



HEWORTH CROFT

HEWORTH

YORK

ARCHAEOLOGICAL EVALUATION

PHASE 2

REPORT

OCTOBER 2004

EXCAVATION AND EVALUATION SECTION



ARCHAEOLOGICAL EVALUATION
HEWORTH CROFT
HEWORTH
YORK

SITE CODE: YHC04
NGR: SE 6102 5261

REPORT
October 2004



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Summary

A scheme of archaeological evaluation was undertaken at Heworth Croft, York (NGR SE 6102 5261) on behalf of Mike Griffiths and Associates, for Bellway Homes (Yorkshire) Ltd. The excavation was carried out between the 16th of June and the 16th of July 2004 and comprised four trenches located in areas of proposed redevelopment on the site. This fieldwork represents a second phase of evaluation (Phase 2), which followed an earlier programme of evaluation undertaken by Field Archaeology Specialists (FAS) Ltd in 2003, and which recorded the presence of ridge and furrow cultivation across the site in addition to a single Roman ditch (Phase 1).

Results from Phase 1 evaluation suggested the presence of a Roman road postulated from the presence of a Roman ditch interpreted as a flanking ditch, which ran parallel to the modern route of Heworth Green. Residual Roman pottery and cremated human bone also suggested the presence of a Roman cemetery disturbed by later Roman and medieval activity. Phase 2 was subsequently designed to test the possibility of the presence of a cemetery and Roman road at the site.

Roman features were encountered in Interventions 13 and 14. Remains included a probable truncated pit in Intervention 13, and five truncated features and a ditch in Intervention 14. A quantity of residual abraded Roman ceramic and cremated human bone were recovered during fieldwork. Medieval activity was represented by several shallow plough furrows in Interventions 12 and 14, all of which were aligned roughly NW-SE. Later post-medieval activity was represented in all interventions by a buried, possibly horticultural, soil, and by field drains encountered in Interventions 12, 13 and 15.

Acknowledgements

Field Archaeology Specialists Ltd would like to thank Jon Birkin and the staff of Bellway Homes for their assistance during the fieldwork. We are also grateful to John Oxley, Principal Archaeologist, City of York Council for his advice and support.

1.0 INTRODUCTION

This document reports on a scheme of archaeological evaluation undertaken by the Excavation and Evaluation Section of Field Archaeology Specialists (FAS) Ltd at the site of St John College, Heworth Croft, York, on behalf of Mike Griffiths and Associates for Bellway Homes (Yorkshire) Ltd. The fieldwork was carried out between 16th June and 16th July 2004.

1.1 LOCATION AND LAND USE

The site (NGR SE 6102 5261) is located in Heworth, 1.5km to the northeast of the centre of York, and lies within an Area of Archaeological Importance (Figure 1). It is bounded by Heworth Green to the south, the River Foss to the north and the housing developments of Villa Groves and Dalguise Groves to the east and west respectively. The proposed development area rises steeply from the River Foss to the north and slopes gently downwards towards Heworth Green on the south. The site represents a parcel of land comprising 1.5 hectares and was formerly the campus of York St John College with its associated teaching and residential facilities, lanes, car parks and open areas. The underlying geology of the area consists of Warp and Lacustrine Clay which has been affected by the proximity of the River Foss; natural subsoil is varied, consisting mainly of gravel, sands and clays. A 19th century listed building known as Queens Villa is situated in the southwestern area of the site, and elements of an ornamental garden with its associated features survive towards the north.

1.2 AIMS AND OBJECTIVES

Previous evaluation on the site recorded the presence of medieval furrows and a single Roman ditch (FAS_yhc02). Additionally, residual cremated human bone and Roman pottery suggested the presence of a disturbed Roman cemetery at the site. The Phase 2 evaluation aimed to establish the character, date and significance of archaeological deposits within the footprint of proposed buildings at the site. More specifically, the evaluation aimed to identify areas where *in situ* burials may survive, and to establish the presence or absence of a possible Roman road running across the site. Accordingly, the evaluation was undertaken with reference to an archaeological scheme of evaluation and mitigation prepared by Mike Griffiths and Associates (Appendix A). This information is intended to inform a mitigation strategy for the proposed development at the site.

1.3 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND (Nicola Toop BA MA)

1.3.1 Prehistoric and Roman

As with much of York, very little is known of the prehistoric past of this area. It is believed that in the pre-Roman period, Heworth would have been 'mostly a boggy waste' (Webster-Appleton 1999, 1), and no evidence has yet been found for prehistoric settlement or activity in the immediate area. Flint artefacts have been recovered in the Walney Road area, possibly derived from an Iron Age farmstead (Webster-Appleton 1999, 1), and further towards the city, on the site of the County Hospital, York Archaeological Trust (YAT) identified a curving gully containing worked flint, interpreted as a possible ring ditch (in MAP 1991, 4).

More substantial Roman evidence has been found in this area, although little of this has been recovered in modern excavations. Heworth Green lies along the route of Roman road number 3, which is aligned on the

northeastern gateway of the fortress (RCHM 1962, 1). Evidence for this road has been encountered at various points between Heworth and the city walls. Benson (1911) recorded a buried road six feet below the ground surface in Monkgate (RCHM 1962, 2), and Francis Drake similarly noted a 'firm stone causeway' eight feet below ground north of Monkgate (1736 in RCHM 1972, 2). It is unlikely that such deep deposits would have accumulated over the road beneath Heworth Green, as this area was not subject to the same level of medieval occupation as Monkgate.

Roman cemeteries are typically located on the approach roads to Roman cities, and York is no exception. Two cremation cemeteries are known in the Heworth/Heworth Green area. A small cremation cemetery to the northeast of the Heworth Croft site was disturbed in 1878, during construction of the Foss Islands branch of the railway (RCHM 1962, 70). Four cremations urns were recovered and are now held in the Yorkshire Museum, and a stone coffin discovered nearby was left *in situ*. Some 275m to the south, at the junction of Glen Road and Harcourt Street, another small cremation cemetery was disturbed in 1926, two urns from which are also held in the Yorkshire Museum.

Although modern archaeological excavations have not been carried out in the immediate area, investigations at 50-52 Monkgate (MAP 1995) demonstrate that other forms of Roman activity did extend at least some way outside the fortress in this direction. Two trenches (3m x 3m) were excavated in 1995, and at 11.79m AOD, evidence for 2nd and 3rd century activity was recovered, in the form of ditches, aligned NW/SE (MAP 1995, 10). A 'standstill' horizon was identified above this, interpreted as post-Roman accumulation. At the County Hospital site, more Roman ditches were identified, with a single Roman cremation and four Roman burials (YAT in MAP 1995, 4), demonstrating that cemeteries also existed closer to the city, along the route of this Roman road. Two further Roman inhumation burials were recovered in excavations by YAT at the Monkgate Cloisters in 1982 (in MAP 1995, 4).

These findings have been used to suggest that the land extending along the road from the city would have been marginal in nature. The ditches are interpreted as drainage systems (MAP 1995, 4), and there is a suggestion that in the Monkgate area, they would have been created for industrial purposes.

1.3.2 Early Medieval

Although evidence for settlement in 5th and 6th century York is scarce, some evidence does survive to indicate that the areas selected for Roman cemeteries were also used for Anglian burial. At Heworth a 5th and 6th century cremation cemetery was located in the same vicinity as the Roman cemetery. The cemetery was located to the north of the Heworth Croft site during the cutting for the Foss Islands railway between 1878 and 1880 (Tweddle et al 1990, 170). Somewhere between 80 and 90 urns were recorded during excavation, but only 40, with four associated artefacts, reached the Yorkshire Museum. In 1965, excavations by Lawrence Keen confirmed that Raine had accurately recorded the extent of the cemetery and that it had apparently been destroyed entirely by the cutting and later excavations (Tweddle et al 1999, 170).

There is a suggestion that a second cemetery existed in the Heworth area, raised by Raine's note in 1879 of a 'Saxon urn ...found at the side of the Tumulus in the garden at Heworth' (Tweddle et al 1999, 173). The site of the known cemetery was on flat, open ground, and the only known existing mound in the area is that which appears on a drawing by Ridsdale Tate in 1920 (Tweddle et al 1999, Figure 43), and on Ordnance Survey maps

from 1931 onwards (Plates 1 and 2). It is therefore possible that a second early medieval cemetery was located on this site, which places it just outside the northeastern corner of the Heworth Croft site.

Despite these finds, excavations that have been carried out in the wider area have recovered very little early medieval evidence. At 52 Monkgate, no early medieval finds were recovered. It has been suggested that there would have been very little activity dating to this period in this area, since the known *foci* of early medieval York were located further to the west.

However, the name Heworth is actually an Old English word, meaning ‘high enclosure’ possibly referring to activity at the site of Heworth Village, located on slightly higher ground (Webster-Appleton 1999, 1). Documentary evidence for the immediate pre-Conquest history of this region shows that land in the Heworth area was held by Orm, son of Gamel and Watheof, son of Siward, Earl of Northumberland (Webster-Appleton 1999, 1).



Plate 1 Heworth Croft mound looking south

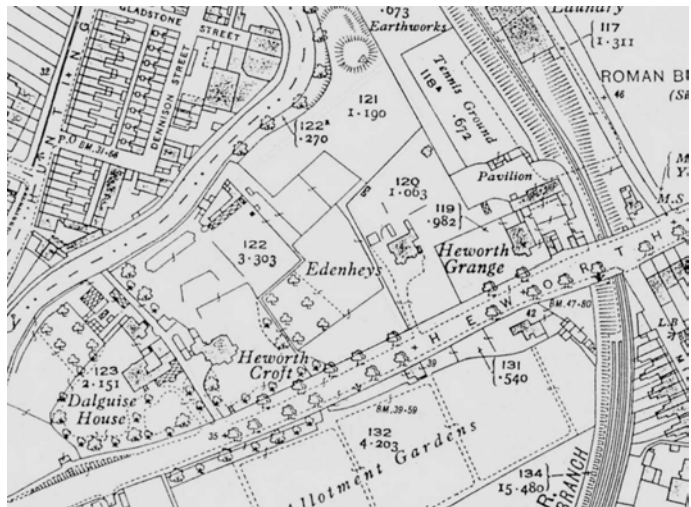


Plate 2 1931 Ordnance Survey map detail

1.3.3 Medieval

Archaeological and historical evidence does not provide a clear picture of the medieval use of the Heworth Croft site, though the available material seems to suggest that the site remained under pasture or arable land for much of this time, forming part of an estate possibly held by religious foundations until the 16th century, when the land passed to the Crown.

The site of Heworth Croft is known to have been part of the estate of Heworth Grange in the 16th century and presumably this estate was of a much earlier date. Heworth Grange lay some distance to the east of the Heworth Croft site, and is thought to have replaced a building of Norman date. These later buildings remained standing until demolition in the 20th century.

Appleton-Webster records that the Heworth Grange estate was once land that had been granted to St Mary's Abbey, and subsequently leased to St Leonard's hospital (1999, 16). She describes the estate as 'where now Dodsworth Avenue and Pottery Lane are', but since later maps show the Heworth Croft site to have been part of this estate, it may have been part of this grant. The reference (unfortunately not located) to St Leonard's is particularly noteworthy. The site of Heworth Croft lies directly opposite the site of a medieval leper hospital, thought to have been dedicated to St Leonard. Excavations undertaken on the northern part of this site have

identified a possible medieval gatehouse to this hospital (FAS 2001; Gaimster and Bradley 2001, 337). It is unclear at this stage whether the lease of the Heworth Grange estate would have been to St Leonard's Hospital by the River Ouse, or can be associated with the leper hospital located less than 100m away (if indeed the two foundations are unrelated).

This estate passed to the Crown following the Dissolution, though there is some indication that the Heworth Croft site had fallen into other hands prior to this. In 1545/6 the City Council ordered that 'the graynge feilds [*sic*] in the holding of John Wayte of Heworth,...the end next Monk brig be reformed for the kye of the ward to lye on' (York Civic Records Vol IV, 137). There were apparently watering sites for the cattle on both sides of the River Foss. In 1575, a ditch apparently ran from to the River Foss through the centre of the Grange lands (Raine 1955, 285).

Little archaeological evidence for medieval activity has been found in the area, complimenting the documentary evidence which suggests that the site was primarily used for pasture during this period. At the site of 52 Monkgate, postholes have been interpreted as evidence for structures or boundaries, and associated deposits have been interpreted as medieval garden soils (MAP 1995). There is no evidence for medieval activity in the immediate area of Heworth Green, and small scale archaeological investigations (YAT Gazetteer) in the area have observed no evidence dating to earlier than the post-medieval period, suggesting that the general area remained largely unoccupied and agricultural through this period.

1.3.4 Post-medieval and Modern

Following the Dissolution, the estate of Heworth Grange passed to the Crown, and the land was subsequently leased to the Dawson family (Webster-Appleton 1999, 16). The Dawsons had become notable landowners in Heworth by the late 16th century, and they occupied the site at Heworth Grange until 1779 (Webster Appleton 1999, 10). In 1779, the property was advertised in the *York Courant* for let or lease as 'Heworth Grange Farm near Monk Bridge, together with yards well accustomed for making bricks, tiles and pots' (Webster-Appleton 1999, 10).

During this period, it appears from cartographic evidence that the site of Heworth Croft was not built up, and is likely to have remained part of the grounds of the estate. Most of the surrounding area appears to have been predominantly open land, and in the rare instances when post-medieval deposits have been observed archaeologically, they have been interpreted as agricultural or garden soils (Lowther Street; YAT Gazetteer 430), or as dumping adjacent to the river (Hyrst Grove, Heworth; YAT Gazetteer 349).

It was not until the Enclosure of 1817 that the large houses that became collectively known as the 'Heworth Green Villas' were constructed. This is supported by the limited cartographic evidence (Drake 1736; White 1785), which shows the site to be apparently empty (and not under plough). However, as this area is generally peripheral to early maps of York, these depictions need not necessarily be accurate.

Enclosure of 1822, and the Construction of Heworth Green Villas

The Heworth Grange estate was located in the immediate vicinity of Heworth Moor, a tract of land stretching 'from Monkgate over most of Heworth Township to Sandburn down Malton Road' (Webster-Appleton 1999, 2). The Moor is known to have been used to pasture York citizens' cattle and sheep, and was also used for

assemblies, military parades and shooting (Webster-Appleton 1999, 3). Several windmills are known to have been located on the Moor, one of which was sited to the south of the Heworth Croft site, at the junction of Glen Road and Harcourt Street. Historical sources describe the burning of seven of these mills during the Civil War of 1644 (Webster-Appleton 1999, 3).

There had been an attempt to enclose Heworth Moor in 1776 (Webster-Appleton 1999, 14), but was not until 1817 that an act was finally passed. An amendment included in the deeds states that:

‘the King’s Most Excellent Majesty was seised of a certain farm called Heworth Grange consisting of a messuage or tenement and One hundred and twenty three acres of land or thereabouts with the appurtenances and the Reverend John Acaster of the suburbs of the said City of York Clerk and Robert Bewldy of Heworth aforesaid gentlemen were the then present tenants of the said Farm’
(Enclosure Act of 1817, held at YCA; transcript by W. Nisbet).

