

**Technical report: vertebrate remains from Easington, East Riding of
Yorkshire (site code EAS 98)**

by

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Summary

A single pit, dated to the early Saxon period, was excavated at Easington, East Riding of Yorkshire. Two boxes of bone (both hand-collected and from 16 sieved samples) recovered from this pit were studied and an archive of the material made.

The preservation of the vertebrate remains suggested the pit may have been filled by several episodes of dumping, both primary and redeposition of material from elsewhere. The use of a systematic sampling program enabled the examination of bone concentrations within the pit and suggested that certain parts contained different concentrations of bone and of burnt material, probably from individual dumping events. The mixture of primary butchery and domestic refuse, combined with concentrations of burnt fragments, suggested that this was a general refuse pit. Small mammal and amphibian bones indicated that the pit must have been open for long enough to act as a pit-fall trap.

Age-at-death data, although rather scarce, showed that most cattle and caprovid individuals were killed prior to reaching maturity, indicating the presence of consumer rather than producer waste. The few bones providing withers height estimates showed that the Easington cattle and caprovids were similar in size to the smaller individuals present at the contemporaneous sites of Flixborough and West Stow.

KEYWORDS: EASINGTON; EAST RIDING OF YORKSHIRE; VERTEBRATE REMAINS; EARLY SAXON.

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Introduction

Excavations, undertaken by the Humber Archaeology Partnership at Easington, East Riding of Yorkshire in late 1998, revealed a single pit. Only one deposit (Context 3) was identified within the pit, which was excavated in sections: east and west, upper and lower. Sixteen sediment samples (four from each section) and two boxes of hand-collected bone (approximately 16.5 litres each) were recovered from the pit. These were assessed for their bioarchaeological potential by the EAU in 1998 (Johnstone *et al.* 1998).

The assessment recommended that, although this assemblage was small, it should be recorded to archive level (including basic species identifications, records of measurements and age-at-death data) as early Saxon vertebrate assemblages are not well represented in the region. It was also suggested that a small amount of analytical work should be carried out, but that this would be dependant on a C14 date being obtained first.

The recommendation to obtain a C14 date was accepted and two samples of bone were sent for analysis. The first sample returned a date of cal AD 539-775, and the second cal AD 599-686 (both quoted at the 2 sigma level). The second date has a particularly tight range, although both centre on the 7th century AD.

This report comprises an archive of the vertebrate material, together with some analysis and comments on the assemblage in the light of the ¹⁴C dates, as recommended in the assessment report. Records (made during the assessment) of the samples from which bone was recovered are given in Appendix 1.

Methods

Data from the vertebrate remains 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 breaks. Quantitative information was noted for the proportion of burnt fragments in the sample residues.

Where possible, fragments were identified to species or species group, using the reference collection at the EAU. Fragments not identifiable to species were described as the 'unidentified' fraction. Within this fraction fragments were grouped into a number of categories: large mammal (assumed to be cattle, horse or large cervid), medium-sized mammal (assumed to be caprovid, pig or small cervid), bird, fish, small mammal and totally unidentifiable. As well as counts of fragments, total weights were recorded for all identifiable and unidentifiable categories.

Measurements for mammals were taken (where appropriate) according to the system of von den Driesch (1976), with additional measurements following those outlined by Dobney *et al.* (forthcoming). Withers heights were calculated following Foch (1966) and Matolsci (1970) for cattle and Teichart (1975) for caprovids.

Epiphyseal fusion data is presented using the categories of O'Connor (1984). Age-at-death in caprovids was calculated from dental attrition following Payne (1973, 1987). Minimum numbers of individuals (MNI) were determined using the zone system devised by Dobney and Rielly (1988).

Results

Overall, preservation of the hand-collected remains was variable. Although most fragments were recorded as 'good', some had slightly flaky areas on the surface of the bone. Colour was described as 'ginger' to 'brown', whilst angularity (appearance of broken surfaces) was recorded as 'spiky'.

Dog gnawing, and burning were present on 0-10% of the fragments, butchery on 10-20% and fresh breakage was evident on 20-50%. A moderate degree of fragmentation was noted, more than 50% of the fragments being 5-20 cm in dimension.

The vertebrate remains recovered from the bulk-sieved residues were less well preserved than the hand-collected fragments. The colour range (of the unburnt fragments) was similar to that of the hand-collected material, but the overall state of preservation was fair rather than good. A larger proportion of battered fragments was noted, with a few rounded pieces also present. No pattern was discernable in the preservation of the bone, between the different parts of the pit, all appeared equally variable.

The degree of fragmentation was considerably greater within the bulk sieved fraction, with more than 50% of these fragments being less than 20 mm in greatest dimension. A larger proportion of burnt fragments was noted in the sieved assemblages.

In total, 399 fragments (weighing 5248 g) were recovered by hand collection, of which 125 (3522 g) were identified to species. Table 1 gives the numbers of mandibles and teeth, subadult bones, total numbers of fragments and weights by species.

Caprovid remains were most numerous (57 fragments including 22 identified as sheep), followed by cattle (52). Horse (8 fragments), pig (5) and goose (3) were also present.

Of the 274 'unidentified' fragments recorded, 64 were completely unidentified and the rest were recorded as large or medium-sized mammal fragments.

The bulk-sieved residues produced a total of 5162 fragments (weighing 1508 g), of which only 92 (weighing 309 g) were identified. Table 2 gives the numbers of fragments in each section of the pit, as well as the totals by species.

Caprovid remains were again most numerous (58 fragments including 10 identified as sheep), followed by cattle (18). Other mammal species present included pig, vole/mouse and shrew. The only bird species present was goose, whilst the identified fish remains included eel (*Anguilla anguilla* (L.)) and pike (*Esox lucius* L.). Two amphibian bones were also recorded.

The 5082 unidentified fragments comprised totally unidentified material, together with large and medium-sized mammal bones, and a few unidentified fish, bird, and small mammal fragments.

The very high proportion of completely unidentified fragments from the BS residues was partly due to the recovery techniques (sieving recovering a higher number of smaller fragments), but also to the nature of the fragments themselves. Rather than being small, whole bones, most fragments were very small pieces of much larger bones with no identifying features present. In addition, numerous fragments had been burnt, weakening the bone structure, and many of the unburnt fragments had battered or rounded edges indicative of reworking, all of which increases the degree of fragmentation.

The results of the analysis undertaken on this assemblage are given below. It should be borne in mind, however, that the numbers of bones involved in each case is very small and the results only provide a tentative framework for discussion. Minimum numbers of individuals (MNI) were calculated and the

results are given in Table 3. Caprovids were most numerous (five individuals), followed by cattle (three individuals), with a single pig and horse also represented.

Tables 4 and 5 show the relative proportion of meat-bearing to non meat-bearing elements for cattle and caprovids from the whole assemblage. Table 4 contains data from the identified fraction only; head and lower limb elements were classed as non meat-bearing, upper limb elements as meat-bearing. Table 5 also includes the 'unidentified' fraction of the assemblage, thoracic and lumbar vertebrae and ribs being classed as thorax (meat-bearing), cervical vertebrae as 'head' elements. The identified fraction (Table 4) shows a higher proportion of non meat-bearing elements for both cattle and caprovid remains. However, the assemblage as a whole indicates the proportion of meat-bearing fragments is higher. The numbers of thorax elements are likely to be inflated by the degree of fragmentation of the ribs.

Epiphyseal fusion data are given in Table 6. The data for both cattle and caprovids show that most of the individuals (particularly the caprovids) were killed before reaching maturity. Analysis of age-at-death from dental attrition was only undertaken for caprovids (Table 7) because of the small numbers of teeth and mandibles from other species. The dental attrition mirrors the epiphyseal fusion data, showing that most individuals were killed as juveniles or subadults.

Biometrical data were insufficient for an analysis to be undertaken. However, withers heights were calculated (Table 8) for the five bones yielding greatest-length measurements. The caprovid withers heights were estimated at 542, 576 and 581 mm. The cattle bones gave heights of 1073 and 1093 mm.

Appendix 2 contains the archive for all the vertebrate remains, including records for individually identified bones, preservation, measurements, pathology, butchery, teeth wear stages, unidentified material and weights.

Discussion

The preservation of the hand-collected vertebrate remains suggested that the material was reasonably homogeneous. In contrast, however, the bulk-sieved remains were more heavily fragmented (although sieving will obviously accentuate the numbers of small fragments through improved recovery), and many more bone fragments were described as battered and rounded. The more complete and better preserved material may represent primary dumping, whilst the more eroded and fragmented bones may represent material redeposited from elsewhere.

