of the shell is likely to have destroyed opening marks on some of the remains.

Average oyster valve sizes remained fairly constant through the three main period groups (Figure 10). Although occasional significantly larger valves were recovered, this general consistency in the size of the remains suggests that the oysters were from farmed rather than natural populations. Moreover, the distortion and whole or partial fusion of the valves of some of the recovered oyster shell, the lack of epibionts, and the (subjectively) small average size of the oyster remains, suggest a poor environment or perhaps over-exploitation of this resource. From current evidence, the oysters could only have been imported to the site from the Kent, Essex or Suffolk coasts or the Firth of Clyde (Winder 1992 and pers. comm.). However, Kenward (1998) has speculated that exploitation of local (but as yet unlocated) oyster beds may well have been more widespread along the east coast of England. Certain organisms (e.g. *Polydora* spp.) which infest oysters have known preferred habitats (which might help to identify the source of the oysters) but evidence of the damage caused by these biota was markedly lacking in the present material.

It seems likely that all of the remains of other edible marine taxa were also derived from human food waste—the extremely small number of non-edible species having been collected accidentally— and all of these taxa are common off the coast of north-eastern England today. However, that so few edible shellfish, other than oysters (and with the exception of occasional concentrations of cockles in deposits from the medieval and medieval-early post-medieval periods), are represented suggests that any locally available seafood resources were not systematically exploited.

The assemblage recovered during the 2000 excavations was rather curiously distributed between the phases of the site, most of the shell-bearing contexts being from the earliest phase, rather fewer from Phases 2 through 5 (none from Phases 6 and 7), and with a reappearance in Phase 8 (Figure 1). This is, perhaps, a reflection of the nature of the excavation (in response to the collapse of the modern sewer) in that earlier deposits than had previously been encountered became accessible, and the overlying deposits had already been excavated during the previous intervention.

Examination of the numbers of contexts in which sell was found, and weights of recovered remains by context type, shows that most of the shell-bearing deposits were of one of three types: floors (15 contexts); layers (22 contexts); or pits (22 contexts). The remaining shell-bearing deposits were of various types mostly represented by only one or two contexts (see Figures 2-5). Further investigation of the data involving grouping the context types into two categories, as 'cut' features (e.g. pits, gullies) and 'non-cut' features (e.g. floors, layers), showed some pattern to the disposal of the remains (Figure 6 shows the numbers of contexts and Figure 7 the weight of hand-collected shell by period under these groupings). As can be seen from Figure 8, the average weight of shell remains per context from 'non-cut' features remained more or less constant through the phases at around 50 g per context. There was some variation in this figure for cut features but the average weights per context were always significantly higher in the medieval to post-medieval periods, particularly in the medieval-early post-medieval (Phase 4). This suggests that the 50 g or so per context recovered from non-cut features probably represents a 'background' level of shell from rather casual waste disposal or re-deposition, whereas the greater concentrations found within cut features indicates a more deliberate use of these features for the dumping of food waste. A similar

investigation of the average erosion and fragmentation of the remains gave rather counter-intuitive results. It might be expected that shell dumped into cut features and left undisturbed would show rather better preservation than that simply discarded and subject to further damage (e.g. from being trampled) but this was not the case and for the medieval - early post-medieval remains the opposite was true (Figure 9). The taphonomic process (or processes) at work to produce this unexpected variation in preservation is not clear.

The hand-collected land snail assemblage was exclusively of *Helix aspersa*. Most of the eight contexts that gave remains did so in small numbers (less than 10), the exception being the post-medieval (Phase 5) Context 2194 (1998 excavations) which yielded 106 g of shells representing at least 74 individuals. Evans (1969) states that '... the synanthropic species, *H. aspersa* and *H. pomatia*, are both edible and eaten to the present day in Britain and the Continent ...', so these may represent food waste. Equally, *H. aspersa* are found in large numbers around human habitation and this may simply be a natural (or semi-natural—the deposit is described as 'secondary back fill of tank 2292/2296') accumulation. *H. aspersa* is also a highly eurytopic species and, as such, of no value in interpreting the ecological conditions on the site. As has been noted at other sites (e.g. Coppergate, York, Kenward and Hall 1995) records of this species must be treated with caution.

A few of the oyster valves showed what appeared to be deliberately cut, roughly rectangular, slots or holes that did not appear to be the result of either fresh (recent) breakage or damage by predatory molluscs. These remains were mostly recovered from high residuality contexts but one was from a post-medieval (Phase 6) deposit, Context 115 (1998 excavations, fill of pit 111). Small numbers of similarly perforated oyster valves have been recovered from other sites in the region including the 6-8 Pavement (Lloyds Bank) and 46-54 Fishergate sites in York (MacGregor 1982; Rogers 1993), and a single shell from 33-35 Eastgate, Beverley (Foreman 1992), though these were from deposits of rather earlier date (mid 8th to late 11th century), and also from a deserted medieval village at Hangleton, Sussex (Holden 1963). No definitive interpretation of the use of these remains has been offered but Foreman (*op. cit*.) notes that 'The use of shells as amulets is widely recorded, but normally more exotic species than oyster are utilised...' and that 'In the medieval period, the shell was associated with pilgrim cults, notably that of St James of Compostella.'

Vertebrate remains

Hand-collected material

A moderate assemblage of vertebrate remains was recovered from these excavations in Blanket Row, a substantial proportion of which proved to be from deposits which had a high residual content. The dating and provenance of bones from such contexts could not be easily and confidently determined, thus rendering them of little value. However, the remains from those deposits that were more securely and narrowly dated have produced some limited archaeological and zooarchaeological information.

Domestic mammals dominated the hand-collected assemblage throughout the represented phases, with, not surprisingly, the main domesticates (cattle, caprovid and pig) being the most commonly occurring species. Bird remains were quite scarce and mainly included chicken and geese, with few wild species present. A number of larger fish fragments, chiefly representing gadids were identified.

Basic fragment counts show that, by proportion, cattle were most prevalent in Phases 1-3 and Phase 4 (57 and 47%, respectively), although the frequency of caprovid remains increased considerably in Phase 4. Phases 5 and 6 show a continued rise in the proportion of caprovids, whilst cattle remains decreased slightly. Proportions of pigs declined rapidly, from 21% of the assemblage in Phases 1-3 to just 3% in Phase 6.

When comparing the proportions of the three main domestic mammals using MNI estimations, a somewhat different pattern is seen, although the overall trend, i.e. the rise in dominance of caprovids, stays the same. Frequencies for cattle were initially higher, but caprovids became the dominant species in Phase 4 as opposed to Phase 5 as suggested by the fragment counts. The MNI figures also increase the significance of pigs in the earlier phases and in Phase 6, whilst their remains show their lowest frequency in Phase 5.

A similar increase in the number of caprovid remains and a corresponding decrease in cattle fragments was noted from 14th and 15th century deposits at Dominican Priory, Beverley (Gilchrist 1996), whilst the number of sheep fragments from Lurk Lane, Beverley (Scott 1991) showed a gradual increase through time.

Skeletal element representation for the major domesticates suggests that the deposits contained waste from a wide range of activities, including primary butchery waste, but increasingly through time, MNI counts indicate a greater proportion of the assemblage represents household and domestic refuse. By Phase 6, almost half of the cattle and caprovid remains represent the major meat-bearing elements. Although the earlier phases showed a predominance of cattle mandibles, metapodials and phalanges—skeletal elements more likely to be debris from initial carcass preparation—there was no evidence for large-scale commercial activities. No concentrations of remians representing craft activities were identified, with the exception of a small accumulation of caprovid metapodials from Context 2194 (Phase 5). This may represent a discrete deposit of tanning waste.

Slightly earlier deposits at the Magistrates' Courts site (Hall *et al.* 2000a) produced a similar mix of food and butchery waste, as did those from Eastgate, Beverley (Scott 1992). In contrast, the slightly higher status sites, Lurk Lane (Scott 1991) and Domincan Priory (Gilchrist 1996), produced assemblages which appeared to be almost exclusively domestic refuse.

Age-at-death data for the the Blanket Row domesticates was rather sparse. Tooth wear data from all phases for both cattle and caprovids suggested that most individuals reached maturity before slaughter. This suggests that besides meat production, secondary products, such as milk and wool, were of some importance. Fusion data for cattle revealed some differences and indicated that a larger proportion of younger animals were slaughtered, particularly in Phase 6. This discrepancy between the different age profiles again highlights the mix of debris. Taphonomic factors may be affecting the survival of juvenile mandibles, but the presence of other elements suggests that this is not the case. In Phase 6, it would appear that this area of the city was being supplied with portions of prime meat from juvenile individuals, but that older cattle, probably representing breeding stock or animals used for traction, were also being slaughtered.

The limited biometrical dataset provides little evidence for the presence of improved livestock at Blanket Row during the post-medieval period. The hypothesis that sheep, at least, in the north of England remained quite small and constant in size from the later medieval period to late post-medieval times has been put forward by O'Connor (1995) using data from a range of post-medieval assemblages from York. The datasets from Blanket Row appear to support this theory.

General discussion of fish remains from the samples

Large accumulations of mostly very well presreved, though usually small (<30 mm), fish bones were recovered from the floor silts within buildings 5001, 5002 (Phases 3 and 3b) and 536 (Phase 4). Similar frequencies of the four major components of the fish assemblages—eel, herring, gadids and flatfish—were present, with no discernible differences noted between the buildings north and south of the modern sewer. A number of the deposits produced rather larger fragments (>50 mm), but these tended to be concentrated in pit fills and occupation layers. Several floor silts, however, did contain slightly larger remains. Although the content of the

deposits varied, in general, there was an absence of larger bird and mammal bones, although numerous tiny unidentified fragments were noted.

A number of questions are posed by the variations in size of fragment between the different assemblages. Were larger fragments ever deposited onto the floor surface or were they disposed of elsewhere, in pits for example? Are the remains recovered from the floor silts the remnants of refuse that was swept out on a regular basis, or fragments which survived, because they had been swept into inaccessible parts of the rooms (e.g. under furniture or fixed benching for example), or trampled into surfaces?

Plant material preserved within the floor deposits included seeds of mud rush, a plant that may have been cut to form some sort of floor covering. The smaller bones may have been tolerated or lost amongst the rushes, whilst larger fragments were, perhaps, regularly cleared away. At the Magistrates' Courts site (Hall *et al.* 2000a), where floor deposits produced similar concentrations of fish remains, it was suggested that the fish assemblage recovered from deposits at this site conceivably represented the waste which had accumulated beneath wooden flooring, with bone and other fragments falling through the cracks between the (now decayed) planking.

On the whole, the fish remains from Blanket Row show similar proportions of mainly edible species such as herring, eel, members of the gadid family (e.g. cod and whiting) and flatfish, with the vast majority of individuals being small in size. Skeletal element representation suggests that entire fish were present and that most were disposed of whole. At Blanket Row, there is no evidence for the processing of fish on a commercial scale and the inclusion within the deposits of both mammal and bird remains seems to indicate that the assemblages most likely represent significant components of domestic consumption refuse.

Rockling was identified from many of the deposits and was particularly numerous amongst the remains from Context 216 (Building 536), within which it formed a large component of the gadid assemblage. Although these fishes are indeed edible, evidence from sites of medieval and early post-medieval date in York (Bond and O'Connor 1999) and Beverley (Scott 1991) suggests that consumption of other, much larger gadid species (of a metre and more in length), as well as herring and eel, was the more favoured option. Clearly, both these latter species form significant proportions of the assemblage from Blanket Row. However, there is little evidence for the larger gadids noted from other sites. Since large cod and ling are most likely caught offshore using hook and line techniques, the lack of evidence for these fish from the Blanket Row assemblage suggests that many of the species represented may have been caught inshore, perhaps locally. Flatfish are typically caught using nets or traps along shallow coasts and estuaries, whilst rockling and small gadids such as whiting (another quite well-represented species in the Blanket Row assemblage) are all littoral taxa.

A number of additional fish recorded (e.g. stickleback and sand goby) are species that would not be considered edible today. Numbers of fragments for these species were, however, not large (stickleback remains being mainly concentrated in Contexts 216 and 230), and thus these taxa could reflect waste from fine nets or, alternatively, they may have been the gut contents of larger fish. Nicholson (unpublished), in her report on the fish remains from Redcastle Furze, Thetford, identified stickleback from two medieval cesspit deposits, from which a number of crushed fish vertebrae were recovered. All the evidence from these deposits suggested that the fish component of the pit fills was deposited in the remains of human faeces. One may perhaps conclude that there is a possibility that sticklebacks were eaten in the past, much as one might consume whitebait today.

The small size of many of the species represented (particularly the gadids and flatfish) may suggest that much of the fish assemblage from Blanket Row was the discarded portion of a catch (i.e. waste from net cleaning), the larger, more edible, fish being sold on and consumed elsewhere. A similar interpretation has been proposed by Veeckman *et al.* (2000) for a 17th century fish

assemblage from Antwerp. Similar species, flatfish in particular, to those from Blanket Row were also reported in the Belgian material and the assemblage was characterised by the small size of specimens represented and the presence of species deemed inedible today.

However, an alternative explanation could reflect simple socio-economic factors. For example, the remains could represent the domestic waste of poor urban households, who only had access to smaller, less expensive fish. On the other hand, they could represent the consumption refuse of resident fishermen who were eating the less desirable portion of the catch, the more profitable specimens already having been passed into the urban market of Hull. A final (and somewhat related) interpretation could be that the remains represent waste from low-status individuals, catching fish locally for their own consumption.

An interesting contrast can be made between other fish assemblages from Hull and the wider region. Figure 14 shows the frequencies of the major taxa from the roughly contemporary ecclesiastical site of Mount Grace Priory (North Yorkshire, Irving and Jones 1994) and the somewhat earlier fish assemblages from the Magistrates' Courts (Hall *et al.* 2000a) site in Hull, from the Dominican Priory, Beverley (Gilchrist 1996) and from 41-9 Walmgate,York (Jaques *et al*. 2001). It can be seen that the proportions of the major taxa differ significantly between these groups, and the earlier assemblage from the Magistrates' Courts site is perhaps the most obviously different from that from Blanket Row. In both Phases 1 and 2 at Magistrates' Courts more than 80% of the remains are from herring. At the other ecclesiastical sites, herrings are also important, although they appear to fall in significance in later medieval times. However, at Walmgate, along with evidence of industrial processes, the 14th-15th century deposits are dominated by herring, found here in higher proportions than at the Magistrates' Courts and Dominican Priory sites. Interestingly, the only site where eel remains predominate is at the Dominican Priory in Beverley.

An equally interesting pattern emerges when the individual gadid species are considered. Figure 15 shows the proportion of the various gadid species identified at those sites previously mentioned in Hull and beyond. It is very clear that the Blanket Row and Dominican Priory assemblages are very characteristic in that their dominant gadid species is whiting. At the Magistrates' Courts site, however, cod are dominant (representing between 60-75% of the gadid species identified), whilst at Mount Grace Priory, haddock make up more than 75%. Similarly, at Walmgate (although numbers of fragments are few), haddock is the dominant species, but cod is also well represented.

These patterns perhaps reflect both differences in access and proximity to resources, as well differences between the dietary preferences of higher status ecclesiastical establishments and poorer urban households. Thus it would appear that at the Magistrates' Courts site, the proximity of the site to the River Humber gave it access to the large herring catches that were no doubt taken in the estuary. In contrast, material from the Dominican Priory reflects an establishment that appeared to have relied as much on its freshwater riverine fishery as its access to more distant marine and coastal resources. At Mount Grace Priory, although some 35 miles (55 km) from the sea (not 20 miles as indicated by Irving and Jones, 1994), a large proportion of fish were marine species, in particular herring and gadid, which may indicate preferential access to higher value taxa. Freshwater taxa were also present at this site, probably indicating the use of the fish ponds known to exist there (Irving and Jones 1994). The later material from urban Blanket Row is quite different, in that no one species is dominant. It is, however, dominated by estuarine species, with gadids and eels also commonly represented. Differences in the proportion of gadids between sites is also difficult to interpret, although perhaps once again this reflects a mix of access to resources and preference.

It seems likely that most of the fish remains from Blanket Row represent domestic refuse associated with food consumption. Seemingly inedible fish, such as sticklebacks, probably form a small component of waste related to the gutting and the processing of fish for cooking. Although the species present are represented by small

individuals, crushed and flattened (indicating possible ingestion), vertebrae of herring, eel, whiting and flatfish strongly suggest that these fish were eaten.

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Table 1. Complete list of plant and animal taxa (and other components of the samples recorded during biological analyses) from the Blanket Row site, Kingston-upon-Hull.

For abbreviations in plant names, see Table 2. Taxonomic order and nomenclature follow Tutin et al. *(1964-80) for vascular plants, Smith (1978) for mosses, and Kloet and Hincks (1964-77) for insects. Tentative records for insects are not included if secure ones were also made. Plant material not specifically noted as being preserved by charring or mineral replacement can be taken to be uncharred and unmineralised (i.e. 'waterlogged', but sometimes denoted simply as 'uncharred'). For invertebrates, * = not used in calculating assemblage statistics (Table 3); ecode—ecological code used in generating main statistics (Table 3); Sp(p).—species not previously listed; Sp(p). indet.—may be a species already listed.*

N.B. One spot sample from a Phase 5 deposit produced no identifiable plant remains (see Table 2) and has been excluded from this table.

		No. contexts from Phases						
		1	**2**	**3**	**3b**	**4**	**6**	**7**
No. contexts examined by means of	any sample	6	2	11	3	13	1	1
	GBA subsample	6	2	9	2	12	1	1
	BS sample	0	0	6	1	5	0	0
	Spot sample	2	0	0	0	0	0	0

Taxon	**Parts recorded**	**No. contexts in which recorded**						
ALGAE								
Characeae	oogonium/ia	2	1	-	-	2	-	-
BRYOPHYTA (unless otherwise indicated, remains were leaf/leaves and/or shoot fgt(s))								
Sphagnum imbricatum Hornsch. ex Russ.		4	-	2	-	-	-	-
Sphagnum sp(p).	capsule(s) and/or lid(s)	-	-	1	-	-	-	-
	leaf/leaves	-	-	-	-	-	-	1
	stem fgt(s)	1	-	-	-	-	-	-
cf. *Ceratodon purpureus* (Hedw.) Brid.		1	-	-	-	-	-	-
Antitrichia curtipendula (Hedw.) Brid.		1	-	-	-	-	-	-
Thuidium tamariscinum (Hedw.) Br. Eur.		1	-	-	-	-	-	-
Campylium stellatum (Hedw.) Lange & Jens.		3	-	-	-	-	-	-
Amblystegium sp(p).		1	-	-	-	-	-	-
Drepanocladus sp(p).		1	-	-	-	-	-	-
Scorpidium scorpioides (Hedw.) Limpr.		2	-	-	-	-	-	-
Calliergon cf. *giganteum* (Schimp.) Kindb.		1	-	-	-	-	-	-
Homalothecium sericeum (Hedw.) Br. Eur./ *H. lutescens* (Hedw.) Robins.		1	-	-	-	-	-	-
cf. *Brachythecium* sp(p).		1	-	-	-	-	-	-
Hypnum cf. *cupressiforme* Hedw.		2	-	-	-	-	-	-
Rhytidiadelphus sp(p).		1	-	-	-	-	-	-
PTERIDOPHYTA								
Pteridium aquilinum (L.) Kuhn (bracken)	stalk fgt(s)	1	-	-	-	-	-	-
GYMNOSPERMAE								
Abies alba Miller (silver fir)	wood fgt(s)	1	-	-	-	-	-	-
Pinus sp(p). (pine)	wood fgt(s)	1	-	-	-	-	-	-
Taxus baccata L. (yew)	wood chip(s)	2	-	-	-	-	-	-
ANGIOSPERMAE								
Salix sp(p). (willow)	bud(s)	-	-	1	-	-	-	-
	twig fgt(s)	1	-	-	-	-	-	-
cf. *Salix* sp(p).	leaf fgt(s)	1	-	-	-	-	-	-

	seed(s)	-	-	3	-	-	-	-
Juglans regia L. (walnut)	nutshell fgt(s)	1	-	-	-	-	-	-
Alnus glutinosa (L.) Gaertner (alder)	fruit(s)	1	-	-	-	-	-	-
	twig fgt(s)	1	-	-	-	-	-	-
Corylus avellana L. (hazel)	anther(s)	1	-	-	-	-	-	-
	nut(s) and/or nutshell fgt(s)	4	-	3	-	-	-	1
Fagus sylvatica L. (beech)	bud(s) and/or bud-scale(s)	-	-	1	-	1	-	-
Quercus sp(p). (oak)	bud(s) and/or bud-scale(s)	1	-	3	-	-	-	-
	wood chip(s)	3	-	-	-	-	-	-
	wood fgt(s)	1	-	-	-	-	-	-
Ficus carica L. (fig)	seed(s)	3	-	4	-	-	-	1
Cannabis sativa L. (hemp)	achene(s)	1	-	-	-	-	-	-
Urtica dioica L. (stinging nettle)	achene(s)	1	-	4	-	-	-	1
U. urens L. (annual nettle)	achene(s)	1	-	-	-	-	-	1
Polygonum aviculare agg. (knotgrass)	charred fruit(s)	-	-	1	-	-	-	-
	fruit(s)	3	-	-	-	-	-	-
P. persicaria L. (persicaria/red shank)	fruit(s)	2	-	-	-	-	-	-
P. lapathifolium L. (pale persicaria)	charred fruit(s)	-	-	1	-	-	-	-
	fruit(s)	2	-	-	-	-	-	-
Bilderdykia convolvulus (L.) Dumort. (black bindweed)	fruit fgt(s)	1	-	-	-	-	-	-
	fruit(s)	2	-	-	-	-	-	-
Rumex acetosella agg. (sheep's sorrel)	charred fruit(s)	-	-	1	-	-	-	-
	fruit(s)	1	-	1	-	-	-	-
	mineralised fruit(s)	-	-	1	-	-	-	-
Rumex sp(p). (docks)	charred fruit(s)	1	-	1	-	-	-	-
	fruit(s)	2	-	-	-	-	1	1
	fruits with some perianths/segments	2	-	-	-	-	-	-
	perianth(s)/ perianth segment(s)	1	-	-	-	-	-	-
Polygonaceae (dock/knotweed family)	fruit(s)	-	-	1	-	-	-	-
Chenopodium Section *Pseudoblitum* (red goosefoot etc.)	seed(s)	-	-	-	-	-	-	1
Chenopodium album L. (fat hen)	seed(s)	1	-	-	-	-	-	1
Atriplex sp(p). (oraches)	charred seed(s)	-	-	1	-	-	-	-
	seed(s)	3	-	1	-	-	1	1
Chenopodiaceae (goosefoot family)	mineralised seed(s)	-	-	1	-	-	-	-
	seed(s)	-	-	3	-	-	-	-
Montia fontana ssp. *chondrosperma* (Fenzl) Walters (blinks)	seed(s)	1	-	-	-	-	-	-
Stellaria media (L.) Vill. (chickweed)	seed(s)	1	-	-	-	-	-	-
S. cf. *alsine* Grimm (?bog stitchwort)	seed(s)	1	-	-	-	-	-	-
S. graminea L. (lesser stitchwort)	seed(s)	2	-	-	-	-	-	-
S. cf. *graminea* L. (?lesser stitchwort)	seed(s)	-	-	-	-	-	-	1
Stellaria sp(p). (stitchworts/chickweeds)	seed(s)	1	-	-	-	-	-	-
Scleranthus annuus L. (annual knawel)	fruit(s)	-	-	-	-	-	-	1
Spergula arvensis L. (corn spurrey)	seed(s)	1	-	-	-	-	-	-
Lychnis flos-cuculi L. (ragged robin)	seed(s)	1	-	-	-	-	-	-
Agrostemma githago L. (corncockle)	seed fgt(s)	4	-	-	-	-	-	-
	seed(s)	1	-	1	-	-	-	-
Silene cf. *nutans* L. (?Nottingham catchfly)	seed(s)	1	-	-	-	-	-	-
S. vulgaris (Moench) Garcke (bladder campion)	seed(s)	3	-	-	-	-	-	-
S. alba (Miller) Krause in Sturm (white campion)	seed(s)	1	-	-	-	-	-	-
Ranunculus Section *Ranunculus* (meadow/creeping/bulbous buttercup)	achene(s)	3	-	3	-	1	1	1
	charred achene(s)	-	-	1	-	-	-	-

R. sardous Crantz (hairy buttercup)	achene(s)	3	-	2	-	-	-	-
	charred achene(s)	-	-	1	-	-	-	-
R. arvensis L. (corn crowfoot)	achene(s)	-	-	1	-	-	-	-
R. flammula L. (lesser spearwort)	achene(s)	2	-	-	-	-	-	-
R. cf. *lingua* L. (?greater spearwort)	achene(s)	1	-	-	-	-	-	-
Thalictrum flavum L. (common meadow rue)	achene(s)	1	-	1	-	-	-	-
Papaver somniferum L. (opium poppy)	seed(s)	2	-	4	-	-	1	-
P. rhoeas L./*P. dubium* L. (field/long-headed poppy)	seed(s)	1	-	-	-	-	-	-
P. argemone L. (long prickly-headed poppy)	seed(s)	-	-	2	-	1	-	-
Papaver sp(p). (poppies)	seed(s)	-	-	-	-	1	-	-
Chelidonium majus L. (greater celandine)	seed(s)	-	-	2	-	3	-	-
Fumaria sp(p). (fumitories)	seed fgt(s)	-	-	2	-	-	-	-
	seed(s)	-	-	1	-	-	-	1
Cruciferae (cabbage family)	pedicel(s)	3	-	-	-	-	-	-
Thlaspi arvense L. (field penny-cress)	seed(s)	1	-	-	-	-	-	-
Coronopus squamatus (Forskål) Ascherson (swine-cress)	fruit(s)	-	-	-	-	-	-	1
Brassica rapa L. ('turnip')	seed fgt(s)	1	-	-	-	-	-	-
	seed(s)	2	-	-	-	-	-	-
Brassica sp(p). (cabbages, etc.)	seed fgt(s)	1	-	-	-	-	-	-
	seed(s)	3	-	-	-	-	-	-
Brassica sp./*Sinapis arvensis* L. (brassica/charlock)	mineralised seed(s)	-	-	1	-	-	-	-
	pod seg(s) and/or fgt(s)	1	-	-	-	-	-	-
	seed(s)	1	-	-	-	-	-	-
Raphanus raphanistrum L. (wild radish)	pod seg(s) and/or fgt(s)	4	-	2	-	-	1	-
	seed(s)	1	-	-	-	-	-	-
Reseda luteola L. (weld/dyer's rocket)	seed(s)	-	-	1	-	-	-	-
R. lutea L. (wild mignonette)	seed(s)	1	-	-	-	-	-	-
Filipendula ulmaria (L.) Maxim. (meadowsweet)	achene(s)	1	-	-	-	-	-	1
Potentilla anserina L. (silverweed)	achene(s)	2	-	1	-	-	-	1
P. cf. *erecta* (L.) Räuschel (?tormentil)	achene(s)	1	-	-	-	-	-	-
Prunus spinosa L. (sloe)	fruitstone(s)	-	-	1	-	-	-	-
cf. *P. spinosa* L. (?sloe)	fruitstone(s)	-	-	1	-	-	-	-
Prunus Section *Cerasus* (cherries)	fruitstone(s)	2	-	-	-	-	-	-
Leguminosae (pea family)	calyx/calyces	1	-	-	-	-	-	1
	charred cotyledon(s)	1	-	1	-	-	-	-
	charred seed(s)	1	-	-	-	-	-	-
	flower(s) and/or petal(s)	3	-	-	-	-	-	-
	immature seed(s) (uncharred)	1	-	-	-	-	-	-
	pod(s) and/or pod fgt(s)	3	-	-	-	-	-	-
	tendrils	1	-	-	-	-	-	-
Pisum sativum L. (garden/field pea)	charred seed(s)	1	-	-	-	1	-	-
Medicago lupulina L. (black medick)	pod(s) and/or pod fgt(s)	1	-	-	-	-	-	-
Trifolium pratense L. (red clover)	pod(s) and/or pod lid(s)	1	-	-	-	-	-	-
cf. *Trifolium* sp(p). (?clovers, etc.)	charred seed(s)	1	-	-	-	-	-	-
Linum usitatissimum L. (cultivated flax)	capsule fgt(s)	1	-	-	-	-	-	-
	charred capsule fgt(s)	-	-	1	-	-	-	-
	mineralised seed(s)	-	-	1	-	-	-	-
	seed(s)	1	-	-	-	-	-	-
cf. *Linum usitatissimum* L. (?cultivated flax)	stem fgt(s)	1	-	-	-	-	-	-
Ilex aquifolium L. (holly)	leaf epidermis fgt(s)	1	-	-	-	-	-	-
Vitis vinifera L. (grape)	charred seed(s)	-	-	1	-	-	-	-
	seed fgt(s)	-	-	-	-	-	-	1
	seed(s)	1	-	-	-	-	-	-
cf. *V. vinifera* L. (?grape)	seed fgt(s)	-	-	1	-	-	-	-

Hypericum sp(p). (St John's worts)	seed(s)	-	-	2	-	-	-	-
Viola sp(p). (violets/pansies, etc.)	seed(s)	-	-	1	-	2	-	-
Umbelliferae (carrot family)	mericarp(s)	-	-	2	-	-	-	1
	mineralised mericarp(s)	-	-	1	-	-	-	-
Hydrocotyle vulgaris L. (marsh pennywort)	mericarp(s)	2	-	-	-	-	-	-
Scandix pecten-veneris L. (shepherd's needle)	mericarp(s)	2	-	-	-	-	1	-
Oenanthe lachenalii C. G. Gmelin (parsley water-dropwort)	mericarp(s)	1	-	-	-	-	-	1
Aethusa cynapium L. (fool's parsley)	mericarp(s)	1	-	1	-	-	-	-
cf. *Anethum graveolens* L. (?dill)	mericarp(s)	-	-	-	-	-	1	-
Conium maculatum L. (hemlock)	mericarp fgt(s)	-	-	2	-	1	-	-
	mericarp(s)	-	-	2	-	1	-	1
Apium graveolens L. (wild celery)	mericarp(s)	-	-	1	-	-	-	-
cf. *Petroselinum crispum* (Miller) A. W. Hill (?garden parsley)	mericarp(s)	1	-	-	-	-	-	-
Torilis japonica (Houtt.) DC. (upright hedge-parsley)	mericarp(s)	3	-	-	-	-	-	-
Daucus carota L. (wild carrot)	mericarp(s)	1	-	1	-	-	-	1
cf. *Erica tetralix* L. (?cross-leaved heath)	leaf/leaves	1	-	-	-	-	-	-
Calluna vulgaris (L.) Hull (heather, ling)	root fgt(s)	1	-	-	-	-	-	-
cf. *C. vulgaris* (L.) Hull (?heather, ling)	charred root and/or basal twig fgt(s)	1	-	2	-	-	-	-
	root and/or basal twig fgt(s)	4	-	-	-	1	-	-
Anagallis arvensis L. (scarlet pimpernel)	seed(s)	1	-	-	-	-	-	-
Menyanthes trifoliata L. (bogbean)	seed(s)	3	-	2	-	-	-	-
Galium aparine L. (goosegrass, cleavers)	charred fruit(s)	-	-	-	-	1	-	-
	epicarp (fruit skin)	1	-	-	-	-	-	-
Galeopsis Subgenus *Ladanum* (hemp-nettles)	nutlet(s)	-	-	-	-	-	-	1
Lamium Section *Lamiopsis* (annual dead-nettles)	nutlet(s)	-	-	1	-	-	-	-
Stachys sp(p). (woundworts)	nutlet(s)	-	-	-	-	-	-	1
Prunella vulgaris L. (selfheal)	nutlet(s)	2	-	-	-	-	1	1
Mentha sp(p). (mints)	nutlet(s)	-	-	1	-	-	-	-
Hyoscyamus niger L. (henbane)	seed(s)	-	-	3	-	-	-	-
Solanum sp(p).	seed(s)	-	-	-	-	1	-	-
Verbascum/Scrophularia sp(p). (mullein/figwort)	seed(s)	-	-	-	-	1	-	-
Rhinanthus sp(p). (yellow rattles)	mineralised seed(s)	1	-	-	-	-	-	-
	seed(s)	3	-	-	-	-	-	-
Plantago major L. (greater plantain)	seed(s)	2	-	-	-	-	-	1
P. lanceolata L. (ribwort plantain)	charred seed(s)	-	-	1	-	-	-	-
	seed(s)	1	-	-	-	-	-	-
Sambucus nigra L. (elder)	seed fgt(s)	-	-	1	-	1	-	-
	seed(s)	-	-	7	1	1	1	1
	twig fgt(s)	1	-	-	-	-	-	-
Knautia arvensis (L.) Coulter (field scabious)	fruit fgt(s)	1	-	-	-	-	-	-
Compositae (daisy family)	involucre(s)/fgt(s)	1	-	-	-	-	-	-
Aster tripolium L. (sea aster)	achene(s)	1	-	-	-	-	-	-
Anthemis cotula L. (stinking mayweed)	achene(s)	4	-	-	-	-	-	-
	charred achene(s)	-	-	1	-	-	-	-
Matricaria maritima L./*M. perforata* Mérat (sea/scentless mayweed)	charred achene(s)	-	-	1	-	-	-	-
Chrysanthemum segetum L. (corn marigold)	achene fgt(s)	-	-	1	-	-	-	-
	achene(s)	2	-	-	-	-	-	-
	charred achene(s)	-	-	1	-	-	-	-
Arctium sp(p). (burdocks)	achene(s)	1	-	-	-	-	-	1
Carduus/Cirsium sp(p). (thistles)	achene(s)	3	-	-	-	-	-	-
Silybum marianum (L.) Gaertner (milk-thistle)	achene(s)	1	-	-	-	-	-	-