The accompanying map, dated 1822, depicts the estates of the Grange, ‘held by the Crown’ as running all the way to Monk Bridge in the west, and so encompassing the Heworth Croft site (Plate 3). On this plan the site is not seen to have contained any buildings.

By 1832, however, the site does appear to have been occupied, and Robert Cooper’s map (YCL) shows a significant building to the west of Heworth Grange, apparently within its own boundary. Tallis’ map of 1850 shows the site in more detail, and depicts three main buildings on the site, labelled collectively as ‘Queen’s Villas’, presumably with reference to the royal ownership of the land. This name is also given on Heywood’s map of the 1860s.



Plate 3 1822 Enclosure map detail

There is some confusion as to the date of construction of buildings on this site. Queen’s Villa is first mentioned in the Directory of 1843 (RCHM 1975, 77). An advertisement in the Yorkshire Gazette of 1854 states that John Acaster, Vicar of St Helens, Stonegate, had built the house on land leased from the Crown for 99 years in 1842, and so it has been suggested that construction of the house began in 1842 (RCHM 1975, 77). This would initially appear to contradict the cartographic evidence, and it may also be significant that, although the advertisement of 1854 states that John Acaster leased the land in 1842, a Reverend John Acaster is recorded as a tenant of the Grange in the Enclosure documents of 1817. It may be, therefore, that he held a lease prior to 1842, and so may have begun construction of the Queen’s Villas at a slightly earlier date.

The 1852 Ordnance Survey map depicts two large buildings on this site, the eastern structure labelled as ‘Queen’s Villa,’ with surrounding landscaped gardens (OS 1852 Sheets 5 and 6), and a second building of similar size to the west. A path divides land between the two houses, the western of which lies outside the development site. To the east of Queen’s Villa, the land remains undeveloped up to the boundary of the Heworth Grange property. There is later some confusion between Queen’s Villa, and the house to the west that eventually became Crown Cottage, and it seems that at some point around 1850, the name ‘Queen’s Villa’ came

to be applied only to one of a number of large buildings on the site, possibly due to a division of property.

In 1852, the house, presumably that labelled on the Ordnance Survey map as Queen's Villa, is described as having a dining rooms, drawing rooms, and a kitchen, with five best lodging rooms and servants rooms above. A larder, wine and beer cellar are also noted. Within the grounds, there were stables, a coach house, piggeries and a cow house in addition to pleasure grounds, gardens and a plantation (Webster-Appleton 1999, 17).

In 1891, the larger scale Ordnance Survey map shows the plan of buildings on the site. Queen's Villa has been renamed as Heworth Croft, whilst the second building is labelled as Crown Cottage. The layout of the gardens around these villas appears unchanged, although various outhouses have been constructed to the north of Crown Cottage, and a small building has been built just to the north of Heworth Croft. To the east of the site, a further villa, 'New Villa' has been constructed on the site immediately adjacent to Heworth Grange. The western boundary of the lands around the New Villa seem to correspond with the modern boundary of the site of interest, and was probably established at this point. The eastern boundary of Heworth Croft has been extended slightly at its northern edge and a small, L-shaped structure has been constructed close to a pre-existing summerhouse, which survives to the present day.

Little appears to have changed by 1909, other than the renaming of New Villa as 'Stannerton', and another slight extension of the eastern boundary of the Heworth Croft property (OS 1909, Sheet 174/7). By 1931, however, further change is evident on the OS maps (1931, Sheet 174/7). Between 1909 and 1931, Crown Cottage had been renamed Dalguise House, and Stannerton had become Edenhays. The land between Heworth Croft and Edenhays is no longer seen to be open land, but had been divided, with part of the area to west depicted as woodland. The garden surrounding Heworth Croft has also been subject to development. The previous layout of the garden appears to have been quite open, with trees and a winding path, but at some point between 1909 and 1931, several garden features had been added, including a structure on the northern edge of the property that can still be seen today.

In the 1920s, the house to the west, Dalguise House, was converted into flats, but this was a short-lived development and the house was demolished to make way for a new housing development in the 1930s. This is today represented by Dalguise Grove.

Heworth Croft, however, remains standing, and in 1975 was described as 'a detached villa of two storeys and attics standing, with a coach house and other outbuildings, in its own grounds' (RCHM 1975, 77). The house is built of white brick in an Italianate style and roofed in slate (Plate 4). The wing of the house is apparently connected to an original coach house now converted for other purposes.

The function of the house has certainly changed since its original construction. In 1950, it was



Plate 4 'Queen's Villa' south facing facade

purchased by York St John College as a hostel for residential trainees. Records of architectural plans for the college mention ‘proposed developments’ for 1948, which appear to have included a new biology lab and ‘full development of the hostel’. Extensions were also planned in 1960. The current plan of the property indicates that there has been considerable development on the site itself.

1.3.5 Features of Unknown Date

Several features have been identified on Ordnance Survey maps which are of unknown date, but may have been of archaeological significance. The 1891 Ordnance Survey map shows two small features in the open land between Heworth Croft and New Villa, which can possibly be interpreted as mounds. Similar features are visible in the grounds of Heworth Grange and St Maurice’s House. Although they could be seen as landscaping, their location outside the gardens of Heworth Croft suggests otherwise. They have since been demolished by further development on the site, and so are likely to remain unidentified (Plate 5).

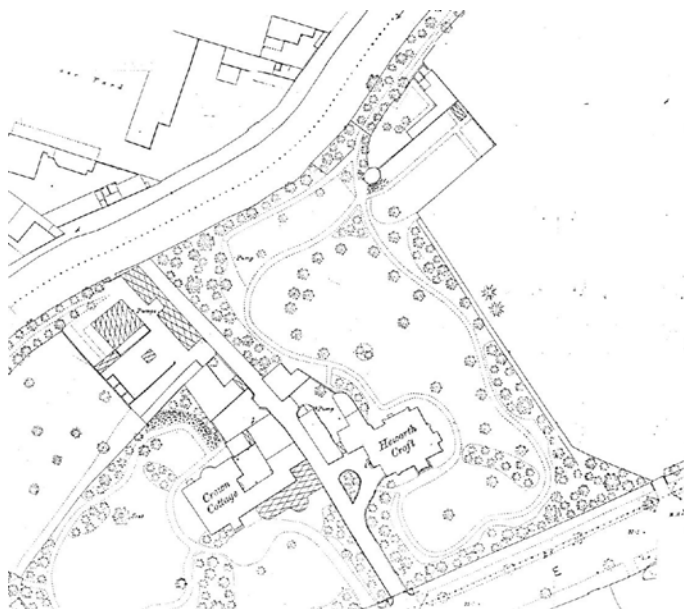


Plate 5 1891 Ordnance Survey map detail

The 1931 Ordnance Survey map depicts earthworks to the north of the site of interest, just east of the bend in the River Foss (see Plates 1 and 2). These have been noted in relation to a second early medieval cemetery in the area, as the possible ‘Tumulus’ mentioned by Raine in 1879 (Tweddle et al 1999, 173), and a mound occurs on a drawing by Ridsdale Tate in 1920. These earthworks appear to be quite significant in size, but no further references have been found to identify or date them. It is possible that this may have been the site of one of the many post-medieval windmills on the Moor.

1.3.6 Phase 1 Evaluation

The first phase of archaeological evaluation undertaken at the site consisted of nine evaluation trenches and fourteen geotechnical testpits. Four distinct phases of activity were encountered dating from the Roman to modern period. Roman activity consisted of a wide ditch, sharing the alignment of the modern route of Heworth Croft, thought to be the line of a Roman road. Residual cremated human bone and ceramic, some of which was recovered from the ditch itself, but also in later deposits, demonstrated the presence of a disturbed Roman cemetery at the site.

Much of the disturbance was attributed to a system of ridge and furrow cultivation dated to the medieval period. This system of cultivation was also associated with a field boundary ditch. The medieval plough horizon was sealed by later agricultural or horticultural soils, and deposits associated with the construction of the Queen’s Villa.

1.3.7 Conclusion

Heworth Green appears to have remained largely marginal until the 19th century, used for burial in the Roman

and early medieval periods, but not subject to intensive activity until the construction of the high-status villas along the northern side of the street. The archaeological potential of the area is therefore of limited scope, confined largely to the possibility of Roman or Anglian burial sites. If such burials do exist on the site, however, they are likely to have been disturbed by ridge and furrow cultivation or the construction of modern buildings. The property of Heworth Croft itself has developed considerably since construction, with most of the changes to the garden and the property dating to the 20th century.

2.0 FIELDWORK PROCEDURE

The scheme of evaluation involved the excavation of four trenches, allocated Interventions 12 to 15 (Figure 2). Trench positions were established using a total station theodolite. Each trench was scanned for services using a cable avoidance tool prior to excavation. Excavation was undertaken using a wheeled mechanical excavator fitted with a 1.2m wide toothless ditching bucket under strict archaeological supervision; tarmac and concrete surfacing in Intervention 13 was broken out with a mechanical excavator fitted with a hydraulic breaker. All modern deposits and overburden were machine-excavated until the first archaeological horizon; all subsequent excavation was undertaken by hand.

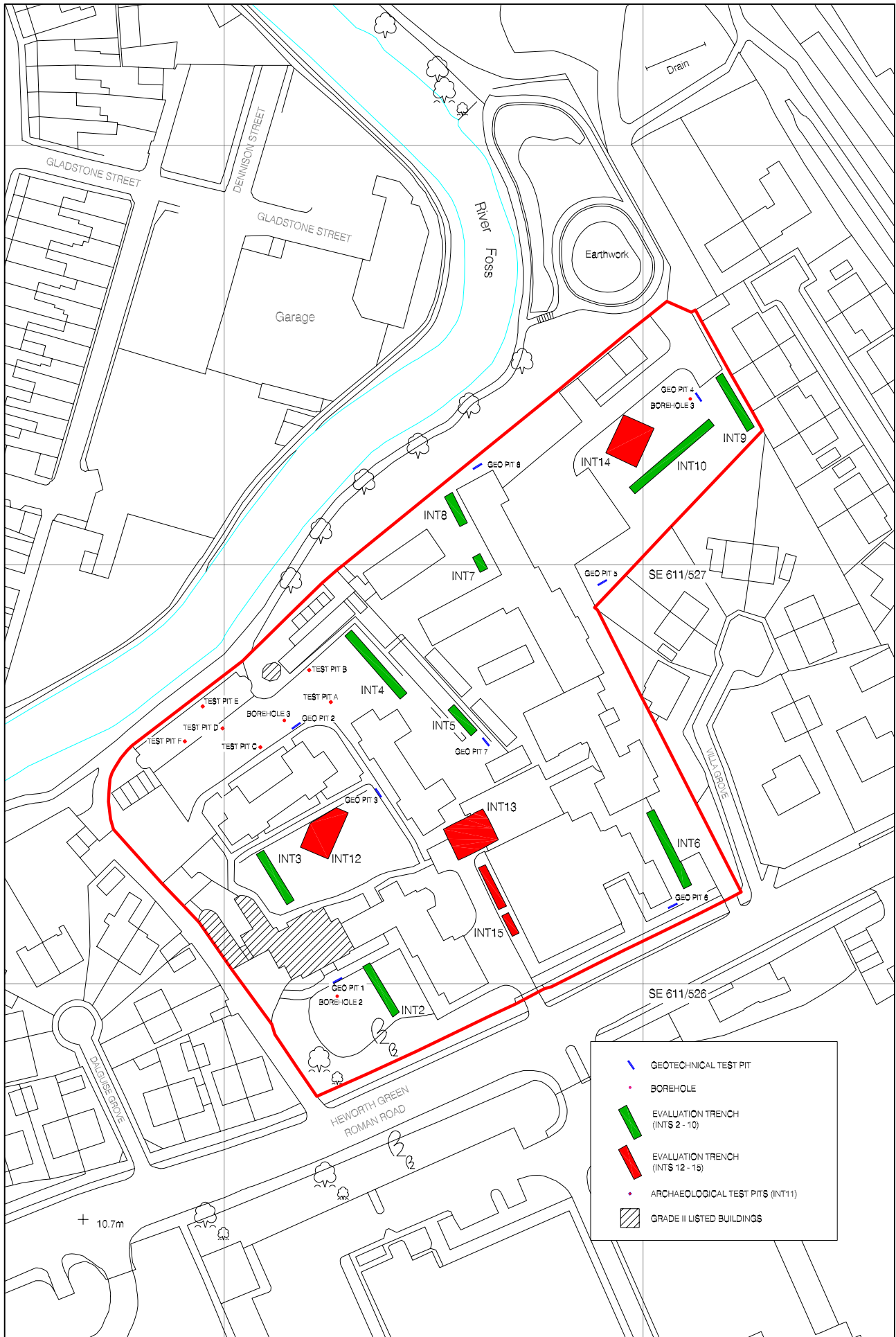
Written, drawn and photographic records were made of all archaeological deposits. The Ordnance Survey Grid as used for all survey and site recording; all alignments expressed in this report refer to the OS grid and all heights are expressed in metres above ordnance datum (AOD).

The recording system followed Field Research Procedure (Carver 1999), the standard operating system employed by FAS. A single index was maintained for contexts and for features, and which continued from those context and feature numbers allocated during Phase 1 evaluation. A checklist of records created during excavation, which form the content of the archive, is given below (Appendix B).

A systematic environmental sampling method was employed. Deposits which were clearly of a mixed or secondary origin such as make-up layers or deposits which displayed a high degree of residual or intrusive artefactual material were not the subject of environmental sampling unless a specific question relating to function or social status could be addressed. Where deposits were thought to be of primary origin and had potential to contain biological remains, an appropriate sampling regime would be established.

2.1 FIELDWORK CONSTRAINTS

The size and location of Intervention 12 was constrained by the presence of a low brick wall to the north and by some mature trees, all of which were under Tree Preservation Orders, to the south. Intervention 13 and 15 were offset from the adjacent building for health and safety reasons. A line of mature trees lay in the area of Intervention 15 and while these were also subject to Tree Preservation Orders, they were felled prior to the start of fieldwork with the permission of City of York Council. A single tree lay within the area of Intervention 14 and was likewise removed prior to excavation.



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Location of interventions

Scale 1:1250



Figure 2



3.0 FIELDWORK RESULTS

3.1 INTERVENTION 12

Intervention 12 was located in an open quad surrounded by three large buildings, 8.0m to the northeast of Intervention 3. It measured 12.0m x 7.0m and was orientated NE-SW, although the northwestern corner of the trench had to be foreshortened due to the presence of mature trees and a low wall made of brick and set on a concrete plinth.

The sequence encountered and visible in the northwest facing section consisted of a modern topsoil, C1154, which was removed by machine (Figure 3). C1154 consisted of a dark grey sandy-silt and contained modern, and residual medieval and Roman, ceramic, as well as Roman and medieval ceramic building material (CBM) (Appendices C and D). Upon removal of C1154 by machine, a sequence of two pairs of field drains were identified, F59, C1163 to F62, C1166 (Figure 4). F59 and F60 consisted of linear straight-sided trenches containing machine-extruded ceramic field drains, of a horseshoe with integral footplate form. These two field drains appeared to replace two earlier field drains, F61 and F62, which also contained machine-made ceramic drains. The machine manufacture of the drains provides a date of the mid-19th century onwards.