The range of species represented in the hand-collected material is very limited. The bulk-sieved samples added only a few further species but contributed to an understanding of the archaeology of the pit. For example, the presence of 12 small mammal and two amphibian bones indicates that the pit was open long enough to act as a pit-fall trap.

The systematic sampling program enabled an examination of bone concentrations in different areas of the pit to be made. Although burnt fragments were spread throughout, there was a concentration of burnt bone in the upper east portion of the pit (59% of fragments burnt). Also, the largest concentration of bone was in the lower east segment (42%) and, to a lesser extent in the upper east portion (30%). These concentrations may reflect individual dumping events.

The MNI calculations reflect the small size of the assemblage, only a few individuals of each species being represented.

Although based on very small numbers of fragments, the relative proportions of the meat-bearing and non-meat-bearing parts of the skeleton suggest that the remains represent both primary butchery and domestic

refuse. The identified fraction indicates a slightly higher proportion of butchery waste, whilst the assemblage as a whole indicates a larger quantity of kitchen/domestic refuse.

The epiphyseal fusion data indicate that, for both cattle and caprovids, most individuals were killed before reaching maturity. The caprovid dental attrition data corroborate the epiphyseal fusion data, showing that most individuals were killed as juveniles or subadults. Both lines of evidence suggest that the assemblage comprised consumer rather than producer waste, although the numbers are very small. The kill-off pattern seen at Easington is somewhat different to that observed for the same period at the nearby site of Flixborough, North Lincolnshire (EAU *in prep.*), where most of the animals survived into adulthood. The Easington pattern is, however, similar to that observed at West Stow, Suffolk, another site of contemporaneous date (Crabtree 1989), with most animals killed prior to maturity.

The withers heights calculated for the Easington cattle (1073 and 1093 mm) were small in relation to animals from the corresponding phases (7th and 8th centuries) at Flixborough, where the range was 1112-1306 mm, with a mean of 1193 mm. The Easington individuals were also small in comparison to the mean of 1142 mm calculated for 5th-7th century cattle at West Stow (Crabtree 1989), but were within the range of 986-1359 mm recorded from that site. Caprovid withers heights from Easington (542, 576 and 581 mm) were again smaller than the means for animals from deposits of a similar date at both Flixborough (602 mm) and West Stow (611 mm), but fell towards the lower end of the respective ranges (529-670 and 528-710 mm).

Conclusions

The vertebrate assemblage from Easington was very small, and as it was derived entirely from one feature, may be unrepresentative of the early Saxon period in this area. However, the small amount of information gathered from the Easington bones suggests that the assemblage shows some similarities to that recovered from the 5th-7th century site of West Stow. Comparison with material of similar date from Flixborough shows more differences than similarities.

Archive

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

Acknowledgements

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Table 1. The hand-collected vertebrate remains from Easington, East Riding of Yorkshire. The number of teeth includes only those teeth of use in providing ageing or sexing information. Key: mand–mandibles.

Species		No. unfused	No. juvenile	No. mand.	No. teeth	Total	Weight (g)
Horse	<i>Equus f. domestic.</i>	2	-	-	-	8	379.5
Pig	<i>Sus f. domestic</i>	-	-	1	2	5	64.7
Cow	<i>Bos f. domestic</i>	12	4	2	2	52	2309.4
Sheep/ goat	Caprovid	13	2	5	-	35	467
Sheep	<i>Ovis f. domestic</i>	4	-	3	-	22	287
Goose	<i>Anser sp.</i>	-	-	-	-	3	14.6
Subtotal		31	6	11	4	125	3522.2
Large mammal		-	-	-	-	97	1277.4
Medium-sized mammal		-	-	-	-	109	360.5
Bird		-	-	-	-	4	3.3
Unidentified		-	-	-	-	64	84.5
Subtotal		-	-	-	-	274	1725.7
Total		31	6	11	4	399	5247.9

Table 2. The vertebrate remains from the bulk-sieved samples from Easington, East Riding of Yorkshire.

Taxon		Upper West	Lower West	Upper East	Lower East	Total
Vole/mouse	Microtine/Murine	-	-	1	-	1
?Common shrew	cf. <i>Sorex araneus</i> L.	-	-	1	-	1
Shrew species	<i>Sorex</i> sp.	-	-	1	-	1
?Canid	cf. Canidae	-	-	-	1	1
Pig	<i>Sus</i> f. domestic	-	2	-	2	4
Cow	<i>Bos</i> f. domestic	3	1	13	1	18
Sheep/goat	Caprovid	7	5	19	17	48
Sheep	<i>Ovis</i> f. domestic	-	3	3	4	10
Goose	<i>Anser</i> sp.	-	1	1	1	3
?Goose	cf. <i>Anser</i> sp.	-	-	-	1	1
Eel	<i>Anguilla anguilla</i> (L.)	1	-	-	-	1
Pike	<i>Esox lucius</i> L.	-	1	-	-	1
Amphibian		-	-	-	2	2
Subtotal		11	13	39	29	92
Fish		1	2	1	-	4
Bird		9	2	13	9	33
Small mammal		7	-	1	1	9
Medium-sized mammal 1		2	-	-	25	27
Large mammal		-	-	-	2	2
Unidentified		492	887	1506	2110	4995
Subtotal		511	891	1521	2147	5070
Total		522	904	1560	2176	5162

Table 3. MNI for main domesticates from the whole assemblage from Easington, East Riding of Yorkshire.

Species	Cattle	Horse	Caprovid	Pig
MNI	3	1	5	1

Table 4. Numbers of fragments of meat-bearing and non meat-bearing parts of the skeleton from the identified fraction of the hand-collected and BS material from Easington, East Riding of Yorkshire.

	Meatbearing	Non meat-bearing	Total
Cattle	22	46	68
Caprovid	41	74	115
Total	63	120	183

Table 5. Numbers of fragments of meat-bearing and non meat-bearing parts of the skeleton, from the whole assemblage from Easington, East Riding of Yorkshire.

	Meat-bearing		Non meat-bearing		Total
	Thorax	Upper limb	Head	Lower limb	
Cattle	22	70	47	28	167
Caprovid	76	69	54	25	224
Total	98	139	101	53	391

Table 6. Epiphyseal fusion data (following the age categories of O'Connor 1984) from the whole assemblage from Easington, East Riding of Yorkshire.

	Early		Intermediate		Late			
Cattle	Number	%	Number	%	Number	%		
Fused	6	60	9	47	4	40		
Unfused	4	40	10	53	6	60		
	Early		Intermediate 1		Intermediate 2		Late	
Caprovid	Number	%	Number	%	Number	%	Number	%
Fused	14	88	9	69	7	44	1	6
Unfused	2	12	4	31	9	56	16	94

Table 7. Caprovid dental attrition data (following Payne 1973, 1987) from the whole assemblage from Easington, East Riding of Yorkshire.

Age category	A	B	C	D	E	F	G	H	I
Suggested age	0-2 m	2-6 m	6-12 m	1-2 y	2-3 y	3-4 y	4-6 y	6-8 y	8-10 y
Number of cases	0	1	3	0	4	1	0	1	0

Table 8. Withers height estimates from the whole assemblage from Easington, East Riding of Yorkshire.

Species	Element	Greatest length (mm)	Withers height (mm)
Cow	Metacarpal	175.35	1073
Cow	Metatarsal	200.46	1093
Sheep	Metacarpal	120.09	581
Sheep	Metacarpal	111.96	542
Sheep	Metatarsal	127.62	576

Appendix 1. Results of the assessment of sediment samples

Sample 1/T (Upper west section of pit)

[1 kg processed - 'GBA']

Just moist, mid grey brown to light-mid grey, brittle to crumbly, very slightly silty clay, with small lumps of light brown sandy (?burnt) silt (to 10 mm) and some lumps of light brown sand (to 10 mm). Small stones (quartz), mammal bone (some burnt) and modern rootlets were noted.

The small washover contained only modern rootlets and small charcoal fragments. No insect remains were recovered.

The residue contained 25 bone fragments (weighing 17.1 g) amongst which a single cow phalanx (weighing 4.4 g) was identified. Thirteen fragments (52%) were burnt.

Sample 1/BS (Upper west section of pit)

[10 kg processed]

A moderately large residue was recovered which consisted mainly of sand and gravel (water-worn stones, to 70 mm, of very heterogeneous origin and no doubt derived from local till deposits or beach). A small quantity of daub, some mammal bone and a few scraps of charcoal were also recorded.