Centaurea cf. *cyanus* L. (?cornflower)	achene(s)	2	-	-	-	-	-	-
Centaurea sp(p). (knapweeds, etc.)	achene fgt(s)	3	-	-	-	-	-	-
	achene(s)	3	-	-	-	-	-	1
	involucral bract(s)	1	-	-	-	-	-	-
	involucre(s)/fgt(s)	1	-	-	-	-	-	-
	mineralised achene(s)	1	-	-	-	-	-	-
Hypochoeris sp(p). (cat's ears)	achene(s)	3	-	-	-	-	-	-
Leontodon sp(p). (hawkbits)	achene(s)	4	-	-	-	-	-	-
Sonchus asper (L.) Hill (prickly sow-thistle)	achene(s)	3	-	-	-	-	1	-
S. oleraceus L. (sow-thistle)	achene(s)	1	-	-	-	-	-	-
S. palustris L./*S. arvensis* L. (marsh/corn sow-thistle)	achene(s)	1	-	-	-	-	-	-
Lapsana communis L. (nipplewort)	achene(s)	4	-	-	-	-	-	-
Baldellia ranunculoides (L.) Parl. (lesser water-plantain)	carpel(s)	1	-	1	-	-	-	-
Alisma sp(p). (water-plantains)	carpel(s) and/or seed(s)	-	-	2	-	-	-	1
Potamogeton sp(p). (pondweeds)	pyrene(s)	1	-	1	-	-	-	-
Ruppia maritima L. (beaked tasselweed)	fruit(s)	1	-	-	-	-	-	-
Zannichellia palustris L. (horned pondweed)	fruit(s)	1	-	-	-	-	-	-
Juncus inflexus L./*J. effusus* L./ *J. conglomeratus* L. (hard/soft/compact rush)	seed(s)	-	-	1	-	-	-	-
J. cf. *inflexus/effusus/conglomeratus* (?hard/soft/compact rush)	seed(s)	-	1	-	-	-	-	-
J. gerardi Loisel. (mud rush)	seed(s)	2	-	6	1	1	-	-
J. cf. *gerardi* Loisel. (?mud rush)	capsule(s) with seed(s)	-	-	-	-	-	-	1
	seed(s)	-	-	1	-	1	-	1
J. bufonius L. (toad rush)	seed(s)	2	-	-	-	-	-	1
J. cf. *acutiflorus* Ehrh. ex Hoffm. (?sharp-flowered rush)	seed(s)	1	-	-	-	-	-	-
Juncus sp(p). (rushes)	seed(s)	-	-	6	-	3	-	-
Gramineae (grasses)	charred caryopsis/es	2	-	2	-	-	-	-
	charred spikelet(s)/ spikelet fgt(s)	-	-	1	-	1	-	-
	waterlogged caryopsis/es	4	-	3	-	-	-	-
Gramineae/Cerealia (grasses/cereals)	charred culm fgt(s)	2	-	1	-	-	1	-
	charred culm node(s)	-	-	-	-	1	-	-
	waterlogged culm fgt(s)	3	-	-	-	-	1	-
	waterlogged culm node(s)	2	-	-	-	-	-	-
Cerealia indet. (cereals)	charred caryopsis/es	-	-	-	-	1	-	-
	charred chaff fgt(s)	1	-	-	-	-	-	-
	waterlogged rachis fgt(s)	-	-	-	-	-	1	-
cf. Cerealia indet. (?cereals)	charred caryopsis/es	-	-	1	-	1	-	-
Triticum sp(p). (wheats)	charred caryopsis/es	-	-	1	-	-	-	-
	charred free-threshing rachis fgt(s)	1	-	1	-	-	-	-
Triticum 'aestivo-compactum' (bread/club wheat)	charred caryopsis/es	-	-	2	-	1	-	-
Triticum/Secale (wheat/rye)	waterlogged caryopsis/es	1	-	-	-	-	-	-
cf. *Secale cereale* L. (?rye)	charred caryopsis/es	-	-	1	-	-	-	-
Hordeum sp(p). (barley)	charred caryopsis/es	1	-	1	-	1	-	-
Avena sp(p). (oats)	charred caryopsis/es	-	-	1	1	-	-	-
	charred chaff	1	-	-	-	-	-	-
	part-charred caryopsis/es	-	-	1	-	-	-	-
	waterlogged caryopsis/es	1	-	-	-	-	-	-
	waterlogged periderm fgt(s)	1	-	-	-	-	-	-
cf. *Avena* sp(p). (?oats)	charred caryopsis/es	1	-	-	-	1	-	-
	charred chaff	-	-	1	-	-	-	-
Alopecurus sp(p). (foxtails)	waterlogged caryopsis/es	1	-	-	-	-	-	-
Danthonia decumbens (L.) DC. in Lam. & DC.								

(heath grass)	caryopsis/es	2	-	-	-	-	-	-
Lemna sp(p). (duckweeds)	frond(s)	-	-	5	-	-	-	-
	seed(s)	-	-	-	-	1	-	-
Sparganium sp(p). (bur-reeds)	fruit(s)	2	-	-	-	-	-	-
Typha sp(p). (bulrushes)	seed(s)	-	-	2	-	-	-	-
Scirpus cf. *maritimus* L. (?sea club-rush)	nutlet(s)	-	-	2	-	-	-	-
S. lacustris sl (bulrush)	charred nutlet(s)	1	-	-	-	-	-	-
	nutlet(s)	-	-	1	-	-	-	-
S. cf. *lacustris* sl (?bulrush)	nutlet(s)	-	-	1	-	-	-	-
Eriophorum vaginatum L. (cotton-grass)	charred sclerenchyma spindle(s)	-	-	1	-	-	-	-
	leaf-sheath fibre(s)	2	-	-	-	-	-	-
	rhizome and/or stem fgt(s)	1	-	-	-	-	-	-
	rhizome fgt(s)	1	-	-	-	-	-	-
	rhizome/stem node(s)	1	-	-	-	-	-	-
	sclerenchyma spindles	2	-	-	-	-	-	-
Eleocharis palustris sl (common spike-rush)	nutlet(s)	2	-	1	-	-	1	1
Cladium mariscus (L.) Pohl (great sedge/saw-sedge)	nutlet(s)	2	-	1	-	-	-	-
cf. *C. mariscus*	charred leaf fgt(s)	-	-	2	-	-	-	-
Carex sp(p). (sedges)	charred nutlet(s)	-	-	1	-	-	-	-
	nutlet(s)	4	-	5	-	1	1	1

PROTISTA	
**Elphidium* sp.	u
ANNELIDA	
*Oligochaeta sp. (egg capsule)	u
CLADOCERA	
**Daphnia* sp. (ephippium)	oa-w
*Cladocera spp. (ephippium)	oa-w
CRUSTACEA	
**Cancer pagurus* Linnaeus	
INSECTA	
DERMAPTERA	
**Forficula auricularia* Linnaeus	u
*Dermaptera sp.	u
ANOPLURA	
**Pediculus humanus* Linnaeus	ss
HEMIPTERA	
Lygaeidae sp.	oa-p
Cymus claviculus (Fallen)	oa-p
Saldidae sp.	oa-d
Corixidae sp.	oa-w
*Heteroptera sp. (nymph)	u
Heteroptera sp.	u
Cercopidae sp.	oa-p
Megophthalmus sp.	oa-p
Auchenorhyncha spp.	oa-p
*Auchenorhyncha sp. (nymph)	oa-p
Fulgoromorpha spp.	oa-p
*Aphidoidea sp.	u

DIPTERA	
**Melophagus ovinus* (Linnaeus) (puparium)	u
**Melophagus ovinus* (Linnaeus) (adult)	u
*Bibionidae sp.	u
*Diptera sp. (adult)	u
*Diptera sp. (puparium)	u
*Diptera sp. (pupa)	u
SIPHONAPTERA	
**Pulex irritans* Linnaeus	ss
COLEOPTERA	
Carabus granulatus Linnaeus	oa
Nebria brevicollis (Fabricius)	oa
Notiophilus sp.	oa
Loricera pilicornis (Fabricius)	oa
Dyschirius ?globosus (Herbst)	oa
Trechus quadristriatus (Schrank)	oa
Trechus obtusus or *quadristriatus*	oa
Trechus micros (Herbst)	u
Bembidion properans Stephens	oa
Bembidion assimile Gyllenhal	oa-d
Bembidion ?normannum Dejean	oa-d
Bembidion obtusum Serville	oa
Bembidion aeneum Germar	oa-d
Bembidion ?lunulatum (Fourcroy)	oa-d
Bembidion (*Philochthus*) sp.	oa
Bembidion spp. and spp. indet.	oa
Pterostichus melanarius (Illiger)	ob
Calathus melanocephalus (Linnaeus)	oa
Agonum sp.	oa
?Bradycellus sp.	oa
Carabidae spp. and spp. indet.	ob
Haliplidae sp.	oa-w
Hydroporus ?scalesianus Stephens	oa-w

Hydroporus sp.	oa-w
Hydroporinae spp. and spp. indet.	oa-w
Colymbetes fuscus (Linnaeus)	oa-w
Colymbetinae sp.	oa-w
Helophorus ?aquaticus (Linnaeus)	oa-w
Helophorus aquaticus or *grandis*	oa-w
Helophorus minutus Fabricius	oa-w
Helophorus porculus Bedel	oa
Helophorus spp. and spp. indet.	oa-w
Sphaeridium ?bipustulatum Fabricius	rf
Cercyon analis (Paykull)	rt-sf
Cercyon atricapillus (Marsham)	rf-st
Cercyon depressus Stephens	rf
Cercyon haemorrhoidalis (Fabricius)	rf-sf
Cercyon ?melanocephalus (Linnaeus)	rt-sf
Cercyon terminatus (Marsham)	rf-st
Cercyon tristis (Illiger)	oa-d
Cercyon unipunctatus (Linnaeus)	rf-st
Cercyon spp. indet.	u
Megasternum obscurum (Marsham)	rt
Limnoxenus niger (Zschach)	oa-w
Laccobius sp.	oa-w
Enochrus ?halophilus (Bedel)	oa-w
Cymbiodyta marginella (Fabricius)	oa-w
Acritus nigricornis (Hoffmann)	rt-st
Histerinae sp.	rt
Ochthebius dilatatus Stephens	oa-w
Ochthebius ?lenensis Poppius	oa-w
Ochthebius ?marinus (Fabricius)	oa-w
Ochthebius minimus (Fabricius)	oa-w
Ochthebius spp. indet.	oa-w
Limnebius sp.	oa-w
Ptenidium sp.	rt
Acrotrichis sp.	rt
Catops sp.	u
Micropeplus fulvus Erichson	rt
Olophrum fuscum (Gravenhorst)	oa
Acidota crenata (Fabricius)	oa
Lesteva ?longoelytrata (Goeze)	oa-d
Phyllodrepa floralis (Paykull)	rt-sf
Dropephylla ?vilis (Erichson)	l
Omalium caesum or *italicum*	rt-sf
Omalium rivulare (Paykull)	rt-sf
Omalium sp. indet.	rt
Xylodromus concinnus (Marsham)	rt-st
Omaliinae sp.	rt
Carpelimus bilineatus Stephens	rt-sf
Carpelimus ?corticinus (Gravenhorst)	oa-d
Carpelimus elongatulus (Erichson)	oa-d
Carpelimus ?fuliginosus (Gravenhorst)	st
Carpelimus pusillus group	u
Carpelimus sp. indet.	u
Platystethus arenarius (Fourcroy)	rf
Platystethus ?degener Mulsant & Rey	oa-d
Platystethus nitens (Sahlberg)	oa-d
Anotylus complanatus (Erichson)	rt-sf
Anotylus nitidulus (Gravenhorst)	rt
Anotylus rugosus (Fabricius)	rt
Anotylus sculpturatus group	rt
Anotylus tetracarinatus (Block)	rt
Oxytelus sculptus Gravenhorst	rt-st
Stenus spp.	u
Euaesthetus laeviusculus Mannerheim	oa
Euaesthetus ruficapillus B&L	oa
Lathrobium sp.	u
Lithocharis ochracea (Gravenhorst)	rt-st
Astenus sp.	rt
Othius sp.	rt
Leptacinus intermedius Donisthorpe	rt-st
Leptacinus pusillus (Stephens)	rt-st
Gyrohypnus angustatus Stephens	rt-st
Gyrohypnus fracticornis (Muller)	rt-st
Xantholinus glabratus (Gravenhorst)	rt
Xantholinus longiventris Heer	rt-sf
Xantholinus sp. indet.	u
Neobisnius sp.	u
Philonthus ventralis (Gravenhorst)	u
Philonthus spp.	u
Quedius sp.	u
Staphylininae sp.	u
Mycetoporus sp.	u
Sepedophilus sp.	u
Tachyporus nitidulus (Fabricius)	u
Tachyporus spp.	u
Cilea silphoides (Linnaeus)	rt-st
Falagria caesa or *sulcatula*	rt-sf
Crataraea suturalis (Mannerheim)	rt-st
Aleochara sp.	u
Aleocharinae spp.	u
Pselaphidae sp.	u
Trox scaber (Linnaeus)	rt-sf
Aphodius contaminatus (Herbst)	oa-rf
Aphodius granarius (Linnaeus)	ob-rf
Aphodius ?prodromus (Brahm)	ob-rf
Aphodius spp. and spp. indet.	ob-rf
Oxyomus sylvestris (Scopoli)	rt-sf
Phyllopertha horticola (Linnaeus)	oa-p
Clambus ?pubescens Redtenbacher	rt-sf
Clambus sp. indet.	rt-sf
Cyphon sp.	oa-d
Simplocaria ?semistriata (Fabricius)	oa-p
Heterocerus sp.	oa-d
Dryops sp.	oa-d
**Actenicerus sjaelandicus* (Muller) (larva)	oa
Elateridae sp.	ob
Dermestidae sp.	rt-sf
Anobium punctatum (Degeer)	l-sf
Tipnus unicolor (Piller & Mitterpacher)	rt-ss
Ptinus ?fur (Linnaeus)	rd-sf
Ptinus sp. indet.	rd-sf
Lyctus linearis (Goeze)	l-sf
Brachypterus sp.	oa-p
Meligethes spp.	oa-p
Omosita sp.	rt-sf
Monotoma ?bicolor Villa	rt-st
Monotoma picipes Herbst	rt-st
Oryzaephilus surinamensis (Linnaeus)	g-ss
Cryptophagus scutellatus Newman	rd-st

Cryptophagus spp.	rd-sf	Coleoptera sp.	u
Atomaria nigripennis (Kugelann)	rd-ss	*Coleoptera sp. indet. (larva)	u
Atomaria spp.	rd		
Orthoperus sp.	rt	HYMENOPTERA	
Coccinellidae sp.	oa-p	*Proctotrupoidea sp.	u
Mycetaea hirta (Marsham)	rd-ss	*Chalcidoidea sp.	u
Lathridius minutus group	rd-st	*Hymenoptera Parasitica sp.	u
Enicmus sp.	rt-sf	*Formicidae sp.	u
Dienerella sp.	rd-sf	*Hymenoptera sp.	u
Corticaria spp.	rt-sf		
Corticarina ?fuscula (Gyllenhal)	rt	*Insecta sp. (larva)	u
Corticarina sp. indet.	rt		
Cortinicara gibbosa (Herbst)	rt	*Egg mass indet.	u
Aglenus brunneus (Gyllenhal)	rt-ss		
Blaps sp.	rt-ss	ARACHNIDA	
Anthicus formicarius (Goeze)	rt-st	*Pseudoscorpiones sp.	u
Anthicus sp. indet.	rt	*Aranae sp.	u
Bruchus sp.	u	*Acarina sp.	u
Bruchinae sp. indet.	u		
?Chrysolina sp.	oa-p	MOLLUSCA	
Gastrophysa polygoni (Linnaeus)	oa-p		
Phyllotreta ?atra (Fabricius)	oa-p	**Hydrobia ventrosa* (Montagu)	
Phyllotreta nemorum group	oa-p	**Pupilla muscorum* (Linnaeus)	
Phyllotreta ?nigripes (Fabricius)	oa-p	**Patella vulgata* Linnaeus	
Longitarsus spp.	oa-p	**Littorina littorea* (Linnaeus)	
Chaetocnema concinna (Marsham)	oa-p	**Buccinum undatum* (Linnaeus)	
Psylliodes sp.	oa-p	**Neptunea antiqua* (Linnaeus)	
Cassida flaveola Thunberg	oa-p	**Mytilus edulis* Linnaeus	
Apion spp.	oa-p	**Ostrea edulis* Linnaeus	
Sitona lepidus Gyllenhal	oa-p	**Cerastoderma edule* (Linnaeus)	
Sitona lineatus (Linnaeus)	oa-p		
Sitona sp.	oa-p	BRYOZOA	
Sitophilus granarius (Linnaeus)	g-ss	*Lophopus crystallinus (Pallas)	oa-w
Bagous sp. s. lat.	oa-p-w	*Cristatella mucedo (statoblast) Cuvier	w
Notaris acridulus (Linnaeus)	oa-d-p		
Ceutorhynchus contractus (Marsham)	oa-p	VERTEBRATA	
Ceutorhynchus erysimi (Fabricius)	oa-p	*Aves sp. (feather)	u
Ceutorhynchus spp.	oa-p		
Ceuthorhynchinae sp.	oa-p	plus taxa in Tables 18-21	
?Limnobaris sp.	oa-p-d		
Curculionidae spp.	oa		

OTHER COMPONENTS OF SAMPLES (noted during recording of plant remains)
'+' indicates present in the single spot sample from Phase 5 examined.

		No. records (contexts) from Phases						
		1	**2**	**3**	**3b**	**4**	**6**	**7**
No. contexts examined by means of	any sample	6	2	11	3	13	1	1
	GBA subsample	6	2	9	2	12	1	1
	BS sample	0	0	6	1	5	0	0
	Spot sample	2	0	0	0	0	0	0

Component	**No. contexts in which recorded**						
'char'	-	2	4	1	6	-	1
?Fe nail	-	-	1	-	1	-	-
?Fe object(s)	-	-	3	-	2	-	-
?Pb object(s)	-	-	-	1	-	-	-
?baked clay/daub	-	1	-	-	-	-	-
?burnt peat fgts	1	-	1	-	1	-	-
?chalk	-	-	1	-	-	-	-
?clinker	-	-	-	-	1	-	-
?crab shell fgts	-	-	1	-	1	-	-
?daub	-	-	1	-	-	-	-
?glass fgts	-	-	-	-	1	-	-
?peat fgts	1	-	1	-	1	-	-
Bithynia opercula	-	-	-	-	1	-	-
'*Cenococcum*' (sclerotia)	-	-	2	-	-	-	-
Cristatella (statoblasts)	-	-	1	-	-	-	-
Daphnia (ephippia)	1	-	1	-	-	-	1
Fe object(s)	-	-	2	-	1	-	1
Helix aspersa	-	-	-	-	-	1	-
Myxotrichum sp(p). (ascocarps)	1	-	-	-	-	-	-
Pb object(s)	-	1	-	-	-	-	-
Pre-Quaternary megaspores	-	-	-	-	1	-	-
amorphous organic matter	-	-	-	-	1	-	-
amorphous peat fgts	-	-	1	-	-	-	-
bark chips	1	-	-	-	-	-	-
bark fgts	5	-	-	-	-	-	-
barnacle shell fgts	-	-	2	1	-	-	-
bast fgts	1	-	-	-	-	-	-
beetles	5	-	4	-	-	1	1
bird bone	-	-	1	1	2	-	-
bivalve periostracum	-	-	2	-	-	-	-
bone fgts	4	2	9	-	7	1	-
brick/tile +	4	2	11	3	13	1	1
burnt bone fgts +	1	1	2	1	2	1	1
burnt cockle shell fgts	-	-	-	1	-	-	-
burnt fish bone	-	-	1	1	1	-	-
chalk	2	1	7	1	4	-	1
chalk gravel	-	-	1	-	-	-	-
charcoal	4	1	9	1	5	-	-
cinders	2	2	1-	3	12	-	1
clinker/slag	-	-	-	-	1	-	-
coal +	5	2	11	3	13	-	1
cockle shell fgts	1	1	3	1	6	-	-
colonial hydroid	1	-	-	-	-	-	-
concreted sediment	-	-	-	-	1	-	-

concretions	1	-	-	-	1	1	-
dicot lf fgts	2	-	-	-	-	-	-
dicot lf fgts (contaminant)	-	-	-	-	1	-	-
dicot stem fgts	3	-	-	-	-	-	-
dog coprolite +	1	-	-	-	-	-	-
earthworm egg caps	5	-	7	-	2	1	1
eggshell fgts	3	1	3	1	2	-	-
fern prothalli (contaminant)	-	-	1	-	1	-	-
fish bone	3	1	9	3	1-	-	1
fish scale	-	1	5	1	2	-	1
flint	1	-	3	1	4	-	-
fly puparia	4	-	3	-	-	1	1
foraminifera	1	-	-	-	-	-	-
glass	-	-	-	1	-	-	-
glassy slag +	-	-	3	-	-	-	-
gravel	5	1	2	1	4	-	-
grit	3	-	4	1	3	1	-
herbaceous detritus	5	-	-	-	-	1	-
insects	-	-	1	-	-	-	-
insects (contaminant)	-	-	-	-	1	-	-
iron-rich concretions	1	-	1	-	1	-	-
leaf ab pads	-	-	2	-	-	-	-
leather fgts	2	-	-	-	-	-	-
limestone	1	-	2	-	-	-	-
mammal bone	-	-	3	1	4	-	1
marine mollusc shell fgts	-	-	5	1	4	-	-
mineralised seeds/embryos	-	-	1	-	-	-	-
mites	1	-	-	-	-	-	-
mollusc opercula	1	1	1	-	1	-	-
mollusc shell fgts	-	-	-	-	1	-	-
monocot epid fgts	-	-	-	-	-	1	-
mortar	3	1	1-	2	8	1	-
moss	1	-	1	-	-	-	-
moss (contaminant)	-	-	7	1	3	-	-
moss (lfless stems)	-	-	2	-	-	-	-
mussel shell ‘fibres’	-	-	3	-	1	-	-
mussel shell fgts	1	1	7	3	6	-	1
oolitic limestone	1	-	1	-	-	-	-
otoliths	-	-	1	1	1	-	-
oyster shell fgts	1	-	8	1	4	-	-
part-burnt coal	1	1	7	1	4	-	-
peat fgts	3	-	1	-	-	-	-
percid scale	-	-	-	1	1	-	1
plant fibres	1	-	-	-	-	-	-
pottery	3	-	6	1	4	-	1
rodent droppings (min)	-	-	-	-	1	-	-
root/rhizome fgts (ch)	-	-	1	-	-	-	-
root/rootlet fgts	-	-	-	-	1	-	-
root/rootlet fgts (modern)	-	1	3	-	3	-	-
sand +	4	2	11	3	13	1	-
snails	2	-	2	-	3	-	-
stone	-	-	-	1	-	-	-
stones	1	-	-	-	-	-	-
teeth	-	1	2	-	2	-	-
twig fgts	4	-	-	-	-	1	-
undisaggregated compressed plant debris	-	-	-	-	-	1	-
unwashed sediment	-	-	1	-	-	-	-
whelk shells/fgts	-	-	1	-	-	-	-
winkle shells/fgts	1	-	1	1	1	-	-

wood chips	4	-	-	-	-	-	-
wood fgts	5	1	4	-	3	1	1
woody root fgts (modern)	-	-	1	-	1	-	-

Table 2. Lists of plant remains and some other components recorded from samples from the Blanket Row site, Kingston-upon-Hull, in context and sample order. Within each sample, records are presented in descending order of abundance using three- or four-point scales (for spot and BS samples and GBA subsamples, respectively), and alphabetically within each abundance class.

Abbreviations: af—achene fragment(s); anth—anthers (with pollen); b—bud(s); br—bract(s); bs—bud-scale(s); cal—calyx/calyces; caps—capsule(s); ch—charred; c/n—culm-nodes; cot—cotyledon(s); cs—catkin-scale(s); dec—decayed; epid—epidermis; ff—fruit fragment(s); fgt(s)—fragment/s; fls—flower(s); fr—fruit(s); f/t—free-threshing; imm—immature; inc—including; inv—involucral; lef—leaf epidermis fragment(s); lf—leaf; lvs—leaves; max—maximum; mf—mericarp fragment(s); min—mineral-replaced ('mineralised'); per—perianth(s); pet—petal(s); presn—preservation; psf—pod segment(s) or fragment(s); rh—rhizome; rt—root; s—seed(s); scl sp—sclerenchyma 'spindles'; segs—segment(s); sf—seed fragment(s); sht—shoot; spec—specimen; shth—sheath; sl—sensu lato*; spklts—spikelet(s); st—stem; tw—twig; v—very; w/l—waterlogged (i.e. not charred or mineralised).*

BWH97

Context 73, Sample 73/T (2 kg)

brick/tile	2	max 35 mm
coal	2	max 15 mm
mortar	2	max 10 mm
sand	2	
'char'	1	max 10 mm
chalk	1	max 20 mm
cinders	1	max 10 mm
fish bone	1	max 10 mm
flint	1	max 10 mm
mammal bone	1	max 30 mm
snails	1	a single spec

Context 93, Sample 93/T (2 kg)

coal	3	max 10 mm
brick/tile	2	max 30 mm
sand	2	
'char'	1	
bone fgts	1	max 15 mm
charcoal	1	max 5 mm
cinders	1	max 10 mm
fish bone	1	
moss (contaminant)	1	
root/rootlet fgts	1	

Context 97, Sample 97/T (2 kg)

coal	3	max 10 mm
brick/tile	2	max 40 mm
sand	2	
'char'	1	max 5 mm
burnt bone fgts	1	max 10 mm
cinders	1	max 10 mm
fish bone	1	max 15 mm
mammal bone	1	max 40 mm

Context 98, Sample 98/T (3 kg)

Juncus cf. gerardi	3	
Atriplex sp(p).	2	
brick/tile	2	max 45 mm
Carex sp(p).	2	
chalk	2	max 40 mm
Chenopodium Section Pseudoblitum	2	
cinders	2	max 20 mm
coal	2	max 20 mm
Eleocharis palustris sl	2	
Ranunculus Section Ranunculus	2	
'char'	1	
Alisma sp(p).	1	'embryos' only
Arctium sp(p).	1	
beetles	1	
burnt bone fgts	1	
Centaurea sp(p).	1	
Chenopodium album	1	
Conium maculatum	1	
Coronopus squamatus (fr)	1	
Corylus avellana	1	v dec, max 10 mm
Daphnia (ephippia)	1	
Daucus carota	1	
earthworm egg caps	1	
Fe object(s)	1	
Ficus carica	1	
Filipendula ulmaria	1	
fish bone	1	max 40 mm
fish scale	1	max 5 mm
fly puparia	1	
Fumaria sp(p).	1	
Galeopsis Subgenus Ladanum	1	
Juncus bufonius	1	
Juncus cf. gerardi (caps)	1	
Leguminosae (cal)	1	
mammal bone	1	max 120 mm
mussel shell fgts	1	max 10 mm
Oenanthe lachenalii	1	
percid scale	1	
Plantago major	1	

Potentilla anserina	1	
pottery	1	max 10 mm
Prunella vulgaris	1	
Rumex sp(p).	1	
Sambucus nigra	1	
Scleranthus annuus	1	
Sphagnum sp(p). (lvs)	1	
Stachys sp(p).	1	
Stellaria cf. graminea	1	
Umbelliferae	1	
Urtica dioica	1	
Urtica urens	1	
Vitis vinifera (sf)	1	
wood fgts	1	v dec, max 10 mm

Context 114, Sample 114/T (2 kg)

sand	3	
coal	2	max 15 mm
'char'	1	max 2 mm
bone fgts	1	max 35 mm
brick/tile	1	max 30 mm
cinders	1	max 10 mm
flint	1	max 10 mm
snails	1	a single spec
wood fgts	1	v dec, max 10 mm

Context 132, Sample 132/T (1.5 kg)

cinders	2	max 25 mm
coal	2	max 20 mm
sand	2	
'char'	1	max 3 mm
brick/tile	1	max 15 mm
cf. Cerealia indet.	1	a single spec
chalk	1	max 10 mm
charcoal	1	max 5 mm
mammal bone	1	max 65 mm
moss (contaminant)	1	

Context 134, Sample 134/T (2 kg)

concreted sediment	3	max 10 mm
chalk	2	max 10 mm
Bithynia opercula	1	
brick/tile	1	max 10 mm
cf. Cerealia indet.	1	a single spec
charcoal	1	max 5 mm
cinders	1	max 15 mm
coal	1	max 5 mm
fish bone	1	max 10 mm
Juncus sp(p).	1	
marine mollusc shell fgts	1	
mollusc shell fgts	1	max 2 mm
Papaver sp(p).	1	
sand	1	
snails	1	inc fgts
wood fgts	1	v dec, max 5 mm

Context 146, Sample 146/T (2 kg)

coal	3	max 10 mm
sand	3	
'char'	1	max 2 mm
bone fgts	1	max 30 mm
brick/tile	1	max 10 mm
Characeae	1	a single spec
charcoal	1	max 1 mm
cinders	1	max 10 mm
fish scale	1	
Juncus cf. inflexus/effusus/conglomeratus	1	
wood fgts	1	v dec, max 1 mm

BWH98

Context 103, Sample 9/BS (16 kg)

cinders	3	max 30 mm
grit	3	
sand	3	
'char'	2	max 5 mm
Chelidonium majus	2	v dec
coal	2	max 20 mm
?Fe object(s)	1	max 35 mm
bone fgts	1	max 55 mm
brick/tile	1	max 60 mm
charcoal	1	max 10 mm
cockle shell fgts	1	
fish bone	1	max 5 mm
flint	1	max 15 mm
gravel	1	max 25 mm
Juncus sp(p).	1	v dec, a single spec
mortar	1	max 40 mm
moss (contaminant)	1	
mussel shell 'fibres'	1	max 2 mm
mussel shell fgts	1	max 10 mm
oyster shell fgts	1	
part-burnt coal	1	max 55 mm
pottery	1	max 20 mm
root/rootlet fgts (modern)	1	
teeth	1	

Context 103, Sample 9/T (2 kg)

cinders	3	max 25 mm
coal	3	max 40 mm
cockle shell fgts	2	
sand	2	
?clinker	1	max 40 mm
brick/tile	1	max 15 mm
mammal bone	1	max 60 mm
oyster shell fgts	1	max 40 mm
part-burnt coal	1	max 15 mm

Context 136, Sample 4/T (1 kg)

herbaceous detritus	3	
wood fgts	3	max 30 mm
grit 2		
sand	2	
undisaggregated compressed plant debris	2	
Atriplex sp(p).	1	
beetles	1	
bone fgts	1	max 50 mm
brick/tile	1	max 35 mm
burnt bone fgts	1	max 10 mm
Carex sp(p).	1	
Cerealia indet. (w/l rachis fgts)	1	
cf. Anethum graveolens	1	
concretions	1	max 25 mm
earthworm egg caps	1	
Eleocharis palustris sl	1	
fly puparia	1	
Gramineae/Cerealia (ch culm fgts)	1	
Gramineae/Cerealia (culm fgts)	1	
Helix aspersa	1	
monocot epid fgts	1	
mortar	1	max 25 mm
Papaver somniferum	1	
Prunella vulgaris	1	
Ranunculus Section Ranunculus	1	
Raphanus raphanistrum (psf)	1	
Rumex sp(p).	1	
Sambucus nigra	1	
Scandix pecten-veneris	1	fgts only
Sonchus asper	1	
twig fgts	1	max. 30 x 5 mm