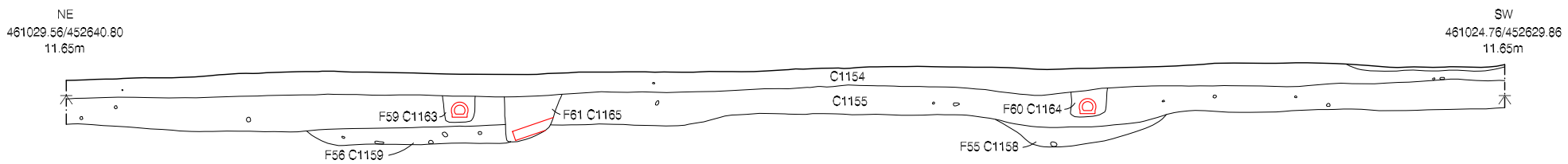
F61 and F62 cut into a layer of overburden allocated C1155, which consisted of a dark greyish-brown silty-sand with occasional residual Roman and medieval ceramic, CBM and charcoal flecks. Excavation of this layer revealed two linear features orientated NNW-SSE disappearing beneath the western and eastern limit of the intervention (F55 and F56) encountered at between 11.3m and 11.5m AOD. F55 was visible for a length of 7.0m and measured 2.5m wide x 0.3m deep (Plate 6). Its backfill, C1158, consisted of a yellowish-brown friable sandy clay. F56 was situated 2.5m to the north of F56 and was



Plate 6 F55 southeast facing section

visible for a length of 5.5m. Upon excavation it measured 2.2m wide x 0.30m deep. Both features have been interpreted as furrows, and excavation of F55 and F56 produced animal bone which was in a condition consistent with plough erosion (Appendix E). Pottery recovered from F55 and F56 consisted of residual Roman ceramic and medieval gritty ware and Yorkware, and Brandsby-type and Humberware, suggesting that the features date to the mid-13th to 14th century.

Excavation of F55 and F56 revealed two features, a scoop F57 and a posthole F58. F57 had been cut away to the west by F55 and consisted of a shallow scoop measuring 0.90m x 1.00m x 0.12m. F58 had been partially truncated by F61 and measured 0.30m in diameter x 0.11m in depth. Pottery recovered from F57 consisted of a single sherd of Yorkshire gritty ware which is broadly dated to 1050 to 1250, which does not conflict with the proposed date of the overlying ridge and furrow cultivation. Both F57 and F58 cut into a light yellowish-brown gravelly sandy-clay with occasional seams of reddish-brown clay identified as subsoil (C1161). C1161 was

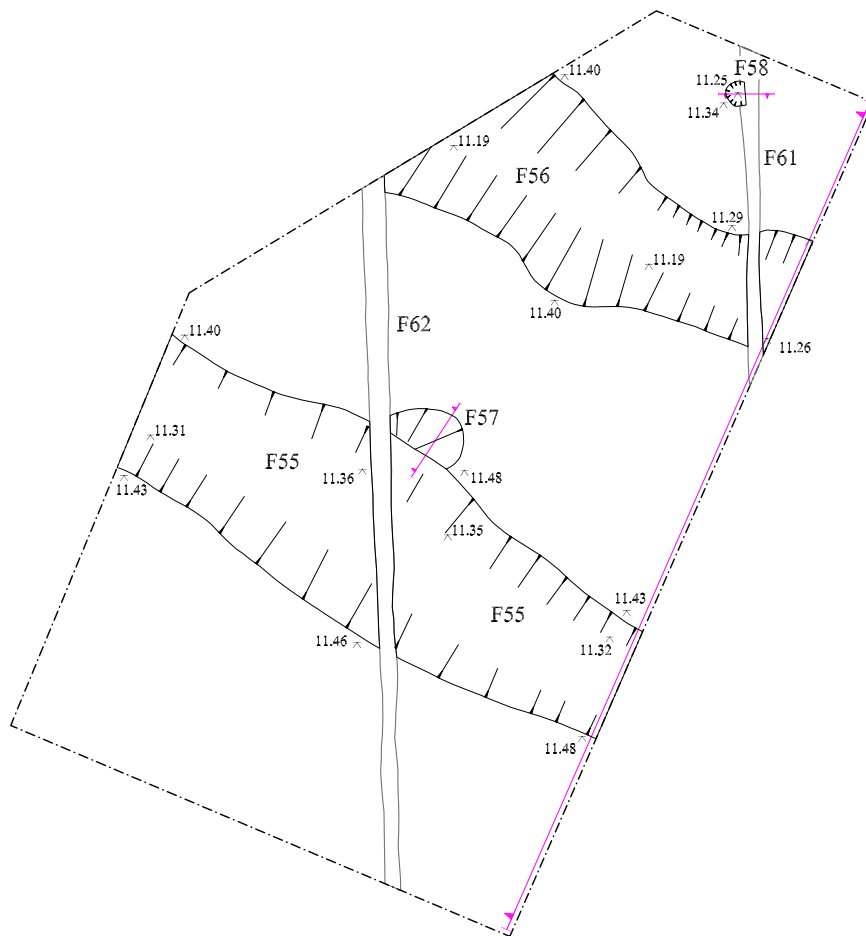


Intervention 12 - northwest facing section

Scale 1:50

Figure 3





Intervention 12 - F55 and F56 post-excavation plan

Scale 1:100



Figure 4

encountered at between 11.51m (south) and 11.34m AOD (north).

Table 1 Intervention 12 - summary of context records

Context	Identity	Feature	Description	Munsell	Date
1154	topsoil	-	dark grey sandy-silt, contained modern, medieval and Roman ceramic, charcoal and mortar flecks throughout, some gravel and pebbles	10YR4/1	20th
1155	buried soil	-	dark greyish-brown silty-sand with residual medieval and Roman ceramic, CBM and charcoal flecks throughout, occasional gravel and pebbles	10YR4/2	19th
1158	backfill	55	yellowish-brown friable sandy-clay with medieval ceramic, residual Roman ceramic and CBM, and occasional charcoal fleck and gravel	variable	mid-13th to 14th
1159	backfill	56	dark yellowish-brown friable sandy clay with medieval ceramic, residual Roman ceramic and occasional charcoal and pebbles	variable	mid-13th to 14th
1160	backfill	57	dark yellowish-brown sandy-clay with gravel, medieval ceramic and CBM fragments	10YR3/4	mid-13th
1161	subsoil	-	light yellowish-brown sandy clay with seams of yellowish-brown and reddish-brown clay and frequent mixed gravel and pebbles	10YR6/4	-
1162	backfill	58	dark reddish-brown silty-clay with occasional charcoal, manganese and CBM flecks, and gravel	10YR3/4	?mid-13th
1163	backfill	59	dark greyish-brown sandy-silt over a ceramic horseshoe drain	10YR4/2	mid-19th+
1164	backfill	60	dark greyish-brown sandy-silt over a ceramic horseshoe drain	10YR4/2	mid-19th+
1165	backfill	61	very dark greyish-brown gravelly sandy-silt over a ceramic horseshoe drain	10YR3/2	mid-19th+
1166	backfill	62	very dark greyish-brown gravelly sandy-silt over a ceramic horseshoe drain	10YR3/2	mid-19th+

Table 2 Intervention 12 - summary of feature records

Feature	Identity	Contexts	Description	Profile
55	furrow	1158	linear furrow measuring 7.0m x 2.5 x 0.30m, containing a single backfill	U-shaped
56	furrow	1159	linear furrow measuring 5.5m x 2.2m x 0.30m, containing a single backfill	U-shaped
57	scoop	1160	sub-oval feature measuring 0.90 x 1.00m x 0.12m, containing a single backfill	U-shaped
58	posthole	1162	circular posthole measuring 0.30m diameter x 0.11m in depth, containing a single backfill	U-shaped

Feature	Identity	Contexts	Description	Profile
59	field drain	1163	linear field drain with near-vertical straight sides, visible dimensions were 0.30m wide x 0.30m deep, containing a ceramic pipe and single backfill	Rectangular
60	field drain	1164	linear field drain with near-vertical straight sides, visible dimensions 0.30m wide x 0.22m deep, containing a ceramic pipe and single backfill	Rectangular
61	field drain	1165	linear field drain with near-vertical straight sides, visible dimensions were 0.25 wide x 0.35m deep, containing a ceramic pipe and single backfill	U-shaped
62	field drain	1166	linear field drain with near-vertical straight sides, visible dimensions were 0.25m wide x 0.42m deep, containing a ceramic pipe and single backfill	U-shaped

3.2 INTERVENTION 13

Intervention 13 measured 8.4m x 11.0m and was located close to the rear of a large building fronting onto Heworth Croft. The sequence encountered and visible in the southeast facing section consisted of a shallow topsoil (C1182) to the west of a brick wall footing on a concrete plinth (F71 C1183), an associated kerb (F72), and a layer of tarmac and concrete to the east (C1180), which overlay a buried soil preparation layer (C1181) (Figure 5). These layers were removed by machine and sealed a horizon of modern activity consisting of a total of four modern services (foul, gas and electricity) which ran through the intervention on a number of different alignments, and can be explained by the proximity of the intervention to the modern building (F64 to F67) (Figure 6, Plate 7). All subsequent excavation in the intervention was undertaken by hand.

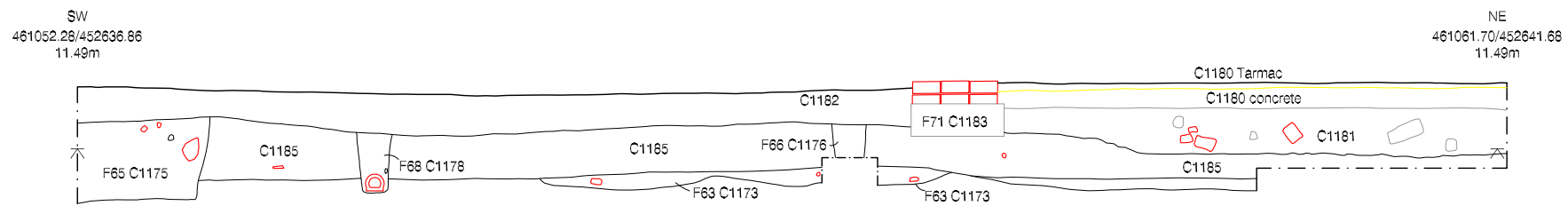


Plate 7 Intervention 14 pre-excitation

Two earlier land drains with ceramic horseshoe form pipes were cut and disused by the later services, but may relate to the drainage of the area in the 19th century (F68 and F69). F68 and F69 cut through a layer of overburden allocated C1185, which consisted of a firm dark greyish-brown clay and contained frequent charcoal flecks and undiagnostic CBM. C1185, in turn, overlay a two deposits of very firm dark greyish-brown clay with frequent flecks of charcoal, CBM and ceramic encountered at between 11.17m and 11.27m AOD.

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The most substantial deposit was located in the north of intervention and disappeared beneath the southeast facing section. The deposit was allocated four context numbers, since it had been cut by two modern services (F66 and F67), creating three segments available for excavation; one deposit (C1174) was only present in the eastern segment. The three segments were allocated C1167 (western), C1172 (southern) and C1173 (eastern) in order to detect possible intrusive material from the modern services, but represent the same deposit. Additionally, a recovery context was allocated during pre-excitation cleaning of the deposit in case of

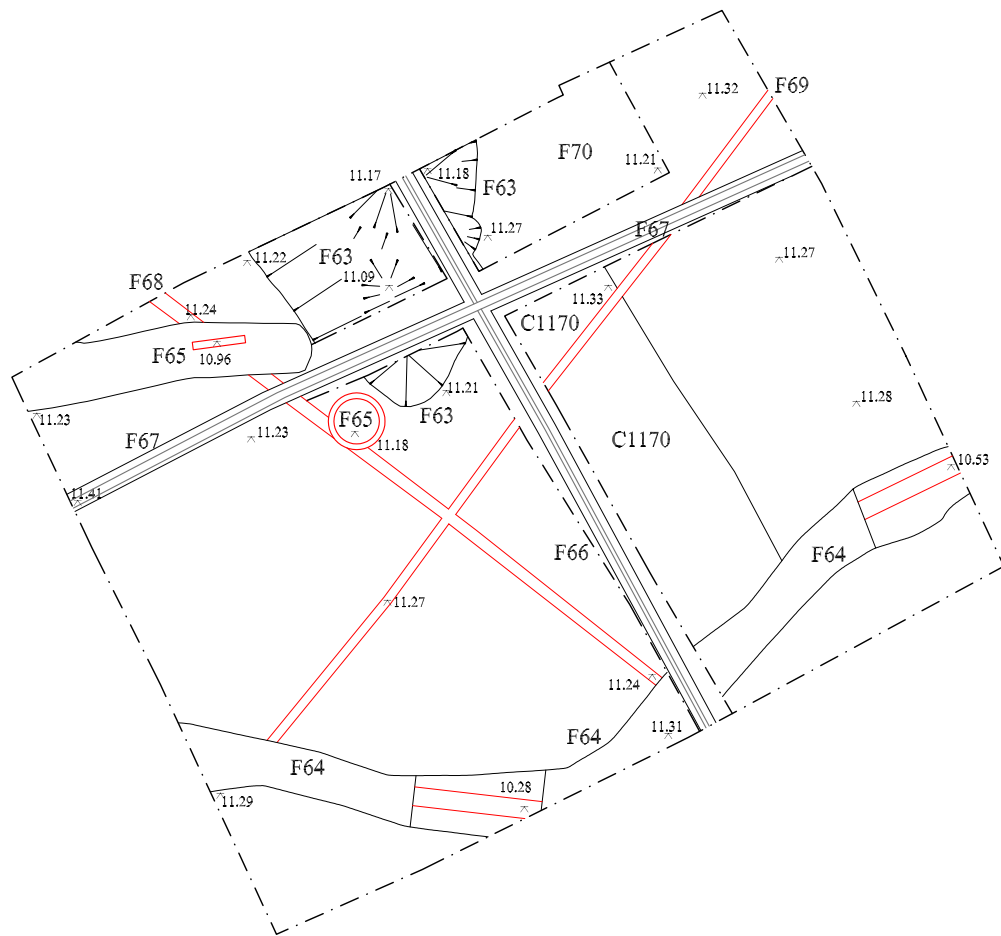


Intervention 13 - southeast facing section

Scale 1:50

Figure 5





Intervention 13 - F36 to F69 post-excavation plan

Scale 1:100



Figure 6

contamination from overlying C1185 (C1169).

Together, these deposits have been interpreted as the truncated remains of a Roman pit (F63), and with the exception of a sherd of locally produced flowerpot, which was probably intrusive, the material recovered was of Roman date. Finds recovered included CBM, consisting of relatively large fragments of brick and a York-produced tegula, and 131 sherds of ceramic including Eboracum ware, and local greywares including rusticated and burnished sherds and South Gaulish Samian, all typical of late 1st to early 2nd assemblages in York. Unburnt and charred animal bone was recovered, but more importantly, four identifiable fragments of calcined human bone were also present in C1167. Identifiable bones included fragments of femur, clavicle, vertebra and rib from C1167, and while it is also possible that other calcined bone in the deposit was human, no diagnostic features were present. A piece of greyware *unguentarium* was recovered from C1174 and represents a form found commonly in bathhouses and cremations in York (see Appendix C).