A total of 163 bone fragments (weighing 36.6 g) was recovered, of which 6 were identifiable (weighing 10.2 g) and 31 % were burnt. The remains of cattle (1 fragment), caprovid (2), small mammal (1) and fish (2), including eel (*Anguilla anguilla* (L.)), were represented.

Sample 2/BS (Upper west section of pit)

[10 kg processed]

The matrix of the residue was very similar to that from Sample 1. The residue contained a small quantity of daub, some mammal bone and a few scraps of charcoal.

Both mammal and bird remains were represented amongst the 98 fragments (weighing 15.4 g) recovered. Burnt fragments represented 14% of the total.

Sample 3/BS (Upper west section of pit)

[13 kg processed]

The matrix of the residue was very similar to that from Sample 1 and contained a small quantity of mammal bone.

A single caprovid tooth (weighing 2.7 g) was the only identified fragment amongst the 57 fragments (weighing 14.0 g) recovered. As with Sample 2, 14 % of the fragments were burnt.

Sample 4/BS (Upper west section of pit)

[12 kg processed]

The residue (again similar to Sample 1) contained some mammal bone, a few scraps of charcoal, daub and a single woodlouse (Isopoda), almost certainly intrusive.

Of the total of 191 bone fragments (weighing 78.4 g) recovered from this sample, five were identified (weighing 11.1 g). These included four caprovid teeth and a single cattle tooth. Only 2% of fragments from this sample were burnt.

Sample 5/BS (Lower west of pit)

[10 kg processed]

The washover contained numerous small fragments of charcoal and modern plant debris.

The matrix of the residue was very similar to that from Sample 1 and contained a small quantity of mammal bone and a few scraps of daub.

Vertebrate remains amounted to 58 fragments (weighing 38.9 g), of which a single pike (*Esox lucius* L.) vertebra (weighing 0.2 g) was the only identified fragment. Burnt fragments made up 9 % of the total.

Sample 6/BS (Lower west of pit)

[10 kg processed]

The residue from this sample (similar matrix to that from Sample 1) contained some mammal bone and a few scraps of charcoal.

Two identified fragments (single caprovid and cattle fragments weighing 15.5 g) were recovered from a total of 140 (weighing 46.9 g). Only 4% of the fragments were burnt.

Sample 7/BS (Lower west of pit)

[10.5 kg processed]

The lithology of this sample was the same as Sample 1, although more bone and a few 6- 20 mm stones were noted. The sample also showed earthworm activity.

The small washover contained a few scraps of charcoal (to 10 mm) and modern plant detritus.

The residue (again similar to that from Sample 1) contained a moderate quantity of mammal bone and a few scraps of daub.

In total of 426 fragments of bone (weighing 119.7 g) were recovered, of which 10 were identified (weighing 14.2 g). Amongst the identified fragments were caprovid (8), pig (1), and goose (*Anser* sp.) remains. Burnt fragments made up 2 % of the total.

Sample 8/BS (Lower west of pit)

[10 kg processed]

The small washover contained small fragments of charcoal (to 5 mm), and single barley grain and modern plant debris.

The matrix of the residue was similar to that from Sample 1, and contained a small quantity of mammal bone and a few scraps of charcoal and daub.

A single pig tooth (weighing 1.0 g) was the only identified fragment amongst the 281 fragments (weighing 24.8 g) recovered. Burnt fragments amounted to 6 % of the total.

Sample 9/BS (Upper east of pit)

[11kg processed]

The moderate-sized washover contained mainly fine sand, with small scraps of charcoal (to 4 mm), a bread wheat grain and many modern plant rootlets.

The residue (matrix similar to that from Sample 1) contained a moderate quantity of daub, a small amount of mammal bone and a few scraps of charcoal.

Caprovid (4), and cattle (1) fragments were identified (weighing 3.6 g), from a total of 354 fragments (weighing 54.5 g). Burnt fragments formed 42% of the assemblage.

Sample 10/BS (Upper east of pit)

[11kg processed]

The moderate-sized washover contained fine sand, small charcoal fragments (to 5 mm), and many modern plant rootlets.

The matrix of the residue was very similar to that from Sample 1 and contained a moderate amount of mammal bone, daub and a few scraps of charcoal.

Of the 355 fragments of bone (weighing 97.0 g) recovered from this sample, seven were identified (weighing 41.3 g). The identified remains included cattle (3), goose (2) and shrew (2, probably common shrew, *Sorex araneus* L.). Burnt fragments amounted to 29% of the total.

Sample 11/BS (Upper east of pit)

[10kg processed]

The lithology was the same as Sample 1 but the sediment was drier and larger quantities of bone were present.

The small washover consisted chiefly of modern plant roots, with a few scraps of charcoal (to 5 mm).

The bulk of the residue had a similar matrix to that recorded for Sample 1. Additionally, large quantities of mammal bone, a moderate amount of daub, three pottery sherds and a few scraps of charcoal were recorded. Faecal concretions containing large bone fragments (an indication they may be from canid coprolites) were also noted. A 'squash' undertaken on a small subsample showed no parasite eggs (not unusual for canid faecal material).

A total of 556 bone fragments (weighing 507.6 g) was recovered, of which 26 were identified (weighing 145.5 g). Mammal species present included cattle (8 fragments), caprovid (14), sheep (3) and vole/mouse (1). Burnt fragments made up 17 % of the total.

Sample 12/BS (Upper east of pit)

[11kg processed]

The small washover mainly contained fine sand and modern plant rootlets, with a few charcoal flecks.

The residue (again similar to that from Sample 1) contained a moderate quantity of mammal bone, a small amount of daub, a few scraps of charcoal and a few fragments of faecal concretion (similar to those identified in Sample 11).

Only two bone fragments (weighing 3.9 g), from a total of 294 (weighing 105.0 g) recovered from this sample, were identified. These included the remains of caprovid and goose. Burnt fragments represented 31% of the total.

Sample 13/BS (Lower east of pit)

[10kg processed]

The lithology description of this sample was the same as that for Sample 1, however, the sediment was drier and contained more stones (to >60 mm) and modern rootlets.

The small washover consisted mostly of modern plant detritus and fine sand, with charcoal flecks.

The residue (similar to the matrix for Sample 1) contained a moderate quantity of mammal bone, a small amount of daub and a few scraps of charcoal.

Of the 289 fragments of bone recovered (weighing 73.2 g), only a single cow tarsal (weighing 5.6 g) was identified. Only 10% of the fragments were burnt.

Sample 14/BS (Lower east of pit)

[10kg processed]

The residue (matrix again similar to that from Sample 1) contained a moderate quantity of mammal bone.

Twelve bone fragments (weighing 22.6 g) were identified, from a total of 782 (weighing 111.2 g) recovered. The remains of caprovid (10), pig (1) and amphibian (1) were all represented. Only 1% of the fragments were burnt.

Sample 15/BS (Lower east of pit)

[9kg processed]

The matrix of the residue was very similar to that from Sample 1 and contained a small amount of mammal bone and daub, a few scraps of charcoal and a single sherd of pottery.

Of the 323 fragments of bone (weighing 57.6 g) recovered from this sample, seven were identified (weighing 7.1 g). The identified material included caprovid (4), sheep (1), pig (1) and amphibian (1). Burnt fragments made up 12 % of the total.

Sample 16/BS (Lower east of pit)

[9kg processed]

The small washover consisted mostly of modern plant debris and fine sand, with a few scraps of charcoal (to 5 mm).

The matrix of the residue was very similar to that from Sample 1 and contained a moderate quantity of mammal bone, a few scraps of daub and charcoal and two pottery sherds.

Only 11 bone fragments (weighing 14.6 g) from a total of 784 (weighing 109.7 g) were identified and included caprovid (7), sheep (2), and goose (2). Only 4 % of the fragments were burnt.

Appendix 2. Data archive for vertebrate remains

Key to abbreviations used in the data archive tables

General shorthand: frag/s = fragment/s

Preservation records

Pres = preservation, Ang = angularity, Col = colour, DG = dog gnawing, BT = burnt, BU = butchery, FB = fresh breakage. Fragmentation - <5 cm = fragments less than 5 cm in any dimension, 5-20 cm = fragments between 5 and 20 cm in at least one dimension, >20cm = fragments greater than 20 cm in at least one dimension.