Context 216, Sample 38/T (5 kg)

brick/tile	3	max 40 mm
cinders	3	max 15 mm
coal	3	max 20 mm
fish bone	3	max 45 mm
sand	3	
bone fgts	1	max 35 mm
burnt fish bone	1	max 5 mm
Characeae	1	
charcoal	1	max 5 mm
Chelidonium majus	1	a single spec
Conium maculatum	1	v dec
eggshell fgts	1	max 2 mm
fish scale	1	max 10 mm
flint	1	max 15 mm
marine mollusc shell fgts	1	max 10 mm
mollusc opercula	1	
mortar	1	max 15 mm
mussel shell fgts	1	max 10 mm
oyster shell fgts	1	max 30 mm
part-burnt coal	1	max 100 mm
pottery	1	max 10 mm
Pre-Quaternary megaspores	1	
rodent droppings (min)	1	
root/rootlet fgts (modern)	1	
Sambucus nigra	1	inc fgts
Solanum sp(p).	1	v dec, fgts only
Verbascum/Scrophularia sp(p).	1	a single spec
Viola sp(p).	1	fgts only
woody root fgts (modern)	1	

Context 216, Sample 394053/BS (28 kg)

cinders	3	max 10 mm
coal	3	max 25 mm
grit	3	
sand	3	
brick/tile	2	max 60 mm
fish bone	2	max 30 mm
mortar	2	max 25 mm
'char'	1	max 5 mm
?burnt peat fgts	1	max 10 mm
?Fe nail	1	max 25 mm
?glass fgts	1	max 10 mm
?peat fgts	1	max 5 mm
bird bone	1	max 50 mm
bone fgts	1	max 55 mm
cf. Avena sp(p).	1	a single spec
chalk	1	max 10 mm
Characeae	1	
charcoal	1	max 10 mm
Chelidonium majus	1	
cockle shell fgts	1	max 5 mm
earthworm egg caps	1	
eggshell fgts	1	max 5 mm
fish scale	1	max 5 mm
flint	1	max 15 mm
gravel	1	max 40 mm
Juncus gerardi	1	
Lemna sp(p).	1	
marine mollusc shell fgts	1	max 5 mm

moss (contaminant)	1	
mussel shell fgts	1	max 10 mm
oyster shell fgts	1	max 30 mm
part-burnt coal	1	max 20 mm
percid scale	1	
Pisum sativum	1	
Ranunculus Section Ranunculus	1	a single spec
root/rootlet fgts (modern)	1	
Sambucus nigra	1	inc fgts
winkle shells/fgts	1	
woody root fgts (modern)	1	

Context 230, Sample 60/T (2 kg)

coal	2	max 15 mm
sand	2	
brick/tile	1	max 20 mm
fish bone	1	
marine mollusc shell fgts	1	
teeth	1	

Context 230, Sample 575859/BS (21.2 kg)

sand	3	
brick/tile	2	max 35 mm
cinders	2	max 20 mm
coal	2	max 15 mm
fish bone	2	max 30 mm
chalk	1	max 15 mm
cockle shell fgts	1	max 10 mm
Fe object(s)	1	max 40 mm
mammal bone	1	max 40 mm
mortar	1	max 15 mm
mussel shell fgts	1	max 15 mm
oyster shell fgts	1	max 15 mm
part-burnt coal	1	max 15 mm
pottery	1	max 20 mm

Context 251, Sample 68/BS (6 kg)

grit	3	
sand	3	
brick/tile	2	max 30 mm
cinders	2	max 25 mm
coal	2	max 20 mm
fish bone	2	max 10 mm
?crab shell fgts	1	max 5 mm
amorphous organic matter	1	max 2 mm
bone fgts	1	max 60 mm
burnt bone fgts	1	max 30 mm
Carex sp(p).	1	v dec
Cerealia indet.	1	
cf. Calluna vulgaris (rt-tw fgts)	1	max 3 mm
Characeae	1	
charcoal	1	max 10 mm
Chelidonium majus	1	v dec
clinker/slag	1	max 5 mm
cockle shell fgts	1	max 10 mm
Conium maculatum (mf)	1	v dec
dicot lf fgts (contaminant)	1	
eggshell fgts	1	max 3 mm
Fagus sylvatica (b/bs)	1	modern
fern prothalli (contaminant)	1	
fish scale	1	max 5 mm
Galium aparine (ch)	1	
Gramineae (spklts/fgts)	1	modern
Gramineae/Cerealia (ch c/n)	1	
Hordeum sp(p).	1	
iron-rich concretions	1	max 30 mm
Juncus sp(p).	1	v dec
marine mollusc shell fgts	1	max 10 mm
mortar	1	max 5 mm
otoliths	1	
oyster shell fgts	1	max 5 mm
Papaver argemone	1	v dec, a single spec
part-burnt coal	1	max 5 mm
pottery	1	max 30 mm
Sambucus nigra (sf)	1	
Triticum aestivo-compactum	1	
Viola sp(p).	1	v dec
wood fgts	1	v dec, max 5 mm

Context 251, Sample 68/T (2 kg)

cinders	2	max 15 mm
sand	2	
bone fgts	1	max 10 mm
brick/tile	1	max 20 mm
burnt bone fgts	1	max 10 mm
coal	1	max 10 mm
mussel shell fgts	1	max 10 mm
otoliths	1	

Context 273, Sample 77/T (2 kg)

sand	2	
bone fgts	1	max 10 mm
brick/tile	1	max 10 mm
coal	1	max 10 mm
cockle shell fgts	1	max 10 mm
gravel	1	max 15 mm
insects (contaminant)	1	
mortar	1	max 10 mm
mussel shell fgts	1	
root/rootlet fgts (modern)	1	

Context 298, Sample 95/T (2 kg)

cinders	2	max 30 mm
sand	2	
?peat fgts	1	max 10 mm
Avena sp(p).	1	
brick/tile	1	max 40 mm
chalk gravel	1	max 70 mm
coal	1	max 15 mm
cockle shell fgts	1	
Gramineae (ch)	1	
mammal bone	1	max 130 mm
mortar	1	max 35 mm
mussel shell fgts	1	
oolitic limestone	1	max 40 mm
woody root fgts (modern)	1	

Context 298, Sample 939496/BS (28 kg)

brick/tile	3	max 110 mm
grit	3	
sand	3	
'char'	2	
bone fgts	2	max 90 mm
cinders	2	max 30 mm
cockle shell fgts	2	
Juncus gerardi	2	
?Fe object(s)	1	max 70 mm
Aethusa cynapium	1	v dec
amorphous peat fgts	1	max 5 mm
Anthemis cotula (ch)	1	
Atriplex sp(p).	1	
Atriplex sp(p). (ch)	1	
Avena sp(p).	1	
Avena sp(p). (part-ch)	1	
beetles	1	
bivalve periostracum	1	max 5 mm
Brassica sp./Sinapis arvensis (min)	1	
Carex sp(p).	1	v dec
cf. Avena sp(p). (chaff)	1	
cf. Calluna vulgaris (ch rt-tw fgts)	1	max 5 mm
cf. Cladium mariscus (ch lf fgts)	1	
cf. Secale cereale	1	
chalk	1	max 50 mm
charcoal	1	max 10 mm
Chenopodiaceae (min)	1	
Chrysanthemum segetum (ch)	1	
Cladium mariscus	1	
coal	1	max 40 mm
Daphnia (ephippia)	1	
earthworm egg caps	1	
eggshell fgts	1	max 5 mm
Ficus carica	1	v dec
fish bone	1	max 10 mm
flint	1	max 30 mm
fly puparia	1	v dec
Gramineae/Cerealia (ch culm fgts)	1	
gravel	1	max 35 mm
Hordeum sp(p). (inc hulled)	1	
iron-rich concretions	1	max 1 mm
Juncus sp(p).	1	
leaf ab pads	1	
Leguminosae (ch cot)	1	max 2 mm
limestone	1	max 85 mm
Linum usitatissimum (ch caps fgts)	1	max
Linum usitatissimum (min)	1	a single spec
Matricaria maritima/perforata (ch)	1	a single spec
Menyanthes trifoliata	1	v dec
mineralised seeds/embryos	1	max 2 mm
mortar	1	max 35 mm
moss (contaminant)	1	
mussel shell 'fibres'	1	max 2 mm
mussel shell fgts	1	
oyster shell fgts	1	
part-burnt coal	1	max 40 mm
Plantago lanceolata (ch)	1	
Polygonum aviculare agg. (ch)	1	
Polygonum lapathifolium (ch)	1	
pottery	1	max 60 mm
Ranunculus sardous (ch)	1	
Raphanus raphanistrum (psf)	1	v dec
root/rhizome fgts (ch)	1	max 3 mm
root/rootlet fgts (modern)	1	
Rumex acetosella agg. (ch)	1	
Rumex acetosella agg. (min)	1	
Rumex sp(p). (ch)	1	
Sambucus nigra	1	inc fgts
snails	1	
teeth	1	max 60 mm
Thalictrum flavum	1	
Triticum aestivo-compactum	1	
Triticum sp(p).	1	
Triticum sp(p). (f/t rachis fgts)	1	
Umbelliferae (min)	1	a single spec
Vitis vinifera (ch)	1	a single spec
whelk shells/fgts	1	
wood fgts	1	v dec, max 10 mm

Context 348, Sample 88/T (2 kg)

concretions	2	max 20 mm
sand	2	
bird bone	1	max 25 mm
brick/tile	1	max 20 mm
cinders	1	max 30 mm
coal	1	max 5 mm
earthworm egg caps	1	
fish bone	1	max 30 mm
mortar	1	max 10 mm

Sambucus nigra	1	a single spec

Context 382, Sample 113/T (2 kg)

Juncus sp(p).	2	
mortar	2	max 30 mm
sand	2	
unwashed sediment	2	
?daub	1	max 40 mm
bone fgts	1	max 20 mm
brick/tile	1	max 60 mm
charcoal	1	max 10 mm
coal	1	max 30 mm
marine mollusc shell fgts	1	max 10 mm
oyster shell fgts	1	max 60 mm
pottery	1	max 30 mm

Context 390, Sample 117/T (2 kg)

brick/tile	2	max 40 mm
charcoal	2	max 20 mm
mortar	2	max 30 mm
sand	2	
bone fgts	1	max 50 mm
cinders	1	max 20 mm
coal	1	max 10 mm
earthworm egg caps	1	
fish bone	1	max 20 mm
glassy slag	1	max 50 mm
Juncus cf. gerardi	1	
oyster shell fgts	1	max 40 mm
snails	1	
Triticum aestivo-compactum	1	
wood fgts	1	max 10 mm

Context 413, Sample 118/T (2 kg)

Atriplex sp(p).	2	
bark fgts	2	max 10 mm
beetles	2	
Silybum marianum	2	
wood fgts	2	max 80 mm
?peat fgts	1	max 10 mm
Agrostemma githago (sf)	1	v dec fgts
Anthemis cotula	1	
Avena sp(p). (chaff)	1	
Brassica sp(p). (sf)	1	
brick/tile	1	max 30 mm
Campylium stellatum	1	
Carex sp(p).	1	
Centaurea sp(p). (af)	1	
cf. Calluna vulgaris (rt-tw fgts)	1	
Characeae	1	
charcoal	1	max 10 mm
Chrysanthemum segetum	1	
cinders	1	max 20 mm
coal	1	max 5 mm
cockle shell fgts	1	
earthworm egg caps	1	
fly puparia	1	
Gramineae	1	
Hypnum cf. cupressiforme	1	
Juncus gerardi	1	
Leguminosae (ch cot)	1	
Linum usitatissimum (caps fgts)	1	
Papaver somniferum	1	
part-burnt coal	1	
Polygonum lapathifolium	1	
pottery	1	max 40 mm
Prunus Section Cerasus	1	
Ranunculus Section Ranunculus	1	
Raphanus raphanistrum (psf)	1	
Rumex sp(p).	1	
sand	1	
Scorpidium scorpioides	1	
Sonchus oleraceus	1	
Sphagnum imbricatum (lvs)	1	
Stellaria media	1	
twig fgts	1	max 30 mm
Urtica dioica	1	
wood chips	1	max 40 mm

Context 413, Sample 118/T1 (5 kg)

wood fgts	3	v dec, max 40 mm
Atriplex sp(p).	2	
Brassica rapa (sf)	2	
brick/tile	2	max 50 mm
Carex sp(p).	2	
earthworm egg caps	2	
grit	2	
herbaceous detritus	2	
Juncus gerardi	2	
Papaver somniferum	2	fgts only
Rumex sp(p).	2	
Scorpidium scorpioides	2	
Sphagnum imbricatum (lvs)	2	
Stellaria media	2	
Urtica urens	2	
?burnt peat fgts	1	max 10 mm
Aethusa cynapium	1	v dec
Agrostemma githago	1	a single spec
Amblystegium sp(p).	1	
Anthemis cotula	1	
Avena sp(p). (chaff)	1	
bark fgts	1	max 30 mm
beetles	1	
bone fgts	1	max 20 mm
burnt bone fgts	1	max 5 mm

Calliergon cf. giganteum	1	
Carduus/Cirsium sp(p).	1	
Centaurea sp(p).	1	
cf. Avena sp(p).	1	
cf. Calluna vulgaris (ch rt-tw fgts)	1	max 15 mm
cf. Calluna vulgaris (rt-tw fgts)	1	max 10 mm
cf. Salix sp(p). (lf fgts)	1	
cf. Trifolium sp(p).	1	a single spec
charcoal	1	max 30 mm
Chrysanthemum segetum	1	
cinders	1	max 30 mm
Cladium mariscus	1	
coal	1	max 20 mm
cockle shell fgts	1	
colonial hydroid	1	
Corylus avellana	1	v dec
Cruciferae (pedicels)	1	
Danthonia decumbens	1	
Daphnia (ephippia)	1	
dicot lf fgts	1	max 2 mm
Drepanocladus sp(p).	1	
eggshell fgts	1	max 4 mm
Eriophorum vaginatum (scl sp)	1	a single spec
Ficus carica	1	
fish bone	1	max 10 mm
fly puparia	1	
foraminifera	1	
Gramineae	1	
Gramineae (ch)	1	a single spec
gravel	1	max 5 mm
Hydrocotyle vulgaris	1	
Hypnum cf. cupressiforme	1	
iron-rich concretions	1	max 5 mm
Juncus bufonius	1	
Lapsana communis	1	
Leguminosae	1	max 2 mm
Leguminosae (fls/pet)	1	
Leguminosae (pods/fgts)	1	max 2 mm
Leontodon sp(p).	1	
limestone	1	max 70 mm
Linum usitatissimum	1	fgts only
Linum usitatissimum (caps fgts)	1	max 2 mm
Lychnis flos-cuculi	1	
Menyanthes trifoliata	1	
mites	1	
mollusc opercula	1	
Montia fontana ssp. chondrosperma	1	
mortar	1	max 20 mm
Myxotrichum sp(p). (ascocarps)	1	
Papaver rhoeas/dubium	1	
peat fgts	1	max 30 mm
Plantago major	1	
Polygonum lapathifolium	1	
Polygonum persicaria	1	
Potentilla anserina	1	
pottery	1	max 35 mm
Quercus (wood chips)	1	max 50 mm
Quercus sp(p). (b/bs)	1	
Ranunculus flammula	1	
Ranunculus sardous	1	
Ranunculus Section Ranunculus	1	
Raphanus raphanistrum (psf)	1	
Rhinanthus sp(p).	1	
Rumex sp(p). (ch)	1	
Ruppia maritima	1	
Salix sp(p). (tw fgts)	1	max 20 mm
Sambucus nigra (tw fgts)	1	max.30 x 10 mm
sand	1	
Scandix pecten-veneris	1	fgts only
Scirpus lacustris sl (ch)	1	a single spec
Silene cf. nutans	1	
Silene vulgaris	1	
Silybum marianum	1	
snails	1	
Sonchus asper	1	
Sparganium sp(p).	1	
Spergula arvensis	1	
Sphagnum imbricatum (shts)	1	
Taxus baccata (wood chips)	1	max 55 mm
Thlaspi arvense	1	
Thuidium tamariscinum	1	
Torilis japonica	1	a single fgt
twig fgts	1	max. 50 x 10 mm
Urtica dioica	1	
winkle shells/fgts	1	
Zannichellia palustris	1	

Context 2100, Sample 313233/BS (13.3 kg)

cinders	3	max 35 mm
brick/tile	2	max 15 mm
fish bone	2	max 20 mm
Gramineae	2	
Juncus gerardi	2	
sand	2	
'char'	1	
Alisma sp(p).	1	'embryos' only
Carex sp(p).	1	
chalk	1	max 10 mm
coal	1	max 15 mm
Conium maculatum	1	v dec
earthworm egg caps	1	
Ficus carica	1	
fish scale	1	
Hyoscyamus niger	1	
Lemna sp(p). (fronds)	1	
mammal bone	1	max 40 mm
Mentha sp(p).	1	
mortar	1	max 10 mm

moss (contaminant)	1	
mussel shell fgts	1	max 20 mm
oyster shell fgts	1	max 20 mm
Papaver argemone	1	
Papaver somniferum	1	
part-burnt coal	1	max 30 mm
Potentilla anserina	1	
pottery	1	max 30 mm
Ranunculus sardous	1	
Ranunculus Section Ranunculus	1	
Reseda luteola	1	v dec
Rumex acetosella agg.	1	
Sambucus nigra	1	
Scirpus cf. lacustris sl	1	
Scirpus cf. maritimus	1	
Typha sp(p).	1	
Umbelliferae	1	v dec
Urtica dioica	1	

Context 2280, Sample 34/T (2 kg)

sand	3	
cinders	2	max 10 mm
coal	2	max 10 mm
grit	2	
brick/tile	1	max 10 mm
Juncus gerardi	1	
mussel shell fgts	1	
root/rootlet fgts (modern)	1	

Context 2280, Sample 35/T (5 kg)

grit	3	
sand	3	
brick/tile	2	max 15 mm
cinders	2	max 10 mm
coal	2	max 15 mm
?chalk	1	max 5 mm
beetles	1	v dec
bivalve periostracum	1	
bone fgts	1	max 10 mm
Carex sp(p).	1	v dec
Cenococcum (sclerotia)	1	
cf. Salix sp(p). (s)	1	
charcoal	1	max 5 mm
Chelidonium majus	1	a single v dec fgt
Chenopodiaceae	1	'embryos' only
Conium maculatum (mf)	1	v dec, fgts only
Corylus avellana	1	v dec
earthworm egg caps	1	
fish bone	1	max 15 mm
fish scale	1	max 3 mm
fly puparia	1	v dec, fgts only
Fumaria sp(p). (sf)	1	
Juncus gerardi	1	
Juncus sp(p).	1	v dec
leaf ab pads	1	
Lemna sp(p). (fronds)	1	
mortar	1	max 5 mm
moss	1	
moss (lfless stems)	1	
mussel shell 'fibres'	1	max 2 mm
mussel shell fgts	1	max 5 mm
oyster shell fgts	1	max 15 mm
Papaver somniferum	1	a single v dec fgt
part-burnt coal	1	max 15 mm
Quercus sp(p). (b/bs)	1	
Sambucus nigra	1	inc fgts
Sphagnum imbricatum (lvs)	1	a single spec
Sphagnum sp(p). (caps/lids)	1	
Urtica dioica	1	v dec
wood fgts	1	v dec, max 10 mm

Context 2287, Sample 192021/BS (14.4 kg)

coal	3	max 30 mm
sand	3	
'char'	2	
cinders	2	max 10 mm
gravel	2	max 15 mm
grit	2	
mussel shell fgts	2	max 45 mm
?Pb object(s)	1	
Avena sp(p).	1	a single spec
barnacle shell fgts	1	
brick/tile	1	max 10 mm
burnt bone fgts	1	max 5 mm
burnt cockle shell fgts	1	
burnt fish bone	1	max 4 mm
charcoal	1	max 10 mm
cockle shell fgts	1	max 10 mm
eggshell fgts	1	max 5 mm
fish bone	1	max 40 mm
fish scale	1	max 10 mm
flint	1	max 10 mm
glass	1	max 10 mm
Juncus gerardi	1	
mammal bone	1	max 35 mm
mortar	1	max 10 mm
moss (contaminant)	1	
otoliths	1	
oyster shell fgts	1	max 45 mm
part-burnt coal	1	max 15 mm
percid scale	1	
pottery	1	max 20 mm

Sambucus nigra	1	
stone	1	max 40 mm
winkle shells/fgts	1	

Context 2316, Sample 6263/BS (16 kg)

brick/tile	3	max 50 mm
sand	2	
bone fgts	1	max 60 mm
cinders	1	max 15 mm
coal	1	max 30 mm
cockle shell fgts	1	max 10 mm
gravel	1	max 40 mm
mussel shell fgts	1	max 15 mm

Context 2336, Sample 29/T (5 kg)

brick/tile	3	max 50 mm
cinders	3	max 25 mm
grit	3	
sand	3	
coal	2	max 10 mm
fish bone	2	max 15 mm
Juncus gerardi	2	
?burnt peat fgts	1	max 10 mm
?crab shell fgts	1	max 4 mm
?Fe object(s)	1	max 50 mm
Agrostemma githago	1	a single v dec fgt
beetles	1	
bone fgts	1	max 60 mm
Carex sp(p).	1	v dec
Carex sp(p). (ch)	1	
cf. Cladium mariscus (ch lf fgts)	1	a single fgt
cf. Salix sp(p). (s)	1	
chalk	1	max 15 mm
charcoal	1	max 10 mm
Chenopodiaceae	1	'embryos' only
Corylus avellana	1	v dec
earthworm egg caps	1	
eggshell fgts	1	max 4 mm
fish scale	1	max 4 mm
Fumaria sp(p).	1	inc fgts
glassy slag	1	max 4 mm
gravel	1	max 15 mm
Hyoscyamus niger	1	v dec, a single spec
Hypericum sp(p).	1	a single spec
Juncus sp(p).	1	v dec
Lemna sp(p). (fronds)	1	a single spec
marine mollusc shell fgts	1	max 5 mm
mortar	1	max 15 mm
moss (contaminant)	1	
moss (lfless stems)	1	
mussel shell 'fibres'	1	
mussel shell fgts	1	max 15 mm
oyster shell fgts	1	max 10 mm
Papaver somniferum	1	a single v dec fgt
part-burnt coal	1	max 10 mm
peat fgts	1	max 10 mm
Populus tremula (cs)	1	
Prunus spinosa	1	fgts only
Sambucus nigra	1	inc fgts
wood fgts	1	v dec, max 10 mm

Context 2336, Sample 2830/BS (18.5 kg)

brick/tile	3	max 60 mm
cinders	3	max 10 mm
grit	3	
sand	3	
bone fgts	2	max 100 mm
coal	2	max 20 mm
Juncus gerardi	2	
Apium graveolens	1	v dec
Baldellia ranunculoides	1	
beetles	1	
Carex sp(p).	1	
Carex sp(p). (ch)	1	
cf. Salix sp(p). (s)	1	
chalk	1	max 35 mm
charcoal	1	max 5 mm
Conium maculatum	1	v dec
Corylus avellana	1	v dec
Daucus carota	1	v dec
earthworm egg caps	1	
Eleocharis palustris sl	1	v dec
Fagus sylvatica (b/bs)	1	?modern
Fe object(s)	1	max 40 mm
Ficus carica	1	
fish bone	1	max 20 mm
Fumaria sp(p).	1	?modern
Gramineae	1	
Gramineae (ch)	1	
Gramineae (spklts/fgts)	1	?modern
Lamium Section Lamiopsis	1	
Menyanthes trifoliata	1	v dec, inc fgts
mortar	1	max 20 mm
moss (contaminant)	1	
mussel shell fgts	1	max 10 mm
oyster shell fgts	1	max 30 mm
Papaver somniferum	1	
part-burnt coal	1	max 50 mm
pottery	1	max 10 mm
Quercus sp(p). (b/bs)	1	v dec
Ranunculus Section Ranunculus	1	
Ranunculus Section Ranunculus (ch)	1	
Salix sp(p). (b)	1	

Sambucus nigra (sf)	1	
Sphagnum imbricatum (lvs)	1	a single spec

Context 2338, Sample 23/T (2 kg)

coal	2	max 25 mm
sand	2	
brick/tile	1	max 30 mm
cinders	1	
fish bone	1	max 15 mm
marine mollusc shell fgts	1	max 25 mm
mussel shell fgts	1	max 20 mm

Context 2353, Sample 11/T (2 kg)

cinders	2	
coal	2	
Juncus cf. gerardi	2	
sand	2	
?Fe object(s)	1	max 20 mm
brick/tile	1	max 20 mm
fish bone	1	max 25 mm
mortar	1	max 10 mm

Context 2354, Sample 18/T (2 kg)

cinders	2	max 10 mm
coal	2	max 10 mm
sand	2	
bird bone	1	max 30 mm
brick/tile	1	max 20 mm
chalk	1	max 5 mm
fish bone	1	max 10 mm
mortar	1	max 5 mm
mussel shell fgts	1	max 5 mm

Context 2376, Sample 50/T (2 kg)

cinders	2	max 10 mm
sand	2	
brick/tile	1	max 15 mm
charcoal	1	max 10 mm
coal	1	max 10 mm
fish bone	1	max 10 mm
root/rootlet fgts (modern)	1	
Sambucus nigra	1	

Context 2376, Sample 4951/BS (17 kg)

brick/tile	2	max 30 mm
sand	2	
bone fgts	1	max 70 mm
chalk	1	max 80 mm
cinders	1	max 10 mm
coal	1	max 10 mm
fish bone	1	
marine mollusc shell fgts	1	
mortar	1	max 30 mm
root/rootlet fgts (modern)	1	

Context 2415, Sample 70/T (5 kg)

brick/tile	3	max 50 mm
grit	3	
sand	3	
cinders	2	max 15 mm
coal	2	max 20 mm
mortar	2	max 10 mm
mussel shell fgts	2	max 20 mm
?Fe object(s)	1	max 30 mm
Alisma sp(p).	1	'embryos' only
barnacle shell fgts	1	
beetles	1	v dec
bone fgts	1	max 55 mm
burnt fish bone	1	max 5 mm
Cenococcum (sclerotia)	1	
cf. Calluna vulgaris (ch rt-tw fgts)	1	max 5 mm
cf. Fagus sylvatica (b/bs)	1	
cf. Salix sp(p). (s)	1	
chalk	1	max 20 mm
charcoal	1	max 10 mm
Chelidonium majus	1	a single v dec fgt
cockle shell fgts	1	max 10 mm
Conium maculatum (mf)	1	v dec
Corylus avellana	1	v dec
earthworm egg caps	1	
Ficus carica	1	a single fgt
fish bone	1	max 15 mm
fish scale	1	max 3 mm
flint	1	max 15 mm
fly puparia	1	v dec, fgts only
Fumaria sp(p). (sf)	1	
Gramineae	1	
Hyoscyamus niger	1	v dec, fgts only
Hypericum sp(p).	1	v dec, inc fgts
Juncus gerardi	1	
Lemna sp(p). (fronds)	1	
marine mollusc shell fgts	1	max 10 mm
mollusc opercula	1	
otoliths	1	
oyster shell fgts	1	max 5 mm
Papaver argemone	1	v dec
Papaver somniferum	1	a single v dec fgt
part-burnt coal	1	max 5 mm

Quercus sp(p). (b/bs)	1	v dec
Ranunculus Section Ranunculus	1	a single fgt
Sambucus nigra	1	inc fgts
Scirpus lacustris sl	1	
Urtica dioica	1	v dec
Viola sp(p).	1	a single fgt

Context 2415, Sample 7172/BS (18 kg)

brick/tile	3	max 30 mm
cinders	3	max 15 mm
coal	3	max 15 mm
grit	3	
mortar	3	max 55 mm
sand	3	
Juncus gerardi	2	
?Fe nail	1	max 15 mm
beetles	1	v dec
bone fgts	1	max 100 mm
Carex sp(p).	1	presn v variable
cf. Prunus spinosa	1	fgts only
cf. Vitis vinifera (sf)	1	
chalk	1	max 20 mm
Chenopodiaceae	1	v dec
Chrysanthemum segetum (af)	1	v dec
cockle shell fgts	1	max 10 mm
Conium maculatum (mf)	1	v dec
Corylus avellana	1	v dec, max 5 mm
earthworm egg caps	1	
Eriophorum vaginatum (ch scl sp)	1	
fern prothalli (contaminant)	1	
Ficus carica	1	presn v variable
fish scale	1	max 5 mm
flint	1	max 15 mm
fly puparia	1	v dec
Hypericum sp(p).	1	
Juncus sp(p).	1	v dec
limestone	1	max 30 mm
moss (contaminant)	1	
mussel shell fgts	1	max 10 mm
oyster shell fgts	1	max 10 mm
Polygonaceae	1	v dec
Potamogeton sp(p).	1	
pottery	1	max 20 mm
Quercus sp(p). (b/bs)	1	v dec
Ranunculus arvensis	1	v dec
Ranunculus sardous	1	
Raphanus raphanistrum (psf)	1	v dec
Sambucus nigra	1	inc fgts
Scirpus cf. maritimus	1	
Scirpus lacustris sl	1	
Typha sp(p).	1	
Umbelliferae	1	v dec
Urtica dioica	1	

Context 2537, Sample 108/T (2 kg)

bark fgts	1	max 10 mm
beetles	1	
brick/tile	1	max 10 mm
Campylium stellatum	1	
chalk	1	max 10 mm
charcoal	1	max 20 mm
coal	1	max 5 mm
earthworm egg caps	1	
gravel	1	max 10 mm
herbaceous detritus	1	
mortar	1	max 5 mm
pottery	1	max 20 mm
wood fgts	1	max 10 mm

Context 2538, Sample 105/T (2 kg)

beetles	2	
Brassica sp(p).	2	inc fgts
Gramineae	2	
herbaceous detritus	2	
sand	2	
wood fgts	2	max 40 mm
Agrostemma githago (sf)	1	
Anthemis cotula	1	
Aster tripolium	1	
Bilderdykia convolvulus	1	
bone fgts	1	max 50 mm
Cannabis sativa	1	a single fgt
Carex sp(p).	1	
Centaurea sp(p).	1	
cf. Calluna vulgaris (rt-tw fgts)	1	
cf. Ceratodon purpureus	1	
cf. Petroselinum crispum	1	
coal	1	max 5 mm
Corylus avellana	1	
dicot stem fgts	1	
earthworm egg caps	1	
eggshell fgts	1	max 2 mm
Eleocharis palustris sl	1	
fish bone	1	
fly puparia	1	
Gramineae/Cerealia (c/n)	1	
Gramineae/Cerealia (ch culm fgts)	1	
Gramineae/Cerealia (culm fgts)	1	
gravel	1	
grit	1	
Hordeum sp(p).	1	
Hypochoeris sp(p).	1	
Juncus bufonius	1	
Lapsana communis	1	
leather fgts	1	max 10 mm
Leontodon sp(p).	1	
Polygonum aviculare agg.	1	

Prunus Section Cerasus	1	fgts only
Raphanus raphanistrum (psf)	1	
Rhinanthus sp(p).	1	
Rumex sp(p).	1	
Scorpidium scorpioides	1	
Sphagnum imbricatum (lvs)	1	
stones	1	max 50 mm
Torilis japonica	1	
twig fgts	1	max. 20 x 5 mm
wood chips	1	

Context 2539, Sample 109/T (3 kg)

herbaceous detritus	4	max 3 mm
Gramineae/Cerealia (c/n)	3	
Gramineae/Cerealia (culm fgts)	3	
Sphagnum imbricatum (lvs)	3	
Triticum sp(p). (w/l f/t rachis fgts)	3	
Agrostemma githago (sf)	2	
Anthemis cotula	2	
Brassica rapa	2	inc fgts
Carex sp(p).	2	
Centaurea cf. cyanus	2	
Centaurea sp(p). (af)	2	
cf. Calluna vulgaris (rt-tw fgts)	2	max 20 mm
Chrysanthemum segetum	2	
Cladium mariscus	2	
Cruciferae (pedicels)	2	
Eleocharis palustris sl	2	
Eriophorum vaginatum (lf shth fibres)	2	
Eriophorum vaginatum (scl sp)	2	
fly puparia	2	
Gramineae	2	
Juncus gerardi	2	
Knautia arvensis (ff)	2	
Leguminosae (fls/pet)	2	
Leguminosae (pods/fgts)	2	max 5 mm
Leontodon sp(p).	2	
Menyanthes trifoliata	2	inc fgts
peat fgts	2	max 25 mm
Prunella vulgaris	2	
Ranunculus Section Ranunculus	2	
Raphanus raphanistrum (psf)	2	
Rhinanthus sp(p).	2	
Rumex sp(p). (inc per)	2	
Scandix pecten-veneris	2	fgts only
Silene vulgaris	2	
Triticum/Secale (w/l)	2	inc fgts
'coils'	1	
Alopecurus sp(p).	1	
Anagallis arvensis	1	a single spec
Arctium sp(p).	1	
Atriplex sp(p).	1	
Avena sp(p). (w/l)	1	
Baldellia ranunculoides	1	
bark chips	1	max 30 mm
bark fgts	1	max 70 mm
beetles	1	
Bilderdykia convolvulus	1	
Bilderdykia convolvulus (ff)	1	
bone fgts	1	max 10 mm
Brassica sp(p).	1	
Brassica sp./Sinapis arvensis	1	
Brassica sp./Sinapis arvensis (pod fgts)	1	
brick/tile	1	max 10 mm
Carduus/Cirsium sp(p).	1	
Centaurea sp(p). (inv fgts)	1	
Centaurea sp(p). (min)	1	
cf. Brachythecium sp(p).	1	
cf. Calluna vulgaris (rt fgts)	1	max 25 mm
cf. Erica tetralix (lvs)	1	a single spec
cf. Linum usitatissimum (stem fgts)	1	max 20 mm
Characeae	1	
charcoal	1	max 5 mm
cinders	1	max 15 mm
coal	1	max 4 mm
Compositae (inv fgts)	1	
concretions	1	max 5 mm
Corylus avellana	1	
Danthonia decumbens	1	
Daucus carota	1	
dicot lf fgts	1	a single spec
dog coprolite	1	max 15 mm
earthworm egg caps	1	
Eriophorum vaginatum (rh fgts)	1	
Eriophorum vaginatum (rh-st fgts)	1	
Eriophorum vaginatum (rh-st nodes)	1	
Ficus carica	1	
Filipendula ulmaria	1	
fish bone	1	max 5 mm
Galium aparine (epicarp)	1	
Gramineae (ch)	1	
gravel	1	max 15 mm
grit	1	
Hydrocotyle vulgaris	1	
Hypnum cf. cupressiforme	1	
Hypochoeris sp(p).	1	
Lapsana communis	1	
Leguminosae (cal)	1	
Medicago lupulina (pods/fgts)	1	
moss	1	
Oenanthe lachenalii	1	
oolitic limestone	1	max 10 mm
oyster shell fgts	1	max 30 mm
Papaver somniferum	1	a single spec
Pisum sativum	1	
plant fibres	1	
Plantago lanceolata	1	a single spec
Polygonum aviculare agg.	1	
Polygonum lapathifolium	1	
Polygonum persicaria	1	