To the south of F63, the second deposit overlain by C1185 consisted of a thin layer of firm dark grey clay allocated C1170. The layer measured a maximum of 4.8m x 1.5m x 0.1m and contained a very similar assemblage of Roman ceramic to that of F63, although a piece of medieval roof tile and post-medieval flowerpot were also present, but are likely to be intrusive from C1185.

Both F63 and C1170 overlay subsoil allocated C1186, although a sondage, F70, was excavated at the eastern edge of F63 to test the interpretation. C1186 consisted of a clean plastic clay varying in colour from greyish-brown to yellowish-brown with veins of bluish-grey clay running through it. Subsoil was encountered at between 11.24m (west) and 11.35m (east) AOD.

Table 3 Intervention 13 - summary of context records

Context	Identity	Feature	Description	Munsell	Date
1167	backfill	63	= C1173. Animal and calcined human bone recovered	2.5Y3/2	Late 1st to early 2nd
1168	recovery context	-	allocated to the recovery of finds during machining	-	-
1169	recovery context	(63)	allocated to the recovery of finds during hand-cleaning of F63	-	-
1170	layer	-	firm dark grey clay, with occasional charcoal, CBM and ceramic	10YR4/1	Late 1st to early 2nd
1171	backfill and pipe	64	mixed clinker and gravel over ceramic sewer pipe	various	20th
1172	backfill	63	= C1173	2.5Y3/2	Late 1st to early 2nd
1173	backfill	63	very firm dark greyish-brown clay with frequent flecks of charcoal, ceramic and CBM.	2.5Y3/2	Late 1st to early 2nd
1174	backfill	63	friable gritty dark grey sandy clay with frequent charcoal flecks, mortar, CBM and ceramic	2.5Y3/2	Late 1st to early 2nd
1175	backfill and pipe	65	greyish-brown clay over a ceramic sewer pipe	various	20th

Context	Identity	Feature	Description	Munsell	Date
1176	backfill and pipe	66	redeposited clay subsoil and clean sand layer over electricity cable	various	20th
1177	backfill and pipe	67	redeposited clay subsoil and clean sand layer over gas pipe	various	20th
1178	backfill and ceramic pipe	68	greyish-brown plastic clay over ceramic horseshoe with integral footplate pipe	various	19th
1179	backfill and ceramic pipe	69	greyish-brown plastic clay over ceramic horseshoe with integral footplate pipe	various	19th
1180	layer	-	tarmac surface	Black	20th
1181	layer	-	preparatory layer for C1180, coarse sand with mixed CBM, concrete and limestone rubble	Various	20th
1182	topsoil	-	very dark greyish-brown silty-sand layer	10YR 3/2	20th
1183	make-up	71	brick and concrete raft make-up of ornamental wall		20th
1184	make-up	72	brick and concrete raft make-up of kerb		20th
1185	buried soil	-	firm dark greyish-brown clay with frequent charcoal flecks and CBM	10YR4/2	19th
1186	subsoil	-	greyish-brown to yellowish-brown clean plastic clay with veins of bluish-grey clay throughout	various	-

Table 4 Intervention 13 - summary of feature records

Feature	Identity	Contexts	Description	Profile
63	?pit	(1169) 1167, 1172, 1173, 1174	possible shallow Roman truncated pit backfilled with two principal deposits C1173 (=1167 and 1172) and C1174. Contained residual cremated human bone. Visible dimensions were 3.4m x 2.6m x 0.20m	not seen
64	service trench	1171	curvilinear modern service trench	rectangular
65	service trench	1175	linear modern service trench	rectangular
66	service trench	1176	linear modern service trench	rectangular
67	service trench	1177	linear modern service trench	rectangular
68	land drain	1178	linear field drain with near-vertical straight sides, visible dimensions were 0.30m wide x 0.60m deep, containing a ceramic pipe and single backfill	rectangular
69	land drain	1179	linear field drain with near-vertical straight sides, visible dimensions were 0.40m wide x 0.80m deep, containing a ceramic pipe and single backfill	rectangular
70	sondage	-	archaeological test pit for subsoil	-
71	wall	1183	modern ornamental wall	rectangular
72	kerb	1184	modern roadside kerb	rectangular

3.3 INTERVENTION 14

Intervention 14 measured 8.0m x 10.0m and was positioned in the northeastern corner of the area of investigation. The sequence encountered and visible in the southeast facing section consisted of a modern topsoil, C1212, which was interrupted by the stump and root ball of a recently felled tree (Figure 7). C1212 consisted of a very dark greyish-brown clayey sand, which contained modern CBM, ceramic and glass. This layer overlay a buried soil allocated C1213, a brown sandy clay layer, which contained a sherd of residual greyware and a sherd of Ryedale ware, which are dated to between 1550 and 1700. Both C1212 and C1213 were removed by machine, which revealed the first archaeological feature, a shallow linear feature interpreted as a furrow (Figure 8). Definition of the feature in plan was problematic due to the presence of the root ball and similar overlying deposits, and was better defined in section, but appeared to be orientated approximately west-east. Pottery recovered from the backfill of the furrow, C1187, included residual greyware, South Gaulish Samian and sherds of locally-produced mortaria, as well as two pieces of abraded medieval roof tile. Definition of features was very poor over the whole intervention and a sondage, F78, was hand-excavated along the eastern limit of the intervention in order to better trace the edges of ill-defined features. In the section of the sondage, F73 was seen to cut an earlier feature, F74, which may be the source of the Roman ceramic in C1187, and was subsequently hand-excavated in plan.

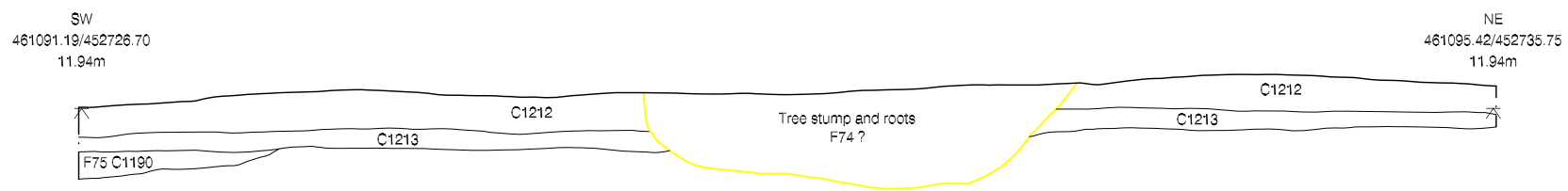
F74 measured between 1.5m and 2.0m wide and up to 0.5m deep (Plate 8) and was visible orientated NE-SW for the width of the intervention. Material recovered from the two mottled clay backfills of the feature, C1188 and C1189, included Humberware and Brandsby-type ware, which date from the mid-13th to mid-14th century, and are likely to be intrusive from F73, and a quantity of Roman ceramic including Eboracum ware, grey ware, South Gaulish Samian and mortaria, which provide a late 1st to early 2nd century date. It appeared in section that C1189 represents the partial backfill of the feature which is possibly recut, and finally backfilled with C1188, although definition was poor and hindered by overlying F73.



Plate 8 F73 and F74 post-excavation

Several other poorly defined features appeared to belong to this horizon of Roman activity, which included F75 to F77 and F79 and F80, encountered at between 11.55m and 11.85m AOD. F75 was situated in the southwestern corner of the intervention, disappearing beneath the western and southern limit of the intervention. Its visible dimensions were 1.4m x 2.0m x 0.15m and Eboracum and greyware including a burnished sherd, as well as Roman brick fragments, were recovered during excavation. At the northeastern end of the intervention four features were identified. Three features were identified during excavation of sondage F78 and were situated in the northeastern corner of the intervention (F76, F77 and F80). The remaining feature, F79, lay immediately to the west of this complex.

The visible dimensions of F76 were 1.25m x 2.00m x 0.30m deep; it had been backfilled once with a dark grey

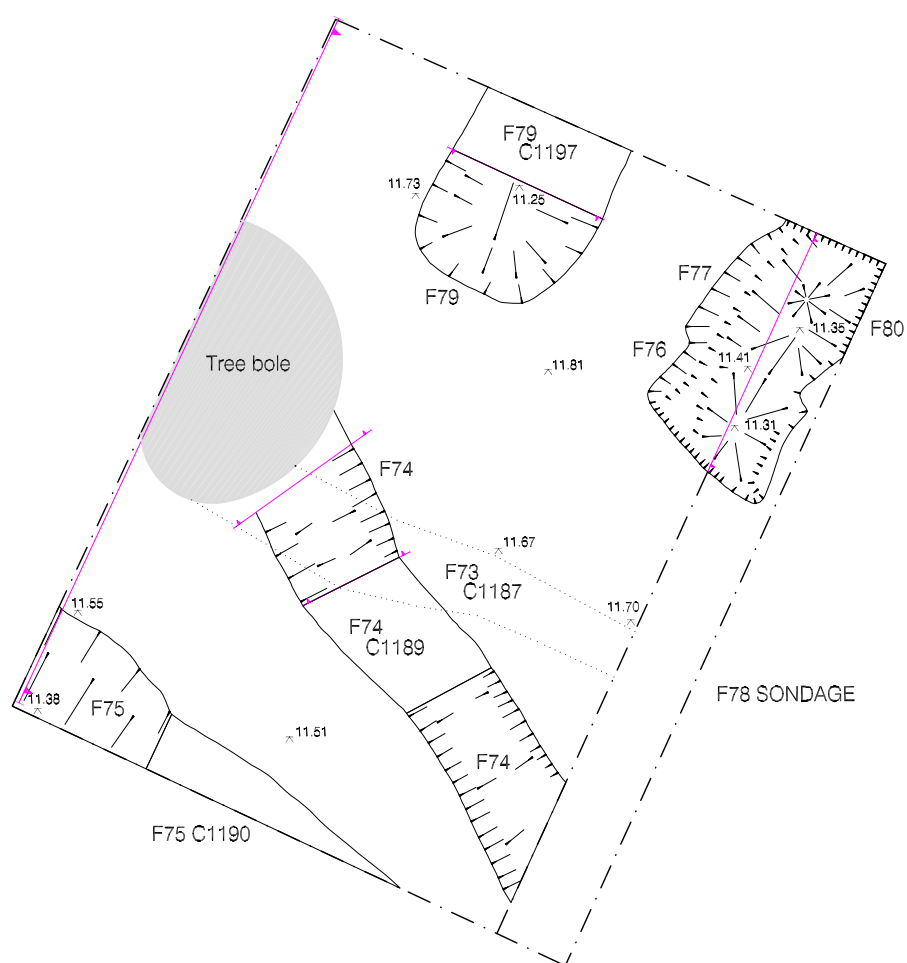


Intervention 14 - southeast facing section

Scale 1:50

Figure 7





Intervention 14 - F73 to F80 post-excavation plan

Scale 1:100



Figure 8

sandy-clay, C1195, and was thought to be a truncated pit. Dateable material recovered from the feature included Eboracum ware, Roman brick, a fragment of imbrex and a piece of medieval plain roof tile, which may be intrusive from C1213. The north part of F76 had been cut away by F77, which continued beyond the northeastern limit of the intervention. During the excavation of sondage F78, the feature revealed itself to be a second severely truncated possible pit. Dateable material recovered from its single silty-clay backfill, C1196, included Eboracum ware and white and grey ware, as well as Roman brick, a tegula fragment and medieval plain roof tile, which is likely to be intrusive from C1213. Significantly, more calcined human bone was recovered from C1196 and was identified as a tibia shaft fragment. A calcined human bone identified as a femur was retrieved from recovery context C1194, allocated during the excavation of sondage F78, and Roman ceramic contained in three other recovery contexts, C1191 to C1193, may have originated from the backfill of F77.

Following the excavation of F76 and F77, a third possible truncated pit, F80, was identified extending beyond the northeastern and southeastern extents of the intervention. Its backfill, C1198, was a dark olive-brown sandy-clay, which produced Eboracum and greyware, and fragments of Roman brick.

To the west of F80, a fifth feature of Roman date was defined protruding from the northern limit of the intervention (F79). Where visible, F79 appeared sub-rectangular in plan and measured 2.0m x 2.0m orientated NE-SW, and upon excavation proved to be 0.50m deep. Excavation revealed a series of three backfills, C1197, C1199 and C1200. The final backfill, C1197, consisted of a dark grey mottled clay and material recovered during hand-cleaning (allocated C1201) produced Eboracum ware, grey ware, South Gaulish Samian and a sherd of amphora imported from the Western Mediterranean, and fragments of Roman brick. C1197 overlay a second backfill, C1199, which consisted of a yellowish-brown mottled clay and a sherd of Eboracum ware and a fragment of Roman brick. C1200 was allocated to the first backfill of the feature and was a soft, dark greyish-brown silty-clay containing Eboracum ware and grey ware.

F75 to F77, F79 and F80 all cut into a clean, plastic dark greyish-brown clay, veined with seams of light blue clay identified as subsoil and allocated C1214. Subsoil was encountered at between 11.47m (south) and 11.85m (north) AOD.