Preservation	
Code	Key
G	Good
F	Fair
P	Poor
V	Variable
VP	Very poor

Angularity	
Code	Key
B	Battered
R	Rounded
S	Spiky
V	Variable

Colour	
Code	Key
B	Brown
G	Ginger
F	Fawn
Be	Beige
V	Variable

Other categories	
Code	% range
N	None
0	0-10%
1	10-20%
2	20-50%
5	>50%

Main bone archive

ID no. stands for identification number and is unique to each individual bone fragment. All records relating to a particular bone are linked in the different tables in this appendix and in the electronic database by this number.

Species and *Element* names are given in full. Latin names are also included.

Zones: These follow the scheme outlined in Dobney and Rielly (1988)

GT50 = greater than 50 % present, LT50 = less than 50 % present.

Epiphyseal fusion

PF and DF columns refer to the state of Proximal and Distal epiphyseal fusion. For explanation of terms refer to Dobney *et al.* (forthcoming).

Code	Key
pf	proximal fused
pu	proximal unfused
df	distal fused
du	distal unfused
sa	sub-adult
j	juvenile
neo	neonatal
a	adult

KW = Keywords

Code	Key
n	notes
dg	dog gnawing
bt	burnt
acid	acid etched

Side

Code	Key
l	left
r	right
b	both

Tooth wear stage archives

For canines (C.) - F = female and M = male. For cheek teeth the wear stages follow Payne (1973; 1987) for caprovid teeth and Grant (1982) for pig and cow teeth. CA = congenitally absent, BKN = broken, hence no wear stage obtained, CPT = in the crypt, ERP = erupting.

Butchery archive

Code	Key
ch	chop
kns	knife marks

Pathology archive

Code	Key
hyp	enamel hypoplasia
per	periodontal disease
pfo	additional foramen below premolars
cal	calculus deposits

Measurement archive

For measurement codes refer to Von den Driesch (1976) and to Dobney *et al.* (forthcoming) for additional measurements on humeri, metapodials, horncores and calcanei. For caprovids and cattle SD (shaft diameter) on the tibia is taken in the anterior-posterior plane as shown in Dobney *et al.* (forthcoming) and for all other species SD on the tibia is taken in the medio-lateral plane as given in Von den Driesch (1976).

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Table A1. Preservation records for bones recorded from Context 3, Easington, East Riding of Yorkshire.

Sample no.	Preservation		Angularity		Colour		Fragmentation			Others				Notes
	Pres	Notes	Ang	Notes	Col	Notes	<5cm	5-20 cm	>20 cm	DG	B T	B U	F B	
-	V	mostly good, some flaky patches on the surface of the bones	S		V	ginger and brown, doesn't look mixed though	0	5	0	0	0	1	2	
1/BS	V	good to fair	V	mostly spiky, some battered	F		5	1	N	N	2	N	1	34 % burnt of 188 frags
1/T	V	good to fair	S		B		5	1	N	N	5	1	5	m a n y fragments join into one bone
2/BS	G		V	most spiky, few battered	V	fawn and light brown	5	N	N	N	1	N	1	14% of 98 frags burnt
3/BS	G		V	most spiky, few battered	V	fawn to ginger	5	1	N	N	1	1	2	14% of 57 frags burnt
4/BS	F		V	mostly battered, some spiky	V	fawn and light brown	5	0	N	0	0	0	2	2% of 191 frags burnt
5/BS	V	some good, some fair with flaky surfaces	V	some spiky, some battered	V	fawn to light brown	5	1	N	N	0	N	2	9% of 58 frags burnt
6/BS	V	mostly good, some fair	V	spiky and battered	V	fawn to light brown	5	1	N	N	0	N	2	4% of 140 frags burnt

Sample no.	Preservation		Angularity		Colour		Fragmentation			Others				Notes
	Pres	Notes	Ang	Notes	Col	Notes	<5cm	5-20 cm	>20 cm	DG	B T	B U	F B	
7/BS	V	good to poor, very variable	V	spiky to rounded, very variable, some very eroded	V	fawn to ginger to light brown	5	1	N	N	0	N	2	2% of 426 frags burnt
8/BS	V	good to fair	V	mostly spiky, some battered	V	fawn to ginger	5	N	N	N	0	N	1	6% of 281 frags burnt
9/BS	V	mostly fair some poor	V	some spiky, some battered	V	mostly light brown, some fawn	5	1	N	N	2	N	1	42% of 354 frags burnt
10/BS	V	mostly fair, some poor	V	some spiky, most battered	V	light brown and fawn	5	1	N	N	2	N	2	29% of 355 frags burnt
11/BS	V	some good, some fair, some flaky patches on the surface of the bones	V	most spiky, few battered	V	fawn, ginger and light brown, but not mixed looking	2	5	N	0	1	0	2	17% of 556 frags burnt
12/BS	V	mostly fair, some good, some poor	V	some spiky, most battered, few rounded	V	mostly light brown and fawn, few ginger	5	2	N	0	2	0	2	31% of 294 frags burnt
13/BS	V	fair to poor	V	mostly battered, few rounded, few spiky	V	mostly fawn, few ginger	5	1	N	N	0	N	1	10% of 289 frags burnt
14/BS	V	good to fair	V	some battered, some spiky, few rounded	V	fawn to ginger	5	1	N	N	0	N	1	10% of 782 frags burnt

Sample no.	Preservation		Angularity		Colour		Fragmentation			Others				Notes
	Pres	Notes	Ang	Notes	Col	Notes	<5cm	5-20 cm	>20 cm	DG	B T	B U	F B	
15/BS	V	good to fair	V	mostly spiky, some battered	V	fawn to light brown	5	0	N	N	1	0	1	12% of 323 frags burnt
16/BS	V	some good, most fair	V	some spiky, most battered	V	some fawn, most ginger	5	1	N	N	0	0	2	4% of 784 frags burnt

Table A2. Main archive of the vertebrate remains from Context 3, Easington, East Riding of Yorkshire. (*additional information in one or more other tables).

Bone ID	Sample no.	Species		Element	No. frags	Side	LT50	GT50	PF	DF	KW	Notes
1	-	pig	<i>Sus f. domestic</i>	Maxilla + teeth	1	r					n	I2 and I3 present
2*	-	pig	<i>Sus f. domestic</i>	Mandible	1	r		1				
3*	-	pig	<i>Sus f. domestic</i>	1st molar	1	r						
4*	-	pig	<i>Sus f. domestic</i>	4th premolar	1	r						
5	-	pig	<i>Sus f. domestic</i>	3rd premolar	1	r						
6	-	horse	<i>Equus f. domestic</i>	Phalanx 3	1	l		12	a		n	probably front hoof
7	-	horse	<i>Equus f. domestic</i>	Phalanx 3	1	l		12	a		n	probably hind hoof
8	-	horse	<i>Equus f. domestic</i>	Phalanx 3	1	l	2	1	a		n	small frag
9	-	horse	<i>Equus f. domestic</i>	Radius	1	r	7	5	pu			
10	-	horse	<i>Equus f. domestic</i>	Metacarpal	1	l	5678				n	shaft has porous juvenile look
11	-	horse	<i>Equus f. domestic</i>	Pelvis	1	r	4Y	12368 9	sa		n	zone 1/3 fusion line visible, bone porous
12*	-	goose	<i>Anser sp.</i>	Femur	1	l		123			n	v. large greylag size
13*	-	goose	<i>Anser sp.</i>	Tarsometatarsus	1	l		123			n	v. large greylag size
14*	-	goose	<i>Anser sp.</i>	Ulna	1	l		23			n	greylag size