Potamogeton sp(p).	1	a single spec
Potentilla anserina	1	
Potentilla cf. erecta	1	
pottery	1	max 30 mm
Pteridium aquilinum (stalk fgts)	1	
Quercus (wood chips)	1	max 10 mm
Ranunculus cf. lingua	1	
Ranunculus flammula	1	
Ranunculus sardous	1	
Raphanus raphanistrum	1	
Reseda lutea	1	a single spec
Rhinanthus sp(p). (min)	1	
sand	1	
Sonchus asper	1	
Sonchus palustris/arvensis	1	a single spec
Sparganium sp(p).	1	
Sphagnum imbricatum (shts)	1	
Sphagnum sp(p). (st fgts)	1	
Stellaria cf. alsine	1	a single spec
Thalictrum flavum	1	
Torilis japonica	1	a single fgt
Trifolium pratense (pods/lids)	1	
twig fgts	1	max 30 mm
Vitis vinifera	1	a single spec
wood chips	1	max 10 mm
wood fgts	1	max 20 mm

Context 2539, Sample 110/T (1 kg)

Cerealia indet. (chaff)	2	
Gramineae/Cerealia (culm fgts)	2	
herbaceous detritus	2	
Prunella vulgaris	2	
wood fgts	2	max 30 mm
'coils'	1	
Agrostemma githago (sf)	1	
beetles	1	
Bilderdykia convolvulus (ff)	1	
bone fgts	1	max 20 mm
Brassica sp(p).	1	
brick/tile	1	max 15 mm
Carex sp(p).	1	
Centaurea sp(p).	1	
chalk	1	max 30 mm
Characeae	1	
charcoal	1	max 10 mm
coal	1	max 5 mm
Corylus avellana	1	
Corylus avellana (anth)	1	
dicot lf fgts	1	
dicot stem fgts	1	
eggshell fgts	1	max 2 mm
Eriophorum vaginatum (rh-st fgts)	1	
flint	1	max 15 mm
fly puparia	1	
Gramineae	1	
Gramineae/Cerealia (c/n)	1	
gravel	1	
Hypochoeris sp(p).	1	
Juncus cf. acutiflorus	1	
Juncus gerardi	1	
Leguminosae (fls/pet)	1	
Leguminosae (pods/fgts)	1	
Medicago lupulina (pods/fgts)	1	
Menyanthes trifoliata	1	
mussel shell fgts	1	
oyster shell fgts	1	max 60 mm
peat fgts	1	max 15 mm
Polygonum aviculare agg.	1	
Ranunculus flammula	1	
Raphanus raphanistrum (psf)	1	
Rhinanthus sp(p).	1	
Rumex sp(p). (per/segs)	1	
sand	1	
Silene alba	1	
Sonchus asper	1	
Sphagnum imbricatum (lvs/shts)	1	
Stellaria graminea	1	
Stellaria sp(p).	1	
Triticum/Secale (w/l)	1	fgts only
twig fgts	1	max. 30 x 5 mm
wood chips	1	max 30 mm

BWH00

Context 105, Sample 10514/SPT

brick/tile	1	max 10 mm
burnt bone fgts	1	max 5 mm
coal	1	max 5 mm
dog coprolite	1	max 25 mm
glassy slag	1	max 5 mm
sand	1	

Context 216, Sample 21601/BS (11 kg)

brick/tile	3	max 65 mm
chalk	3	max 65 mm
cinders	3	max 30 mm
sand	3	
bone fgts	1	max 65 mm
burnt bone fgts	1	max 20 mm
coal	1	max 20 mm
Cristatella (statoblasts)	1	
Fe object(s)	1	max 10 mm
fish bone	1	max 5 mm
flint	1	max 15 mm
glassy slag	1	max 5 mm
insects	1	v dec

Juncus gerardi	1	
Juncus inflexus/effusus/conglomeratus	1	
Juncus sp(p).	1	
marine mollusc shell fgts	1	max 10 mm
mortar	1	max 20 mm
moss (contaminant)	1	
mussel shell fgts	1	max 10 mm
part-burnt coal	1	max 20 mm
teeth	1	
winkle shells/fgts	1	

Context 239, Sample 23901/T (5 kg)

brick/tile	3	max 30 mm
cinders	3	max 30 mm
coal	3	max 25 mm
mortar	3	
sand	3	
charcoal	2	
fish bone	2	max 35 mm
mussel shell fgts	2	max 30 mm
'char'	1	
barnacle shell fgts	1	
bird bone	1	max 10 mm
bone fgts	1	
burnt bone fgts	1	max 20 mm
cockle shell fgts	1	max 15 mm
earthworm egg caps	1	
eggshell fgts	1	max 5 mm
fish scale	1	max 10 mm
Lemna sp(p). (fronds)	1	
moss (contaminant)	1	
oyster shell fgts	1	max 35 mm
part-burnt coal	1	max 10 mm
pottery	1	max 10 mm
Sambucus nigra	1	inc fgts
Urtica dioica	1	

Context 288, Sample 288/SPT

Abies alba (wood)	1	max 30 mm
bark fgts	1	max 40 mm
bone fgts	1	max 50 mm
cf. Abies alba (wood)	1	max 25 mm
Juglans regia	1	max 30 mm
Pinus sp(p). (wood)	1	max 20 mm
Quercus (wood chips)	1	max 50 mm
Quercus (wood)	1	max 70 mm
Taxus baccata (wood chips)	1	max 30 mm
twig fgts	1	max. 25 x 5 mm
wood fgts	1	max 35 mm

Context 288, Sample 28801/T (5 kg)

herbaceous detritus	3	
Brassica rapa	2	inc fgts
Carex sp(p).	2	
Gramineae	2	
gravel	2	max 35 mm
Hypochoeris sp(p).	2	
peat fgts	2	max 10 mm
Ranunculus Section Ranunculus	2	
Sphagnum imbricatum (lvs)	2	
wood fgts	2	max 50 mm
Agrostemma githago (sf)	1	
Alnus glutinosa	1	
Alnus glutinosa (tw fgts)	1	max 5 mm
Anthemis cotula	1	
Antitrichia curtipendula	1	a single spec
Atriplex sp(p).	1	
Avena sp(p). ('bran' fgts)	1	
bark fgts	1	max 10 mm
bast fgts	1	max 5 mm
beetles	1	
Brassica sp(p).	1	
brick/tile	1	max 20 mm
Campylium stellatum	1	
Carduus/Cirsium sp(p).	1	
Centaurea cf. cyanus	1	
Centaurea sp(p). (af)	1	
Centaurea sp(p). (inv br)	1	
cf. Calluna vulgaris (rt-tw fgts)	1	max
charcoal	1	max 20 mm
Chenopodium album	1	
coal	1	max 10 mm
Corylus avellana	1	
Cruciferae (pedicels)	1	
dicot stem fgts	1	
earthworm egg caps	1	
Eriophorum vaginatum (lf shth fibres)	1	
Ficus carica	1	
fly puparia	1	
Gramineae/Cerealia (ch culm fgts)	1	
Gramineae/Cerealia (culm fgts)	1	
Homalothecium sericeum/lutescens	1	
Ilex aquifolium (lef)	1	
Lapsana communis	1	
leather fgts	1	v dec, max 5 mm
Leguminosae (fls/pet)	1	
Leguminosae (imm s)	1	
Leguminosae (pods/fgts)	1	>1 type present
Leontodon sp(p).	1	
Menyanthes trifoliata	1	inc fgts
mortar	1	max 10 mm
Plantago major	1	
Polygonum aviculare agg.	1	
Prunella vulgaris	1	
Ranunculus sardous	1	
Raphanus raphanistrum (psf)	1	
Rhytidiadelphus sp(p).	1	
Rumex acetosella agg.	1	

Rumex sp(p). (inc per)	1	
sand	1	
Silene vulgaris	1	
snails	1	
Sonchus asper	1	
Stellaria graminea	1	
Triticum sp(p). (f/t rachis fgts)	1	
twig fgts	1	max 10 mm
wood chips	1	max 20 mm

Context 291, Sample 29101/T (5 kg)

cinders	4	max 40 mm
sand	3	
coal	2	max 50 mm
fish bone	2	max 10 mm
'char'	1	
?baked clay/daub	1	max 10 mm
bone fgts	1	max 75 mm
brick/tile	1	max 15 mm
burnt bone fgts	1	max 20 mm
chalk	1	max 20 mm
cockle shell fgts	1	max 25 mm
eggshell fgts	1	max 5 mm
gravel	1	max 25 mm
mollusc opercula	1	
mortar	1	max 10 mm
mussel shell fgts	1	max 25 mm
part-burnt coal	1	max 30 mm
Pb object(s)	1	max 30 mm
root/rootlet fgts (modern)	1	
teeth	1	

Context 294, Sample 294/SPT

bark fgts	1	max 40 mm

Table 3. Main statistics for the assemblages of adult Coleoptera and Hemiptera (excluding Aphidoidea and Coccidoidea) from the Blanket Row site, Kingston-upon-Hull. For explanation of codes see Table 5.

BWH	**00**	**00**	**98**	**98**	**98**	**98**	**98**	**98**	**98**	**98**	
Context	**239**	**288**	**2100**	**2287**	**413**	**2280**	**2336**	**2415**	**2415**	**2539**	**Whole**
Sample	**23901**	**28801**	**313233**	**192021**	**118**	**35**	**29**	**70**	**7172**	**109**	**site**
Ext	/T	/T	/BS	/T	/T	/T	/T	/T	/BS	/T	
S	1	113	13	2	128	14	8	14	36	103	261
N	1	263	13	2	373	14	9	15	53	183	926
ALPHA	0	75	0	0	69	0	0	0	50	97	121
SEALPHA	0	8	0	0	6	0	0	0	14	13	6
SOB	0	52	3	0	50	4	3	4	15	44	124
PSOB	0	46	23	0	39	29	38	29	42	43	48
NOB	0	136	3	0	137	4	3	5	17	60	365
PNOB	0	52	23	0	37	29	33	33	32	33	39
ALPHAOB	0	31	0	0	29	0	0	0	0	74	66

SEALPHAOB	0	4	0	0	4	0	0	0	0	20	6
SW	0	9	0	0	15	0	0	0	3	11	28
PSW	0	8	0	0	12	0	0	0	8	11	11
NW	0	34	0	0	34	0	0	0	3	12	83
PNW	0	13	0	0	9	0	0	0	6	7	9
ALPHAW	0	4	0	0	10	0	0	0	0	0	15
SEALPHAW	0	1	0	0	3	0	0	0	0	0	3
SD	0	5	0	0	9	0	0	0	0	7	16
PSD	0	4	0	0	7	0	0	0	0	7	6
ND	0	43	0	0	43	0	0	0	0	11	97
PND	0	16	0	0	12	0	0	0	0	6	10
ALPHAD	0	2	0	0	4	0	0	0	0	0	6
SEALPHAD	0	0	0	0	1	0	0	0	0	0	1
SP	0	22	1	0	13	1	1	1	4	14	42
PSP	0	19	8	0	10	7	13	7	11	14	16
NP	0	30	1	0	26	1	1	1	4	23	87
PNP	0	11	8	0	7	7	11	7	8	13	9
ALPHAP	0	38	0	0	11	0	0	0	0	16	32
SEALPHAP	0	15	0	0	4	0	0	0	0	6	6
SM	0	0	0	0	0	0	0	0	0	0	0
PSM	0	0	0	0	0	0	0	0	0	0	0
NM	0	0	0	0	0	0	0	0	0	0	0
PNM	0	0	0	0	0	0	0	0	0	0	0
ALPHAM	0	0	0	0	0	0	0	0	0	0	0
SEALPHAM	0	0	0	0	0	0	0	0	0	0	0
SL	0	2	1	0	3	0	0	1	1	1	4
PSL	0	2	8	0	2	0	0	7	3	1	2
NL	0	2	1	0	11	0	0	1	1	3	19
PNL	0	1	8	0	3	0	0	7	2	2	2
ALPHAL	0	0	0	0	0	0	0	0	0	0	0
SEALPHAL	0	0	0	0	0	0	0	0	0	0	0
SRT	0	42	7	2	55	9	5	8	17	40	165
PSRT	0	37	54	100	43	64	63	57	47	39	63
NRT	0	102	7	2	211	9	6	9	31	86	463
PNRT	0	39	54	100	57	64	67	60	58	47	50
ALPHART	0	27	0	0	24	0	0	0	16	29	92
SEALPHART	0	4	0	0	3	0	0	0	5	5	7
SRD	0	8	2	0	11	2	0	1	4	8	36
PSRD	0	7	15	0	9	14	0	7	11	8	14
NRD	0	22	2	0	52	2	0	1	5	25	109
PNRD	0	8	15	0	14	14	0	7	9	14	12
ALPHARD	0	5	0	0	4	0	0	0	0	4	19
SEALPHARD	0	2	0	0	1	0	0	0	0	1	3
SRF	0	7	1	0	9	2	2	2	3	8	34
PSRF	0	6	8	0	7	14	25	14	8	8	13
NRF	0	22	1	0	27	2	2	3	5	15	77
PNRF	0	8	8	0	7	14	22	20	9	8	8
ALPHARF	0	4	0	0	5	0	0	0	0	0	23
SEALPHARF	0	1	0	0	2	0	0	0	0	0	4
SSA	0	29	7	1	41	6	4	8	14	27	68
PSSA	0	26	54	50	32	43	50	57	39	26	26
NSA	0	58	7	1	163	6	5	8	29	80	357
PNSA	0	22	54	50	44	43	56	53	55	44	39
ALPHASA	0	23	0	0	18	0	0	0	11	14	25
SEALPHASA	0	5	0	0	2	0	0	0	3	3	2
SSF	0	17	5	1	21	4	1	3	7	12	36

PSSF	0	15	38	50	16	29	13	21	19	12	14
NSF	0	30	5	1	87	4	2	3	14	30	176
PNSF	0	11	38	50	23	29	22	20	26	16	19
ALPHASF	0	17	0	0	9	0	0	0	0	8	14
SEALPHASF	0	6	0	0	2	0	0	0	0	2	2
SST	0	10	0	0	14	0	0	0	3	11	21
PSST	0	9	0	0	11	0	0	0	8	11	8
NST	0	25	0	0	56	0	0	0	4	35	120
PNST	0	10	0	0	15	0	0	0	8	19	13
ALPHAST	0	6	0	0	6	0	0	0	0	6	7
SEALPHAST	0	2	0	0	1	0	0	0	0	2	1
SSS	0	2	2	0	6	2	3	5	4	4	11
PSSS	0	2	15	0	5	14	38	36	11	4	4
NSS	0	3	2	0	20	2	3	5	11	15	61
PNSS	0	1	15	0	5	14	33	33	21	8	7
ALPHASS	0	0	0	0	3	0	0	0	0	0	4
SEALPHASS	0	0	0	0	1	0	0	0	0	0	1
SG	0	1	1	0	2	1	1	2	2	2	4
PSG	0	1	8	0	2	7	13	14	6	2	2
NG	0	1	1	0	3	1	1	2	5	12	26
PNG	0	0	8	0	1	7	11	13	9	7	3
ALPHAG	0	0	0	0	0	0	0	0	0	0	1
SEALPHAG	0	0	0	0	0	0	0	0	0	0	1

Table 4. Insects and other macro-invertebrates from the Blanket Row site, Kingston-upon-Hull: species lists by sample. Taxa are listed in descending order of abundance. Key: n - minimum number of individuals; q - quantification (s - semi-quantitative 'several', m - semi-quantitative 'many', both sensu *Kenward* et al. *(1986), e - estimate); ecodes - ecological codes (see Table 5 for explanation); * - not used in calculation of statistics in Table 3.*

BWH00

Context: 239 Sample: 23901/T ReM: S
Weight: 5.00 E: 0.00 F: 0.00

Notes: Entered 1/2/01. Five dish flot, mainly charcoal and moss rhizoids. Recorded in flot. Poor preservation, only scraps other than the worm egg capsules.

Coleoptera sp.	1	-	u
*Oligochaeta sp. (egg capsule)	15	m	u

Context: 288 Sample: 28801/T ReM: S
Weight: 5.00 E: 2.00 F: 2.50

Notes: Entered 1/2/01. Recorded in flot, problems on filter paper. AH tube contained about 20 identifiable fossils. Lots of fresh breaks: occurred in ground or in processing? Identification often limited by small size of fragments. E 1.5-3.5, mode 2.0 W; F 1.5-3.5, mode 2.5 W. One *Apion* elytron soft.

Platystethus nitens	37	-	oa-d
Ochthebius dilatatus	13	-	oa-w
Anotylus nitidulus	12	-	rt
Lathridius minutus group	9	-	rd-st
Ochthebius ?marinus	8	-	oa-w
Aphodius granarius	8	-	ob-rf
Sitona lineatus	8	-	oa-p
Anotylus tetracarinatus	5	-	rt
Aphodius ?prodromus	5	-	ob-rf
Carpelimus bilineatus	4	-	rt-sf
Platystethus arenarius	4	-	rf
Gyrohypnus fracticornis	4	-	rt-st
Tachyporus sp. B	4	-	u
Aleocharinae sp. A	4	-	u
Aleocharinae sp. C	4	-	u
Enicmus sp.	4	-	rt-sf
Helophorus sp. A	3	-	oa-w
Ochthebius minimus	3	-	oa-w
Xantholinus longiventris	3	-	rt-sf
Cryptophagus scutellatus	3	-	rd-st
Cryptophagus sp. B	3	-	rd-sf
Corticaria sp. A	3	-	rt-sf
Bembidion properans	2	-	oa
Bembidion sp. C	2	-	oa
Helophorus aquaticus or grandis	2	-	oa-w
Helophorus sp. B	2	-	oa-w
Cercyon atricapillus	2	-	rf-st
Lesteva ?longoelytrata	2	-	oa-d
Xylodromus concinnus	2	-	rt-st
Stenus sp. A	2	-	u
Philonthus sp. A	2	-	u
Philonthus sp. B	2	-	u
Philonthus sp. E	2	-	u
Tachyporus nitidulus	2	-	u
Aleocharinae sp. B	2	-	u
Aleocharinae sp. D	2	-	u
Cyphon sp.	2	-	oa-d
Tipnus unicolor	2	-	rt-ss
Atomaria sp. A	2	-	rd
Atomaria sp. C	2	-	rd
Corticaria sp. B	2	-	rt-sf
Bruchinae sp.	2	-	u
Apion sp. A	2	-	oa-p
Saldidae sp.	1	-	oa-d
Corixidae sp.	1	-	oa-w
Cercopidae sp.	1	-	oa-p
Auchenorhyncha sp. A	1	-	oa-p
Auchenorhyncha sp. B	1	-	oa-p
Carabus granulatus	1	-	oa
Trechus quadristriatus	1	-	oa
Bembidion (Philochthus) sp.	1	-	oa
Bembidion sp. A	1	-	oa
Bembidion sp. B	1	-	oa
Pterostichus ?melanarius	1	-	ob
?Bradycellus sp.	1	-	oa
Carabidae sp.	1	-	ob
Helophorus ?porculus	1	-	oa
Cercyon ?haemorrhoidalis	1	-	rf-sf
Cercyon ?melanocephalus	1	-	rt-sf
Laccobius sp.	1	-	oa-w
Limnebius sp.	1	-	oa-w
Omalium ?rivulare	1	-	rt-sf
Omaliinae sp.	1	-	rt
Carpelimus ?corticinus	1	-	oa-d
Anotylus complanatus	1	-	rt-sf
Anotylus rugosus	1	-	rt
Anotylus sculpturatus group	1	-	rt
Oxytelus sculptus	1	-	rt-st
Stenus sp. B	1	-	u
Stenus sp. C	1	-	u
Lithocharis ochracea	1	-	rt-st
Philonthus sp. C	1	-	u
Philonthus sp. D	1	-	u
Staphylininae sp.	1	-	u
Sepedophilus sp.	1	-	u
Tachyporus sp. A	1	-	u
Cilea silphoides	1	-	rt-st
Falagria sp.	1	-	rt-sf

Aleochara sp.	1	-	u
Aleocharinae sp. E	1	-	u
Aphodius contaminatus	1	-	oa-rf
Aphodius sp.	1	-	ob-rf
Clambus sp.	1	-	rt-sf
Simplocaria ?semistriata	1	-	oa-p
Elateridae sp.	1	-	ob
Anobium punctatum	1	-	l-sf
Ptinus sp.	1	-	rd-sf
Lyctus linearis	1	-	l-sf
Brachypterus sp.	1	-	oa-p
Meligethes sp.	1	-	oa-p
Monotoma ?bicolor	1	-	rt-st
Monotoma picipes	1	-	rt-st
Cryptophagus sp. A	1	-	rd-sf
Atomaria sp. B	1	-	rd
Corticaria sp. C	1	-	rt-sf
Corticarina sp.	1	-	rt
Cortinicara gibbosa	1	-	rt
Anthicus sp.	1	-	rt
?Chrysolina sp.	1	-	oa-p
Gastrophysa polygoni	1	-	oa-p
Phyllotreta nemorum group	1	-	oa-p
Longitarsus sp. A	1	-	oa-p
Longitarsus sp. B	1	-	oa-p
Longitarsus sp. C	1	-	oa-p
Chaetocnema concinna	1	-	oa-p
Cassida flaveola	1	-	oa-p
Apion sp. B	1	-	oa-p
Sitona lepidus	1	-	oa-p
Sitona sp.	1	-	oa-p
Sitophilus granarius	1	-	g-ss
Ceutorhynchus ?contractus	1	-	oa-p
Ceutorhynchus sp. A	1	-	oa-p
Ceutorhynchus sp. B	1	-	oa-p
*Acarina sp.	15	m	u
*Diptera sp. (puparium)	6	s	u
*Pulex irritans	3	-	ss
*Hymenoptera Parasitica sp.	3	-	u
*Oligochaeta sp. (egg capsule)	2	-	u
*Daphnia sp. (ephippium)	2	-	oa-w
*Diptera sp. (adult)	1	-	u
*Bibionidae sp.	1	-	u
*Melophagus ovinus (adult)	1	-	u
*Melophagus ovinus (puparium)	1	-	u
*Coleoptera sp. (larva)	1	-	u
*Formicidae sp.	1	-	u
*Hymenoptera sp.	1	-	u
*Pseudoscorpiones sp.	1	-	u
*Aranae sp.	1	-	u
*Lophopus crystallinus	1	-	oa-w
*Aves sp. (feather)	1	-	u

Context: 291 Sample: 29101/T ReM: S
Weight: 5.00 E: 0.00 F: 0.00

Notes: Entered 1/2/01. Presumed washover 1 cm in jar - mostly 'char'. No invertebrate remains seen.

*null	0	-	u

BWH98

Context: 216 Sample: 38/T ReM: S
Weight: 5.00 E: 0.00 F: 0.00

Notes: Entered 9/1/01. Flot 6 mm in jar, apparently mainly roots. Some charcoal, trace of seeds. Probably contained remains originally but they have decyed. Recorded in flot.

*Acarina sp.	2	-	u
*Sambucus sp.	1	-	u

Context: 298 Sample: 939496/BS ReM: N
Weight: 28.00 E: 0.00 F: 0.00

Notes: Entered 1/2/01. Only seen as AH tube containing a few scrappy remains. Poor preservation.

Lygaeidae sp.	1	-	oa-p
Sitona sp.	1	-	oa-p
*Daphnia sp. (ephippium)	3	-	oa-w

Context: 413 Sample: 118/T ReM: S
Weight: 5.00 E: 2.00 F: 2.00

Notes: Entered 9/1/01. Recorded in flot, problems on filter paper. Preservation mostly very good, some poor: E 1.0-4.0, mode 2.0 D; F 1.0-3.0, mode 2.0 D. Dry decomposers seem more decayed that foul ones on the whole. Some *M. hirta* and *T. unicolor* very well rotted. Numerous remains in AH tube, added here: tended to be denser fragments. One *Apion* th soft.

Platystethus nitens	33	-	oa-d
Anotylus complanatus	26	-	rt-sf
Lathridius minutus group	19	-	rd-st
Ochthebius dilatatus	17	-	oa-w
Aphodius granarius	17	-	ob-rf
Gyrohypnus fracticornis	13	-	rt-st
Anotylus nitidulus	12	-	rt
Anobium punctatum	9	-	l-sf
Sitona lineatus	9	-	oa-p
Corticaria sp. B	8	-	rt-sf
Corticaria sp. A	7	-	rt-sf
Xantholinus glabratus	6	-	rt
Atomaria nigripennis	6	-	rd-ss
Mycetaea hirta	6	-	rd-ss
Acritus nigricornis	5	-	rt-st
Xylodromus concinnus	5	-	rt-st

Cryptophagus sp. A	5	-	rd-sf
Omalium rivulare	4	-	rt-sf
Carpelimus bilineatus	4	-	rt-sf
Aleocharinae sp. F	4	-	u
Cryptophagus sp. B	4	-	rd-sf
Atomaria sp. B	4	-	rd
Ptenidium sp.	3	-	rt
Anotylus rugosus	3	-	rt
Philonthus sp. B	3	-	u
Falagria caesa or sulcatula	3	-	rt-sf
Aleocharinae sp. C	3	-	u
Aphodius ?prodromus	3	-	ob-rf
Clambus ?pubescens	3	-	rt-sf
Tipnus unicolor	3	-	rt-ss
Ceutorhynchus erysimi	3	-	oa-p
Trechus quadristriatus	2	-	oa
Bembidion sp.	2	-	oa
Helophorus porculus	2	-	oa
Helophorus sp. A	2	-	oa-w
Helophorus sp. B	2	-	oa-w
Cercyon analis	2	-	rt-sf
Ochthebius ?lenensis	2	-	oa-w
Carpelimus elongatulus	2	-	oa-d
Carpelimus ?fuliginosus	2	-	st
Anotylus sculpturatus group	2	-	rt
Othius sp.	2	-	rt
Neobisnius sp.	2	-	u
Philonthus sp. D	2	-	u
Tachyporus sp.	2	-	u
Cilea silphoides	2	-	rt-st
Crataraea suturalis	2	-	rt-st
Cyphon sp.	2	-	oa-d
Ptinus ?fur	2	-	rd-sf
Cryptophagus scutellatus	2	-	rd-st
Atomaria sp. A	2	-	rd
Enicmus sp.	2	-	rt-sf
Aglenus brunneus	2	-	rt-ss
Phyllotreta nemorum group	2	-	oa-p
Chaetocnema concinna	2	-	oa-p
Sitophilus granarius	2	-	g-ss
Ceutorhynchus contractus	2	-	oa-p
Heteroptera sp.	1	-	u
Fulgoromorpha sp.	1	-	
Nebria brevicollis	1	-	oa
Loricera pilicornis	1	-	oa
Trechus micros	1	-	u
Bembidion obtusum	1	-	oa
Bembidion aeneum	1	-	oa-d
Bembidion ?lunulatum	1	-	oa-d
Pterostichus ?melanarius	1	-	ob
Calathus melanocephalus	1	-	oa
Agonum sp.	1	-	oa
Carabidae sp.	1	-	ob
Haliplidae sp.	1	-	oa-w
Hydroporus ?scalesianus	1	-	oa-w
Hydroporus sp.	1	-	oa-w
Colymbetes fuscus	1	-	oa-w
Helophorus aquaticus or grandis	1	-	oa-w
Helophorus minutus	1	-	oa-w
Helophorus sp.	1	-	oa-w
Cercyon atricapillus	1	-	rf-st
Cercyon haemorrhoidalis	1	-	rf-sf
Cercyon ?terminatus	1	-	rf-st
Cercyon tristis	1	-	oa-d
Cercyon unipunctatus	1	-	rf-st
Megasternum obscurum	1	-	rt
Limnoxenus niger	1	-	oa-w
Laccobius sp.	1	-	oa-w
Histerinae sp.	1	-	rt
Ochthebius sp.	1	-	oa-w
Micropeplus fulvus	1	-	rt
Dropephylla ?vilis	1	-	l
Omalium caesum or italicum	1	-	rt-sf
Carpelimus ?corticinus	1	-	oa-d
Platystethus arenarius	1	-	rf
Platystethus ?degener	1	-	oa-d
Oxytelus sculptus	1	-	rt-st
Stenus sp. A	1	-	u
Stenus sp. B	1	-	u
Astenus sp.	1	-	rt
Leptacinus intermedius	1	-	rt-st
Leptacinus pusillus	1	-	rt-st
Xantholinus longiventris	1	-	rt-sf
Philonthus sp. A	1	-	u
Philonthus sp. C	1	-	u
Quedius sp.	1	-	u
Sepedophilus sp.	1	-	u
Tachyporus ?nitidulus	1	-	u
Aleocharinae sp. A	1	-	u
Aleocharinae sp. B	1	-	u
Aleocharinae sp. D	1	-	u
Aleocharinae sp. E	1	-	u
Aphodius contaminatus	1	-	oa-rf
Aphodius sp.	1	-	ob-rf
Elateridae sp.	1	-	ob
Lyctus linearis	1	-	l-sf
Omosita sp.	1	-	rt-sf
Oryzaephilus ?surinamensis	1	-	g-ss
Cryptophagus sp. C	1	-	rd-sf
Orthoperus sp.	1	-	rt
Coccinellidae sp.	1	-	oa-p
Dienerella sp.	1	-	rd-sf
Corticaria sp. C	1	-	rt-sf
Cortinicara gibbosa	1	-	rt
Bruchus sp.	1	-	u
Longitarsus sp.	1	-	oa-p
Psylliodes sp.	1	-	oa-p
Apion sp.	1	-	oa-p
Bagous sp. s. lat.	1	-	oa-p-w
Notaris acridulus	1	-	oa-d-p
Ceutorhynchus sp. A	1	-	oa-p
Ceutorhynchus sp. B	1	-	oa-p
*Acarina sp.	100	e	u
*Daphnia sp. (ephippium)	15	m	oa-w
*Diptera sp. (adult)	15	m	u
*Coleoptera sp. (larva)	15	m	u
*Cladocera sp. S (ephippium)	6	s	oa-w
*Diptera sp. (pupa)	6	s	u

*Diptera sp. (puparium)	6	s	u
*Bibionidae sp.	6	s	u
*Hymenoptera Parasitica sp.	6	s	u
*Aranae sp.	3	-	u
*Cladocera sp. L (ephippium)	2	-	oa-w
*Forficula auricularia	2	-	u
*Heteroptera sp. (nymph)	2	-	u
*Auchenorhyncha or Fulgoromorpha sp. (nymph)	2	-	oa-p
*Aphidoidea sp.	2	-	u
*Pulex irritans	2	-	ss
*Egg mass indet.	2	-	u
*Elphidium sp.	1	-	u
*Hymenoptera sp.	1	-	u

Context: 2100 Sample: 313233/BS ReM: R
Weight: 13.30 E: 4.50 F: 5.00

Notes: Entered 1/2/01. Flot 4 cm in jar, with masses of moss rhizoids. Recorded in flot, problems on filter paper. E 4.5-5.5, mode 4.5 W; F 4.5-5.5, mode 5.0, W. Colour change to pale 3-4, mode 3 S. Abundant scraps of unidentifiable cuticle, well decayed and very pale. Seem typical of tough remains which survive where preservation is poor. Perhaps decayed during deposition then preserved once buried?