Table 5 Intervention 14 - summary of context records

Context	Identity	Feature	Description	Munsell	Date
1187	backfill	73	clean plastic brown clay with ceramic and CBM	10YR4/3	13th to 16th
1188	backfill	74	yellowish-brown mottled clay with Roman and intrusive medieval ceramic	10YR5/4	late 1st to early 2nd
1189	backfill	74	brown mottled clay deposit containing frequent gravel and Roman and intrusive medieval ceramic	10YR4/3	late 1st to early 2nd
1190	backfill	75	dark greyish-brown clay, with occasional gravel and Roman ceramic and CBM	10YR4/3	late 1st to early 2nd
1191	recovery context	(78)	allocated to the recovery of finds during hand-excavation of sondage F78	-	-
1192	recovery context	(78)	allocated to the recovery of finds during hand-excavation of sondage F78	-	-

Context	Identity	Feature	Description	Munsell	Date
1193	recovery context	(78)	allocated to the recovery of finds during hand-excavation of sondage F78	-	-
1194	recovery context	(78)	allocated to the recovery of finds during hand-excavation of sondage F78	-	-
1195	backfill	76	dark grey sandy clay with charcoal flecks and CBM. Contained Roman ceramic.	5Y3/1	late 1st to early 2nd
1196	backfill	77	dark olive brown silty-clay with flecks of charcoal, CBM, Roman ceramic and calcined human bone	2.5Y3/3	late 1st to early 2nd
1197	backfill	79	dark grey mottled clay with gravel and Roman ceramic	10YR4/1	late 1st to early 2nd
1198	backfill	80	dark olive-brown sandy-clay, contained Roman ceramic	5Y3/2	late 1st to early 2nd
1199	backfill	79	yellowish-brown mottled clay with Roman ceramic	10YR5/4	late 1st to early 2nd
1200	backfill	79	soft dark greyish-brown with Roman ceramic	10YR4/2	late 1st to early 2nd
1201	recovery context	(79)	allocated to the recovery of finds during hand-excavation of F79	-	-
1212	topsoil	-	very dark greyish-brown clayey-sandy-silt, with modern ceramic, CBM and glass	10YR3/2	20th
1213	buried soil	-	brown sandy-clay, with coarse sand inclusions and medieval and post-medieval pottery	10YR4/3	?19th
1214	subsoil	-	dark greyish-brown clean plastic clay with veins of blue clay throughout	various	-

Table 6 Intervention 14 - summary of feature records

Feature	Identity	Contexts	Description	Profile
73	furrow	1187	possible furrow, linear cut, orientated W-E, measuring 1.0m x 0.1m, visible for a length of 2.0m, contained Roman ceramic and medieval CBM	U-shaped
74	ditch	1188, 1189	shallow ditch, orientated NE-SW, measuring 8.5m (visible length) x 1.5m x 0.3m, partially backfilled and recut, contained Roman ceramic and intrusive medieval pottery	U-shaped
75	?pit	1190	shallow truncated ?pit, visible dimensions 5.5m x 1.5m x 0.15m, backfilled once, contained Roman ceramic	U-shaped
76	?pit	1195	shallow truncated ?pit, visible dimensions 2.0m x 1.5m x 0.3m, backfilled once, contained Roman ceramic	U-shaped
77	?pit	1196	shallow truncated ?pit, visible dimensions 2.0m x 1.9m x 0.3m, backfilled once, contained Roman ceramic and calcined human bone	U-shaped
78	sondage	(1191, 1192, 1193, 1194)	archaeological sondage excavated along the eastern limit of the intervention, allocated a series of finds recovery contexts, once of which contained calcined human bone	-

Feature	Identity	Contexts	Description	Profile
79	?pit	1197, 1199, 1200, (1201)	sub-rectangular pit, visible dimensions 2.0m x 2.0m x 0.5m, backfilled on three occasions	U-shaped
80	?cesspit	1198	possible cesspit, visible dimensions 3.5m x 2.0m x 0.3m, filled with cess-like soil, which contained Roman ceramic	not seen

3.4 INTERVENTION 15

Intervention 15 was situated to the immediate south of Intervention 13 and flanked the western side of a standing building. It measured 18.0m x 2.0m, but was interrupted 5.5m from the southern end by the presence of deeply founded concrete steps, which were left *in situ* during fieldwork. The late sequence encountered reflected that of Intervention 13 and consisted of a modern topsoil (C1203) of dark greyish-brown sandy silt and a concrete kerb belonging to a modern path (C1202) (Figure 9). These deposits were removed by machine and all subsequent excavation was undertaken by hand.

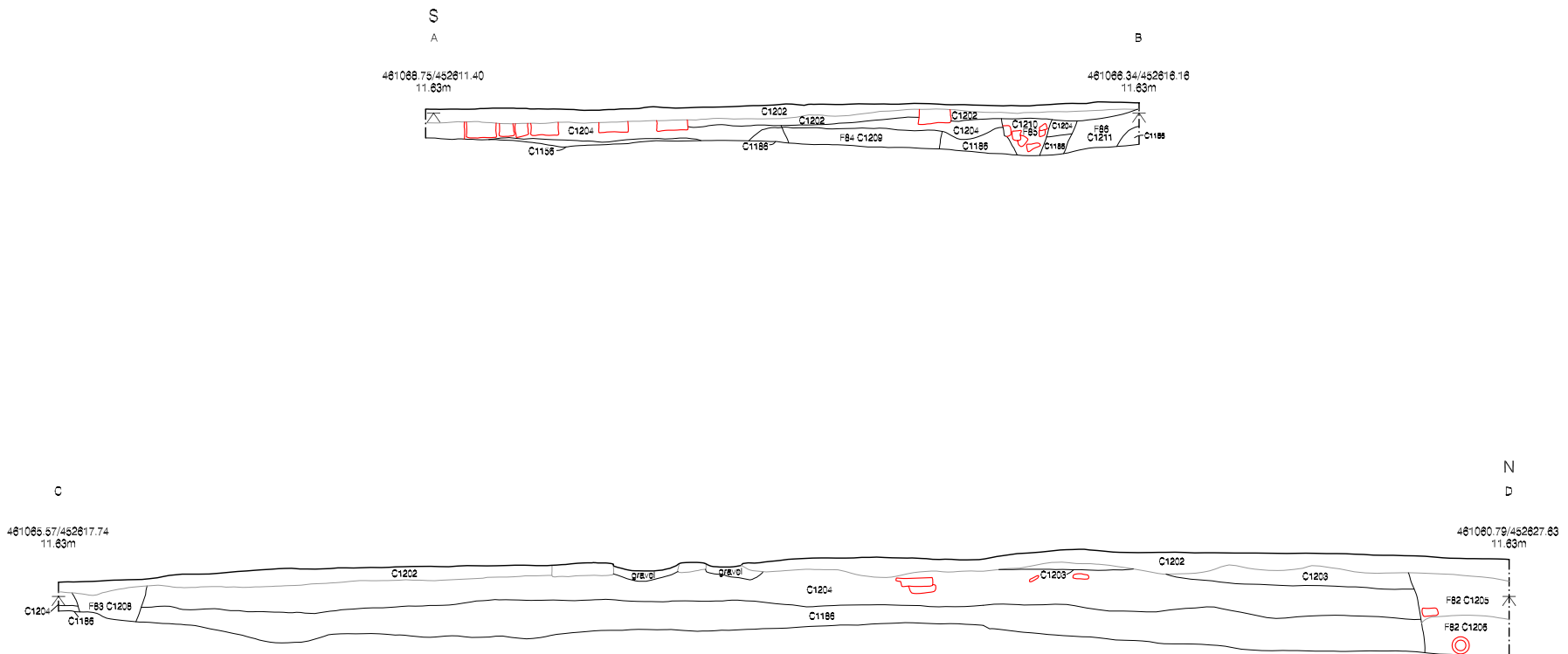
Four modern service trenches were revealed after the removal of C1202 and C1203, and included three sewer trenches (F81, F82 and F84) and an electricity service (F83) already encountered as F66 in Intervention 13 (Figure 10). F84 cut two earlier land drains containing ceramic pipes F85 and F86 in the southern end of the intervention (Plate 9). These drains cut into a buried soil consisting of an orangish-grey silty-clay with flecks of CBM and charcoal (C1204). C1204 overlay subsoil which consisted of a greyish-brown to yellowish-brown clean plastic clay with veins of bluish-grey clay already recorded as subsoil in Intervention 13 (C1186). No archaeological horizons or features were encountered in the intervention.



Plate 9 F86 pre-excitation

Table 7 Intervention 15 - summary of context records

Context	Identity	Feature	Description	Munsell	Date
1186	subsoil	-	greyish-brown to yellowish-brown clean plastic clay with veins of bluish-grey clay throughout	various	-
1202	make-up	-	concrete kerb blocks set in a matrix of dark-greyish brown sandy silt	various	20th
1203	topsoil	-	dark greyish-brown sandy-silt with flecks of charcoal and CBM	2.5Y3/2	20th
1204	buried soil	-	orangish-grey silty-clay with charcoal and CBM flecks	10YR5/2	?19th
1205	backfill	82	dark grey silty clay overlying ceramic sewer pipe	10YR4/1	20th
1206	rubble backfill and ceramic pipe	82	mixed limestone rubble backfill overlying ceramic sewer pipe	various	20th
1207	backfill and ceramic pipe	81	dark grey silty clay overlying ceramic sewer pipe	10YR4/1	20th

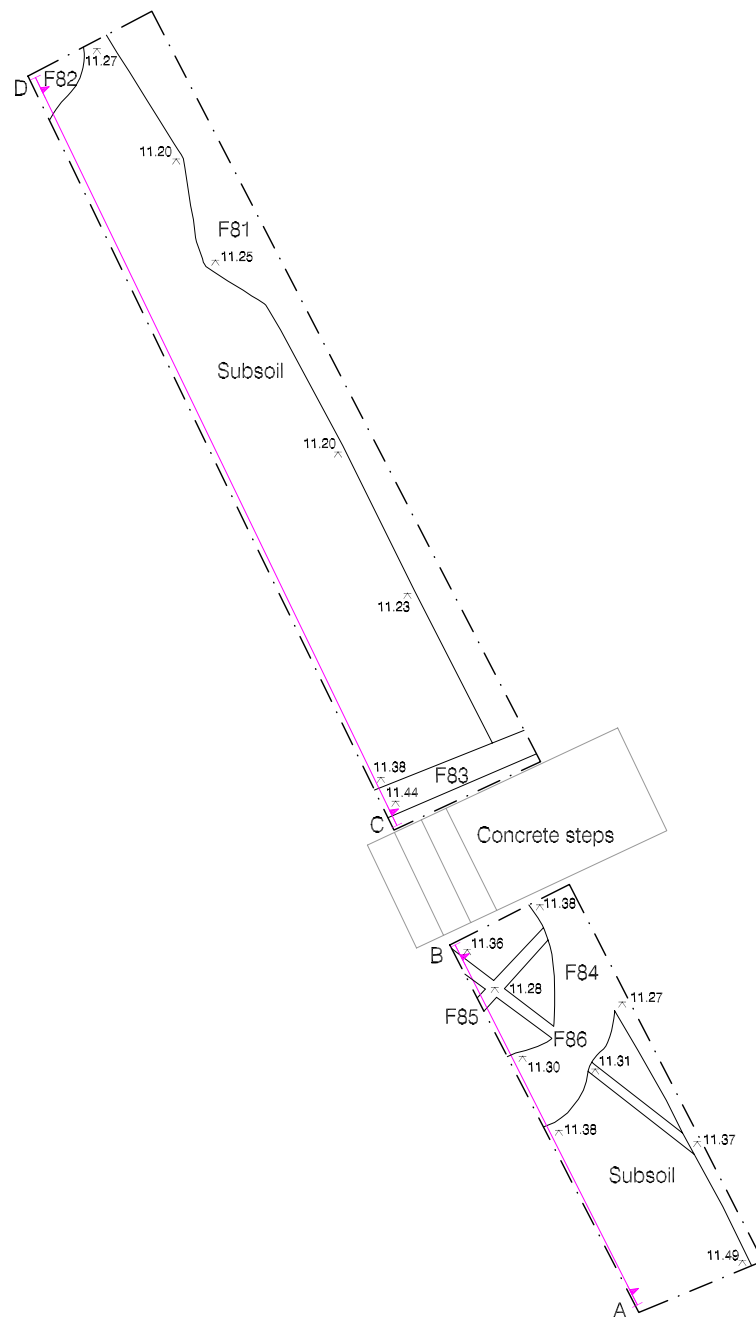


Intervention 15 - southeast facing section

Scale 1:50

Figure 9





Intervention 15 - F81 to F86 post-excavation plan

Scale 1:100



Figure 10

Context	Identity	Feature	Description	Munsell	Date
1208	backfill and electricity cable	83	dark greyish-brown silty-clay overlying electricity cable	various	20th
1209	backfill and ceramic pipe	84	dark greyish-brown clay overlying coarse concrete and ceramic sewer pipe	various	20th
1210	backfill and ceramic drain	85	dark brown silty-clay overlying ceramic horseshoe type drain	various	19th
1211	backfill and ceramic drain	86	dark brown silty-clay overlying ceramic horseshoe type drain	various	19th

Table 8 Intervention 15 - summary of feature records

Feature	Identity	Contexts	Description	Profile
81	service trench	1207	linear service trench, orientated approximately NNE-SSW, minimum length 16.0m, no other dimensions visible	not seen
82	service trench	1205, 1206	linear service trench, orientated NE-SW, no dimensions visible	not seen
83	service trench	1208	linear service trench, orientated NNE-SSW, 0.40m x 0.30m deep	U-shaped
84	service trench	1209	curvilinear service trench, 3.0m visible length x 0.30m deep	not seen
85	field drain	1210	linear land drain orientated NE-SW, visible length 2.0m x 0.35m wide x 0.25m deep	V-shaped
86	field drain	1211	linear land drain orientated NW-SE, visible length 4.5m x 0.20m wide x 0.25 deep	not seen

4.0 DISCUSSION

The results of the Phase 2 evaluation can be divided into four main phases of activity (Table 9); some sub-phases are inferred from residual material, while others are encountered in most interventions and corroborate the results of the Phase 1 evaluation. The site phasing is based primarily on stratigraphic relationships and ceramic dating, although where necessary, CBM dating has provided supplementary dating evidence.

Table 9 Summary of phasing

Phase	Broad date range	Character of activity
0 - geology	-	natural subsoil
1a - Roman	1st to early 2nd century	funerary
1b - Roman	late 1st to mid-2nd century	domestic occupation
2a - Medieval	mid-11th to mid-13th century	domestic occupation
2b - Medieval	mid-13th to 15th century	ridge and furrow cultivation
3 - Post-medieval	mid-16th to 19th century	horti-/agricultural activity and residential occupation
4 - modern	20th century	residential and educational occupation

4.1 PHASE 0 - geology

Natural subsoil was encountered in all four interventions and consisted predominantly of a yellowish-brown weathered clay veined with bluish-grey clay. It was encountered at between c.11.30m AOD to the west in Intervention 12 to c.11.80m AOD to the east in Intervention 14. This reflects the subsoil topography encountered during Phase 1 evaluation, where levels were seen to rise from Heworth Green towards the River Foss.

4.2 PHASE 1a - Roman cemetery

Calcined human bone

As in the Phase 1 evaluation, no intact burials or primary funerary deposits were encountered during evaluation, although two features of Roman date contained residual and eroded fragments of calcined human bone (F63 and F77). To date, a total of six features and three deposits have produced residual calcined human bone, five of which are Roman in date. The evidence seems to suggest that Heworth Croft was the site of an early cremation cemetery, which probably began in the late 1st century, was short-lived, and was disturbed by almost contemporary Roman occupation. Occupation is suggested by the ditches and truncated pits allocated to Phase 1b, which contained residual bone and would not normally be juxtaposed with a cemetery, since Roman burial was normally distanced from settlement, particularly in an urban context. This suggests that the site was used briefly for burial and many graves were disturbed directly by subsequent Roman activity.

Ceramic assemblage

In addition, the composition of the Roman ceramic assemblage from the site, dated slightly earlier than the ceramic from the Phase 1 evaluation, i.e. late 1st to early 2nd century, included vessels which are commonly found in cremation cemeteries of this date. Greyware and Eboracum ware jars and flagons, as well as imported Samian dishes and bowls, are among the vessels which could have been used as urns or as accompanying offerings. The rim of an *unguentarium* (Plate 10), which may well be a continental import, belongs to a family of vessels often found in bathhouses or in cremations, and probably contained some sort of ointment which could have been placed in a grave or used as a libation. This is complemented by a sooted pedestal base of a *tazza* recovered during the Phase 1 evaluation (Plate 11). *Tazze* are vessels associated with the burning of incense and could have been used in a religious ceremony. Sherds within the assemblage are generally considered to be from 'sherd families', conjoining sherds representing a few complete vessels, rather than many sherds from many vessels. This phenomenon can occur either from the primary dumping of domestic waste, but would also be consistent with complete cremation urns which have suffered post-burial disturbance.