Bone ID	Sample no.	Species		Element	No. frags	Side	LT50	GT50	PF	DF	KW	Notes
15*	-	sheep/goat	Caprovid	Mandible	1	r		126				
16*	-	sheep/goat	Caprovid	Mandible	1	r		12				
17*	-	sheep/goat	Caprovid	Mandible	1	r		1				
18*	-	sheep/goat	Caprovid	Mandible	1	r	1	3456				
19*	-	sheep/goat	Caprovid	Mandible	1	r	7	12				
20*	-	sheep	<i>Ovis f. domestic</i>	Mandible	1	l		12345 67				
21*	-	sheep	<i>Ovis f. domestic</i>	Mandible	1	l		12				
22*	-	sheep	<i>Ovis f. domestic</i>	Mandible	1	l	2	16				
23	-	sheep/goat	Caprovid	Mandible	1	r	6	345	j			
24*	-	sheep/goat	Caprovid	Mandible	1	r	7	12	j			
25	-	sheep/goat	Caprovid	Maxilla + teeth	1	r					n	DP3-M2 present
26*	-	sheep/goat	Caprovid	Maxilla + teeth	1	l					n	P3, M1-M3 present
27	-	sheep/goat	Caprovid	Maxillary molar	1	r					n	M3
28	-	sheep/goat	Caprovid	Maxillary molar	1	l					n	M3
29	-	sheep/goat	Caprovid	Maxillary molar	1	l					n	M1/M2
30	-	sheep/goat	Caprovid	Pelvis	1	l		12456 7X	a			
31	-	sheep/goat	Caprovid	Pelvis	1	r	1	246	a			
32*	-	sheep/goat	Caprovid	Pelvis	1	r	7XY	12456	a			
33	-	sheep/goat	Caprovid	Scapula	1	l	123	45				
34	-	sheep/goat	Caprovid	Scapula	1	l	7	12345 68		df		
35	-	sheep/goat	Caprovid	Scapula	1	r	169	23457				

Bone ID	Sample no.	Species		Element	No. frags	Side	LT50	GT50	PF	DF	KW	Notes
36	-	sheep/goat	Caprovid	Scapula	1	r		12345 6				
37	-	sheep/goat	Caprovid	Scapula	1	r	89	12345 67		df		
38	-	sheep/goat	Caprovid	Femur	1	r		23567 8	pu			
39	-	sheep/goat	Caprovid	Femur	1	l		2356	pu			
40	-	sheep/goat	Caprovid	Femur	1	r	78			du		
41	-	sheep/goat	Caprovid	Femur	1	l	9X			du		
42	-	sheep/goat	Caprovid	Ulna	1	l	E	BCD	pu			
43	-	sheep/goat	Caprovid	Radius	1	l		12567 89X	pf	du		
44*	-	sheep/goat	Caprovid	Radius	1	l		12567 89X	pf	du		
45	-	sheep/goat	Caprovid	Radius	1	r		12567 89X	pf	du		
46	-	sheep/goat	Caprovid	Radius	1	r		89X		du		
47	-	sheep/goat	Caprovid	Tibia	1	l		789X	pu	du	n	possibly same individual as no. 48
48	-	sheep/goat	Caprovid	Tibia	1	r		789X	pu	du	n	possibly same individual as no. 47
49*	-	sheep	<i>Ovis f. domestic</i>	Tibia	1	r		56789 X	pu	df		
50*	-	sheep	<i>Ovis f. domestic</i>	Tibia	1	r	78	569X		df		
51*	-	sheep	<i>Ovis f. domestic</i>	Humerus	1	l	9X	34567 8		df		

Bone ID	Sample no.	Species		Element	No. frags	Side	LT50	GT50	PF	DF	KW	Notes
52*	-	sheep	<i>Ovis f. domestic</i>	Humerus	1	l	9X	345678		df		
53*	-	sheep	<i>Ovis f. domestic</i>	Humerus	1	l		3456789X		df		
54	-	sheep	<i>Ovis f. domestic</i>	Humerus	1	r		3456789XY	pu	df		
55*	-	sheep	<i>Ovis f. domestic</i>	Humerus	1	r		3456789X		df		
56	-	sheep/goat	Caprovid	Humerus	1	l	12		pu			
57	-	sheep	<i>Ovis f. domestic</i>	Horncore	1	l	1				n	ram
58	-	sheep	<i>Ovis f. domestic</i>	Phalanx 1	1	l		123	pf			
59	-	sheep	<i>Ovis f. domestic</i>	Phalanx 1	1	l		23	pu			
60	-	sheep	<i>Ovis f. domestic</i>	Phalanx 1	1	r		123	pf			
61	-	sheep	<i>Ovis f. domestic</i>	Phalanx 3	1	r		12	a			
62*	-	sheep	<i>Ovis f. domestic</i>	Calcaneum	1	r		12345	pf			
63	-	sheep/goat	Caprovid	Metacarpal	1	l	125678			du		
64	-	sheep	<i>Ovis f. domestic</i>	Metacarpal	1	r		12345678		du		
65*	-	sheep	<i>Ovis f. domestic</i>	Metacarpal	1	l	3	1245678		df		

Bone ID	Sample no.	Species		Element	No. frags	Side	LT50	GT50	PF	DF	KW	Notes
66*	-	sheep	<i>Ovis f. domestic</i>	Metacarpal	1	r		12345 678		df		
67*	-	sheep	<i>Ovis f. domestic</i>	Metacarpal	1	r		34567 8		df		
68*	-	sheep/goat	Caprovid	Metatarsal	1	l		1256				
69*	-	sheep/goat	Caprovid	Metatarsal	1	r		1256				
70*	-	sheep	<i>Ovis f. domestic</i>	Metatarsal	1	l		3478		df		
71*	-	sheep	<i>Ovis f. domestic</i>	Metatarsal	1	r		12345 678		df		
72	-	cattle	<i>Bos f. domestic</i>	Metatarsal	1	l	7	8		du		
73	-	cattle	<i>Bos f. domestic</i>	Metatarsal	1	l	78	1256			dg	
74	-	cattle	<i>Bos f. domestic</i>	Metatarsal	1	r		12567 8		du		
75	-	cattle	<i>Bos f. domestic</i>	Metatarsal	1	r		12567 8		du		
76*	-	cattle	<i>Bos f. domestic</i>	Metatarsal	1	r		12345 678		df		
77*	-	cattle	<i>Bos f. domestic</i>	Metatarsal	1	l		12345 678		df		
78	-	cattle	<i>Bos f. domestic</i>	Metacarpal	1	l		78		du		
79	-	cattle	<i>Bos f. domestic</i>	Metacarpal	1	l		78		du		
80	-	cattle	<i>Bos f. domestic</i>	Metacarpal	1	r	56	12	j			

Bone ID	Sample no.	Species		Element	No. frags	Side	LT50	GT50	PF	DF	KW	Notes
81*	-	cattle	<i>Bos f. domestic</i>	Metacarpal	1	r		12345 678		df		
82	-	cattle	<i>Bos f. domestic</i>	Metapodial	1	l	7	3		df		
83	-	cattle	<i>Bos f. domestic</i>	Metapodial	1	l		3		du		
84	-	cattle	<i>Bos f. domestic</i>	Phalanx 1	1	l		123	pf			
85	-	cattle	<i>Bos f. domestic</i>	Phalanx 1	1	r	23		pu		bt	
86	-	cattle	<i>Bos f. domestic</i>	Scapula	1	l	14	235			dg	
87	-	cattle	<i>Bos f. domestic</i>	Scapula	1	l		235				
88	-	cattle	<i>Bos f. domestic</i>	Pelvis	1	l	246		sa			
89	-	cattle	<i>Bos f. domestic</i>	Tarsal	1	l		complete	a			
90	-	cattle	<i>Bos f. domestic</i>	Tarsal	1	r		complete	a			
91	-	cattle	<i>Bos f. domestic</i>	Calcaneum	1	r		2345	pu			
92*	-	cattle	<i>Bos f. domestic</i>	Calcaneum	1	r		12345	pf			
93	-	cattle	<i>Bos f. domestic</i>	Ulna	1	l	F	BCDE	j			
94	-	horse	<i>Equus f. domestic</i>	Ulna	1	r	E	BCD			dg,n	same individual as no. 101 (rad)

Bone ID	Sample no.	Species		Element	No. frags	Side	LT50	GT50	PF	DF	KW	Notes
95	-	cattle	<i>Bos f. domestic</i>	Femur	1	l		35	pu			
96	-	cattle	<i>Bos f. domestic</i>	Femur	1	l		678		du		
97	-	cattle	<i>Bos f. domestic</i>	Tibia	1	r	7	4	pf			
98	-	cattle	<i>Bos f. domestic</i>	Tibia	1	r	7	12	pf			
99*	-	cattle	<i>Bos f. domestic</i>	Tibia	1	r		56X		df		
100*	-	cattle	<i>Bos f. domestic</i>	Tibia	1	l	89	56X		df		
101*	-	horse	<i>Equus f. domestic</i>	Radius	1	r	67F	125			n	same individual as no. 94 (ulna)
102	-	cattle	<i>Bos f. domestic</i>	Radius	1	l	9X	5678	j			
103	-	cattle	<i>Bos f. domestic</i>	Radius	1	l		9X		j		
104*	-	cattle	<i>Bos f. domestic</i>	Radius	1	r	67	125	pf			
105*	-	cattle	<i>Bos f. domestic</i>	Radius	1	r	8	349XJ		df		
106	-	cattle	<i>Bos f. domestic</i>	Humerus	1	r	Y	2	pf		dg	
107	-	cattle	<i>Bos f. domestic</i>	Humerus	1	r	68	4		df		
108*	-	cattle	<i>Bos f. domestic</i>	Humerus	1	r	4	35678		df		