Histerinae sp.	1	-	rt
Aleocharinae sp.	1	-	u
Trox scaber	1	-	rt-sf
Aphodius sp.	1	-	ob-rf
Oxyomus sylvestris	1	-	rt-sf
Anobium ?punctatum	1	-	l-sf
?Ptinus sp.	1	-	rd-sf
?Monotoma sp.	1	-	rt-sf
Mycetaea hirta	1	-	rd-ss
?Sitophilus granarius	1	-	g-ss
Ceuthorhynchinae sp.	1	-	oa-p
Curculionidae sp.	1	-	oa
Coleoptera sp.	1	-	u
*Oligochaeta sp. (egg capsule)	2	-	u
*Dermaptera sp.	1	-	u
*Diptera sp. (puparium)	1	-	u

Context: 2280 Sample: 35/T ReM: S
Weight: 5.00 E: 4.50 F: 4.50

Notes: Entered 9/1/01. Two dish flot, mainly ?charcoal fragments. Recorded in flot. AH tube contained more than found in flot, but a limited range of taxa. Preservation: too few remains for good estimate, but E4.0-5.5, mode 4.5 D; F 3.0-5.5, mode 4.5 D. Colour trend to brownish yellow, range and mode 4 V.

Carabidae sp.	1	-	ob
?Cercyon sp.	1	-	u
Megasternum obscurum	1	-	rt
Histerinae sp.	1	-	rt
Trox scaber	1	-	rt-sf
Aphodius sp. A	1	-	ob-rf
Aphodius sp. B	1	-	ob-rf
Oxyomus sylvestris	1	-	rt-sf
?Tipnus unicolor	1	-	rt-ss
?Ptinus sp.	1	-	rd-sf
Cryptophagus sp.	1	-	rd-sf
Sitophilus granarius	1	-	g-ss
Ceutorhynchus sp.	1	-	oa-p
Coleoptera sp.	1	-	u
*Oligochaeta sp. (egg capsule)	1	-	u
*Dermaptera sp.	1	-	u
*Acarina sp.	1	-	u

Context: 2287 Sample: 192021/T ReM: R
Weight: 14.40 E: 0.00 F: 0.00

Notes: Entered 1/2/01. Recorded in 'flot'. Almost no invertebrates.

Anotylus rugosus	1	-	rt
Oxyomus sylvestris	1	-	rt-sf

Context: 2336 Sample: 29/T ReM: S
Weight: 5.00 E: 4.50 F: 4.00

Notes: Entered 9/1/01. Flot about 4 dishes, from two jars: (a) granular coal; (b) ditto with some plant matter. Recorded in flot, problems on filter paper. Quite a large proportion of remains were in AH tube, listed below. Insects very decayed: E 4.0-5.5, mode 4.5 D; F 4.0-5.5, mode 4.0 D. Colour change to orange, range and mode 4 V.

Trox scaber	2	-	rt-sf
Cercyon sp.	1	-	u
Aphodius sp. A	1	-	ob-rf
Aphodius sp. B	1	-	ob-rf
?Tipnus unicolor	1	-	rt-ss
Blaps sp.	1	-	rt-ss
?Sitona sp.	1	-	oa-p
Sitophilus granarius	1	-	g-ss
*Diptera sp. (puparium)	3	-	u
*Acarina sp.	2	-	u
*Oligochaeta sp. (egg capsule)	1	-	u

Context: 2,336 Sample: 2830/BS ReM: N
Weight: 5.00 E: 0.00 F: 0.00

Notes: Entered 1/2/01. AH tube only, with a few very well dacayed remains.

Trox scaber	1	-	rt-sf
Cryptophagus sp.	1	-	rd-sf
Sitona sp.	1	-	oa-p

*Oligochaeta sp. (egg capsule)	1	-	u
*Diptera sp. (puparium)	1	-	u

Context: 2415 Sample: 70/T ReM: S
Weight: 5.00 E: 4.50 F: 4.50

Notes: Entered 9/1/01. Two jars provided, amounting to 1 cm in a combined jar. Recorded in flot, problems on filter paper. Very decayed remains, very fragile, almost crumbly: E 4.0-5.5, mode 4.5 D; F 4.0-5.5, mode 4.5 D. Colour change to orange, range and mode 4 V. Suspect decay in deposition followed by stabilisation, but that is only a guess. Abundant fragments in AH tube, listed here. Probably bias towards robust and distinctive taxa.

Aphodius sp. A	2	-	ob-rf
Cercyon sp.	1	-	u
Histerinae sp.	1	-	rt
Trox scaber	1	-	rt-sf
Aphodius sp. B	1	-	ob-rf
Dermestidae sp.	1	-	rt-sf
Anobium ?punctatum	1	-	l-sf
Tipnus unicolor	1	-	rt-ss
Oryzaephilus ?surinamensis	1	-	g-ss
Mycetaea hirta	1	-	rd-ss
Blaps sp.	1	-	rt-ss
Apion sp.	1	-	oa-p
Sitophilus granarius	1	-	g-ss
Curculionidae sp.	1	-	oa
*Diptera sp. (puparium)	6	s	u
*Oligochaeta sp. (egg capsule)	1	-	u

Context: 2415 Sample: 7172/BS ReM: S
Weight: 18.00 E: 4.00 F: 4.00

Notes: Entered 9/1/01. From sanples 71 and 72. Flot 1cm in jar, ?rotted wood with numerous rotted insect fragments. Abundant ?hyphae made it difficult to sort and to pick out fossils. Recorded in flot, problems on filter paper. E 3.5-5.0, mode 4.0 D; F 2.5-5.0, mode 4.0, W. Colour change 1: to yellow, range and mode 4 D; then to pale, range and mode 2 V. Indications of differential preservation. Decay and fragmentation probably gives bias towards taxa with distinctive sculpture. MNI hard to estimate because of fragmentation, especially for *Tipnus* and some others reduced to tiny bits. Puparia very decayed. Abundant remains in AH tube, added to list.

Oxyomus sylvestris	5	-	rt-sf
Tipnus unicolor	5	-	rt-ss
Trox scaber	3	-	rt-sf
Sitophilus granarius	3	-	g-ss
Cercyon ?analis	2	-	rt-sf
Aphodius sp. A	2	-	ob-rf
Aphodius sp. B	2	-	ob-rf
Oryzaephilus surinamensis	2	-	g-ss
Lathridius minutus group	2	-	rd-st
Trechus obtusus or quadristriatus	1	-	oa
Pterostichus melanarius	1	-	ob
Carabidae sp. A	1	-	ob
Carabidae sp. B	1	-	ob
Colymbetes fuscus	1	-	oa-w
Colymbetinae sp.	1	-	oa-w
Helophorus aquaticus or grandis	1	-	oa-w
Sphaeridium ?bipustulatum	1	-	rf
Cercyon sp.	1	-	u
Acritus nigricornis	1	-	rt-st
Histerinae sp.	1	-	rt
Catops sp.	1	-	u
Anotylus rugosus	1	-	rt
Anotylus sculpturatus group	1	-	rt
Oxytelus sculptus	1	-	rt-st
Tachyporus sp.	1	-	u
Dermestidae sp.	1	-	rt-sf
Anobium ?punctatum	1	-	l-sf
Ptinus sp.	1	-	rd-sf
Cryptophagus sp.	1	-	rd-sf
?Mycetaea hirta	1	-	rd-ss
Apion sp. A	1	-	oa-p
Apion sp. B	1	-	oa-p
Sitona sp.	1	-	oa-p
Ceutorhynchus sp.	1	-	oa-p
Curculionidae sp. A	1	-	oa
Curculionidae sp. B	1	-	oa
*Diptera sp. (puparium)	30	e	u
*Acarina sp.	6	s	u
*Dermaptera sp.	1	-	u

Context: 2539 Sample: 109/T ReM: S
Weight: 3.00 E: 2.50 F: 2.50

Notes: Entered 9/1/01. Recorded in flot, problems on filter paper (these to small tube in jar). Two jars combined to one, and AH tube material added. Some remains well decayed, like those from peat. Fossils seem to have been mangled in digging or processing. E 1.5-3.5, mode 2.5 W; F 1.0-4.0, mode 2.5 W.

Lathridius minutus group	10	-	rd-st
Sitophilus granarius	10	-	g-ss
Sitona lineatus	8	-	oa-p
Xylodromus concinnus	7	-	rt-st
Cercyon terminatus	5	-	rf-st
Platystethus nitens	5	-	oa-d
Corticaria sp. B	5	-	rt-sf
Cryptophagus sp. C	4	-	rd-sf
Trechus quadristriatus	3	-	oa
Cercyon atricapillus	3	-	rf-st
Anotylus nitidulus	3	-	rt
Philonthus ventralis	3	-	u
Tachyporus sp.	3	-	u
Anobium punctatum	3	-	l-sf
Monotoma picipes	3	-	rt-st
Cryptophagus sp. A	3	-	rd-sf
Cryptophagus sp. B	3	-	rd-sf
Corticaria sp. A	3	-	rt-sf
Ceutorhynchus ?contractus	3	-	oa-p

Helophorus sp.	2	-	oa-w	Philonthus sp. C	1	-	u
Cercyon analis	2	-	rt-sf	Mycetoporus sp.	1	-	u
Cercyon unipunctatus	2	-	rf-st	Aleocharinae sp. A	1	-	u
Megasternum obscurum	2	-	rt	Aleocharinae sp. B	1	-	u
Ptenidium sp.	2	-	rt	Aleocharinae sp. C	1	-	u
Lathrobium sp.	2	-	u	Aleocharinae sp. D	1	-	u
Aleocharinae sp. E	2	-	u	Aleocharinae sp. F	1	-	u
Clambus ?pubescens	2	-	rt-sf	Pselaphidae sp.	1	-	u
Tipnus unicolor	2	-	rt-ss	Aphodius ?contaminatus	1	-	oa-rf
Oryzaephilus ?surinamensis	2	-	g-ss	Aphodius ?granarius	1	-	ob-rf
Atomaria sp.	2	-	rd	Aphodius sp.	1	-	ob-rf
Corticaria sp. C	2	-	rt-sf	Phyllopertha horticola	1	-	oa-p
Lygaeidae sp.	1	-	oa-p	Cyphon sp.	1	-	oa-d
Cymus claviculus	1	-	oa-p	Heterocerus sp.	1	-	oa-d
Megophthalmus sp.	1	-	oa-p	Dryops sp.	1	-	oa-d
Notiophilus sp.	1	-	oa	Ptinus sp.	1	-	rd-sf
Dyschirius ?globosus	1	-	oa	Meligethes sp. A	1	-	oa-p
Bembidion ?properans	1	-	oa	Meligethes sp. B	1	-	oa-p
Bembidion assimile	1	-	oa-d	Orthoperus sp.	1	-	rt
Bembidion ?normannum	1	-	oa-d	Mycetaea hirta	1	-	rd-ss
Pterostichus melanarius	1	-	ob	Dienerella sp.	1	-	rd-sf
Carabidae sp.	1	-	ob	Corticarina ?fuscula	1	-	rt
Hydroporus ?scalesianus	1	-	oa-w	Cortinicara gibbosa	1	-	rt
Hydroporinae sp. A	1	-	oa-w	Anthicus formicarius	1	-	rt-st
Hydroporinae sp. B	1	-	oa-w	Bruchidae sp.	1	-	u
Hydroporinae sp. C	1	-	oa-w	Phyllotreta ?atra	1	-	oa-p
Helophorus ?aquaticus	1	-	oa-w	Phyllotreta ?nigripes	1	-	oa-p
Helophorus aquaticus or grandis	1	-	oa-w	Apion sp.	1	-	oa-p
Cercyon depressus	1	-	rf	Apion sp. B	1	-	oa-p
Enochrus ?halophilus	1	-	oa-w	Sitona sp.	1	-	oa-p
Cymbiodyta marginella	1	-	oa-w	?Limnobaris sp.	1	-	oa-p-d
Histerinae sp.	1	-	rt	*Diptera sp. (puparium)	15	m	u
Ochthebius sp. A	1	-	oa-w	*Acarina sp.	15	m	u
Ochthebius sp. B	1	-	oa-w	*Diptera sp. (adult)	6	s	u
Acrotrichis sp.	1	-	rt	*Pulex irritans	3	-	ss
Olophrum fuscum	1	-	oa	*Oligochaeta sp. (egg capsule)	2	-	u
Acidota crenata	1	-	oa	*Hymenoptera Parasitica sp.	2	-	u
Phyllodrepa floralis	1	-	rt-sf	*Dermaptera sp.	1	-	u
Omalium sp.	1	-	rt	*Pediculus humanus	1	-	ss
Carpelimus pusillus group	1	-	u	*Heteroptera sp. (nymph)	1	-	u
Carpelimus sp.	1	-	u	*Aphidoidea sp.	1	-	u
Platystethus arenarius	1	-	rf	*Melophagus ovinus (puparium)	1	-	u
Anotylus sculpturatus group	1	-	rt	*Actenicerus sjaelandicus (larva)	1	-	oa
Oxytelus sculptus	1	-	rt-st	*Coleoptera sp. (larva)	1	-	u
Stenus sp. A	1	-	u	*Chalcidoidea sp.	1	-	u
Stenus sp. B	1	-	u	*Formicidae sp.	1	-	u
Euaesthetus laeviusculus	1	-	oa	*Hymenoptera sp.	1	-	u
Euaesthetus ruficapillus	1	-	oa	*Proctotrupoidea sp.	1	-	u
Lithocharis ochracea	1	-	rt-st	*Insecta sp. (larva)	1	-	u
Leptacinus ?pusillus	1	-	rt-st	*Cristatella mucedo (statoblast)	1	-	w
Gyrohypnus angustatus	1	-	rt-st				
Xantholinus sp.	1	-	u				
Philonthus sp. B	1	-	u				

Table 5. Abbreviations for ecological codes and statistics used for interpretation of insect remains in text and tables. Lower case codes in parentheses are those assigned to taxa and used to calculate the group values (the codes in capitals). See Table 1 for codes assigned to taxa from the present site. Alpha - the index of diversity alpha (Fisher et al. *1943); Indivs - individuals (based on MNI); No - number.*

No taxa	S
Estimated number of indivs (MNI)	N
Index of diversity ()	alpha
Standard error of alpha	SE alpha
No 'certain' outdoor taxa (oa)	SOA
Percentage of 'certain' outdoor taxa	PSOA
No 'certain' outdoor indivs	NOA
Percentage of 'certain' outdoor indivs	PNOA
No OA and probable outdoor taxa (oa+ob)	SOB
Percentage of OB taxa	PSOB
No OB indivs	NOB
Percentage OB indivs	PNOB
Index of diversity of the OB component	alphaOB
Standard error	SEalphaOB
No aquatic taxa (w)	SW
Percentage of aquatic taxa	PSW
No aquatic indivs	NW
Percentage of W indivs	PNW
Index of diversity of the W component	alphaW
Standard error	SEalphaW
No damp ground/waterside taxa (d)	SD
Percentage D taxa	PSD
No damp D indivs	ND
Percentage of D indivs	PND
Index of diversity of the D component	alphaD
Standard error	SEalphaD
No strongly plant-associated taxa (p)	SP
Percentage of P taxa	PSP
No strongly P indivs	NP
Percentage of P indivs	PNP
Index of diversity of the P component	alphaP
Standard error	SEalphaP
No heathland/moorland taxa (m)	SM
Percentage of M taxa	PSM
No M indivs	NM
Percentage of M indivs	PNM
Index of diversity of the M component	alphaM
Standard error	SEalphaM
No wood-associated taxa (l)	SL
Percentage of L taxa	PSL
No L indivs	NL
Percentage of L indivs	PNL
Index of diversity of the L component	alphaL
Standard error	SEalphaL
No indivs of grain pests (g)	NG
Percentage of indivs of grain pests	PNG
No decomposer taxa (rt + rd + rf)	SRT
Percentage of RT taxa	PSRT
No RT indivs	NRT
Percentage of RT indivs	PNRT
Index of diversity of RT component	alpha RT
Standard error	SEalphaRT
No 'dry' decomposer taxa (rd)	SRD
Percentage of RD taxa	PSRD
No RD indivs	NRD
Percentage of RD indivs	PNRD
Index of diversity of the RD component	alphaRD
Standard error	SEalphaRD
No 'foul' decomposer taxa (rf)	SRF
Percentage of RF taxa	PSRF
No RF indivs	NRF
Percentage of RF indivs	PNRF
Index of diversity of the RF component	alphaRF
Standard error	SEalphaRF
No synanthropic taxa (sf+st+ss)	SSA
Percentage of synanthropic taxa	PSSA
No synanthropic indivs	NSA
Percentage of SA indivs	PNSA
Index of diversity of SA component	ALPHASA
Standard error	SEALPHASA
No facultatively synanthropic taxa (sf)	SSF
Percentage of SF taxa	PSSF
No SF indivs	NSF
Percentage of SF indivs	PNSF
Index of diversity of SF component	ALPHASF
Standard error	SEALPHASF
No typical synanthropic taxa (st)	SST
Percentage of ST taxa	PSST
No ST indivs	NST
Percentage of ST indivs	PNST
Index of diversity of ST component	ALPHAST
Standard error	SEALPHAST
No strongly synanthropic taxa (ss)	SSS
Percentage of SS taxa	PSSS
No SS indivs	NSS
Percentage of SS indivs	PNSS
Index of diversity of SS component	ALPHASS
Standard error	SEALPHASS
No uncoded taxa (u)	SU
Percentage of uncoded indivs	PNU

Table 6 . Data for the shell recovered from highly residual contexts from the 1998 excavations (BWH98).

***Key**: Cont. = Context number; E = Erosion; F = Fragmentation; Wt = weight (in grammes); No. left = Number of left oyster valves; No. right = Number of right oyster valves; No. ind. = Number of indeterminate side oyster valves; No. worm = Number of oyster valves with damage from polychaet worm burrowing; No. barn. = Number of oyster valves encrusted by barnacles; No. kn. = Number of oyster valves showing 'knife' damage; No. cockle = Number of cockle valves; No. muss. = Minimum number of individuals for mussels; No. wh. = Number of common whelks; No. red = Number of red whelks; No. per = No. of common periwinkles; No. Hel. = Number of* Helix aspersa.

Cont.	E	F	Wt	No. left	No. right	No. ind.	No. worm	No. barn.	No. kn.	No. cockl.	No. muss.	No. wh.	No. red	No. per	No. Hel.	Notes
27	3	3	308	9	5	0	0	0	4	7	0	0	0	0	0	many mm-flakes + 9 larger to 65 mm; some fresh breakage
28	3	3	79	2	3	1	0	0	2	0	0	0	0	0	0	a few mm-flakes; some fresh breakage
32	2	3	1	0	0	0	0	0	1	0	1	0	0	0	0	a few mm-flakes + 1 larger to 20 mm
38	2	3	262	8	7	0	1	0	4	3	0	0	0	0	2	a few mm-flakes + 8 larger to 40 mm; some fresh breakage
39	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	
55	3	3	43	0	2	2	0	0	1	4	0	0	0	1	0	a few mm-flakes
59	2	2	24	0	1	0	0	0	0	0	0	0	0	0	0	a few mm-flakes + 2 larger to 55 mm
62	3	3	10	1	0	0	0	0	1	0	0	0	0	0	0	a few mm-flakes + 1 larger to 25 mm
64	3	3	570	29	28	1	0	0	16	5	1	0	1	0	0	many mm-flakes + 2 larger to 50 mm
78	3	3	51	4	0	0	0	0	2	0	0	0	0	0	0	a few mm-flakes + 3 larger to 30 mm; 1 left valve with 'V'-shaped cut in bottom margin + small cut through valve
80	2	2	92	3	4	0	0	0	4	0	0	0	0	0	0	a few mm-flakes + 3 larger to 30 mm; some fresh breakage; 1 limpet and 1 unidentified shell fragment
82	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	1 fragment to 55 mm only
86	3	3	51	4	1	0	0	0	2	2	0	0	0	0	1	a few mm-flakes + 4 larger to 30 mm; some fresh breakage
104	2	3	14	0	1	0	0	0	0	0	0	0	0	0	0	+ 3 large fragments to 30 mm

Cont.	E	F	Wt	No. left	No. right	No. ind.	No. worm	No. barn.	No. kn.	No. cockl.	No. muss.	No. wh.	No. red	No. per	No. Hel.	Notes
106	0	0	3	0	0	0	0	0	0	1	0	0	0	0	0	
108	3	3	22	1	0	0	0	0	0	0	0	0	0	0	0	a few mm-flakes + 3 larger to 60 mm
114	3	3	224	11	6	1	0	0	2	9	1	0	0	0	1	a few mm-flakes + 16 larger to 45 mm
116	1	2	10	1	0	0	0	0	0	0	0	0	0	0	0	some ?fresh breakage
125	3	3	52	2	2	0	0	0	2	0	1	0	0	0	0	some mm-flakes + 7 larger to 40 mm
140	2	3	85	4	4	0	0	0	2	0	0	0	0	0	0	a few mm-flakes + 6 larger to 60 mm; some fresh breakage
141	2	3	111	3	5	0	0	0	3	0	1	0	0	0	0	a few mm-flakes + 14 larger to 60 mm
142	3	2	119	7	4	0	0	0	4	2	0	1	0	0	0	a few mm-flakes + 4 larger to 35 mm; some fresh breakage
148	0	0	4	0	0	0	0	0	0	1	0	0	0	0	0	1 fragment only to 25 mm
149	2	2	27	1	2	0	0	0	1	1	0	0	0	0	1	a few mm-flakes + 4 larger to 30 mm; some fresh breakage
151	3	3	3	0	1	0	0	0	0	0	0	0	0	0	0	many mm-flakes
153	2	3	30	0	4	0	0	0	1	0	0	0	0	0	0	+ 3 fragments to 40 mm; some fresh breakage
157	3	3	13	0	0	1	1	0	0	0	0	0	0	0	0	a few mm-flakes
159	3	3	188	8	9	0	0	0	3	2	0	0	0	0	4	a few mm-flakes + 8 larger to 40 mm
162	3	3	319	17	12	0	0	0	8	3	3	0	0	0	2	a few mm-flakes + 17 larger to 40 mm
166	0	0	10	0	0	0	0	0	0	0	0	0	0	0	5	a few mm-flakes + 2 small fragments to 15 mm
168	3	3	19	0	1	0	0	0	0	3	2	0	0	0	0	a few mm-flakes + 2 larger to 40 mm
171	3	3	304	14	13	0	0	0	3	5	2	0	0	0	4	a few mm-flakes + 11 larger to 60 mm; 1 fragment with rectangular cut hole; some fresh breakage
173	0	0	5	0	0	0	0	0	0	0	0	0	0	0	1	1 fragment only to 35 mm
176	3	2	29	2	3	0	0	0	1	0	0	0	0	0	0	some fresh breakage

Cont.	E	F	Wt	No. left	No. right	No. ind.	No. worm	No. barn.	No. kn.	No. cockl.	No. muss.	No. wh.	No. red	No. per	No. Hel.	Notes
177	3	3	132	6	9	0	1	0	3	0	0	0	0	0	0	some mm-flakes + 11 larger to 55 mm; some fresh breakage
178	1	3	7	1	0	0	0	0	0	0	0	0	0	0	0	
179	3	3	168	6	3	1	1	0	4	0	0	0	0	0	1	many mm-flakes + 9 larger to 35 mm; work burrowed left valve has rectangular cut hole
180	3	3	85	2	1	0	1	0	1	0	0	1	0	0	0	some mm-flakes + 14 larger to 40 mm
181	2	1	75	3	4	1	0	0	3	3	0	0	0	0	0	2 fragments to 40 mm
182	1	2	147	7	11	0	3	0	9	1	1	0	0	0	5	2 fragments to 45 mm; ?cut slot in one left valve margin; some fresh breakage
184	0	0	3	0	0	0	0	0	0	0	1	0	0	0	0	1 fragment onlt to 25 mm
185	0	0	36	0	0	0	0	0	0	0	0	0	0	0	0	many mm-flakes (?mostly/all of mussel shell); 5 larger fragments of oyster to 60 mm
186	1	2	16	0	2	0	0	0	1	0	1	0	0	0	0	some fresh breakage
188	2	3	351	8	10	1	0	0	8	4	4	0	0	0	1	a few mm-flakes + 36 larger to 60 mm; 1 left valve with ?cut hole just off the apex of the valve
192	3	3	114	4	7	1	0	0	4	2	1	0	0	0	0	a few mm-flakes + 6 larger to 50 mm
197	3	1	120	10	3	1	0	0	6	2	0	0	0	0	1	some mm-flakes + 1 larger to 25 mm; some fresh breakage
205	1	1	48	1	2	0	0	0	2	0	0	0	0	0	0	a few mm-flakes + 2 larger to 40 mm
206	3	1	21	0	2	0	0	0	1	4	0	0	0	0	0	some mm-flakes
207	2	2	56	2	2	0	0	0	2	0	0	1	0	0	0	a few mm-flakes
209	1	1	31	1	1	0	0	0	1	0	0	0	0	0	0	
211	2	1	23	1	2	0	0	0	2	1	0	0	0	0	0	
212	2	3	284	3	15	0	0	0	11	3	3	0	0	0	0	some mm-flakes + 11 larger to 70 mm
213	1	2	37	1	1	0	0	0	1	0	1	0	0	0	0	+ 2 fragments to 50 mm
220	3	2	111	2	6	0	0	0	4	3	1	0	0	0	0	some mm-flakes + 2 larger to 50 mm

Cont.	E	F	Wt	No. left	No. right	No. ind.	No. worm	No. barn.	No. kn.	No. cockl.	No. muss.	No. wh.	No. red	No. per	No. Hel.	Notes
226	2	3	565	18	19	2	0	0	16	4	9	0	0	0	0	a few mm-flakes + many larger (approx 50) to 50 mm
227	2	3	84	4	5	0	0	0	4	2	0	0	0	0	0	a few mm-flakes + 7 larger to 40 mm
228	1	3	20	1	1	0	1	0	2	0	0	0	0	0	0	8 fragments to 35 mm
238	3	2	37	1	1	1	0	0	2	6	0	0	0	0	0	
239	3	2	105	6	4	0	2	0	5	10	1	0	0	0	0	some mm-flakes + 5 larger to 40 mm
240	3	3	409	20	14	1	1	1	15	0	1	0	0	0	0	a few mm-flakes + 28 larger to 55 mm; 1 barnacle on inner surface of a left valve; 1 left valve with roughly square cut hole through apex; some fresh breakage
252	2	3	1002	47	30	4	0	0	20	7	1	0	0	0	0	many mm-flakes + 28 larger to 55 mm; 1 left and 1 right valve fused and 2 left valves fused; 1 left valve with 'V'-shaped cut in bottom margin
254	1	3	14	0	1	0	0	0	0	0	1	0	0	0	0	+ 2 fragments to 30 mm
259	1	2	171	6	10	0	0	0	9	4	0	1	0	0	0	a few mm-flakes + 1 larger to 30 mm
271	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	a few mm-flakes + 3 larger to 50 mm
275	2	2	129	6	2	0	0	0	4	2	0	0	0	0	0	a few mm-flakes
276	2	2	33	3	1	0	0	0	3	0	0	0	0	0	0	a few mm-flakes + 1 larger to 35 mm
283	1	2	282	12	10	0	0	0	10	2	0	0	0	0	0	a few mm-flakes + 3 larger to 35 mm; 2 left valves fused (inside to outside surfaces); two adjacent rectangular cut slots into margin of 1right valve
289	2	1	183	6	6	1	1	0	5	5	1	1	0	0	0	some mm-flakes + 1 larger to 15 mm
294	1	1	140	8	7	1	0	0	10	1	0	0	0	0	0	a few-mmflakes + 2 larger to 35 mm; thin ?cut slot in 1 fragment - may be fresh breakage?
295	1	1	72	3	4	0	0	0	5	6	0	0	0	0	0	a few mm-flakes
296	1	1	17	1	1	0	0	0	1	0	0	0	0	0	0	a few mm-flakes + a few larger to 12 mm; some fresh breakage

Cont.	E	F	Wt	No. left	No. right	No. ind.	No. worm	No. barn.	No. kn.	No. cockl.	No. muss.	No. wh.	No. red	No. per	No. Hel.	Notes
302	2	2	65	3	3	0	0	0	5	0	0	0	0	0	0	many mm-flakes + 5 larger to 50 mm
314	3	2	11	1	1	0	0	0	1	1	0	0	0	0	0	many mm-flakes
317	1	1	171	11	2	1	0	0	7	2	0	0	0	0	0	a few mm-flakes + 1 larger to 15 mm; 1 right and 2 left valves ?burnt
322	1	1	443	21	13	0	0	0	13	0	1	1	0	0	0	many mm-flakes + 5 larger to 55 mm; 1 right and 1 left valve fused
325	1	1	4	0	1	0	0	0	0	0	0	0	0	0	0	
326	3	2	5	1	0	0	0	0	1	0	0	0	0	0	0	a few mm-flakes
331	1	1	9	1	0	0	0	0	1	0	0	0	0	0	0	valve ?burnt
333	3	1	68	2	0	0	0	0	1	0	0	0	1	0	0	a few mm-flakes
337	1	1	264	9	4	1	0	0	4	1	0	1	0	0	0	a few mm-flakes
339	1	1	242	11	7	0	1	0	9	0	0	0	0	0	0	a few mm-flakes
342	1	2	83	5	4	0	0	0	6	3	0	0	0	0	0	+ 2 fragments to 45 mm
344	2	1	77	6	2	0	0	1	7	0	0	0	0	0	0	a few mm-flakes + a few to 8 mm + 1 larger to 30 mm; barnacles very eroded
347	0	0	2	0	0	0	0	0	0	0	0	1	0	0	0	whelk fragment stained orangeish
350	2	2	145	5	8	1	1	0	5	2	0	1	0	0	0	a few mm-flakes + 1 larger to 50 mm; a little fresh breakage
352	1	1	339	11	22	5	0	0	21	0	1	2	0	0	0	a few mm-flakes; a little fresh breakage
354	2	1	69	2	4	1	0	0	3	0	0	1	0	0	0	a few-mm flakes + 1 larger to 25 mm; a litlle fresh breakage
356	1	1	52	2	2	0	0	0	2	1	0	0	0	0	0	
361	1	1	93	5	3	0	0	0	5	0	1	0	0	0	0	
364	2	2	11	0	1	0	0	0	1	0	0	0	0	0	0	a little fresh breakage
376	1	2	306	14	11	0	1	0	12	0	0	2	0	0	0	a few mm-flakes + 2 larger to 70 mm

Cont.	E	F	Wt	No. left	No. right	No. ind.	No. worm	No. barn.	No. kn.	No. cockl.	No. muss.	No. wh.	No. red	No. per	No. Hel.	Notes
377	1	1	97	4	5	0	0	0	4	0	0	0	0	0	0	
387	1	2	344	16	7	0	0	0	14	0	0	0	0	0	0	a few mm-flakes; a little fresh breakage; 2 left valves fused and 1 left and 1 right valve fused
388	1	1	156	7	4	2	0	0	6	0	0	2	0	0	0	1 edible crab claw fragment
390	1	1	302	12	15	0	0	0	17	0	0	4	0	0	0	a few mm-flakes + 2 larger to 50 mm; some valves discoloured - ?burnt; 2 whelks discoloured - ?burnt; 1 left valve with 'V'-shaped slot in bottom margin
401	1	1	27	1	3	0	0	0	2	0	0	0	0	0	0	?a little fresh breakage
404	1	1	194	4	4	0	0	0	6	0	0	4	0	0	0	2 whelks ?burnt
406	1	2	48	3	1	0	0	0	3	0	0	0	0	0	0	1 edible crab claw fragment
415	1	1	37	1	1	0	1	0	2	0	0	0	0	0	0	
2017	2	2	71	4	2	0	0	0	4	0	0	0	1	0	0	+ 5 fragments to 35 mm
2018	3	3	342	21	7	0	0	0	11	0	1	0	0	0	0	many mm-flakes + many (20+) larger to 45 mm
2035	1	1	30	1	1	0	0	0	2	0	1	0	0	0	0	a few mm-flakes
2042	1	3	15	0	1	0	0	0	0	0	0	0	0	0	0	+ 3 fragments to 40 mm
2048	1	2	19	0	2	0	0	0	1	0	0	0	0	0	0	+ 1 fragment to 30 mm
2050	2	1	32	2	1	0	0	0	2	0	0	0	0	0	0	
2051	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0	
2052	2	3	22	1	0	0	0	0	0	0	1	0	0	0	0	a few mm-flakes + 5 larger to 40 mm; a little fresh breakage
2054	3	2	32	1	2	0	0	0	3	0	1	0	0	0	0	many mm-flakes + 4 larger to 35 mm
2055	1	1	10	0	1	0	0	0	0	1	0	0	0	0	0	
2057	1	3	29	2	2	1	0	0	3	0	0	0	0	0	0	1 left valve with roughly square cut hole near apex