Plate 10 *Unguentarium* from F63 (1:1)

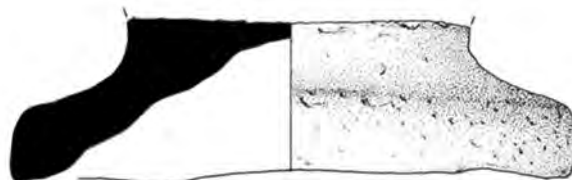


Plate 11 *Tazza* from F39 (1:1)

The date of burial at the site suggested by ceramic dates is late 1st to early 2nd century. Only the South Gaulish Samian and some greyware suggests an earlier date, although since Samian was a highly-prized fineware, its refuse context can be up to 50 years later than its production date. Its presence might also indicate an earlier start date for the cemetery than has previously been posited. In both phases of evaluation, no ceramic later than the mid-2nd century was recovered. Calcined bone has been recovered from all areas of the site and no concentrations are detectable within the distribution.

4.3 PHASE 1b - Roman occupation

Roman occupation consists of the truncated and shallow pits encountered in Intervention 14 in the northeastern corner of the site closest to the River Foss, and additional features can be included from Phase 1 evaluation. The ceramic profile of these features could be seen to be consistent with occupation refuse as well as funerary vessels. Some sherd families were present and included sherds displaying evidence for use as cooking vessels, and most notably, the presence of a mortaria sherd family is not reconciled easily with funerary activity. In addition, the growing assemblage of Roman CBM including brick, tegulae and imbrices are consistent with Romanised building. It is likely that occupation took place towards the later part of the Phase 2 date bracket, but continued no later than the mid-2nd century; some sequence is hinted at in the ceramic assemblage but the evidence is equivocal.

No evidence was found to suggest the existence of the remains of a Roman road within the site. Due to the presence of several mature trees protected by tree preservation orders, it was not possible to position Intervention 12 to intercept the projected alignment of the possible Roman ditch identified during the Phase 1 evaluation (F37, Intervention 3).

4.4 PHASE 2a - Medieval occupation

No activity is detectable at the site between the mid-2nd century and the mid-11th century. This long period of abandonment is broken by evidence for medieval occupation in the form of the truncated pit and posthole in Intervention 12, in the southwestern corner of the site. Gritty ware contained within the truncated pit F57 provides a date bracket of 1050 and 1250, and nine other sherds were also present in the assemblage, as well as potentially contemporary glazed wares. Large and cross-joining sherds of Brandsby-type and Humber ware are suggestive of site occupation and are not consistent with plough-abraded sherds.

During the medieval period, the parcel of land on the north side of Heworth Green, now partially represented by Heworth Croft, is thought to have been part of an estate. This estate is recorded in the 16th century, but very likely existed before this time, possibly as part of the garth or precinct of St Leonard's hospital. Intervention 12 is situated in the southwestern part of the area of investigation, and close to the site of the gatehouse of the hospital (FAS_ybc01) on the south side of Heworth Croft. It seems possible that, if the site did form part of the hospital garth, the occupation in Intervention 12 is related, and that the garth was naturally cradled by the course of the River Foss to the west and north.

The presence of CBM in the form of brick and roof tile (plain, peg and ridge tile) has been accumulatively recorded from both evaluation phases. Certainly some fragments, particularly those contained in overlying

furrows F55 and F56, could have derived from F57 and F58 from the plough erosion of these features. Site-wide, some could equally have arrived at the site in nightsoil manuring of the ridge and furrow cultivation.

4.5 PHASE 2b - Medieval cultivation

The Phase 1 evaluation encountered a system of ridge and furrow cultivation in most areas of the site and this was further substantiated by Interventions 12 and 14. Ceramic contained within the furrows provides a date of mid-13th to 14th century for nightsoiling activity during the use of the fields, a date which can be pushed into the 15th century by ceramic dates from the furrows in the Phase 1 evaluation. The results from the Phase 2 evaluation have also allowed a more accurate predictive map of the layout of the ridge and furrow system in the southwestern area of the site.

The Phase 1 evaluation recovered residual calcined human bone from features of medieval date, although it should be noted that features of Roman date were close by. While medieval features often contained residual Roman material, the primary disturbance of the cemetery may not, as has previously been assumed, be the result of medieval ploughing, but is more likely to be a result of Roman occupation.

4.6 PHASE 3 - Post-medieval activity

Post-medieval activity is characterised only by the presence of locally produced flowerpot and Ryedale ware pottery, recovered from the buried soil or overburden encountered in all interventions (Int.12, C1155; Int.13, C1185; Int.14, C1213; Int.15, C1204). These wares provide a date of the mid-16th to mid-18th century. The overburden is thought to derive from the levelling of the ridge and furrow cultivation, and where encountered, the furrows are certainly sealed by the overburden which contains residual medieval material. This corroborates the results of the Phase 1 evaluation, which also detected the presence of post-medieval overburden in all areas of the site. The general paucity of ceramic from this period has been used to suggest that the area was used as pasture, hence the lack of manure-borne material; the presence of flowerpot also suggests some horticultural activity was undertaken.

The land drains encountered in Interventions 12, 13 and 15, relate to a land drainage scheme of the mid-19th century and could relate to construction and landscaping for Queen's Villa. In Intervention 12, the drains appear to respect the line of underlying medieval furrows F55 and F56 (see Figure 3), which may have been visible still as shallow but extant earthworks. This suggests that the overburden derives from slowly eroding and infilling furrows and ridges rather than a deliberate and coherent levelling operation during the post-medieval period.

4.7 PHASE 4 - Modern activity

Modern activity was confined to Interventions 13 and 15 and consisted of foul, gas and electricity services and features such as low walls and kerbs. Both interventions were close to a recently used building and the network of services is not surprising. The archaeology in Intervention 13 was severely truncated by these services, and was absent from Intervention 15.

5.0 ASSESSMENT

The nature of the early Roman ceramic assemblage and the presence of calcined human bone from both phases of the evaluation strongly suggest that a late 1st to early 2nd century Roman cremation cemetery was present on the site. The distribution of disturbed early Roman pottery and calcined human bone do not suggest any obvious *foci* for this possible burial activity. While the results of the Phase 1 evaluation indicated that the medieval ridge and furrow cultivation of the area was responsible for the destruction of the cemetery, the Phase 2 evaluation demonstrated that later Roman activity on the site played a major role in the disturbance of burials. Given the extent of evaluation trenching of the site, and the complete lack of *in situ* burials, it is unlikely that any early Roman cremations have survived partially, or wholly intact.

Once again, no evidence for the presence of remains of the putative Roman Road was identified. Although the results of the evaluation are not totally conclusive in this respect, it would seem unlikely that significant remains of the road survive within the development area.

The results of both the Phase 1 and 2 evaluation confirm that the site has very limited potential for developing our understanding of medieval and post-medieval activity in the area. However, the evaluation has demonstrated an interesting change in land use during the Roman period.

6.0 ARCHIVE

An assemblage of 347 sherds of Roman, medieval and post-medieval pottery was recovered during fieldwork and has been the subject of a specialist assessment. The *unguentarium* rim was recommended for illustration and this has been undertaken (see Plate 10). A medium assemblage of 20.86kg of Roman, medieval and modern CBM has been the subject of a full catalogue and disposal policy and no further analysis is recommended at present. A small assemblage of hand-collected animal bone has been the subject of a zooarchaeological assessment. Seven fragments of calcined human bone has been the subject of an osteological assessment.

The archive is currently held by FAS. A paper and electronic copy of this report will be deposited with the City of York Council.

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**APPENDIX A SCHEME OF ARCHAEOLOGICAL EVALUATION AND MITIGATION:
EXCAVATION, WATCHING BRIEF AND REPORTING
Mike Griffiths and Associates**

Preamble

The site has recently been used for educational purposes. It is the subject of a current planning application to redevelop it for residential purposes (City of York Council ref. no. 04/01208/FUL). The site has been the subject of an archaeological evaluation which revealed the presence of a number of Roman features and indicators of the presence of a Roman cemetery.

The quality, degree of survival, potential and value of the archaeological deposits varies across the site. The most significant feature so far identified by archaeological evaluation is the presence of relatively well-preserved Roman cut features. The potential also exists for some survival of in situ Roman burial remains which have escaped the destructive impact of medieval agriculture and later landscaping and building works.

The mitigation strategy has been designed to reflect this variety and ensure that where the proposed new development will impact upon areas apparently unaffected by college buildings, all significant archaeological deposits are preserved by record. Where health and safety considerations permit controlled public access to the excavations will be permitted. The results of the excavation will be published in an appropriate form including a web page.

1.0 PLANNING BACKGROUND

It is proposed to develop the site for residential use. Discussions have been held with the planning authority and the following represents a scheme of archaeological evaluation and mitigation agreed by them in accordance with the current archaeological policies of the City of York Council.

2.0 THE HISTORY OF THE CURRENT SITE

The site is centred at SE 6102 5261 and has been used for educational purposes until recently.

By 1852 when the first OS map was published the site was occupied by two large buildings and their landscaped gardens.

The form of the current building layout and observations made during archaeological evaluation and geotechnical survey suggest that the site has been considerably remodelled since that date.

3.0 ARCHAEOLOGY OF THE IMMEDIATE VICINITY

The site is located in Heworth some 1.5km to the northeast of the centre of York. No evidence of prehistoric activity has been found in the immediate vicinity. It lies along the route of Roman road number 3 and evidence of a Roman cremation and inhumation cemetery has been found to the northeast. A small Anglian cremation cemetery was found to the north of the site.

4.0 THE ARCHAEOLOGY OF THE CURRENT SITE

The evaluation revealed four distinct phases of activity from the Roman to the modern period. Roman activity was represented by a wide ditch running roughly parallel with Heworth Green as well as fragments of cremated human bone and abraded sherds of Roman pottery suggesting the existence of a ploughed out cremation cemetery in the vicinity. The ditch may represent one side of the road.

Medieval activity was contacted in the form of several shallow furrows crossing the site as well as a possible boundary ditch. Sealing this were a number of post medieval agricultural or horticultural layers as well as several modern deposits associated with the construction of a 19th century villa on the site.

5.0 THE PROPOSED DEVELOPMENT

The development will include the demolition of the educational buildings, erection of new residential building blocks, improvements to the access from Heworth Green, formation of a car park and associated landscaping.

6.0 MITIGATION STRATEGY

The site evaluation undertaken in 2003 combined with the results of the geotechnical survey, also in 2003, has clearly shown that the archaeological potential and degree of survival of the archaeological deposits varies across the site. Medieval agriculture, 19th century development and landscaping, and 20th century development of the college and its grounds appear to have removed much of the evidence of the Roman cemetery. There is some evidence, however, that more deeply cut Roman features such as boundary ditches survive, though badly truncated. *In situ* and disturbed human remains may also survive.

To ensure that an appropriate record is made of the archaeological deposits on the site, the following scheme of ground investigation and watching brief will be undertaken. Refer to Plan 1 for their approximate locations.

Intervention 12 includes part of the footprint of a proposed new building. This extends to approximately 85 sq metres.

This area will be totally excavated prior to any development commencing and a full record made of all the archaeological features and deposits identified.

The results will be analysed and form part of a published record of the archaeology of the site.

Intervention 13 includes part of the footprint of a proposed new building. This extends to approximately 145 sq metres.

This area will be totally excavated prior to any development commencing and a full record made of all the archaeological features and deposits identified.

The results will be analysed and form part of a published record of the archaeology of the site.

Intervention 14 includes part of the footprint of a proposed new building. This extends to approximately 80 sq metres.

Watching Brief

The presence of disturbed human remains in the topsoil will require that operations involving removal of topsoil and overburden, which may reveal human remains, are the subject of a watching brief to ensure their correct identification and collection for analysis and subsequent reburial.

7.0 THE SCHEME OF ARCHAEOLOGICAL INVESTIGATION

The scheme of archaeological works outlined below will provide an adequate response to the proposed development.

7.1 Site Investigation – Ground Investigation

Where topsoil or overburden is to be removed from any area this will be done using an appropriate mechanical digger

employing a toothless bucket and the operation will be carried out under direct archaeological control and supervision. These deposits will be removed by this method down to the highest surviving archaeological features and deposits or to the top of the natural subsoil, whichever is the higher.

The surface of this will be cleaned wherever it is revealed and the fill of any modern intrusive features removed.

Thereafter the archaeological features and deposits will be examined by hand according to a previously agreed sampling procedure in accordance with the scheme outlined below.

7.2 Sampling of Archaeological Features and Deposits

Where substantial or significant deposits or features are identified they will be treated as follows:

Excavation of any potential pre-modern features will be hand sampled to a degree that will achieve the objective of determining their chronology, and the function of the site and its various components. Sampling and recording strategies will take account of and reflect any potentially multi-phased nature of the occupation.

A minimum of 20% of the deposits within linear features such as boundary ditches or drainage features associated with domestic, agricultural, industrial or funerary enclosures, or fields, or thoroughfares, will normally be removed and examined to characterise and date them. Additional quantities may be removed to achieve these objectives and to collect and process bulk samples. This may be extended to 100% recovery of the deposits where in situ preservation is not possible. The deposits at the junctions of, or interruptions in, linear features such as boundary ditches, house enclosures etc. will always be totally removed over a sufficient area to determine the nature of the relationship between the components.

Other discrete cut features such as postholes, pits, or isolated trenches will be normally half sectioned to define and record their form, and determine their date. This will be extended to total excavation of such features in areas where in situ preservation is not possible or the interpretation of the feature requires total removal of the deposits.

In the case of sunken-floored buildings, wall settings, bell pits, kilns, burials, storage pits or other identifiable domestic, industrial, or funerary structures or buildings, these should normally be excavated in plan.

Any examples of a domestic, industrial, agricultural or funerary structure or building such as huts, barns, kilns, gateways, causeways, working hollows, floor levels, and hearths will be excavated to a degree whereby its nature, form, chronology, function and relationships can be determined. If necessary this will involve 100% examination and recovery of deposits from the visible feature.

The site forms part of a known Roman cemetery and the evaluation has confirmed the presence of disturbed burials. A Home Office licence to remove the burials will be obtained in advance of the archaeological works. The remains will be totally excavated and carefully removed according to the instructions issued by the Home Office.

Built structures such as walls will be sampled to a degree whereby their extents, nature, form, chronology, function and relationship to other features or deposits can be determined. This will include total removal for recording and analysis purposes where the structure will not be preserved *in situ*.

All excavated features will be recorded textually, graphically and photographically. The record system will be an integrated one.

Where appropriate and necessary for the dating of features they will be subject to the application of appropriate scientific dating techniques *in situ*. Sampling for environmental purposes will allow for the collection of bulk samples from each area

or more specific sampling subject to specialist advice; see below 7.4. Samples will also be recovered to permit a full and appropriate range of dating methods to be applied.