Bone ID	Sample no.	Species		Element	No. frags	Side	LT50	GT50	PF	DF	KW	Notes
109*	-	cattle	<i>Bos f. domestic</i>	Humerus	1	r		345678		df		
110*	-	cattle	<i>Bos f. domestic</i>	Humerus	1	l		345678		df		
111	-	cattle	<i>Bos f. domestic</i>	Horncore	1	l	1				n	tip only
112	-	cattle	<i>Bos f. domestic</i>	Mandible	1	r		5	a			
113	-	cattle	<i>Bos f. domestic</i>	Mandible	1	l		5	sa			
114	-	cattle	<i>Bos f. domestic</i>	Mandible	1	l	7	2				
115*	-	cattle	<i>Bos f. domestic</i>	Mandible	1	r	6	1				
116*	-	cattle	<i>Bos f. domestic</i>	Mandible	1	l	3	16				
117	-	cattle	<i>Bos f. domestic</i>	Incisor	1	l						
118	-	cattle	<i>Bos f. domestic</i>	3rd premolar	1	r						
119*	-	cattle	<i>Bos f. domestic</i>	4th deciduous premolar	1	r						
120*	-	cattle	<i>Bos f. domestic</i>	1st/2nd molar	1	r						
121	-	cattle	<i>Bos f. domestic</i>	Maxilla + teeth	1	l					n	P4-M2 present
122	-	cattle	<i>Bos f. domestic</i>	Maxilla + teeth	1	r					n	DP3-M1 present

Bone ID	Sample no.	Species		Element	No. frags	Side	LT50	GT50	PF	DF	KW	Notes
123	-	cattle	<i>Bos f. domestic</i>	Maxillary molar	1	r					n	M3
124	-	cattle	<i>Bos f. domestic</i>	Maxillary molar	1	r					n	upper P3/4
125	-	cattle	<i>Bos f. domestic</i>	Maxillary molar	1	l					n	upper P3/4
126	1/BS	cattle	<i>Bos f. domestic</i>	Metapodial	1	I	3			du	bt	
127	1/BS	sheep/goat	Caprovid	Tibia	1	l		123	pu			
128	1/BS	sheep/goat	Caprovid	3rd premolar	1	r						
129	1/BS	eel	<i>Anguilla anguilla</i> (L.)	Vertebra	1	b						
130*	3/BS	sheep/goat	Caprovid	1st/2nd molar	1	l						
131	4/BS	cattle	<i>Bos f. domestic</i>	Isolated teeth	1	I					n	frag of maxillary tooth
132	4/BS	sheep/goat	Caprovid	Maxillary molar	4	l					n	P4-M3 probably same individual
133	5/BS	pike	<i>Esox lucius</i> L.	Vertebra	1	b						
134	6/BS	sheep	<i>Ovis f. domestic</i>	Radius	1	r		349X		df		
135	6/BS	cattle	<i>Bos f. domestic</i>	Ulna	1	r		BCDE	j			
136*	7/BS	sheep/goat	Caprovid	3rd molar	1	l						
137*	7/BS	sheep/goat	Caprovid	1st/2nd molar	1	r						
138*	7/BS	sheep/goat	Caprovid	1st/2nd molar	1	l						

Bone ID	Sample no.	Species		Element	No. frags	Side	LT50	GT50	PF	DF	KW	Notes
139*	7/BS	sheep	<i>Ovis f. domestic</i>	4th deciduous premolar	1	r						
140*	7/BS	sheep	<i>Ovis f. domestic</i>	4th deciduous premolar	1	r						
141	7/BS	sheep/goat	Caprovid	Femur	1	l		1	pu			
142	7/BS	sheep/goat	Caprovid	Femur	1	r		1	pu			
143	7/BS	goose	<i>Anser sp.</i>	Radius	1	l		dist				
144	7/BS	pig	<i>Sus f. domestic</i>	Isolated teeth	1	I					n	molar frag
145	8/BS	pig	<i>Sus f. domestic</i>	Isolated teeth	1	I					n	molar frag
146	9/BS	sheep/goat	Caprovid	Incisor	4	I						
147	9/BS	cattle	<i>Bos f. domestic</i>	Maxillary molar	1	l					n	? deciduous upper premolar
148*	10/BS	cattle	<i>Bos f. domestic</i>	Calcaneum	1	l		2345				
149	10/BS	cattle	<i>Bos f. domestic</i>	Phalanx 3	1	l	2	1	a			
150	10/BS	cattle	<i>Bos f. domestic</i>	Isolated teeth	1	l					n	upper premolar
151	10/BS	common shrew	<i>Sorex araneus L.</i>	Mandible	1	r		complete				
152	10/BS	shrew	<i>Sorex sp.</i>	Pelvis	1	l		ilium				
153	11/BS	vole/mouse	Microtine/Murine	Humerus	1	r		dist		df		
154	11/BS	cattle	<i>Bos f. domestic</i>	Femur	1	l	4		pu			

Bone ID	Sample no.	Species		Element	No. frags	Side	LT50	GT50	PF	DF	KW	Notes
155	11/BS	cattle	<i>Bos f. domestic</i>	Phalanx 2	1	r	23		pu		bt	
156	11/BS	cattle	<i>Bos f. domestic</i>	Ulna	1	l	CE	D				
157	11/BS	cattle	<i>Bos f. domestic</i>	Calcaneum	1	l		l	pu			
158*	11/BS	cattle	<i>Bos f. domestic</i>	4th deciduous premolar	1	r						
159*	11/BS	cattle	<i>Bos f. domestic</i>	4th premolar	1	l						
160	11/BS	cattle	<i>Bos f. domestic</i>	3rd deciduous premolar	1	r						
161	11/BS	cattle	<i>Bos f. domestic</i>	Maxillary molar	1	r						
162	11/BS	cattle	<i>Bos f. domestic</i>	Isolated teeth	1	l					n	upper molar frag
163	11/BS	sheep/goat	Caprovid	Maxillary molar	3	r						
164	11/BS	sheep/goat	Caprovid	Isolated teeth	1	l					n	upper molar frag
165*	11/BS	sheep/goat	Caprovid	1st/2nd molar	1	r						
166*	11/BS	sheep/goat	Caprovid	1st/2nd molar	1	r						
167	11/BS	sheep/goat	Caprovid	Femur	1	l	78			du		
168	11/BS	sheep/goat	Caprovid	Femur	1	l	9XY			du		
169	11/BS	sheep/goat	Caprovid	Metacarpal	1	l	15	26				
170	11/BS	sheep/goat	Caprovid	Metacarpal	1	l	78				dg	
171	11/BS	sheep/goat	Caprovid	Ulna	1	l	BCD		pu			
172*	11/BS	sheep/goat	Caprovid	Radius	1	l	7	1256	pf			
173	11/BS	sheep/goat	Caprovid	Pelvis	1	l	146	2	a			

Bone ID	Sample no.	Species		Element	No. frags	Side	LT50	GT50	PF	DF	KW	Notes
174*	11/BS	sheep/goat	Caprovid	Tibia	1	l	56789 X			df		
175	11/BS	sheep	<i>Ovis f. domestic</i>	Phalanx 1	1	r		123	pf			
176*	11/BS	sheep	<i>Ovis f. domestic</i>	Astragalus	1	l		1234	a			
177	11/BS	sheep	<i>Ovis f. domestic</i>	Calcaneum	1	l		1235	pf			
178	12/BS	goose	<i>Anser sp.</i>	Radius	1	l		dist				
179	12/BS	sheep/goat	Caprovid	Humerus	1	l		56		du		
180	13/BS	cattle	<i>Bos f. domestic</i>	Tarsal	1	l					n	lateral malleolus
181	14/BS	pig	<i>Sus f. domestic</i>	Isolated teeth	1	l					n	upper deciduous premolar
182	14/BS	sheep/goat	Caprovid	Incisor	1	l						
183	14/BS	sheep/goat	Caprovid	Maxillary molar	3	r						M1/M2
184	14/BS	sheep/goat	Caprovid	Maxillary molar	1	r					n	M3
185	14/BS	sheep/goat	Caprovid	Isolated teeth	2	r					n	upper premolars
186	14/BS	sheep/goat	Caprovid	Humerus	1	l		4		du		
187	14/BS	sheep/goat	Caprovid	Ulna	1	r	E	BCD	pu			
188	14/BS	sheep	<i>Ovis f. domestic</i>	Phalanx 1	1	l		123	pf			
189	14/BS	amphibian	Amphibian	Metapodial	1	l		shaft				
190	15/BS	amphibian	Amphibian	Tibia	1	l		shaft				
191	15/BS	pig	<i>Sus f. domestic</i>	Phalanx 1	1	r		1	pu			
192*	15/BS	sheep/goat	Caprovid	Metacarpal	1	l		1256				