Cont.	E	F	Wt	No. left	No. right	No. ind.	No. worm	No. barn.	No. kn.	No. cockl.	No. muss.	No. wh.	No. red	No. per	No. Hel.	Notes
2061	3	2	54	3	2	0	0	0	4	0	0	0	0	0	0	many mm-flakes
2063	3	1	60	1	0	0	0	0	1	0	0	0	1	0	0	
2075	2	2	77	2	6	0	0	0	2	0	0	0	0	0	0	a few mm-flakes + 4 larger to 50 mm; 1 right valve with small approximately triangular cut through - doesn't look like fresh damage
2117	1	1	13	1	0	0	0	0	1	0	0	0	0	0	0	
2121	0	0	8	0	0	0	0	0	0	1	1	0	0	0	0	a few mm-flakes + 1 larger to 35 mm only
2124	1	3	59	2	3	0	0	0	2	0	1	0	0	0	0	+ 5 fragments to 40 mm
2127	1	3	5	0	1	0	0	0	0	0	0	0	0	0	0	+ 1 fragment to 20 mm
2131	2	1	68	2	2	0	0	0	2	2	1	0	0	0	2	a few mm-flakes + 5 larger to 40 mm
2132	2	3	108	3	2	0	0	0	2	3	1	0	0	0	1	a few mm-flakes + 13 larger to 50 mm
2137	1	1	6	1	0	0	0	0	1	0	0	0	0	0	0	
2142	3	3	3	0	1	0	0	0	0	0	0	0	0	0	0	many mm-flakes
2146	3	3	385	26	9	0	0	0	14	9	0	0	0	0	0	many mm-flakes + 16 larger to 55 mm; some fresh breakage; 2 left valves with roughly circular holes cut through near apex
2147	1	2	38	4	0	0	0	0	3	0	0	0	0	0	0	+ 1 fragment to 45 mm
2153	1	1	14	0	2	0	0	0	1	0	0	0	0	0	0	a few mm-flakes
2165	1	2	13	1	0	0	0	0	1	0	0	0	0	0	0	
2170	2	3	10	0	1	0	0	0	1	0	1	0	0	0	0	some mm-flakes + 1 larger to 40 mm
2174	3	2	52	5	1	0	0	0	3	0	0	0	0	0	0	some mm-flakes + 3 lrager to 30 mm
2175	3	1	16	1	0	0	0	0	1	2	0	0	0	0	0	
2176	2	1	21	1	0	0	0	0	1	0	1	0	0	0	0	
2177	3	3	52	3	2	0	0	0	1	0	0	0	0	0	0	many mm-flakes + 6 larger to 50 mm

Cont.	E	F	Wt	No. left	No. right	No. ind.	No. worm	No. barn.	No. kn.	No. cockl.	No. muss.	No. wh.	No. red	No. per	No. Hel.	Notes
2178	3	2	137	5	4	0	0	0	2	0	0	0	0	0	0	many mm-flakes + 4 larger to 50 mm
2181	2	3	105	2	6	0	0	0	5	0	2	0	0	0	0	a few mm-flakes + 8 larger to 45 mm
2186	1	2	35	3	0	0	0	0	2	0	0	0	0	0	0	+ 1 fragment to 30 mm
2190	2	3	655	30	28	2	0	0	14	4	2	0	0	0	0	many mm-flakes + 35 larger to 65 mm; a little fresh breakage; 1 left valve with roughly square ?cut hole; 1 ?dog whelk fragment
2223	2	3	16	1	1	0	0	0	0	0	0	0	0	0	0	a few mm-flakes
2225	2	1	110	7	4	0	0	0	6	0	0	0	0	0	0	some mm-flakes
2234	1	1	4	0	1	0	0	0	0	0	0	0	0	0	0	
2245	3	2	30	1	2	0	0	0	1	0	0	0	0	0	0	some mm-flakes
2247	2	3	15	1	0	0	0	0	1	0	0	0	0	0	0	+ 2 fragments to 40 mm
2249	2	3	193	5	9	0	0	0	7	0	0	0	0	0	0	a few mm-flakes + 28 larger to 50 mm
2252	2	2	35	1	3	0	0	0	0	1	0	0	0	0	0	a few mm-flakes; some fresh breakage
2256	2	2	15	1	2	0	0	0	1	0	1	0	0	0	0	a few mm-flakes
2257	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	2 fragments to 40 mm only
2263	0	0	4	0	0	0	0	0	0	2	0	0	0	0	0	
2268	1	2	15	1	1	0	0	0	1	0	0	0	0	0	0	a few mm-flakes + 1 larger to 40 mm
2270	3	2	21	1	2	0	0	0	0	0	0	0	0	0	0	a few mm-flakes + 3 larger to 40 mm; some fresh breakage
2271	2	2	128	4	10	0	0	0	6	1	0	0	0	0	0	some mm-flakes + 6 larger to 35 mm; some fresh breakage
2272	3	1	14	2	1	0	0	0	1	1	0	0	0	0	0	some mm-flakes + 2 larger to 25 mm
2273	2	2	155	5	11	0	0	0	8	3	1	0	0	0	3	many mm-flakes + 6 larger to 45 mm
2274	3	3	117	4	9	0	0	0	4	0	0	0	0	0	2	many mm-flakes + 10 larger to 50 mm

Cont.	E	F	Wt	No. left	No. right	No. ind.	No. worm	No. barn.	No. kn.	No. cockl.	No. muss.	No. wh.	No. red	No. per	No. Hel.	Notes
2275	2	1	28	2	0	0	0	0	1	1	1	0	0	0	0	some mm-flakes - ?mostly of mussel valve
2277	3	1	18	0	0	1	0	0	1	0	0	0	0	0	0	a few mm-flakes
2291	2	2	56	4	4	2	0	0	4	1	0	0	0	0	0	a few mm-flakes; a little fresh breakage; 1 indeterminate side valve with roughly circular hole cut through
2298	1	2	44	1	2	0	0	0	1	4	0	0	0	0	1	+ 1 fragment to 8 mm; some fresh breakage
2307	1	1	10	1	0	0	0	0	1	0	0	0	0	0	0	
2310	2	3	345	7	11	0	0	1	9	2	3	1	0	0	0	many mm-flakes + 21 larger to 60 mm; some fresh breakage
2312	2	3	360	8	4	0	0	0	8	0	2	0	0	0	0	many mm-flakes + 16 larger to 70 mm; 1 whelk fragment of indeterminate species
2313	2	3	799	23	27	1	1	0	22	0	4	0	0	0	0	many mm-flakes + many larger to 60 mm; some fresh breakage
2315	2	2	53	3	4	0	0	0	6	0	0	0	0	0	0	a few mm-flakes + 2 larger to 15 mm
2317	2	1	12	1	0	0	0	0	1	0	0	0	0	0	0	some mm-flakes
2328	0	0	2	0	0	0	0	0	0	1	0	0	0	0	0	cockle valve discoloured - orange
2331	1	3	29	1	0	0	0	0	1	0	0	0	0	0	0	+ 3 fragments to 55 mm
2375	1	2	9	0	1	0	0	0	1	0	0	0	0	0	0	
2381	2	1	15	1	0	0	0	0	1	0	0	0	0	0	0	
2389	2	1	15	0	3	0	0	0	2	0	0	0	0	0	0	some mm-flakes
2393	3	1	4	0	1	0	0	0	0	0	0	0	0	0	0	
2404	3	3	5	1	1	0	0	0	0	0	0	0	0	0	0	many mm-flakes
2436	3	1	19	1	2	0	0	0	1	1	0	0	0	0	0	a few mm-flakes + a few larger to 15 mm
2437	3	3	68	4	4	0	0	0	4	0	0	0	0	0	0	many mm-flakes; some fresh breakage
2440	1	1	33	1	0	0	1	0	1	0	0	0	0	0	0	

Cont.	E	F	Wt	No. left	No. right	No. ind.	No. worm	No. barn.	No. kn.	No. cockl.	No. muss.	No. wh.	No. red	No. per	No. Hel.	Notes
2467	2	2	8	0	0	1	0	0	1	0	0	1	0	0	0	some mm-flakes
2476	3	2	21	1	1	0	0	0	2	0	0	0	0	0	0	some mm-flakes
2479	3	2	22	0	3	0	0	0	0	0	0	0	0	0	0	+ 1 fragment to 35 mm
2483	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	1 fragment only to 35 mm
2500	3	1	120	5	6	0	0	0	4	0	0	0	0	0	0	many mm-flakes; some fresh breakage
2538	1	1	67	1	3	0	0	0	3	0	1	2	0	0	0	a few mm-flakes; both whelk with some blue ?staining - one much more so than the other

Table 7. Summary information for the shell recovered from low and medium residuality contexts from the 1998 excavations (BWH98).

***Key**: Cont. = Context number; E = Erosion; F = Fragmentation; Wt = weight (in grammes); No. left = Number of left oyster valves; No. right = Number of right oyster valves; No. ind. = Number of indeterminate side oyster valves; No. left meas. = Number of left oyster valves for which some measurements were possible; No. right meas. = Number of right oyster valves for which some measurements were possible; No. worm = Number of oyster valves with damage from polychaet worm burrowing; No. barn. = Number of oyster valves encrusted by barnacles; No. kn. = Number of oyster valves showing 'knife' damage; No. cockle = Number of cockle valves; No. muss. = Minimum number of individuals for mussels; No. wh. = Number of common whelks; No. red = Number of red whelks; No. per = No. of common periwinkles; Other m. = Other marine taxa; No. Hel. = Number of* Helix aspersa.

Cont.	E	F	Wt	No. left	No. right	No. ind.	No. left neas.	No. right meas.	No. worm	No. barn	No. kn.	No cockl.	No. muss.	No. wh.	No. red	No. per	Other m.	No. Hel.	Notes
66	3	3	75	5	4	0	0	0	0	0	5	0	0	0	0	0	0	0	many mm-flakes + 2 larger to 46 mm
68	1	2	23	1	2	0	1	1	0	0	1	0	0	0	0	0	0	0	a few mm-flakes
72	1	2	15	1	0	0	1	0	0	0	1	1	0	0	0	0	0	0	+ 1 large frag to 46 mm
75	0	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	
76	3	3	138	8	5	1	3	4	1	0	6	0	0	0	0	0	1 whelk spindle secies indet.	0	some mm-flakes + 4 larger to 40 mm
77	2	2	103	2	6	1	1	1	0	0	5	4	1	0	0	0	0	8	a few mm-flakes + 2 larger to 31 mm; 1 left valve very pitted
90	3	3	14	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	+ 2 frags to 40 mm
91	0	0	20	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	
103	3	3	114	0	1	1	0	0	0	0	1	42	0	0	0	0	0	0	a few mm-flakes + a few larger to 26 mm
110	2	2	86	2	2	1	1	2	0	0	2	0	0	0	0	0	0	0	some mm-flakes
112	2	3	49	0	3	0	0	0	0	0	2	0	0	0	0	0	0	0	a few mm-flakes + 4 larger to 59 mm

Cont.	E	F	Wt	No. left	No. right	No. ind.	No. left neas.	No. right meas.	No. worm	No. barn	No. kn.	No cockl.	No. muss.	No. wh.	No. red	No. per	Other m.	No. Hel.	Notes
115	2	3	230	8	4	1	3	1	1	0	6	2	1	0	0	0	0	1	some mm-flakes + 7 larger to 47 mm; 1 left valve with ?slot cut (approx 10.5 by 3.5 mm)
121	3	2	133	5	3	0	2	1	0	0	5	2	1	0	0	0	0	5	
136	3	1	20	1	1	0	0	1	0	0	1	0	1	0	0	0	0	1	
137	1	3	85	3	4	0	0	0	0	1	5	0	1	0	0	0	0	2	may mm-flakes + 4 larger to 41 mm
139	2	2	17	2	0	0	2	0	1	0	1	0	1	0	0	0	0	0	
165	2	2	28	1	1	0	0	0	0	0	1	2	1	0	0	0	0	0	a few mm-flakes + 1 larger to 44 mm
170	2	2	24	2	0	0	1	0	0	0	1	1	0	0	0	0	0	0	a few mm-flakes
175	2	2	15	0	1	0	0	1	0	0	0	3	0	0	0	0	0	0	
189	2	2	7	1	1	0	1	0	0	0	1	0	0	0	0	0	0	0	+ 1 frag to 27 mm
190	3	2	11	1	2	0	0	1	0	0	2	0	0	0	0	0	0	0	a few mm-flakes
191	3	3	4	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
198	0	0	55	0	0	0	0	0	0	0	0	11	0	0	0	0	0	0	
210	1	2	17	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0	a few mm-flakes + 2 larger to 45 mm
215	0	0	19	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	
216	3	2	365	12	5	1	6	0	1	0	6	63	0	0	0	0	0	0	many mm-flakes
221	3	3	56	3	2	0	3	0	1	0	3	2	0	0	0	0	0	0	many mm-flakes + 7 larger to 41 mm
224	2	3	8	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	
230	3	2	32	1	1	0	1	1	0	0	2	1	0	0	0	0	0	0	many mm-flakes + 12 larger to 30 mm

Cont.	E	F	Wt	No. left	No. right	No. ind.	No. left neas.	No. right meas.	No. worm	No. barn	No. kn.	No cockl.	No. muss.	No. wh.	No. red	No. per	Other m.	No. Hel.	Notes
232	1	1	7	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	
234	3	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	many mm-flakes
243	3	2	64	6	6	0	2	1	0	0	3	0	0	0	0	0	0	0	many mm-flakes + 5 larger to 31 mm
244	2	2	36	1	2	0	0	0	0	0	2	4	0	0	0	0	0	0	
245	1	3	8	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
251	2	2	102	4	2	0	3	2	1	0	2	26	0	0	0	0	0	0	a few mm-flakes; strong pitting on 1 left valve
253	1	2	84	2	2	0	1	1	0	0	0	3	1	1	0	0	0	0	
269	3	3	5	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	
286	3	3	1357	38	46	3	22	33	0	0	47	163	1	2	1	0	0	0	many mm-flakes + approx 33 larger to 56 mm
287	1	1	581	22	22	1	15	12	2	0	16	14	0	0	0	0	0	0	a few mm-flakes + 5 larger to 51 mm
298	2	2	920	23	22	0	9	13	1	0	19	214	1	7	0	0	0	0	a few mm-flakes + 4 larger to 39 mm
300	1	2	93	4	0	1	3	0	0	0	3	14	1	1	0	0	0	0	a few mm-flakes + 2 larger to 42 mm
310	1	2	154	5	6	0	3	3	0	0	7	1	0	1	0	0	0	0	a few mm-flakes + a few larger to 22 mm
348	3	1	7	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	
359	1	1	268	5	4	0	4	4	1	0	3	0	0	10	0	0	0	0	a few mm-flakes
360	1	1	215	10	6	0	10	6	0	0	4	0	0	2	0	0	1 edible crab claw frag.	0	a few mm-flakes; some fresh breakage
378	1	1	18	0	2	0	0	2	0	0	1	0	0	0	0	0	0	0	
382	1	1	208	9	7	0	6	7	0	0	8	0	0	1	0	0	0	0	a few mm-flakes

Cont.	E	F	Wt	No. left	No. right	No. ind.	No. left neas.	No. right meas.	No. worm	No. barn	No. kn.	No cockl.	No. muss.	No. wh.	No. red	No. per	Other m.	No. Hel.	Notes
385	1	1	245	10	19	1	9	11	0	0	13	0	0	0	0	0	0	0	a few mm-flakes + 2 larger to 42 mm; 2 left valves fused
389	1	1	134	4	9	0	4	8	0	0	6	0	0	1	0	0	0	0	some fresh breakage
392	2	1	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2065	1	2	7	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	
2070	2	2	51	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	+ 1 fragment to 52 mm
2071	2	1	71	1	3	0	1	2	1	0	1	0	0	0	0	0	0	0	a little fresh breakage
2086	3	2	21	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	some mm-flakes
2089	1	3	6	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1 fragment only to 34 mm
2102	3	1	10	1	0	1	0	0	0	0	0	1	0	0	0	0	0	2	a few mm-flakes; all oyster very soft
2104	1	3	91	4	0	0	3	0	0	0	2	0	0	0	0	0	0	0	3 fragments to 42 mm
2105	1	2	37	1	2	0	1	1	0	0	0	0	0	0	1	0	0	0	
2108	3	2	32	1	2	0	0	2	0	0	1	1	0	0	0	0	0	0	many mm-flakes; golden staining/coating on inner surface of 2 right valves
2129	1	1	28	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	
2148	1	1	7	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	
2149	3	2	39	3	0	1	1	0	1	0	1	0	1	0	0	0	0	0	some mm-flakes
2182	1	2	10	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0	?knife mark may be fresh break
2188	3	2	216	3	1	0	2	1	2	0	2	0	1	0	0	0	0	0	many mm-flakes + 1 larger to 39 mm; oyster valves heavily pitted; many (20-25) small frags of mussel from ?1 valve

Cont.	E	F	Wt	No. left	No. right	No. ind.	No. left neas.	No. right meas.	No. worm	No. barn	No. kn.	No cockl.	No. muss.	No. wh.	No. red	No. per	Other m.	No. Hel.	Notes
2189	3	2	5	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
2192	1	3	11	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	a few mm-flakes + 1 larger to 56 mm; 2.7g of Helix
2194	2	2	475	18	14	3	13	12	1	0	6	5	0	1	0	0	0	74	some mm-flakes + 2 larger to 42 mm; 106g of Helix
2196	2	2	56	0	7	0	0	3	0	0	2	0	0	0	0	0	0	0	a few mm-flakes
2214	1	1	5	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0	
2243	3	2	27	2	0	0	1	0	0	0	1	0	0	0	0	0	0	0	
2287	2	2	34	1	0	0	0	0	0	0	1	3	1	0	0	0	1 frag. of ?dog whelk	0	
2358	3	2	23	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0	many mm-flakes; valve very soft
2379	3	3	6	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	
2395	3	2	11	0	2	0	0	0	0	0	2	0	0	0	0	0	0	0	

Table 8. Summary information for the shell recovered from low and medium residuality contexts from the 2000 excavations (BWH00).

***Key**: Cont. = Context number; E = Erosion; F = Fragmentation; Wt = weight (in grammes); No. left = Number of left oyster valves; No. right = Number of right oyster valves; No. ind. = Number of indeterminate side oyster valves; No. left meas. = Number of left oyster valves for which some measurements were possible; No. right meas. = Number of right oyster valves for which some measurements were possible; No. worm = Number of oyster valves with damage from polychaet worm burrowing; No. barn. = Number of oyster valves encrusted by barnacles; No. kn. = Number of oyster valves showing 'knife' damage; No. cockle = Number of cockle valves; No. muss. = Minimum number of individuals for mussels; No. wh. = Number of common whelks; No. red = Number of red whelks; No. per = No. of common periwinkles; Other m. = Other marine taxa; No. Hel. = Number of* Helix aspersa.

Cont.	E	F	Wt	No. left	No. right	No. ind.	No. left neas.	No. right meas.	No. worm	No. barn	No. kn.	No cockl.	No. muss.	No. wh.	No. red	No. per	Other m.	No. Hel.	Notes
101	2	2	103	1	2	0	1	1	0	0	2	0	0	0	0	0	0	0	a few mm-flakes; fresh breakage on 2 of the 3 vlaves
104	2	2	24	1	1	0	1	1	0	0	1	0	0	0	0	0	0	0	
105	2	2	34	2	3	0	2	3	0	0	2	0	0	0	0	0	0	0	2 left valves fused
107	2	3	45	2	1	0	1	1	0	0	1	0	0	0	0	0	0	0	some fresh breakage
108	0	0	7	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3 fragments only to 45 mm
115	2	3	42	0	2	0	0	0	0	0	1	0	0	1	0	0	0	0	a few mm-flakes
117	1	3	60	2	1	0	2	0	0	0	1	0	2	0	0	0	0	0	
201	2	3	41	1	4	0	0	0	0	0	2	0	0	0	0	0	0	0	+ 3 fragments to 43 mm
202	1	3	27	0	1	0	0	1	0	0	2	0	0	0	0	0	0	0	+ 2 fragments to 62 mm
207	2	3	12	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	fresh breakage
213	1	2	11	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+ 1 fragment to 42 mm
215	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1 fragment only to 42 mm
216	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	a few mm-flakes + 1 fragment to 22 mm only

Cont.	E	F	Wt	No. left	No. right	No. ind.	No. left neas.	No. right meas.	No. worm	No. barn	No. kn.	No cockl.	No. muss.	No. wh.	No. red	No. per	Other m.	No. Hel.	Notes
217	2	2	31	1	2	0	1	1	0	0	1	0	0	0	0	0	0	0	a few mm-flakes; golden coating/staining on 1 right valve
230	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1 fragment only to 37 mm
233	0	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	
235	0	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	
243	0	0	5	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	+ 1 fragment to 38 mm
254	2	3	34	2	0	2	0	0	0	0	0	5	0	0	0	0	0	0	a few mm-flakes + 3 larger to 39 mm
258	1	2	76	3	2	0	3	0	0	0	2	0	1	0	0	0	1 ?whelk spindle frag. - species indet.	0	a few mm-flakes
260	2	3	1	1	7	0	1	0	0	0	1	3	1	0	0	0	0	0	some mm-flakes + 4 larger to 48 mm; some fresh breakage
287	2	2	11	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	fresh breakage
288	1	1	80	3	2	0	3	2	1	0	2	2	0	0	0	0	0	0	+ 4 fragments to 39 mm; oyster looks burnt; 1 *Sphaerium corneum* valve
293	1	1	17	1	1	0	1	1	0	0	1	0	0	0	0	0	0	0	
296	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1 ?burnt fragment only to 48 mm
423	0	0	8	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	
426	2	1	23	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	
430	3	2	16	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0	a few mm-flakes

Cont.	E	F	Wt	No. left	No. right	No. ind.	No. left neas.	No. right meas.	No. worm	No. barn	No. kn.	No cockl.	No. muss.	No. wh.	No. red	No. per	Other m.	No. Hel.	Notes
448	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	
451	0	0	38	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	
460	1	2	7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	fresh breakage
502	2	2	23	2	2	0	2	1	0	0	2	0	0	0	0	0	0	0	+ 1 ?burnt fragment to 33 mm; some fresh breakage

Table 9. Summary information for the shell recovered from low and medium residuality contexts by phase.

***Key**: No. BWH98 = number of contexts from the 1998 excavations; No. BWH00 = number of contexts from the 2000; Av. E = Average erosion score; Av. F = Average fragmentation score; Wt = weight (in grammes); N L= Number of left oyster valves; N R = Number of right oyster valves; N I = Number of indeterminate side oyster valves; N L meas. = Number of left oyster valves for which some measurements were possible; % L meas = percentage of left oyster valves for which some measurements were possible; N R meas = Number of right oyster valves for which some measurements were possible; % R meas = percentage of right oyster valves for which some measurements were possible; No. worm = Number of oyster valves with damage from polychaete worm burrowing; % worm = percentage of oyster valves with damage from polychaet worm burrowing; No. barn = Number of oyster valves encrusted by barnacles; No. kn. = Number of oyster valves showing 'knife' damage; % kn. = percentage of oyster valves showing 'knife' damage; No. cockle = Number of cockle valves; No. muss. = Minimum number of individuals for mussels; No. wh. = Number of common whelks; No. red = Number of red whelks; Other m. = Other marine taxa; No. Hel. = Number of* Helix aspersa.

Phase	No. BWH98	No. BWH00	Av. E	Av. F	Wt	N L	N R	N I	N L meas	% L meas	N R meas	% R meas	No. worm	% worm	No. barn	No. kn.	% kn.	No. cockl.	No. muss.	No. wh.	No. red	No. Hel.
unphased	0	11	1.2	1.5	240	5	9	0	2	40.0	2	22.2	1	7.1	0	8	57.1	0	3	3	0	0
1	0	8	1.3	1.9	367	13	14	0	11	84.6	3	21.4	1	3.7	0	9	33.3	5	4	0	0	0
2	3	2	1.4	1.4	328	10	5	2	6	60.0	5	100.0	1	5.9	0	5	29.4	5	0	10	0	0
3	14	4	1.4	1.3	2166	70	77	4	46	65.7	53	68.8	1	0.7	0	65	43.0	236	3	15	0	2
3b	1	0	2.0	2.0	34	1	0	0	0	0.0	0	n/a	0	0.0	0	1	100.0	3	1	0	0	0
4	23	1	2.1	2.0	2900	95	96	8	55	57.9	51	53.1	5	2.5	0	90	45.2	331	1	2	1	0
5	11	2	2.0	2.1	1030	41	43	5	22	53.7	25	58.1	2	2.2	0	30	33.7	16	3	1	0	84
6	20	0	1.9	2.0	1191	37	28	5	18	48.6	11	39.3	6	8.6	1	30	42.9	6	7	0	1	9
7	2	0	1.0	1.5	35	2	0	0	2	100.0	0	n/a	0	0.0	0	0	0.0	0	0	0	0	0
8	0	4	1.5	2.0	167	3	4	0	2	66.7	2	50.0	0	0.0	0	3	42.9	0	1	0	0	0
Total/Av	**74**	**32**	**1.6**	**1.8**	**8458**	**277**	**276**	**24**	**164**	**59.2**	**152**	**55.1**	**17**	**2.9**	**1**	**241**	**41.8**	**602**	**23**	**31**	**2**	**95**

Table 10. Summary information for the shell recovered from low and medium residuality contexts by period..

***Key**: med = medieval; med-epost = medieval to early post-medieval; post-med = post-medieval; No. BWH98 = number of contexts from the 1998 excavations; No. BWH00 = number of contexts from the 2000; Av. E = Average erosion score; Av. F = Average fragmentation score; Wt = weight (in grammes); N L= Number of left oyster valves; N R = Number of right oyster valves; N I = Number of indeterminate side oyster valves; N L meas. = Number of left oyster valves for which some measurements were possible; % L meas = percentage of left oyster valves for which some measurements were possible; N R meas = Number of right oyster valves for which some measurements were possible; % R meas = percentage of right oyster valves for which some measurements were possible; No. worm = Number of oyster valves with damage from polychaet worm burrowing; % worm = percentage of oyster valves with damage from polychaete worm burrowing; No. barn = Number of oyster valves encrusted by barnacles; No. kn. = Number of oyster valves showing 'knife' damage; % kn. = percentage of oyster valves showing 'knife' damage; No. cockle = Number of cockle valves; No. muss. = Minimum number of individuals for mussels; No. wh. = Number of common whelks; No. red = Number of red whelks; Other m. = Other marine taxa; No. Hel. = Number of* Helix aspersa.

Period	No. BWH98	No. BWH00	Av. E	Av. F	Wt (g)	N L	N R	N I	N L meas	% L meas	N R meas	% R meas	No. worm	% worm	No. barn	No. kn.	% kn.	No. cockl.	No. muss.	No. wh.	No. red	No. Hel.
unphased	0	11	1.2	1.5	240	5	9	0	2	40.0	2	22.2	1	7.1	0	8	57.1	0	3	3	0	0
med	18	14	1.4	1.5	2895	94	96	6	63	67.0	61	63.5	3	1.5	0	80	40.8	249	8	25	0	2
med-epost	23	1	2.1	2.0	2900	95	96	8	55	57.9	51	53.1	5	2.5	0	90	45.2	331	1	2	1	0
post-med	31	2	1.9	2.0	2221	78	71	10	40	51.3	36	50.7	8	5.0	1	60	37.7	22	10	1	1	93
modern	2	4	1.3	1.8	202	5	4	0	4	80.0	2	50.0	0	0.0	0	3	33.3	0	1	0	0	0
Total/Av	**74**	**32**	**1.6**	**1.8**	**8458**	**277**	**276**	**24**	**164**	**59.2**	**152**	**55.1**	**17**	**2.9**	**1**	**241**	**41.8**	**602**	**23**	**31**	**2**	**95**

Table 11. Measurement summary for oyster valves recovered from low and medium residuality contexts from the 1998 excavations (BWH98) by phase (all measurements in mm).

Key: *LVH = left valve height; LVL = left valve length; LHW = left hinge width; LHL = left hinge length; LAS = left anterior scar length; LASH = left anterior scar height; RVH = right valve height; RVL = right valve length; RHW = right hinge width; RHL = right hinge length; RAS = right anterior scar length; RASH = right anterior scar height.*

Phase		LVH	LVL	LHW	LHL	LAS	LASH	RVH	RVL	RHW	RHL	RAS	RASH
	maximum	56.1	43.3	8.2	6.6	22.1	51.9	63.1	50.4	-	-	-	-
unphased	average	56.1	43.3	8.0	6.5	14.7	41.4	63.1	45.9	-	-	-	-
	minimum	56.1	43.3	7.7	6.3	9.9	30.5	63.1	41.4	-	-	-	-
	maximum	105.8	101.5	9.7	8.0	19.9	50.3	65.6	54.3	-	-	17.1	36.3
1	average	69.1	59.8	6.8	6.1	14.3	35.2	55.9	49.8	-	-	12.1	30.5
	minimum	54.1	45.3	4.6	5.2	11.2	27.6	48.4	46.2	-	-	10.0	25.7
	maximum	87.2	57.6	8.7	6.1	17.5	44.1	74.4	62.8	-	-	15.9	48.8
2	average	67.6	50.0	7.3	6.1	17.5	32.2	68.0	59.1	-	-	15.1	39.4
	minimum	48.7	42.4	5.6	6.1	17.5	24.4	61.5	55.4	-	-	14.1	35.7
	maximum	75.2	81.9	9.2	9.0	21.5	50.0	73.0	62.7	5.2	5.0	18.2	42.0
3	average	58.5	53.5	6.0	5.9	12.8	32.5	57.1	49.2	4.2	4.7	121.0	30.9
	minimum	38.8	37.5	2.7	3.7	8.5	20.8	42.3	37.8	3.1	4.5	9.2	24.5
	maximum	105.8	101.5	9.7	9.2	21.5	50.3	65.6	83.0	-	4.7	20.4	43.3
4	average	58.6	52.7	5.6	5.8	12.6	32.1	52.3	46.9	-	4.7	12.7	30.7
	minimum	38.8	37.5	2.7	3.0	8.5	22.1	39.3	35.5	-	4.7	9.7	13.1
	maximum	82.8	65.6	7.2	8.6	21.5	41.5	55.2	56.5	-	-	17.3	43.6
5	average	64.1	54.3	5.6	5.8	13.1	33.7	49.8	45.8	-	-	13.3	33.9
	minimum	51.5	44.8	4.0	3.9	10.3	27.0	41.4	38.8	-	-	10.1	29.0
	maximum	82.9	52.4	10.6	8.3	27.4	67.3	71.8	64.3	9.1	9.7	21.1	56.3
6	average	55.6	44.3	8.2	6.1	14.2	38.7	57.9	51.2	9.1	9.7	14.8	38.0
	minimum	44.1	36.7	5.7	3.0	9.1	25.5	45.8	37.5	9.1	9.7	10.4	27.2
	maximum	73.0	62.9	-	8.3	11.7	39.1	-	-	-	-	-	-
7	average	73.0	52.9	-	8.3	11.5	33.1	-	-	-	-	-	-
	minimum	73.0	42.9	-	8.3	11.3	27.0	-	-	-	-	-	-

Table 12. Measurement summary for oyster valves recovered from low and medium residuality contexts from the 2000 excavations (BWH00) by phase (all measurements in mm).

Key: *LVH = left valve height; LVL = left valve length; LHW = left hinge width; LHL = left hinge length; LAS = left anterior scar length; LASH = left anterior scar height; RVH = right valve height; RVL = right valve length; RHW = right hinge width; RHL = right hinge length; RAS = right anterior scar length; RASH = right anterior scar height.*

Phase		LVH	LVL	LHW	LHL	LAS	LASH	RVH	RVL	RHW	RHL	RAS	RASH
	maximum	67.1	54.1	6.0	-	15.2	37.7	41.6	45.1	-	-	11.9	32.6
unphased	average	67.1	51.8	6.0	-	13.0	32.3	41.6	45.1	-	-	11.8	28.9
	minimum	67.1	49.4	6.0	-	10.8	26.9	41.6	45.1	-	-	11.7	25.2
	maximum	-	73.4	6.4	5.1	17.4	46.7	72.6	61.2	-	-	17.4	41.0
1	average	-	69.5	6.4	5.1	14.3	35.7	56.3	51.3	-	-	15.1	39.3
	minimum	-	65.6	6.4	5.1	11.8	26.5	45.8	41.4	-	-	11.7	37.6
	maximum	-	-	-	-	-	28.2	52.9	51.7	-	-	12.4	32.2
2	average	-	-	-	-	-	28.2	52.9	51.7	-	-	12.4	32.2
	minimum	-	-	-	-	-	28.2	52.9	51.7	-	-	12.4	32.2
	maximum	-	-	-	-	16.4	40.4	52.5	44.3	-	-	13.3	33.1
5	average	-	-	-	-	14.8	38.2	48.1	41.7	-	-	12.3	30.1
	minimum	-	-	-	-	13.4	36.2	43.6	39.0	-	-	11.1	27.4
	maximum	-	40.4	-	7.4	20.0	41.2	59.0	78.5	-	-	22.2	53.4
8	average	-	40.4	-	7.4	20.0	41.2	59.0	66.7	-	-	18.6	46.0
	minimum	-	40.4	-	7.4	20.0	41.2	59.0	54.8	-	-	15.7	38.5

Table 13. Numbers of measurements possible for oyster valves recovered from low and medium residuality contexts from the 1998 excavations (BWH98) by phase.