Every reasonable effort will be made to preserve the archaeological integrity of the sites against unrecorded damage or loss during excavation. This will apply to working techniques and site security.

Appropriate safety standards will be maintained during the archaeological site works.

The work will be professionally monitored on a regular basis.

Controlled public access to the archaeological site works will be permitted where health and safety considerations permit.

7.3 Site Recording

A site grid will be established and corrected to the British National Grid. Site co-ordinates will be recorded and reported in National Grid format.

The sites will be accurately tied into to a detailed local topographical survey.

The sites will be recorded using an approved standard system of context and other record forms or an on-site computer based system or an amalgam of both. Any form-based system will be transferred to a computer-based system.

Planning of features will be at scales of 1:10, 1:20 or 1:100; sections will be recorded at a scale of 1:10.

All finds will be recorded before they are removed from the sites and an inventory maintained on site of the nature and location of all artefactual or ecofactual material and environmental or other samples.

A series of indexes, capable of interrogation, will be maintained for all site records along with a working site matrix.

Appropriate treatment and storage methods will be employed on site to ensure that the finds and site records are maintained in the optimum conditions. These arrangements will be discussed and agreed with the proposed recipient museum before site works commence. An accession number will be obtained from the proposed recipient museum and used as part of the site recording scheme.

The archaeological works will be professionally monitored, and audited, on a regular basis. See below for specific arrangements.

7.4 Specialist Advice

Specialist consultancy services will be secured, as necessary, to advise on any Prehistoric, Roman, Anglian and medieval material from the site, scientific dating techniques, environmental matters, and the conservation of artefacts.

7.5 Site Archive

After completion of the field investigation all records will be indexed, ordered, quantified and checked for consistency.

Context, finds, sample and other paper-based records will be transferred to an integrated computer based system. The system will be capable of maintaining an audit track of all records and finds in the system, including those being analysed by external specialists. It will also be able to produce data files that can be handled by a relational database.

The drawn record will be digitised in an appropriate format that will permit the output of standard DXF files.

The archival record will include all material relating to the sites and their excavation including correspondence, written, drawn and computerized records. The site archive will be curated to allow transfer to an approved and appropriate museum on completion of any publication programme.

As part of the preparation for the Post Excavation Assessment, the artefactual, ecofactual and samples will be quantified and described. In addition the stratigraphic matrices and a site summary will be prepared.

7.6 Post Excavation Assessment

The Post Excavation Assessment will summarise the results of the evaluation, the results of specialists' work and quantify the archive.

It will assess the success of the evaluation in meeting the terms and objectives of the specification.

It will identify any additional research objectives that could reasonably be met from the archive.

It will describe the programme of post excavation work required to meet and publish the research objectives, including any additions to the objectives identified during the assessment.

It will contain adequate detail and discussion to permit critical examination by the monitors, other specialists and academic referees.

It will be provided in a written form and include a proposal and timetable for completion of the archive to MAP 2 standards, deposition of the completed archive and submission for publication of a final report.

7.7 Post Excavation Processing

The results of the excavation will be processed and researched according to an agreed programme identified by the approved Post Excavation Assessment.

A full artefactual, ecofactual, written, graphical, photographic and computerized archive will be prepared to approved standards as agreed with the recipient museum.

Assessment and analysis of unpublished information and the results of related work in the immediate area will be included in the post excavation programme for incorporation in any final site report.

The final report will include a full account of the excavation and the outcome of research into those results and associated data. It will be subject to external academic refereeing.

7.8 Transfer and Deposition of the Archive

The transfer and deposition of the complete archive of the sites will be in accordance with current guidelines, subject to confirmation by the owner.

Copies of selected textual, graphical, digitized and photographic material will be deposited with the local SMR and the National Monument Record.

7.9 Publication

The results of the excavations will be published in an electronic format and as appropriate national or local academic journal (or journals) dependent upon the results of the work.

7.10 Monitoring

The Local Planning Authority (LPA) will wish, through its archaeological advisers, to be involved in the process of site monitoring. Facilities will therefore be afforded to their nominated archaeological representative to be directly involved in the discussions on such matters as they arise during the course of the archaeological works.

Professional archaeological monitoring will be maintained during the course of the excavation, assessment, post excavation, publication and other related works until final transfer of the completed site archive into the care of an agreed and approved museum. This monitoring will be undertaken in conjunction with a designated representative of the LPA.

Bellway Homes Ltd or its nominated representative will undertake audits of both the excavation and post excavation processes and report their results.

Regular monitoring meetings will be held by Bellway Homes Ltd, their nominated representative, and the archaeological contractor in order to provide an opportunity to review progress of site works and any post excavation programme. Representatives of the LPA and recipient museum will be formally invited to attend and contribute to the meetings.

An initial meeting will be held on the first day of the site works and at regular intervals during the course of the excavation. A meeting will be held on or close to the final day of site working. Subsequent meetings will include at least one to examine the results and proposals of the Post Excavation Assessment, and at least one other to monitor progress on the archiving and publication.

Additional spot checks by Bellway Homes Ltd, the CNR, or designated representatives of the LPA will take place after due notice has been served on the Archaeological Contractor.

7.11 Community Involvement

City of York Council has a stated policy seeking to promote the use of the archaeological resource as an educational and cultural resource for the people of York. In accordance with this policy it is proposed that, subject to any limitations imposed by Health and Safety considerations that:

Information on the excavation will be made available on a dedicated web page which will be regularly updated during the course of the excavation.

Talks will be offered to local schools and an invitation may be extended for them to make private visits to the site.

It proposed to offer direct public access to the site on at least one specific day if the nature of the findings are considered adequate to justify it.

The results of the excavation will be published on a dedicated web page.

8.0 CONCLUSION

The site contains significant, though substantially truncated, archaeological deposits. These will be preserved both *in situ* and in record form in accordance with this scheme of mitigation, any mutually agreed variations to this scheme, any additional mitigation strategies, and additional individual schemes of archaeological recording that may agreed for specific zones within the site.

9.0 HUMAN SKELETAL TAPHONOMY (Malin Holst)

Human skeletal taphonomy depends on a number of complex intrinsic and extrinsic factors, which are often interrelated. Intrinsic factors include the shape, size and density of the bone (Henderson 1987, 44), as well as the age, sex and pathology of the individual. When a body is placed in the ground, it is the centrepiece of a newly emerging micro-environment. It provides a food source and may cause chemical and temperature changes in its immediate environment (Sorg and Haglund 2002, 5). These processes are dependent on the existing extrinsic environment, which includes elements such as the biosphere, lithosphere and atmosphere, all of which interact (*ibid*). The speed and severity of the taphonomic changes is much greater while the soft tissue persists, slowing down upon skeletonisation.

9.1 Intrinsic taphonomic factors

Larger or denser bones survive considerably better in the burial environment than smaller ones, or those containing more spongy bone. Waldron (1987) has been able to map which bones may be expected to survive in a burial in most cases, and which bones tend to be least well represented. The sex of the individual also influences bone survival: male skeletons, usually being more robust than those of females, are more likely to survive intact in the burial environment. Age is another important factor in skeletal preservation, as the bones of children are much more gracile and therefore fragile, while skeletons of older people suffering from osteoporosis (bone loss) are also prone to deterioration. Other types of pathology, such as cancer, may also cause bone destruction, whereas bone forming pathological conditions, such as the bone callous that forms at fracture sites, may aid preservation of the affected part.

9.2 Extrinsic taphonomic factors

Water is the most important agent in decay of human remains, especially when the water level fluctuates, therefore causing a constantly changing environment (Brothwell 1981). Several studies have found that bone affected by water 'weathering' becomes more fragile than bone found in a consistently waterlogged or dry environment (Littleton 2000, 15).

Soil type is, of course, another important factor in human bone preservation. Bone condition is usually better in soils with a neutral or slightly alkaline pH, than in acid soils (Henderson 1987, 46). High acidity acts by dissolution of the inorganic matrix of the bone, thereby leaving only the organic matrix (*ibid*). This causes a distinctive type of burial preservation such as those of the famous sand bodies at Sutton Hoo. However, well preserved skeletons have also been found in acidic soil environments, suggesting that factors influencing skeletal preservation are complex.

Further extrinsic factors are soil movement above and around the burial, which can alter the burial depth or burial environment, and therefore alter the factors determining preservation. Additionally, physical pressure on the bone from buildings or heavy machinery can produce bone crushing (especially in areas of voids such as of crania) and bone warping, thus causing fragmentation.

The rate of nitrogen lost from bone is dependent on temperature. It has been found that the rate of chemical reaction is doubled with every increase of 10°C, which causes greater rates of decay in warmer environments than in cold ones (Henderson 1987, 47). Temperature is therefore a vital factor in bone preservation (*ibid*). Oxygen is also needed for body decomposition, and without it, decay is slowed down considerably, such as in bog bodies.

All manner of flora and fauna can have an effect on skeletal preservation. This can take place via direct attacks on the bone from bacteria, fungi, plant root destruction or rodent gnawing, insect or snail damage (Henderson 1987, 48). Indirect attacks include disturbance of bone from burrowing animals and plant roots, or spreading of bones over a wide area by the actions of scavengers.

Finally, the human effect on skeletal taphonomy must not be understated. This begins with the manner of funerary ritual (exposure, cremation, burial, sea burial, mummification) and culminates in modern changes of the burial environment

(change in water table, landscaping, etc.). Collins (*pers. comm.*) has found that the gut bacteria in articulated burials act as a severely destructive force upon bone during the first two years following burial. Thus, skeletal remains which were immediately disarticulated following death are usually much better preserved than articulated skeletons. The depth of the burial, whether the body was clothed and buried in a coffin, the type of coffin and the amount of organic material in the grave also have a considerable affect on the initial decomposition of the body.

Later human intervention, such as a change in the use of a site, ploughing, chemical usage, changes of the water table and disturbance of all, or part of the burial can accelerate decomposition.

The effect of cremation on human bone

Unburnt human bone has organic and inorganic components. In the burial environment, most of the organic elements are lost relatively rapidly, thus only leaving the inorganic component (calcium phosphate). However, this process is dependent on the soil type and generally occurs in alkaline sediments (high pH and calcium level). In acidic or neutral environments, the inorganic elements are soluble (Carter *pers. comm.*).

'Cremated bone becomes calcined, when a pyre is tended to achieve a temperature of at least 500°C over a period of seven hours' (McKinley 1989). The skeletal remains left over following the cremation process represent a largely intact skeleton, although the bones may be broken up if they are subject to raking while still hot (McKinley 1994, 340). Cremated bone however, tends to suffer from heat-related cracking and warping. The process of burning means that the organic component is lost through oxidation and the inorganic component is re-crystallised into a more stable state. Weathering may cause further fracturing along heat-related cracks or surface abrasion from movement of the bone largely because the mineral portion of the bone survives following cremation. However, taphonomic processes rarely destroy the actual structure of cremated bone, unlike that of unburnt bone. As a result, cremated bone survives better in most burial environments than skeletal remains from inhumations.

9.3 Effect of ploughing or landscaping on taphonomy

Land cultivation has involved the same major criteria for hundreds of years, although the technology has changed considerably. Basic agricultural techniques include primary tillage, seedbed refining, fertilising and pest control (Haglund *et al* 2002, 134). While some activities, such as tillage and seedbed refining may disturb skeletal remains physically, fertilising and pest control can alter the chemistry of the burial environment.

The physical impact to the burial environment is worst in cases of the most considerable soil movement. This may include the ploughing of medieval ridge and furrow, whereby over the years, the furrows become increasingly deep, with soil movement onto the ridges, or during modern deep ploughing, which may reach to a depth of 36" if subsoil ploughs are used (*ibid*, 135). With both techniques, the plough cuts through buried, or displaces bones both horizontally and vertically. This not only results in eventual loss of the burial context and therefore the inability to identify the original grave, but also causes fragmentation and erosion to the bone, as a result of its movement in the soil, and sharp and blunt force trauma from encounters with stones or plough blades. Furthermore, crushing of bone may occur from the weight of machinery used or from cattle trampling.

Studies of artefacts in plough zones have identified a number of patterns: during fieldwalking exercises, surface distributions of artefacts have been used as reliable indicators for subsurface distributions, with the greatest concentration of artefacts near the original site (Haglund *et al* 2002, 139). The distance of movement is affected by the duration and direction of tillage, local topography and by the size of the object (*ibid*, 140). Different researchers have found that approximately 6.63% of the subsurface assemblage would be represented on the surface following average ploughing, with artefacts re-appearing at the surface every six to seven years (*ibid*). Larger objects are more likely to be brought to the surface than smaller ones, although fragment size becomes more heterogeneous as the plough causes more and more abrasion and fragmentation (*ibid*).

Once the bone has been displaced to the soil surface, it is prone to weathering. An interesting study by Littleton (2000) has examined the effects of weathering on human bone in Australia. Despite the difference in climate, the study is also applicable to British burials. Littleton (2000) found that water weathering had a more severe effect on the bone than wind weathering, with gouging and erosion of the bone surface, longitudinal cracks and loss of trabecular and cortical bone. Additionally, alternate wetting and drying of bone caused severe fragmentation. Bone from wet environments was less mineralised than wind weathered bone, and the lack of mineralization also caused less good preservation. Wind damage, on the other hand, consisted mostly of polishing of the bone surface. The degree of weathering was strongly related to the length of exposure (*ibid*, 12). As a result, weathering following disturbance is a key element in taphonomic change.

The local chemical effects are also a major factor in decomposition. Chemicals added to fields include fertilisers, pesticides and herbicides, with manure also containing a high amount of bacteria and organic material (Haglund *et al* 2002, 138). As discussed above, cremated bone is much more chemically stable, and is therefore more prone to the physical effects of field cultivation (such as crushing and abrasion) than of chemical attack.

On sites where medieval ploughing precedes modern ploughing or landscaping, burials may be lost entirely following the exacerbated effect of long-lasting chemical and physical attack. Initially, the furrows of the medieval ridge and furrow field system will penetrate and disturb burials, especially if the furrows penetrate to or below the natural subsoil level. Over a period of time, the bone becomes increasingly displaced, fragmented, crushed and weathered. Once the field system is abandoned, erosion of the ridges may cause further exposure of the parts or of whole burials which had previously survived *in situ*. Later ploughing or landscaping then removes the ridges, and may penetrate down to the level of the subsoil with the aim of levelling the undulating landscape. Skeletal remains which had survived intact are then disturbed and suffer the effects of ploughing as discussed above.

In consequence, the different time scales of skeletal disturbance, different directions of displacement, changes in topography and agricultural techniques cause such varied displacement, that it may not be possible to reconstruct the location of original burials, nor be able to allocate isolated bones to specific individuals.

9.4 Quantification of minimum number of individuals

The count of the minimum number of individuals' (MNI) recovered from a cemetery is carried out as standard procedure during osteological assessments of inhumations in order to establish how many individuals were represented by the articulated and disarticulated human bones) without taking the archaeologically defined graves into account). The MNI is calculated by counting all long bone ends, as well as other larger skeletal elements, such as the hip joints and cranial elements. The greatest number calculated is the MNI

It is not possible to calculate the MNI for cremation burials, as only a token selection of bone from the pyre was typically buried. However, double burials can be identified, if skeletal elements are duplicated, or if skeletons of different ages are represented in one burial (Correia and Beattie 2002, 443).