Bone ID	Sample no.	Species		Element	No. frags	Side	LT50	GT50	PF	DF	KW	Notes
193	15/BS	sheep	<i>Ovis f. domestic</i>	Phalanx 2	1	r		123	pf		bt	
194	15/BS	sheep/goat	Caprovid	Isolated teeth	3	r					n	2 deciduous, 1 permanent upper premolars
195	16/BS	?goose	cf. <i>Anser sp.</i>	Coracoid	1	l		2				
196	16/BS	goose	<i>Anser sp.</i>	Radius	1	r		dist				
197	16/BS	sheep/goat	Caprovid	Carpal	1	l						
198	16/BS	sheep/goat	Caprovid	Humerus	1	r	Y	12	pu			
199	16/BS	sheep/goat	Caprovid	Isolated teeth	1	r					n	upper deciduous premolar
200	16/BS	sheep/goat	Caprovid	Maxillary molar	1	l						
201	16/BS	sheep	<i>Ovis f. domestic</i>	Phalanx 2	1	l		123	pf			
202	16/BS	sheep	<i>Ovis f. domestic</i>	Phalanx 2	1	r		23	pu			
203	16/BS	?canid	cf. Canidae	Incisor	1	r						
204	1/T	cattle	<i>Bos f. domestic</i>	Phalanx 1	1	l		123	pu		bt,n	14 joining frags

Table A3. Archive of the fragments recorded in the 'unidentified' fraction from Context 3, Easington, East Riding of Yorkshire.

Sample no.	Species	Element	No. frags	KW	Notes
-	Bird	shaft	4		
-	Large mammal	astragalus	1		

Sample no.	Species	Element	No. frags	KW	Notes
-	Large mammal	axis	1	n	sent for C14, burnt, chopped
-	Large mammal	calcaneum	1		
-	Large mammal	cranium	17	n	sent for C14
-	Large mammal	humerus	3	n	shaft
-	Large mammal	lumbar vertebrae	3	n	sent for C14
-	Large mammal	mandible	6	n	sent for C14
-	Large mammal	metapodial	1		
-	Large mammal	pelvis	2	n	sent for C14
-	Large mammal	rib	12	n	sent for C14
-	Large mammal	scapula	8	n	sent for C14
-	Large mammal	shaft	33		
-	Large mammal	thoracic vertebrae	3	n	sent for C14, 1 epiphysis
-	Large mammal	tibia	2	n	shaft
-	Large mammal	vertebrae	4	n	sent for C14, spines
-	Medium mammal 1	axis	2	n	sent for C14
-	Medium mammal 1	lumbar vertebrae	7	n	sent for C14
-	Medium mammal 1	mandible	3	n	sent for C14
-	Medium mammal 1	pelvis	5	n	sent for C14
-	Medium mammal 1	rib	47	n	sent for C14
-	Medium mammal 1	shaft	23	n	sent for C14
-	Medium mammal 1	thoracic vertebrae	8	n	sent for C14
-	Medium mammal 1	vertebrae	14	n	sent for C14, 3 epiphyses, 1 spine, rest broken centra
-	Unidentifiable	unidentified	64	n	mostly shaft fragments
1/BS	Fish	spine	1		
1/BS	Small mammal	vertebrae	1		
1/BS	Bird	unidentified	4		

Sample no.	Species	Element	No. frags	KW	Notes
1/BS	Unidentifiable	unidentified	153	n	49 burnt
1/T	Medium mammal 1	rib	2		
1/T	Unidentifiable	unidentified	10	n	1 burnt
2/BS	Small mammal	unidentified	4		
2/BS	Bird	unidentified	5		
2/BS	Unidentifiable	unidentified	89	n	14 burnt
3/BS	Small mammal	unidentified	1		
3/BS	Unidentifiable	unidentified	55	n	8 burnt
4/BS	Small mammal	vertebrae	1		
4/BS	Unidentifiable	unidentified	185	n	4 burnt
5/BS	Fish	unidentified	2		
5/BS	Unidentifiable	unidentified	55	n	5 burnt
6/BS	Unidentifiable	unidentified	138	n	5 burnt
7/BS	Unidentifiable	unidentified	416	n	9 burnt
8/BS	Bird	unidentified	2		
8/BS	Unidentifiable	unidentified	278	n	18 burnt
9/BS	Fish	unidentified	1		
9/BS	Bird	unidentified	6		
9/BS	Unidentifiable	unidentified	342	n	148 burnt
10/BS	Bird	vertebrae	2		
10/BS	Unidentifiable	unidentified	348	n	103 burnt
11/BS	Small mammal	unidentified	1		
11/BS	Unidentifiable	cranium	4	n	2 cranial fragments sent for C14
11/BS	Bird	unidentified	5		
11/BS	Unidentifiable	shaft	13	n	4 shaft sent for C14

Sample no.	Species	Element	No. frags	KW	Notes
11/BS	Unidentifiable	vertebrae	21	n	1 atlas, 2 cervical, 2 thoracic, 2 lumbar, 3 fragments sent for C14
11/BS	Unidentifiable	rib	25	n	16 rib fragments sent for C14
11/BS	Unidentifiable	unidentified	461	n	95 burnt, 1 sternum fragment sent for C14 (total of frags sent for C14 weighed 94.4 g)
12/BS	Unidentifiable	unidentified	292	n	90 burnt, 2 vert, 2 rib fragments (weighing 21.6 g) sent for C14
13/BS	Bird	unidentified	1		
13/BS	Small mammal	vertebrae	1		
13/BS	Unidentifiable	unidentified	286	n	30 burnt
14/BS	Bird	unidentified	1		
14/BS	Unidentifiable	unidentified	769	n	11 burnt
15/BS	Bird	unidentified	5		
15/BS	Unidentifiable	unidentified	311	n	38 burnt
16/BS	Medium mammal 1	cranium	2		
16/BS	Large mammal	shaft	2		
16/BS	Bird	unidentified	2		
16/BS	Medium mammal 1	shaft	3		
16/BS	Medium mammal 1	vertebrae	9		
16/BS	Medium mammal 1	rib	11		
16/BS	Unidentifiable	unidentified	744	n	31 burnt

Table A4. Tooth wear stages for mandibles (M) and isolated teeth (IT) for Context 3, Easington, East Riding of Yorkshire.

Bone ID no	Sample no.	Species		Element	DP4	P4	M1	M2	M1/M2	M3
2	-	pig	<i>Sus f. domestic</i>	M	-	-	J	E	-	B
3	-	pig	<i>Sus f. domestic</i>	IT	-	-	E	-	-	-
4	-	pig	<i>Sus f. domestic</i>	IT	-	D	-	-	-	-
15	-	sheep/goat	Caprovid	M	-	11S	15A	11B	-	11G
16	-	sheep/goat	Caprovid	M	-	9A	9A	9A	-	9G
17	-	sheep/goat	Caprovid	M	-	ERP	-	8A	-	2A
18	-	sheep/goat	Caprovid	M	-	-	-	8A	-	2A
19	-	sheep/goat	Caprovid	M	-	4A	9A	8A	-	2A
20	-	sheep	<i>Ovis f. domestic</i>	M	13L	-	2A	-	-	-
21	-	sheep	<i>Ovis f. domestic</i>	M	16L	-	4A	-	-	-
22	-	sheep	<i>Ovis f. domestic</i>	M	13L	-	0	-	-	-
115	-	cattle	<i>Bos f. domestic</i>	M	-	-	G	F	-	ERP
116	-	cattle	<i>Bos f. domestic</i>	M	-	-	K	G	-	G
119	-	cattle	<i>Bos f. domestic</i>	IT	K	-	-	-	-	-
120	-	cattle	<i>Bos f. domestic</i>	IT	-	-	-	-	D	-
130	3/BS	sheep/goat	Caprovid	IT	-	-	-	-	BKN	-
136	7/BS	sheep/goat	Caprovid	IT	-	-	-	-	-	2A
137	7/BS	sheep/goat	Caprovid	IT	-	-	-	-	-	2A
138	7/BS	sheep/goat	Caprovid	IT	-	-	-	-	BKN	-
139	7/BS	sheep	<i>Ovis f. domestic</i>	IT	23L	-	-	-	-	-
140	7/BS	sheep	<i>Ovis f. domestic</i>	IT	13L	-	-	-	-	-

158	11/BS	cattle	<i>Bos f. domestic</i>	IT	A	-	-	-	-	-
159	11/BS	cattle	<i>Bos f. domestic</i>	IT	-	A	-	-	-	-
165	11/BS	sheep/ goat	Caprovid	IT	-	-	-	-	9A	-
166	11/BS	sheep/ goat	Caprovid	IT	-	-	-	-	9A	-

Table A5. Pathology archive for Context 3, Easington, East Riding of Yorkshire.