Key: *LVH = left valve height; LVL = left valve length; LHW = left hinge width; LHL = left hinge length; LAS = left anterior scar length; LASH = left anterior scar height; RVH = right valve height; RVL = right valve length; RHW = right hinge width; RHL = right hinge length; RAS = right anterior scar length; RASH = right anterior scar height.*

Phase	Total no.	LVH	LVL	LHW	LHL	LAS	LASH	RVH	RVL	RHW	RHL	RAS	RASH
unphased	**0**	0	0	0	0	0	0	0	0	0	0	0	0
1	**0**	0	0	0	0	0	0	0	0	0	0	0	0
2	**26**	4	2	3	1	1	3	2	2	0	0	4	4
3	**288**	14	18	18	17	37	42	18	29	2	3	47	43
3b	**0**	0	0	0	0	0	0	0	0	0	0	0	0
4	**281**	17	23	20	15	37	44	22	27	0	1	39	36
5	**114**	12	11	2	4	18	18	6	8	0	0	18	17
6	**89**	6	4	8	8	15	16	9	7	1	1	7	7
7	**8**	1	2	0	1	2	2	0	0	0	0	0	0
8	**0**	0	0	0	0	0	0	0	0	0	0	0	0

Table 14. Numbers of measurements possible for oyster valves recovered from low and medium residuality contexts from the 2000 excavations (BWH00) by phase.

Key: *LVH = left valve height; LVL = left valve length; LHW = left hinge width; LHL = left hinge length; LAS = left anterior scar length; LASH = left anterior scar height; RVH = right valve height; RVL = right valve length; RHW = right hinge width; RHL = right hinge length; RAS = right anterior scar length; RASH = right anterior scar height.*

Phase	Total no.	LVH	LVL	LHW	LHL	LAS	LASH	RVH	RVL	RHW	RHL	RAS	RASH
unphased	**14**	1	2	1	0	2	2	1	1	0	0	2	2
1	**35**	0	2	1	1	10	11	3	2	0	0	3	2
2	**5**	0	0	0	0	0	1	1	1	0	0	1	1
3	**0**	0	0	0	0	0	0	0	0	0	0	0	0
3b	**0**	0	0	0	0	0	0	0	0	0	0	0	0
4	**0**	0	0	0	0	0	0	0	0	0	0	0	0
5	**17**	0	0	0	0	3	3	2	2	0	0	4	3
6	**0**	0	0	0	0	0	0	0	0	0	0	0	0
7	**0**	0	0	0	0	0	0	0	0	0	0	0	0
8	**12**	0	1	0	1	1	1	1	2	0	0	3	2

Table 15. Measurement summary for oyster valves recovered from low and medium residuality contexts by period (all measurements in mm).

Key: *med = medieval; med-epost = medieval to early post-medieval; post-med = post-medieval; LVH = left valve height; LVL = left valve length; LHW = left hinge width; LHL = left hinge length; LAS = left anterior scar length; LASH = left anterior scar height; RVH = right valve height; RVL = right valve length; RHW = right hinge width; RHL = right hinge length; RAS = right anterior scar length; RASH = right anterior scar height.*

Period		LVH	LVL	LHW	LHL	LAS	LASH	RVH	RVL	RHW	RHL	RAS	RASH
	maximum	67.1	54.1	6.0	-	15.2	37.7	41.6	45.1	-	-	11.9	32.6
unphased	average	67.1	51.8	6.0	-	13.0	32.3	41.6	45.1	-	-	11.8	28.9
	minimum	67.1	49.4	6.0	-	10.8	26.9	41.6	45.1	-	-	11.7	25.2
	maximum	87.2	73.4	9.2	9.0	17.9	46.7	74.4	62.8	5.2	5.0	18.2	48.8
med	average	61.8	54.5	6.5	5.8	13.2	33.2	57.8	49.9	4.2	4.7	13.3	32.0
	minimum	45.5	42.2	3.9	3.7	9.4	20.8	42.3	37.8	3.1	4.5	9.2	24.5
	maximum	105.8	101.5	9.7	9.2	21.5	50.3	65.6	83.0	-	4.7	20.4	43.3
med-epost	average	58.6	52.7	5.6	5.8	12.6	32.1	52.3	46.9	-	4.7	12.7	30.7
	minimum	38.8	37.5	2.7	3.0	8.5	22.1	39.3	35.5	-	4.7	9.7	13.1
	maximum	82.9	65.6	10.6	8.6	27.4	67.3	71.8	64.3	9.1	9.7	21.1	56.3
post-med	average	61.3	51.6	7.7	6.0	13.7	36.2	53.9	47.5	9.1	9.7	13.5	34.5
	minimum	44.1	36.7	4.0	3.0	9.1	25.5	41.4	37.5	9.1	9.7	10.1	27.2
	maximum	73.0	62.9	-	8.3	20.0	41.2	59.0	78.5	-	-	22.2	53.4
modern	average	73.0	48.7	-	7.9	14.3	35.8	59.0	66.7	-	-	18.6	46.0
	minimum	73.0	40.4	-	7.4	11.3	27.0	59.0	54.8	-	-	15.7	38.5

Table 16. Numbers of measurements possible for oyster valves recovered from low and medium residuality contexts by period.

Key: *med = medieval; med-epost = medieval to early post-medieval; post-med = post-medieval; LVH = left valve height; LVL = left valve length; LHW = left hinge width; LHL = left hinge length; LAS = left anterior scar length; LASH = left anterior scar height; RVH = right valve height; RVL = right valve length; RHW = right hinge width; RHL = right hinge length; RAS = right anterior scar length; RASH = right anterior scar height.*

Period	Total no.	LVH	LVL	LHW	LHL	LAS	LASH	RVH	RVL	RHW	RHL	RAS	RASH
unphased	14	1	2	1	0	2	2	1	1	0	0	2	2
med	354	18	22	22	19	48	57	24	34	2	3	55	50
med-epost	281	17	23	20	15	37	44	22	27	0	1	39	36
post-med	220	18	15	10	12	36	37	17	17	1	1	29	27
modern	20	1	3	0	2	3	3	1	2	0	0	3	2

Table 17. Date ranges for phases and period groupings for the vertebrate remains.

Phase	**Date**	**Period**
1	first half 14th century	late medieval
2	late 14th - early 15th century	late medieval
3	15th century	late medieval
3b	early - mid 15th century	late medieval
4	late 15th - 16th century	early post-medieval
5	16th century	early post-medieval
6	17th century	post-medieval
7	18th century	late post-medieval
8	19th - 20th century	early modern

Table 18. Vertebrate taxa represented in the hand-collected assemblage by phase (phases 1-3 grouped).

Taxon		**Phases 1-3**	**4**	**5**	**6**	**Total**
Oryctolagus cuniculus (L.)	rabbit	-	-	-	4	4
Canis f. domestic	dog	2	1	2	28	33
Felis f. domestic	cat	2	-	-	1	3
Equus f. domestic	horse	-	-	-	2	2
Sus f. domestic	pig	37	15	8	5	65
Dama dama (L.)	?fallow deer	-	1	-	-	1
Bos f. domestic	cattle	101	61	87	69	318
cf. *Bos* f. domestic	?cow	1	-	-	-	1
Caprovid	sheep/goat	27	47	94	74	242
Capra f. domestic	goat	1	-	-	-	1
Ovis f. domestic	sheep	11	6	20	24	61
Anser sp.	goose	2	6	9	8	25
cf. *Anser* sp.	?goose	-	1	-	-	1
Anas sp.	duck	-	1	-	1	2
Anas cf. *Platyrhynchos* L.	?Mallard	1	1	2		4
Anas crecca L.	teal	-	-	-	1	1
Buteo sp.	buzzard	-	-	-	1	1
Galliform	galliform	-	1	-	-	1
Gallus f. domestic	chicken	7	23	9	8	47
cf. *Gallus* f. domestic	?fowl	-	-	1	-	1
wader	wader	-	-	-	1	1
cf. *Lymnocryptes minimus* Brunnich	?jack snipe	1	-	-	-	1
cf. *Larus marinus* L.	?greater black backed gull	-	1	-	-	1
cf. *Corvus corax* L.	?raven	-	1	-	-	1
Raja clavata L.	thornback ray	-	-	1	-	1
Cyprinidae	carp family	1	-	-	-	1
Gadidae	gadid family	3	3	5	6	17
Gadus morhua L.	cod	3	2	-	-	5
cf. *Melanogrammus aeglefinus* (L.)	?haddock	-	-	1	-	1
Molva molva (L.)	ling	-	7		3	10
Homo sapiens		1				1
Sub-total		*201*	*178*	*239*	*236*	*854*
Unidentified fish		17	12	27	26	82
Unidentified bird		18	33	14	22	87
Large mammal		221	175	188	198	782
Medium mammal 1		127	189	131	231	678
Medium mammal 2		-	1	-	1	2
Unidentifiable		39	25	62	80	206
Sub-total		*422*	*435*	*422*	*558*	*1837*
Total		**623**	**613**	**661**	**794**	**2691**

Table 19. Vertebrate remains recovered from samples from Phase 3.

Taxon		**239**	**298**	**2100**	**2280**	**2336**	**2415**	**21600**	**Total**
cf. *Mus domesticus* (L.)	?house mouse	1	-	-	-	-	-	-	1
Rattus rattus (L.)	black rat	-	-	-	1	-	-	-	1
Sus f. domestic	pig	-	-	-	-	3	-	-	3
Bos f. domestic	cattle	-	3	-	-	-	-	-	3
Caprine	sheep/goat	-	3	-	-	-	-	1	4
Anas cf. *Platyrhynchos* L.	?Mallard	-	-	-	-	-	1	-	1
Gallus f. domestic	chicken	-	-	4	-	-	-	-	4
		-	-		-	-	-	-	
Raja clavata L.	thornback ray	-	-	2	-	-	-	-	2
Clupea harengus L.	atlantic herring	5	3	131	6	49	4	1	199
Sprattus sprattus (L.)	sprat	-	-	-	-	-	6	-	6
cf. *Sprattus sprattus* (L.)	?sprat	-	-	10	-	-	-	-	10
Cyprinidae	carp family	-	-	-	1	-	-	-	1
Anguilla anguilla (L.)	eel	2	-	32	6	16	5	1	62
Gasterosteus aculeatus L.	three-spined stickleback	-	2	-	-	-	-	-	2
Gadidae	gadid	-	-	10	-	-	-	-	10
Gadus morhua L.	cod	-	1	2	-	1	-	-	4
cf. *Gadus morhua* L.	?cod	-	-	-	1	-	-	-	1
Melanogrammus aeglefinus (L.)	haddock	-	-	-	-	4	-	-	4
cf. *Melanogrammus aeglefinus* (L.)	?haddock	-	-	1	-	-	-	-	1
Merlangius merlangus (L.)	whiting	8	-	8	-	3	10	1	30
cf. *Merlangius merlangus* (L.)	?whiting	-	1	5	1	4	-	-	11
Lotinae	rockling	-	1	-	-	-	8	-	9
cf. Lotinae	?rockling	-	-	-	2	-	-	-	2
cf. *Ciliata mustela* (L.)	?five-bearded rockling	-	-	1	-	-	-	-	1
Gaidropsarus vulgaris (Cloquet)	three-bearded rockling	-	-	1	-	-	-	-	1
Cepola rubescens L./*Chelon labrosus* (Risso)	red bandfish / thick-lipped grey mullet	-	-	-	2	-	-	-	2
cf. *Gobio gobio* L.	?gudgeon	-	-	-	-	3	-	-	3
cf. *Chelon labrosus* (Risso)	?thick-lipped grey mullet	-	-	1	-	-	-	-	1
Heterosomata	flatfish	-	-	-	-	-	-	4	4
cf. Heterosomata	?flatfish	-	-	-	-	1	-	-	1
Pleuronectidae	right-sided flatfish	-	-	2	1		3	-	6
cf. Pleuronectidae	?right-sided flatfish	-	-	-	-	2	-	-	2
cf. *Hippoglossoides platessoides* (Fabricius)	?long rough dab	-	-	-	1	-	-	-	1
cf. *Hippoglossus hippoglossus* (L.)	?halibut	-	-	-	-	-	-	1	1
Hippoglossus hippoglossus (L.)/ *Platichthys flesus* (L.)	?halibut/flounder	-	-	-	-	-	-	1	1
Platichthys flesus (L.)	flounder	1	-	-	-	-	-	-	1
cf. *Platichthys flesus* (L.)	?flounder	4	-	-	-	1	3	-	8
Pleuronectes platessa L.	plaice	1	-	14	2	-	-	-	17
cf. *Pleuronectes platessa* L.	?plaice	-	1	28	-	-	1	-	30
cf. *Pleuronectes platessa* L./*Platichthys flesus* (L.)	?plaice/flounder	-	-	43	-	12	-	-	55
cf. *Microchirus variegatus* (Donovan)	?thickback sole	-	-		-	1	-	-	1
Solea vulgaris Quensel	common/ Dover sole	-	-	1	-	6	-	-	7
cf. *Solea vulgaris* Quensel	?common/ Dover sole	-	5	-	-	-	-	-	5
Fish	fish	-	-	2	-	-	-	1	3
Grand Total		**22**	**20**	**298**	**24**	**106**	**41**	**11**	**522**

Table 20. Vertebrate remains recovered from samples from Phase 3b.

Phase 3b		
Taxon		**2287**
Anas cf. platyrhynchos	?mallard	1
cf. *Argentina sphyraena* L.	?argentine	1
Anguilla anguilla (L.)	eel	14
Gadidae	gadid	6
Gadus morhua L.	cod	1
Merlangius merlangus (L.)	whiting	9
cf. *Merlangius merlangus* (L.)	?whiting	1
Pleuronectes platessa L.	plaice	1
Solea vulgaris Quensel	common/ Dover sole	1
Total		**35**

Table 21. Vertebrate remains recovered from samples from Phase 4.

Taxon		**103**	**216**	**230**	**251**	**Total**
Sus f. domestic	pig	-	-	1	-	1
Ovis f. domestic	sheep	-	1	-	-	1
Caprine	sheep/goat	2	-	-	-	2
Anas cf. *Platyrhynchos* L.	?mallard	-	-	-	1	1
Gallus f. domestic	chicken	1	2	-	-	3
Troglodytes troglodytes (L.)	wren	-		1	-	1
Pica pica (L.)	magpie	-	1	-	-	1
Raja clavata L.	thornback ray	-	-	2	-	2
cf. *Raja montagui* Fowler	?spotted ray	-	-	1	-	1
Clupea harengus L.	atlantic herring	-	110	125	67	302
cf. *Clupea harrengus* L.	?herring	-	2	-	-	2
Sprattus sprattus (L.)	sprat	-	42	5	6	53
cf. *Salmo trutta* L.	?trout	-	-	-	1	1
Osmerus eperlanus L.	smelt	-	2	3	3	8
cf. *Osmerus eperlanus* L.	?smelt	-	1	-	-	1
Cyprinidae	carp family	-	-	1	-	1
Anguilla anguilla (L.)	eel	-	75	12	5	92
Gastererosteidae	stickleback	-	1	2	-	3
Gasterosteus aculeatus L.	three-spined stickleback	-	22	36	-	58
cf. *Gasterosteus aculeatus* L.	?three-spined stickleback	-	2	-	4	6
cf. *Merluccius merluccius* (L.)	?hake	-	1	-	-	1
Gadidae	gadid	2	11	50	3	66
Gadus morhua L.	cod	-	-	3	-	3
cf. *Gadus morhua* L.	?cod	-	7	2	-	9
Melanogrammus aeglefinus (L.)	haddock	2	1	-	-	3
cf. *Melanogrammus aeglefinus* (L.)	?haddock	-	2	4	-	6
Merlangius merlangus (L.)	whiting	-	9	55	7	71
cf. *Merlangius merlangus* (L.)	?whiting	-	8	5	1	14
cf. *Trisopterus luscus* (L.)	?bib	-	1	-	-	1
cf. Lotinae	?rockling	-	1	-	-	1
cf. *Ciliata mustela* (L.)	?five bearderd rockling	-	-	2	-	2
Ciliata mustela (L.)*/ Rhinonemus cimbrius* (L.)	five- or four-bearded rockling	-	39	-	2	41
cf. *Gaidropsarus vulgaris* (Cloquet)	?three-bearded rockling	-	3	4	-	7
cf. *Rhinonemus cimbrius* (L.)	?four-bearded rockling	-	9	-	-	9
Pomatoschistus minutus (Pallas)	sand goby	-	-	1	-	1
cf. *Gobio gobio* L.	?gudgeon	-	-	2	-	2
Heterosomata	flatfish	-	1	-	1	2
cf. Heterosomata	?flatfish	-	4	-	-	4
Pleuronectidae	right-sided flatfish	-	14	38	-	52
cf. *Hippoglossoides platessoides*(Fabricius)	?long rough dab	-	1	-	-	1
cf. *Microstomus kitt* (Walbaum)	?lemon sole	-	-	12	-	12
Platichthys flesus (L.)	flounder	-	1	1	1	3
cf. *Platichthys flesus* (L.)	?flounder	-	7	2	1	10
Platichthys flesus (L.)*/ Pleuronectes platessa* L.	flounder/ plaice	-	-	2	-	2
cf. *Platichthys flesus* (L.)*/ Pleuronectes platessa* L.	?flounder/ plaice	-	9	11	-	20

Pleuronectes platessa L.	plaice	-	11	12	1	24
cf. *Pleuronectes platessa* L.	?plaice	1	25	16	4	46
cf. *Solea vulgaris* Quensel*./Limanda limanda* (L.)	?sole/ dab?	-	21	-	-	21
Solea vulgaris Quensel	common/ Dover sole	-	9	23	7	39
cf. *Solea vulgaris* Quensel	?common/ Dover sole	-	2	-	-	2
Total		**8**	**458**	**434**	**115**	**1015**

Table 22. Element fragment counts by phase (phases 1-3 grouped) for cattle remains.

	Phase(s)				
Element	**1 to 3**	**4**	**5**	**6**	**Total**
horncore	1	-	-	-	1
mandible	25	7	11	3	46
DP4	-	-	-	1	1
P4	-	-	1	1	2
M1/M2	4	2	2	1	9
M3	-	1	2	1	4
isolated teeth	14	7	6	12	39
scapula	4	1	2	3	10
humerus	-	-	3	6	9
radius	3	1	4	1	9
ulna	3	2	2	1	8
pelvis	3	1	-	1	5
femur	2	1	2	2	7
tibia	4	2	4	3	13
astragalus	-	2	1	1	4
calcaneum	1	2	4	2	9
metacarpal	3	4	7	3	17
metatarsal	11	7	9	7	34
metapodial	-	-	-	1	1
phalanx 1	5	6	10	7	28
phalanx 2	8	5	4	4	21
phalanx 3	4	4	5	-	13
Total	**95**	**55**	**79**	**61**	**290**

Table 23. Minimum numbers of individuals (MNI) by element and phase (phases 1-3 grouped) for cattle remains.

	Phase(s)			
Element	**1 to 3**	**4**	**5**	**6**
horncore	0	0	0	0
mandible	8	2	2	2
scapula	4	1	2	3
humerus	0	0	1	3
radius	3	1	2	1
ulna	4	2	2	1
pelvis	2	1	0	1
femur	2	1	1	1
tibia	3	1	1	2
astragalus	0	2	1	1
calcaneum	2	1	2	1
metacarpal	4	2	4	2
metatarsal	6	3	6	4
phalanx 1	1	1	1	1
phalanx 2	1	1	1	1

Table 24. Element fragment counts by phase (phases 1-3 grouped) for sheep/goat (caprovid) remains.

	Phase(s)				
Element	**1 to 3**	**4**	**5**	**6**	**Total**
horncore	1	-	-	1	2
mandible	7	4	15	7	33
P4	-	1	-	-	1
M1	-	1	-	-	1
M1/M2	1	-	3	3	7
M3	1	3	5	1	10
isolated teeth	3	5	7	1	16
scapula	1	-	2	6	9
humerus	1	2	4	6	14
radius	2	1	10	10	23
ulna	1	-	5	8	14
pelvis	2	4	1	3	9
femur	-	-	4	5	9
tibia	6	3	2	2	13
astragalus	-	1	-	4	5
calcaneum	1	1	1	7	10
metacarpal	6	4	22	8	40
metatarsal	4	9	21	12	46
phalanx 1	-	6	6	5	17
phalanx 2	-	1	2	-	3
phalanx 3	-	1	-	1	2
Total	**26**	**47**	**110**	**90**	**284**

Table 25. Minimum numbers of individuals (MNI) by element and phase (phases 1-3 grouped) for sheep/goat (caprovid) remains.

	Phase(s)			
	1 to 3	**4**	**5**	**6**
horncore	1	0	0	1
mandible	7	2	5	3
scapula	2	0	1	5
humerus	1	1	2	3
radius	2	1	5	6
ulna	2	0	3	5
pelvis	1	2	1	3
femur	2	0	2	3
tibia	4	2	1	2
astragalus	2	1	0	2
calcaneum	1	1	0	4
metacarpal	6	2	12	4
metatarsal	3	4	9	6
phalanx 1	0	1	1	1
phalanx 2	0	1	1	0

Table 26 . Statistical comparison of biometrical data for caprovid metacarpal proximal breadth (Bp) for material from late medieval and post-medieval levels at Blanket Row, Kingston-upon-Hull, and contemporaneous sites (data from O'Connor 1995).

***Key**: SD - standard deviation. Measurements in millimetres.*

Site	Date	Mean	Min.	Max.	SD	No.
Bedern Foundry, York	L15thC	21.9	*	*	0.94	40
Bedern SW, York	L15-E16thC	22.5	*	*	1.23	25
Lincoln	PM1(E16thC)	24.2	19.5	26.9	1.73	42
1-5 Aldwark, York	E16thC	21.7	*	*	1.08	60
Blanket Row, Hull	16thC	21.9	20.5	23.1	0.8	12
Doncaster	16thC	22.2	20.3	24.1	1.29	17
Doncaster	16-17thC	22.3	19.8	25.5	2.16	5
Blanket Row, Hull	17thC	21.5	20	23.5	1.45	4
Lincoln	PM2 (M17thC)	23.2	21.1	25.6	1.33	16

*data not available

Table 27. Extrapolated mean withers heights (in mm) for caprovid material from late medieval and post-medieval levels at Blanket Row, Kingston-upon-Hull, and contemporaneous sites (data from O'Connor 1995).

Site	Date	Withers
Hall Garth, Beverley	14-L15thC	580
Bedern Foundry, York	L15thC	576
Bedern SW, York	L15-E16thC	583
Lincoln	PM1(E 6thC)	626
1-5 Aldwark, York	E16thC	560
Blanket Row, Hull	16thC	556
Doncaster	16thC	574
Hall Garth, Beverley	16-17thC	574
Blanket Row, Hull	17thC	576
Doncaster, North Bridge	17-18thC	563
Lincoln	PM2 (M17thC)	598

Figure 1. Low to medium residuality contexts from which hand-collected shell was recovered by phase and excavation year.

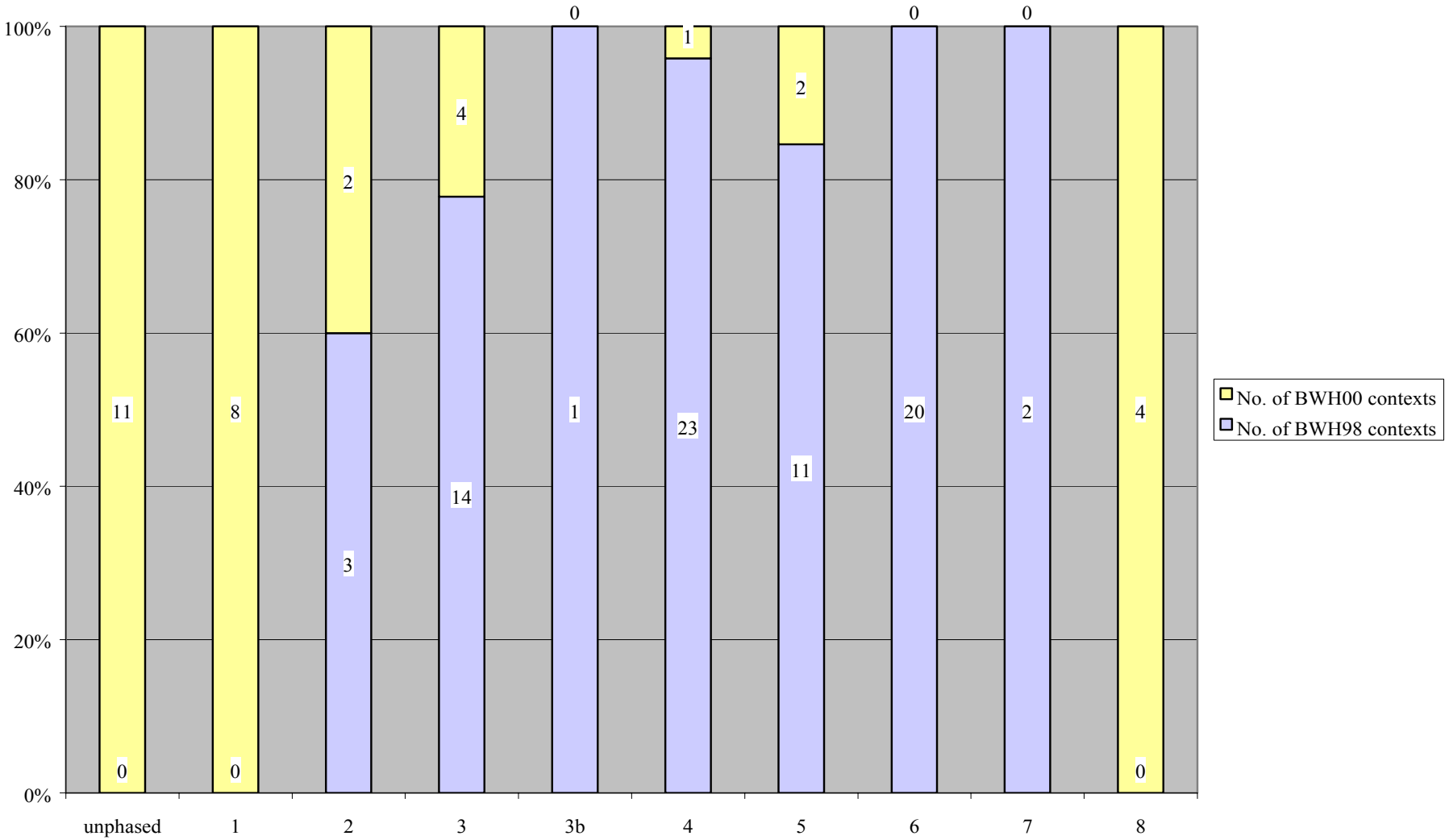

Figure 2. Numbers of low to medium residuality contexts from which hand-collected shell was recovered by context type and phase.

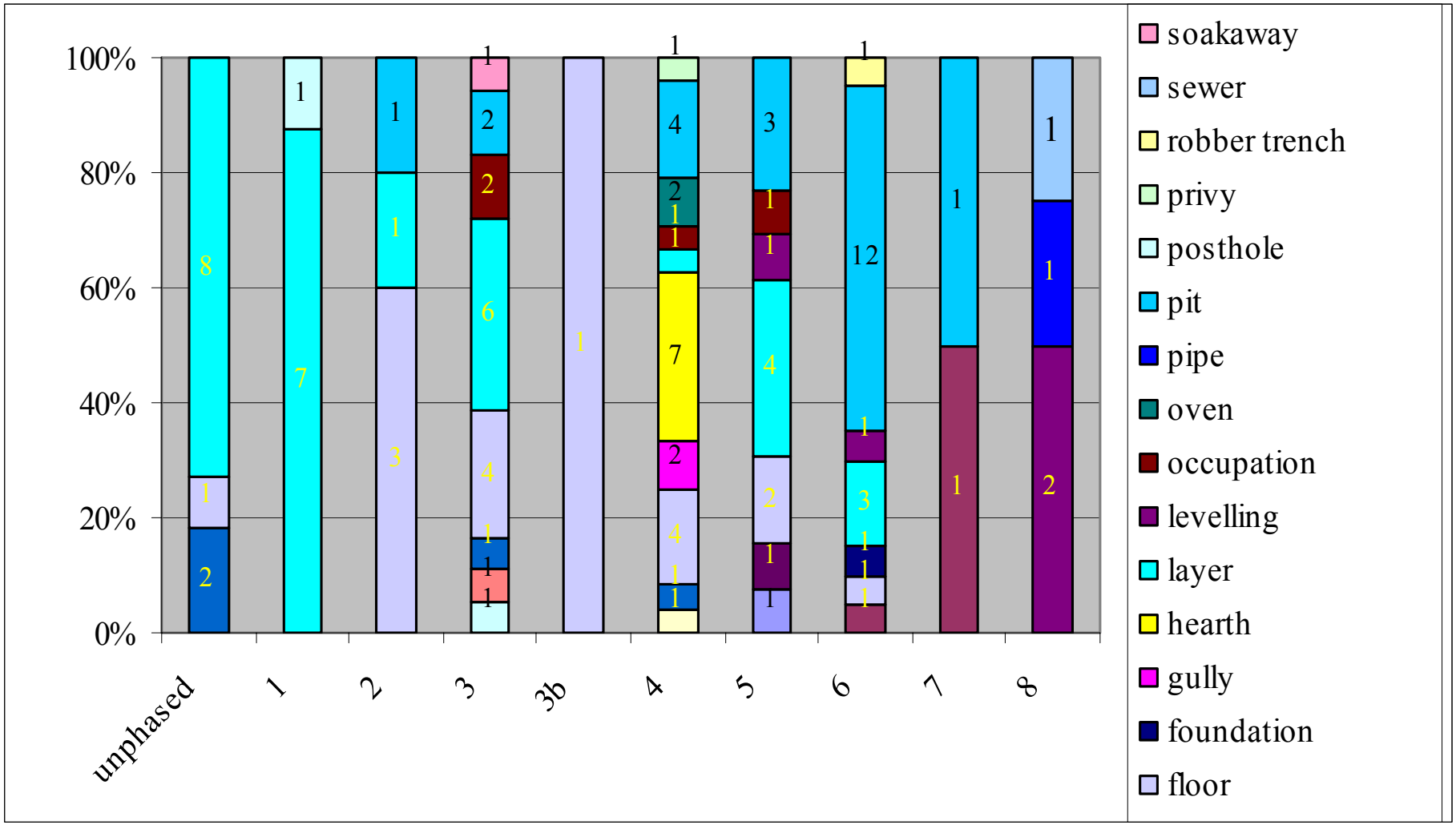

Figure 3. Numbers of low to medium residuality contexts from which hand-collected shell was recovered by context type and period.