Bone ID no.	Species		Element	Pathology	Zone	Notes
2	pig	<i>Sus f. domestic</i>	mandible	hyp	M2	large indentation second cusp of M2
15	sheep/goat	Caprovid	mandible	pfo	1	below P2
20	sheep/goat	Caprovid	mandible	pfo	1	below DP2
24	sheep/goat	Caprovid	mandible	pfo	1	below DP2
26	sheep/goat	Caprovid	maxilla	per	M3	slight per on buccal side, moderate on lingual side, almost an abscess next to tooth
26	sheep/goat	Caprovid	maxilla	calc	teeth	moderate-severe on buccal side of M1, slight on P3 and M2

Table A6. Butchery archive for Context 3, Easington, East Riding of Yorkshire.

Bone ID no.	Species		Element	Butchery type	Zone	Notes
12	goose	Anser sp.	femur	ch	1	femoral head chopped off
32	sheep/goat	Caprine	pelvis	kns	7X	cut marks on medial side of zones 7 and 10, parallel to longitudinal axis of bone

Table A7. Measurements from vertebrate remains from Context 3, Easington, East Riding of Yorkshire.

Pig teeth										
Bone Id no.	Sample no.	Species	Side	Measurement						
				3	4	5	6	7	L	
2	-	pig	r	11.45	14.12	14.13	16.58	15.96	37.27	

Caprovid M3													
Bone Id no.	Sample no.	Species	Side	Measurement									
				L	B								
15	-	sheep/ goat	r	20.54	7.59								
16	-	sheep/ goat	r	21.61	8.84								
17	-	sheep/ goat	r	21.69	7.7								
18	-	sheep/ goat	r	20.88	8.24								
19	-	sheep/ goat	r	21.26	8.23								
136	7/BS	sheep/ goat	l	21.65	7.98								
Cattle M3													
Bone Id no.	Sample no.	Species	Side	Measurement									
				L	B								
116	-	cattle	l	33.87	14.97								
115	-	cattle	r	34.90	14.66								
Humerus													
Bone Id no.	Sample no.	Species	Side	Measurement									
				BT	HT	HTC	SD						
110	-	cattle	l	-	38.27	29.35	-						
108	-	cattle	r	67.12	-	30.85	29.68						
109	-	cattle	r	68.44	40.63	32.96	-						
51	-	sheep	l	29.01	18.59	15.37	13.48						
52	-	sheep	l	25.29	16.48	13.71	11.77						
53	-	sheep	l	28.85	85.00	14.20	14.80						
55	-	sheep	r	28.65	19.69	14.21	14.64						
Radius													
Bone Id no.	Sample no.	Species	Side	Measurement									
				Bp	BFp	SD	Bd	BFd					
101	-	horse	r	86.36	77.77	-	-	-					
104	-	cattle	r	84.72	76.05	-	-	-					
105	-	cattle	r	-	-	-	63.20	57.44					
44	-	sheep/ goat	l	30.05	28.00	18.04	-	-					
172	11/BS	sheep/ goat	l	30.07	28.31	-	-	-					

Metacarpal												
Bone Id no.	Sample no.	Species	Side	Measurement								
				GL	SD	Bp	Dp	BFd	Dd	Dem	Dvm	Dim
81	-	cattle	r	175.35	26.38	50.01	31.55	51.80	27.54	20.78	27.66	25.03
65	-	sheep	l	120.09	14.31	22.37	-	25.95	-	-	-	-
66	-	sheep	r	111.96	12.81	-	-	22.76	14.82	10.04	14.77	12.40
67	-	sheep	r	-	14.71	-	-	26.36	15.55	10.75	15.46	12.89
192	15/BS	sheep/goat	l	-	-	20.40	13.94	-	-	-	-	-
Tibia												
Bone Id no.	Sample no.	Species	Side	Measurement								
				SD	Bd	Dd						
100	-	cattle	l	-	55.51	41.49						
99	-	cattle	r	-	66.35	47.98						
49	-	sheep	r	12.50	24.77	19.47						
50	-	sheep	r	11.99	25.92	19.87						
174	11/BS	sheep/goat	l	12.37	24.48	19.46						
Astragalus												
Bone Id no.	Sample no.	Species	Side	Measurement								
				Bd	Dl	GLl						
176	11/BS	sheep	l	17.13	15.09	27.61						
Calcaneum												
Bone Id no.	Sample no.	Species	Side	Measurement								
				C	C+D	DS	GL					
92	-	cattle	r	26.39	47.38	38.99	126.75					
148	10/BS	cattle	l	23.90	43.36	35.86	-					
62	-	sheep	r	13.09	21.58	17.26	56.36					
Metatarsal												
Bone Id no.	Sample no.	Species	Side	Measurement								
				GL	SD	Bp	Dp	BFd	Dd	Dem	Dvm	Dim
77	-	cattle	l	-	23.76	-	-	49.80	-	22.07	-	-
76	-	cattle	r	200.46	20.10	39.51	39.69	46.77	-	20.20	-	-

70	-	sheep	l	-	13.34	-	-	24.25	15.85	10.22	15.85	12.90
71	-	sheep	r	127.6 2	13.00	21.20	20.48	23.66	-	10.21	-	12.68
68	-	sheep/goat	l	-	-	20.55	19.88	-	-	-	-	-
69	-	sheep/goat	r	-	10.59	18.97	19.01	-	-	-	-	-
Bird Ulna												
Bone Id no.	Sample no.	Species	Side	Measurement								
				Did								
14	-	goose	l	16.73								
Bird Femur												
Bone Id no.	Sample no.	Species	Side	Measurement								
				GL	SC	Bd	Dd					
12	-	goose	l	84.83	8.76	21.53	17.38					
Bird Tarsometatarsus												
Bone Id no.	Sample no.	Species	Side	Measurement								
				GL	SC	Bp						
13	-	goose	l	93.36	8.56	19.70						

Table A8. Weights of bone material from Context 3, Easington, East Riding of Yorkshire.

Sample no.	Species	Weight (g)
-	Bird	3.3
-	Cattle	2309.4
-	Goose	14.6
-	Horse	379.5
-	Large mammal	1277.4
-	Medium mammal 1	360.5
-	Pig	64.7
-	Sheep/goat	467.0
-	Sheep	287.0
-	Unidentified	84.5
1/BS	Identified	10.0
1/BS	Unidentified	26.6
1/T	Identified	9.8
1/T	Unidentified	7.2
2/BS	Unidentified	15.4
3/BS	Identified	2.7
3/BS	Unidentified	11.3
4/BS	Identified	11.1
4/BS	Unidentified	67.3
5/BS	Identified	0.2
5/BS	Unidentified	38.7
6/BS	Identified	15.5
6/BS	Unidentified	31.4
7/BS	Identified	14.2
7/BS	Unidentified	105.5
8/BS	Identified	1.0
8/BS	Unidentified	23.8
9/BS	Identified	3.6
9/BS	Unidentified	50.9
10/BS	Identified	41.3
10/BS	Unidentified	55.7
11/BS	Identified	145.5
11/BS	Unidentified	362.1
12/BS	Identified	3.9
12/BS	Unidentified	101.1
13/BS	Identified	5.6
13/BS	Unidentified	67.6
14/BS	Identified	22.6
14/BS	Unidentified	88.6
15/BS	Identified	7.1

Sample no.	Species	Weight (g)
15/BS	Unidentified	50.5
16/BS	Identified	14.6
16/BS	Unidentified	95.1