***Key**: med = medieval; med-epost = medieval to early post-medieval; post-med = post-medieval.*

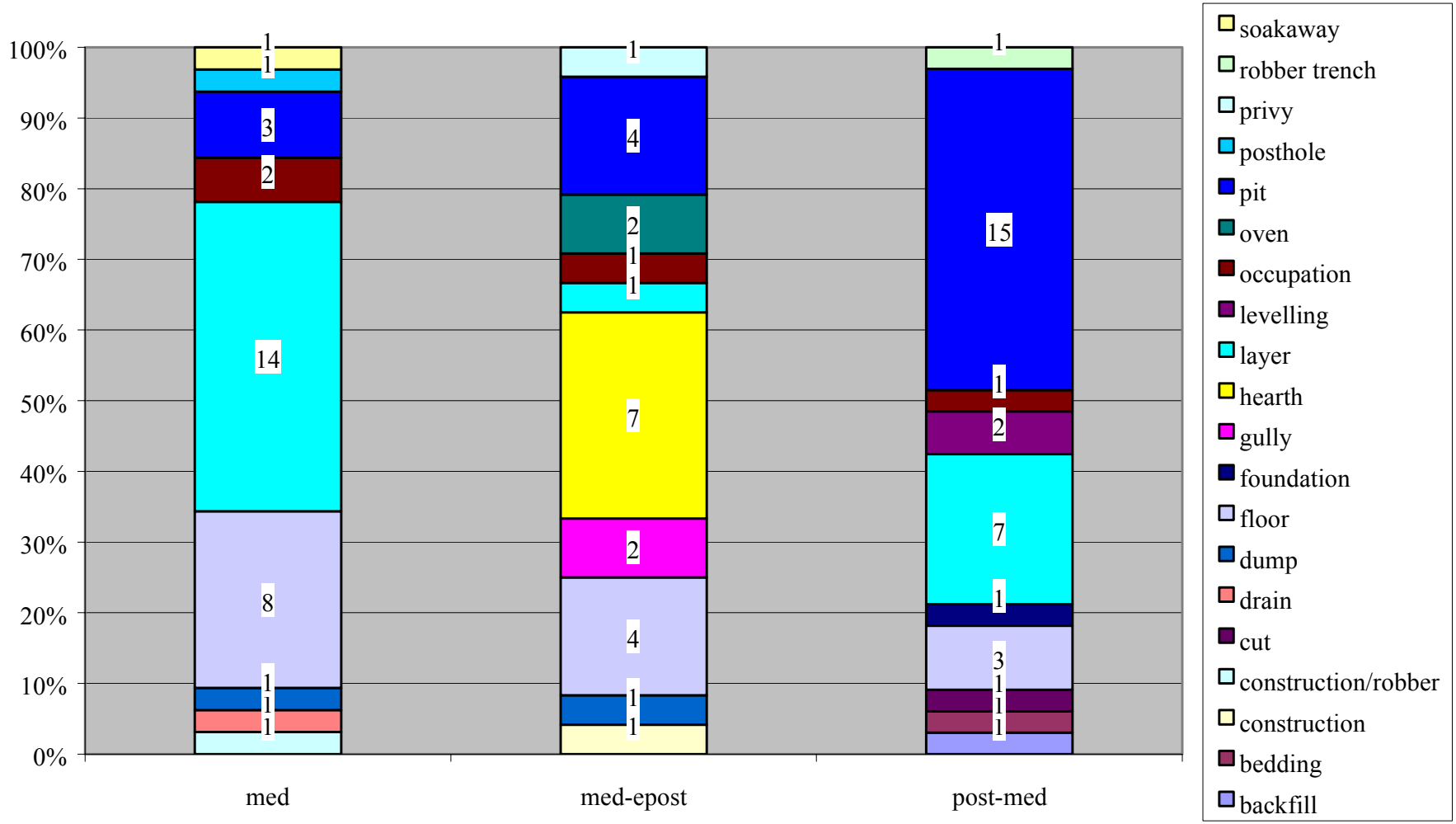

Figure 4. Weight (in grammes) of hand-collected shell recovered from low to medium residuality contexts by context type and phase.

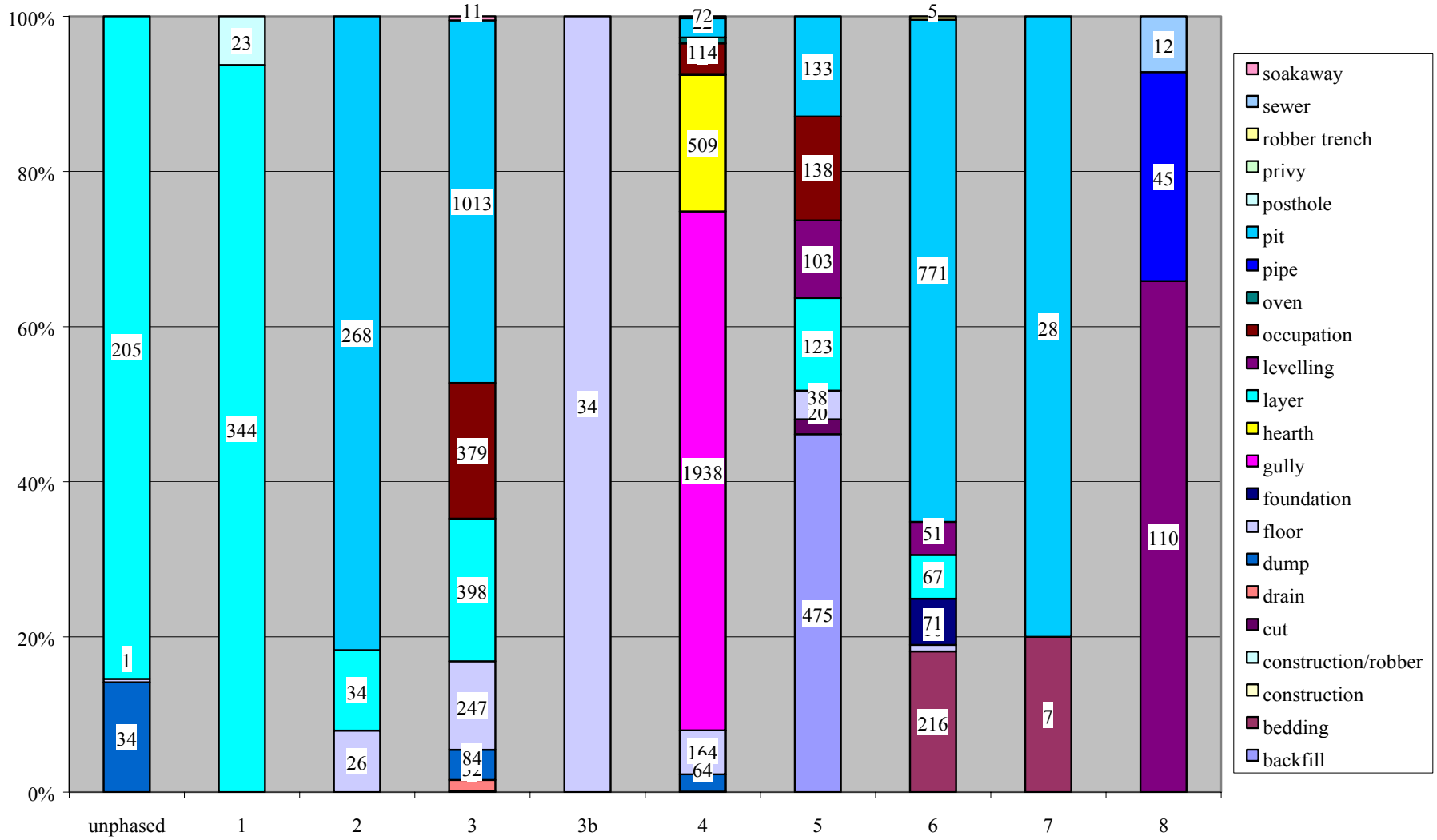

Figure 5. Weight (in grammes) of hand-collected shell recovered from low to medium residuality contexts by context type and period.

***Key**: med = medieval; med-epost = medieval to early post-medieval; post-med = post-medieval.*

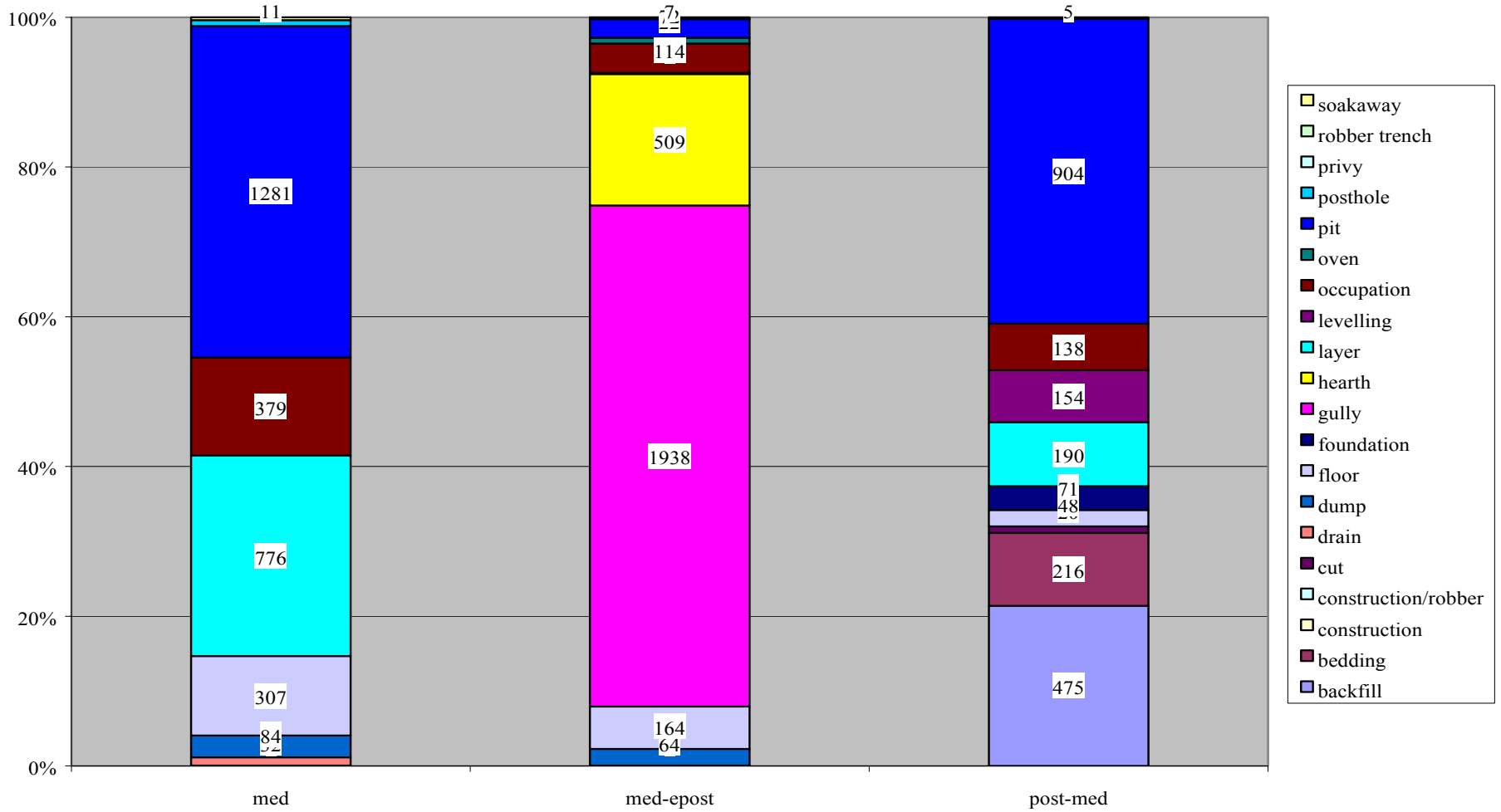

Figure 6. Numbers of 'cut' and 'non-cut' features by period.

***Key**: med = medieval; med-epost = medieval to early post-medieval; post-med = post-medieval; mod = modern.*

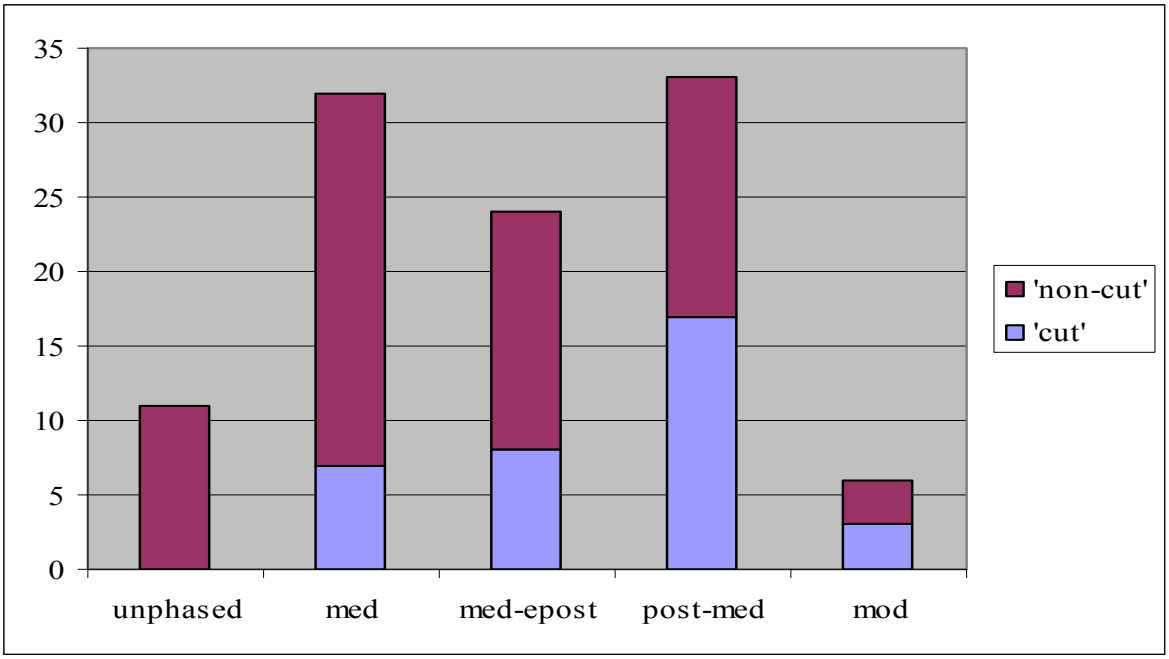

Figure 7. Weight (in grammes) of hand-collected shell recovered from 'cut' and 'non-cut' features by period.

***Key**: med = medieval; med-epost = medieval to early post-medieval; post-med = post-medieval; mod = modern.*

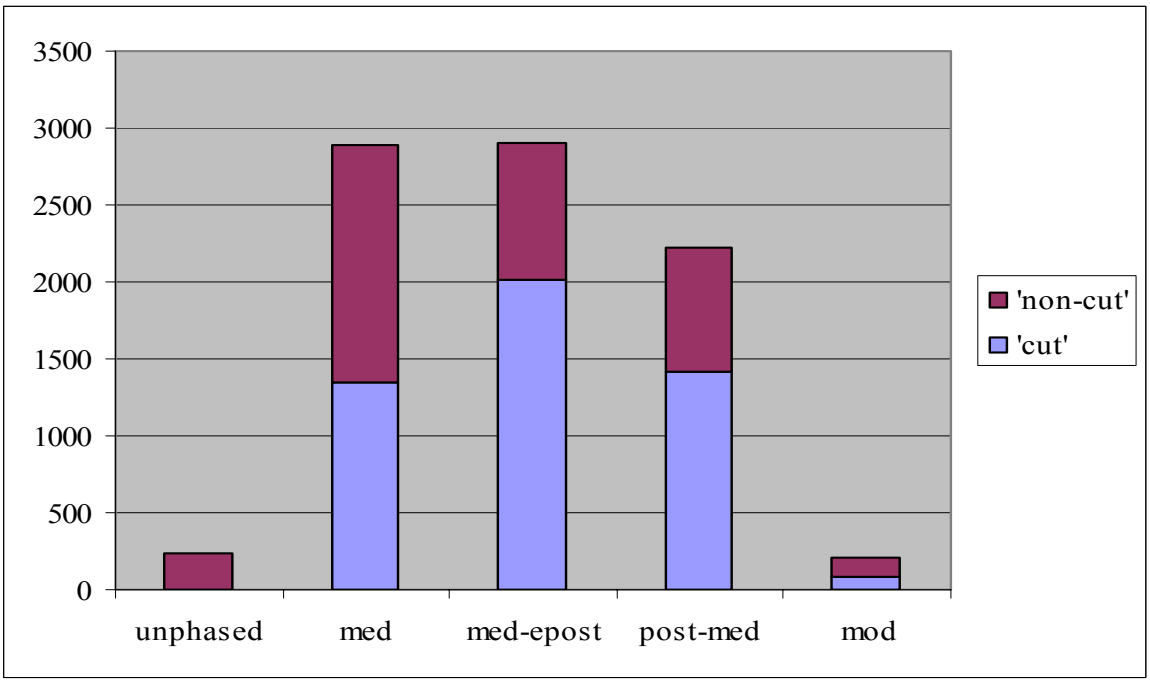

Figure 8. Average weight of hand-collected shell per context recovered from 'cut' and 'non-cut' features by period.

***Key**: med = medieval; med-epost = medieval to early post-medieval; post-med = post-medieval; mod = modern.*

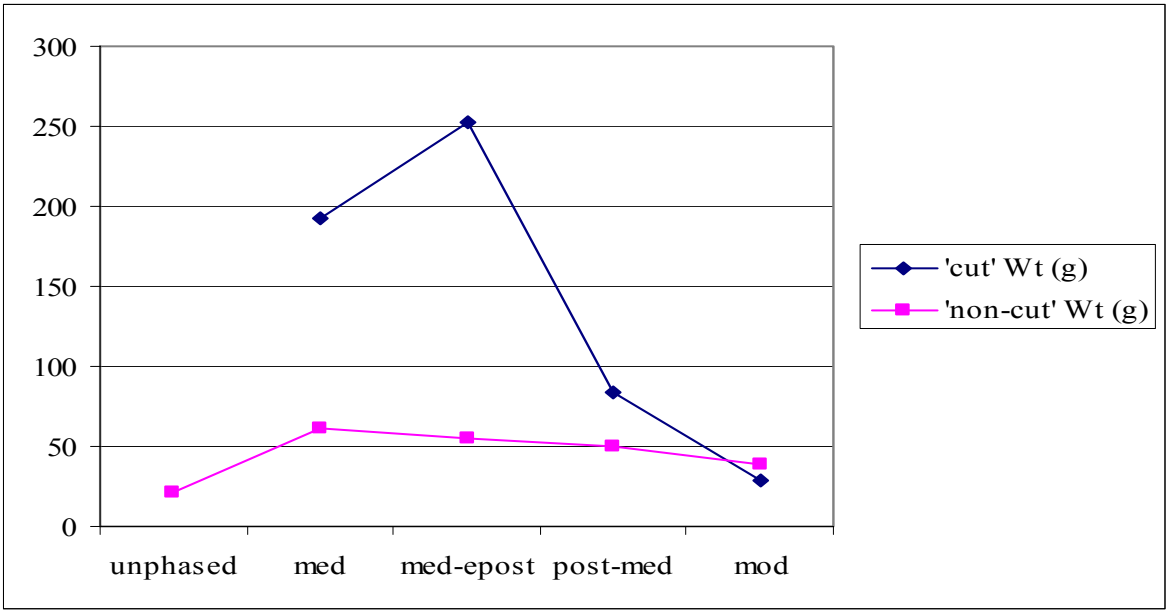

Figure 9. Average erosion (E) and fragmentation (F) scores for hand-collected shell from 'cut' and 'non-cut' features by period.

***Key**: med = medieval; med-epost = medieval to early post-medieval; post-med = post-medieval; mod = modern.*

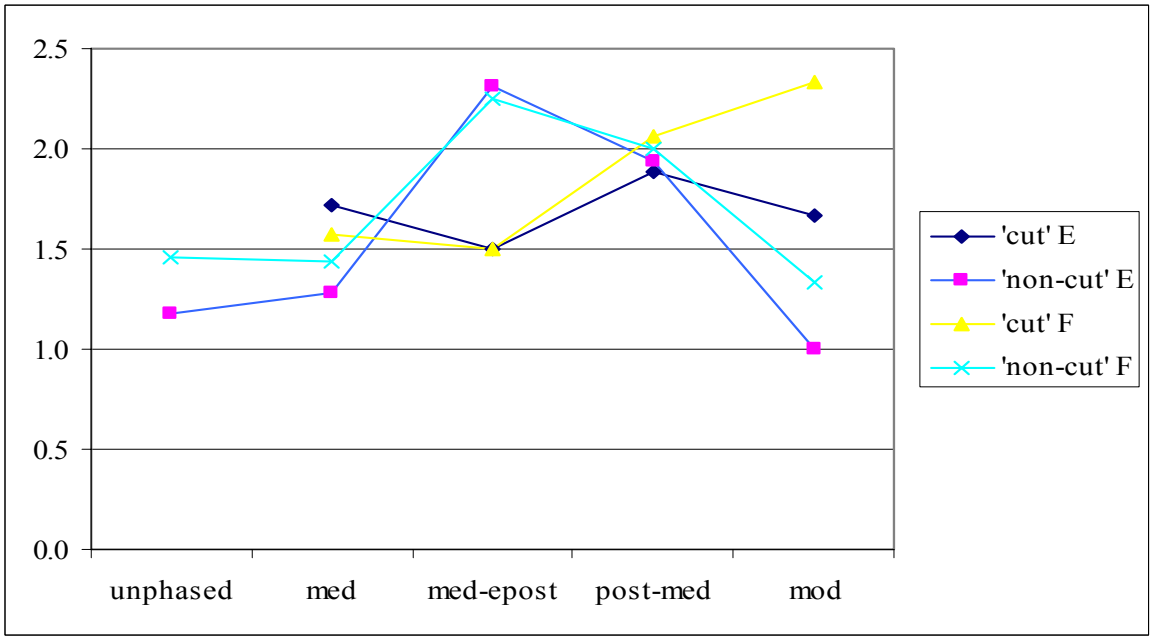

Figure 10. Average values for oyster valve measurements by period (measurements (Y-axis) in mm).

***Key**: med = medieval; med–epost = medieval to early post-medieval; post-med = post-medieval; LVH = left valve height; LVL = left valve length; LHW = left hinge width; LHL = left hinge length; LAS = left anterior scar length; LASH = left anterior scar height; RVH = right valve height; RVL = right valve length; RHW = right hinge width; RHL = right hinge length; RAS = right anterior scar length; RASH = right anterior scar height.*

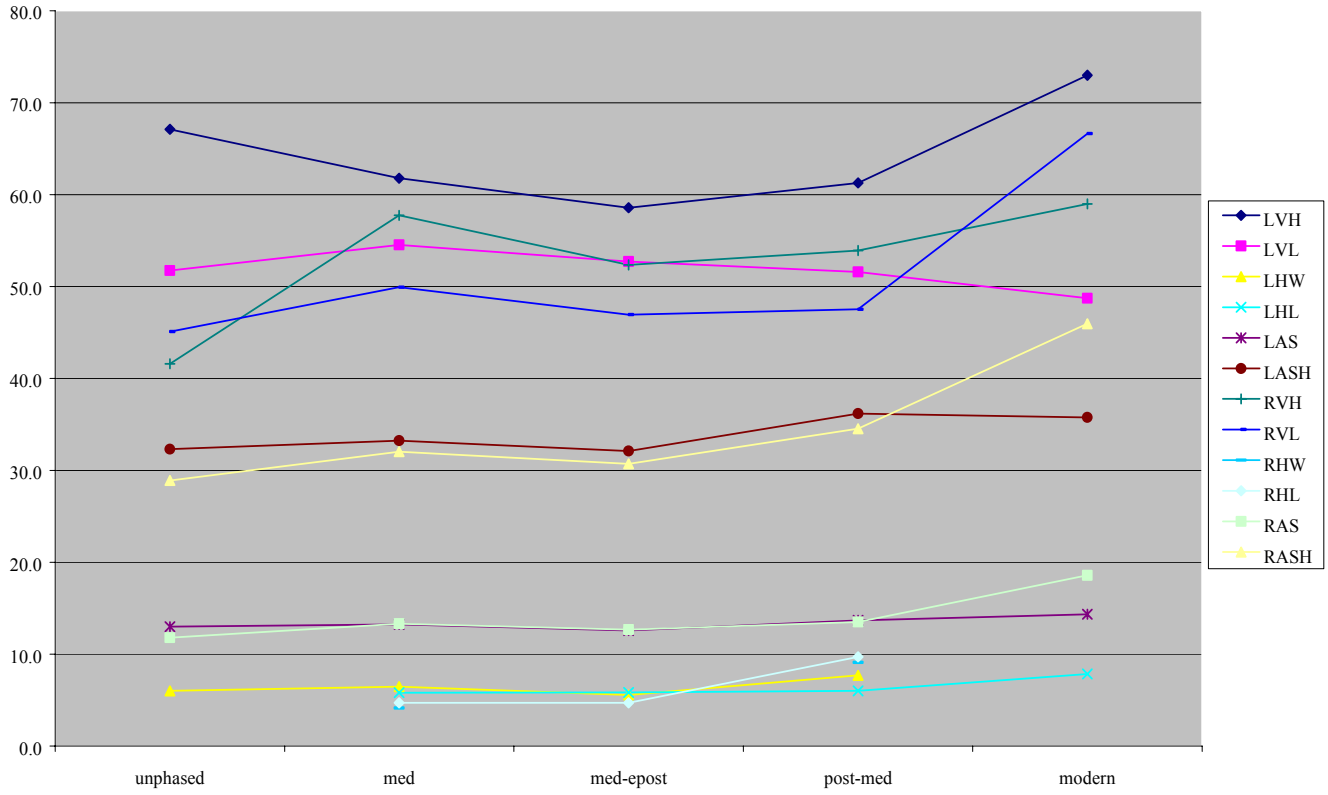

Figure 11. Major domestic species by number of individual skeletal pats (NISP).

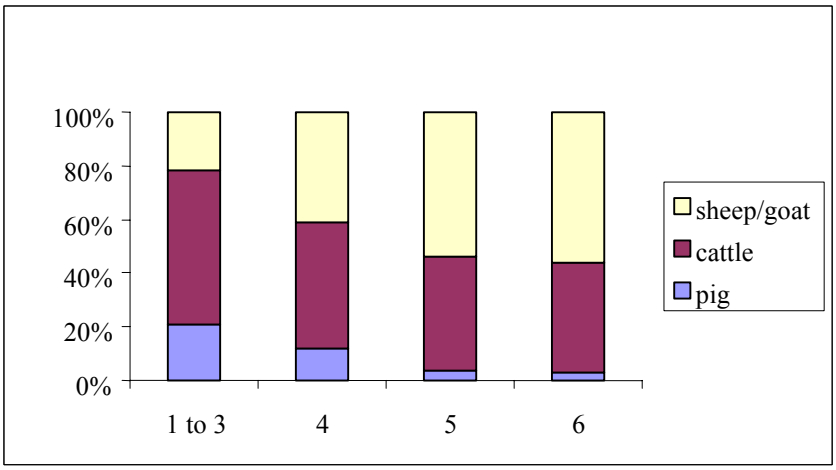

Figure 12. Major domestic species by minimum number of individuals (MNI).

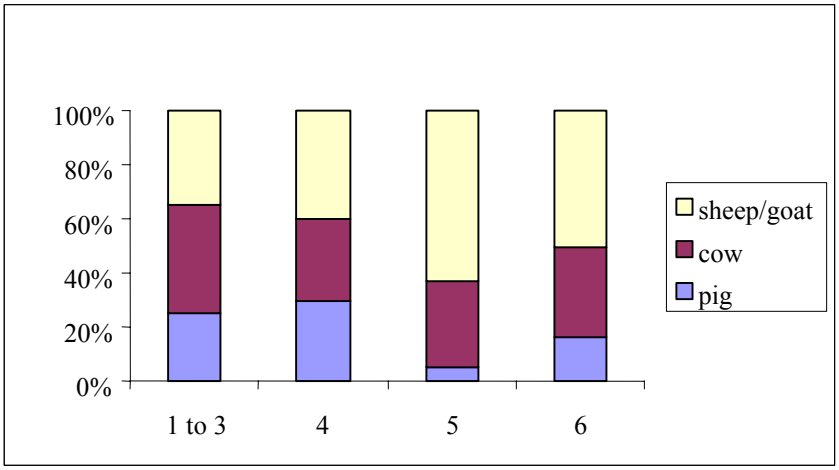

Figure 13. Size of caprovid metacarpals from post-medieval deposits at Blanket Row, Hull, and contemporaneous sites (data from Carrott et al. 1997 and Dobney et al. 1996).

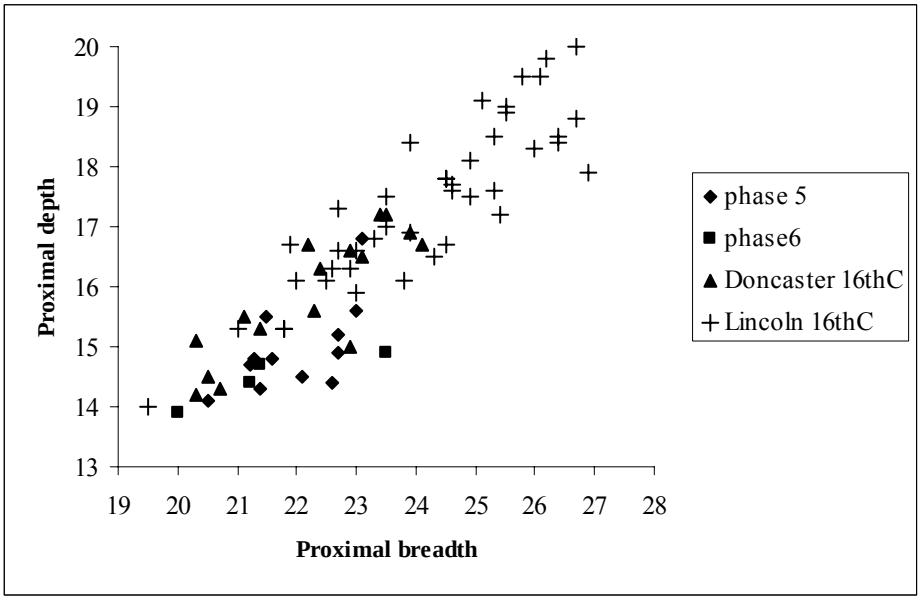

Figure 14. Frequency of major taxa from Blanket Row, Kingston-upon-Hull and other sites within the region.

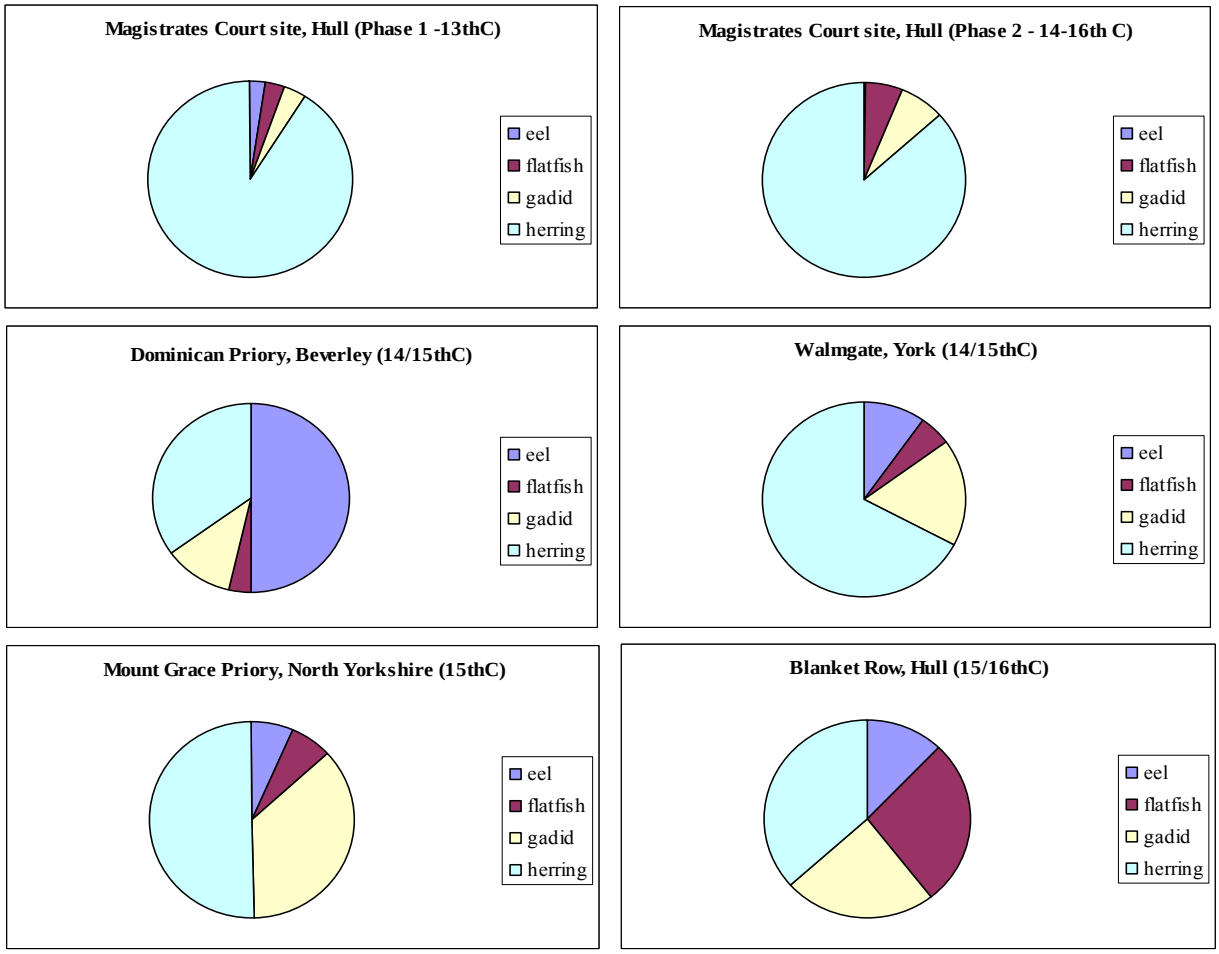

Figure 15. Frequency of major gadid taxa from Blanket Row, Kingston-upon-Hull and other sites within the region.