If none of the original inhumation and cremation burials survive ploughing and landscaping, and it is only possible to identify single bone fragments in a secondary context, the only possibility to calculate a MNI for both burnt and unburnt bone is to identify duplicate anatomical elements, or elements belonging to individuals of different ages. However, if the skeletal fragments are tiny and interspersed, it is unlikely that even extensive or complete sieving of the site matrix would produce many duplicate skeletal elements.

If the original cemetery is extensively disturbed by ploughing, causing considerable horizontal and vertical displacement, abrasion and fragmentation of bone, it is unlikely that it is possible to gain an approximate estimate of the number of original burials at the site.

9.5 Chemical identification of original burial locations

A number of taphonomic processes may produce the complete loss of the skeletal remains. In such cases, it is unsatisfactory to speculate about the original location and quantity of burials, but would be more accurate to pinpoint the original burial using scientific tests.

Complete loss of the skeletal remains from the original site of burial may be found in two different scenarios: so-called 'empty' burials, or grave-shaped features which do not contain human remains, or those situations where severe truncation of the site caused total displacement of the skeletal remains (discussed above).

In the latter situation, the grave matrix will have been moved together with the skeletal remains, resulting in the complete loss of material which could have been used for chemical testing. As a result, chemical tests cannot be applied and bone scatter concentrations would be the best indicator for the original burial location (Carter *pers. comm.*).

The standard approach of testing for 'missing' bodies in suspected grave cuts is to measure the distribution and concentration of phosphate in the fills. Corpses represent substantial reservoirs of phosphate which tends to remain close to the point of burial. Two problems arise from this approach: false positive and false negative results (Carter *pers. comm.*). All biological tissues contain lots of phosphate, so there may be sources other than a human corpse for the phosphate (false positive). There are circumstances, where phosphate is mobile and can move away from the site of a corpse, or sediments may be present at the site, where phosphate levels are already high (old graveyards or some urban environments); so a single corpse cannot be detected (false negatives) (*ibid*). As a result, chemical tests are fraught with difficulty and may not provide accurate results.

The least expensive chemical test applicable is x-ray fluorescence (XRF), and more expensive tests include ion exchange and colorimetric methods (Collins *pers. comm.*). However, an initial assessment of the site, possibly by a bone and soil chemist, may indicate whether any chemical testing would be worthwhile.

9.6 Conclusion

The complex nature of taphonomic processes causing differential survival of skeletal remains, even within the same burial, means that it is difficult to assess the factors that contributed to differential preservation. The level of physical destruction then determines whether it is possible to allocate displaced skeletal fragments to original burials, or whether one has to rely upon duplicate elements to obtain an estimate of the original number of burials at the site. Similarly, the degree of chemical destruction together with the local environment predict whether it is possible to identify the burial chemically, or whether the identification is limited to any surviving archaeological evidence.

10.0 PALAEOENVIRONMENTAL AND INDUSTRIAL SAMPLING

The following provisions will apply as far as reasonably possible to all the types of archaeological investigation proposed. This is likely to prove most effective for the excavations, and of more limited application to the other types of investigation.

The sampling strategies employed may differ from area to area according to established research targets and the perceived character, interpretative importance and chronological significance of the strata under investigation, although they will initially be based on the methodology set out below.

Sampling strategies and appropriate sample sizes will be agreed in consultation with the appropriate specialists before the investigation begins.

Sampling strategies will include a reasoned justification for selection of deposits for sampling, and may be subject to modification in the light of results and conditions in the course of the investigation.

Bulk samples, normally on the order of 20-40 litres, will be taken for flotation for *carbonised plant remains* from datable deposits according to the agreed sampling strategy. Residues from the sample processing will be retained for recovery of small artefacts and bone.

Bulk samples, normally on the order of 10 litres, will be taken from significant datable waterlogged deposits for *insects and macroscopic plant remains*.

Subsamples or column samples of waterlogged deposits and sealed buried soils with potential for *pollen* preservation will be taken for analysis with the advice of the appropriate specialist.

Bulk samples, normally on the order of 2 kgs will be collected for *molluscs* if clearly present, and columns of such samples will be taken through deposits and buried soils where there is potential for recovering a datable sequence of environmental information.

Large bulk samples, on the order of 100 litres, will be taken from specific datable contexts in consultation with the appropriate specialist, for sieving to retrieve *animal bone*, and small finds. Bone will also be hand collected from datable unsieved deposits. Deposits particularly rich in bone will normally be excavated, recovered and sieved in their entirety, in consultation with the specialist.

Each deposit in *possible human cremations* will be recovered in its entirety, sieved to retrieve the cremated bone and any associated artefacts, and then processed by flotation to recover any associated charred plant remains.

Buried soils and sediments sequences will be inspected and recorded on site by a geoarchaeologist since field inspection may provide sufficient data for understanding site formation processes including environmental

11.0 RELATED INFORMATION

Maps Consulted

Yorke 1610 by John Speed.

Ordnance Survey 1852, Scale 1:1056: Sheet 5

Ordnance Survey 1852, Scale 1:1056: Sheet 6

Ordnance Survey 1891, Scale 1:500: Sheet 174/7/11

Ordnance Survey 1909, Scale 1:2500: Sheet 174/7

Ordnance Survey 1931, Scale 1:2500: Sheet 174/7

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APPENDIX B INDEX TO FIELD FILE

CODE		DESCRIPTION	RECORD	FORMAT
Indices				
YO1		Index of notebooks	-	-
YO2		Index of contexts	3	A4
YO3		Index of features	2	A4
YO4		Index of structures	-	-
YO5		Index of drawings	1	A4
YO6	0	Index of photographs	6	A4
	0	Index of film processing	1	A4
YO7	0	Index of finds	4	A4
	0	Index of finds by context	-	-
	0	Index of finds by grid square	-	-
	0	Sample Register	-	-
	0	Artefact Register	-	-
	1	Finds Storage Register	-	-
YO8		Index of geophysical data files	-	-
YO9	0	Index of survey stations	-	-
	0	Index of co-ordinate files	-	-
	0	Index of topographic files	-	-
YO10		Index of interventions	-	-
Y1		Notebooks		
Contexts				
Y2	0	Context Record	61	A4
	0	Skeleton Record	-	-
	0	Coffin Record	-	-
	0	Masonry Record	-	-
	0	Timber Record	-	-
Features				
Y3	0	Feature Record	32	A4
	0	Auger Record	-	-
Structures				
Y4		Structure Record	-	-
Site drawing				
Y5	0	Legend	-	-
	0	Plans	7	A1/A4
	0	Maps	-	-
	0	Sections	16	A1
Photographs				
Y6	0	Black and white negatives	51	35mm
	0	Colour negatives	83	35mm
	0	Colour slides	-	-
	0	Colour enprints	83	6"x4"
	0	Black and white prints	3	contact
Finds				
Y7	0	Finds Location Record	-	-
	0	Artefact Record	-	-
Survey				
Y8	0	Record of geophysical data files	-	-
	0	Record of .RAW data file	-	-
	0	Record of .FLD data file	-	-
	0	Surface Reconnaissance Record	-	-

APPENDIX C CERAMIC ASSESSMENT

Alan Vince and Kate Steane

1.0 INTRODUCTION

Following an archaeological evaluation at the former site of St John's College, Heworth Croft, carried out in 2003 by Field Archaeology Specialists, further archaeological evaluation was carried out, of which three interventions (Interventions 12, 13 and 14), produced pottery. Roman pottery ranging in date from the later 1st to the early 2nd century was recovered, followed by a collection of medieval pottery, probably mainly of later 14th century date but including a few earlier, late 12th to 13th century, sherds. Finally, there is a small quantity of early modern pottery, all of it flowerpot sherds.

2.0 DESCRIPTION

Most of the pottery recovered was very abraded and soft. This suggests that burial conditions were harsh and have chemically altered the sherds. The only exceptions are the early modern sherds, which are hard and have fresh edges. This is unlikely to be a true reflection of the firing temperature of the Roman and medieval pottery, which is usually much better preserved on sites in York.

2.1 Roman pottery

A total of 292 sherds of Romano-British pottery were recovered from the excavations. They were classified using the system adopted by York Archaeological Trust (Monaghan 1993; Monaghan 1997). Twelve different wares were recognised (Table 1), but the overwhelming majority of the pottery was of Eboracum 1 ware. Furthermore, both the few sherds of mortaria, greyware and rusticated ware present are also likely to have been produced at York. The remainder consist of unidentified oxidized and white-firing wares, sherds of Dorset Black Burnished 1 ware, sherds of burnished sandy ware which might be either Dorset products or copies (e.g. from Rossington Bridge, near Doncaster), two sherds of amphora and a number of sherds of samian ware, all of which are tentatively identified as South Gaulish in origin. One of the greyware sherds, the rim of a possible *unguentarium*, contains sparse polished quartz grains, of the type found in lower Cretaceous strata but absent from such deposits in Yorkshire where the only outcrops of this age occur in the Vale of Pickering and consist of glauconitic clays. Thus, this vessel is likely to have been a regional or continental import, which might suggest that it was imported with its contents as a container. This range of sources is typical of later 1st and early 2nd century assemblages in York.

The range of forms recovered is low, because the majority of the sherds are too abraded to be identified to form level (Table 2). They include large and small flagons, used for communal drinking, bowls, mainly of types likely to be used for dining, platters, also used for dining, jars, some of which were definitely used for cooking and have soot coating, the *unguentarium*, and two amphora sherds. There is perhaps a higher concentration of drinking and dining vessels in the assemblage than might be found in assemblages of this date from within the fortress (e.g. from the Minster Library or Blake Street, Monaghan 1993) but the size of the identifiable assemblage is perhaps too small to support this statement.

2.2 Medieval pottery

Forty-nine sherds of medieval pottery were recovered. They were classified according to the system used by York Archaeological Trust (Holdsworth 1978; Brooks 1987; Mainman 1990, Table 3).

Nine sherds of York Gritty ware were present (YG), all from jars used for cooking. This ware was introduced in the later 11th century but continued to be used for much of the cooking pottery used in York into the 13th century. Four sherds of York Glazed ware were identified (YORK). This ware was produced from the later 12th to the mid-13th century, probably in the same area of north Yorkshire which supplied Brandsby-type ware (BRAN), which is the second most common ware present in the collection. One of the York Glazed ware sherds is decorated with horizontal grooves. The Brandsby-type

ware sherds include jars and jugs. The jug sherds include a rod handle and two sherds with rectangular roller stamping. Twenty-two sherds of Humberware were present (HUM). This ware is first found in York in the early to mid-14th century and during the later 14th century supplied an ever-increasing proportion of the pottery used in the city, at the expense of Brandsby-type ware.

2.3 Post-medieval pottery

Three sherds of Ryedale ware were present. All come from bowls. This ware was used in York mainly in the 16th century but may have been current in the later 15th and early 17th century as well.

2.4 Early Modern pottery

Three sherds of flowerpots were recovered, all produced in a fine red-firing earthenware, probably of local origin (PMLOC).

3.0 ASSESSMENT

3.1 Intervention 12

Pottery was recovered from the topsoil, the buried soil, two furrows (F55 and F56) and a scoop (F57). Sixteen sherds of Roman date were recorded. They are mainly from the buried soil and the topsoil and eight sherds from one of the furrows (F56). They include no definite 2nd century pieces.

The pottery from scoop, F57, consists of a single sherd of York Gritty ware, suggesting a later 11th to 13th century date, whereas the assemblages from the two furrows, the buried soil and the topsoil all include Humberware sherds. These include sherds of unglazed drinking jugs from the soils, suggesting a later 14th century date.

3.2 Intervention 13

One hundred and thirty-four sherds of pottery were recovered from Intervention 13. All but three of these are of Roman date. They come mainly from Pit F63 and are likely to form an early 2nd century assemblage, dated by the presence of black burnished wares (but no definite Dorset sherds) alongside types current only the later 1st to early 2nd century (e.g. Rustic ware jars and South Gaulish samian ware).

Layers C1070 and C1169 both produced sherds of Roman date of similar character to those recovered from the pit. The non-Roman sherds consist of flowerpot sherds, which include one from Pit F63, one from C1070 and one from the fill of the modern sewer pipe trench, F64.

3.3 Intervention 14

One hundred and seventy-four sherds of pottery were recovered from Intervention 14. Of these, one hundred and fifty-nine were of Roman date. Five features produced assemblages containing only pottery of Roman date. These are F73, F76, F77, F79 and F80. However, most of the sherds from these deposits are very small and abraded although they do include large sherds of mortaria and amphora.

The fill of furrow F75 produced a small assemblage datable to the early 2nd century or later whereas the fills of putative Roman ditch F74 produced sherds of Roman pottery mixed with later 14th century or later sherds (contexts 1188 and 1189). The latter were, however, small and few in number and may therefore be intrusive. However, it is possible that in fact F75 is of Roman date and F74 is a medieval furrow.

The overburden, C1157 and C1213, produced sherds of Ryedale ware, dating the deposit to the 16th century or later.

4.0 CHRONOLOGICAL INTERPRETATION

The Roman pottery from all three interventions, both in stratified Roman deposits and residual in later features and layers

is consistently of later 1st to early 2nd century date. The latest sherds found are probably the Gauloise amphora sherd and the Dorset Black Burnished ware jar rim, both of which came from Intervention 14. However, this is unlikely to indicate a difference in the date of the Roman activity present between the various interventions. There is no obvious difference in the density of Roman pottery found in the three interventions.

Interventions 12 and 14 both have similar assemblages of medieval pottery, which include York Gritty ware, York Glazed ware and types current in the later 14th century; these are absent from Intervention 13, however. Given the long period of currency of York Gritty ware it is probable that the sherds from Heworth Court are of later 12th or 13th century date and contemporary with the York Glazed ware, although scoop F57 might indicate an earlier date.

There is a lack of pottery dating later with any certainty to the 15th century and only three sherds of 16th century date, all from Intervention 14. Similarly, there is no pottery of early modern date except for the sherds of flowerpot, all of which came from intervention 13.

5.0 SITE FUNCTION

It has been suggested that the Roman pottery from the site might be associated with disturbed cremation burials. Much of the pottery can indeed be paralleled in later 1st and early 2nd century cremation burials from York: Eboracum ware jars, and flagons, and Rustic ware jars, for example. Similarly, the Samian bowls and cups and the Eboracum ware platters are types which could have been present in such burials. The possible *unguentarium* is also a type which according to Monaghan is found in bathhouses and cremations. The size and nature of the sherds is also supportive of this interpretation, in that there are several examples of smashed vessels (sherd families) which either indicate that the site was used for primary refuse disposal or for burial, since in any other circumstances the sherds from a broken vessel would become dispersed and separated before burial. The only pottery which is not consistent with this interpretation, perhaps, is the mortaria, all three sherds of which came from Intervention 14.

The medieval pottery includes some examples of large sherds which do not fit the suggested interpretation of the site as being under the plough. The twelve sherds of medieval date from Intervention 14 are small and consistent with nightsoil being spread onto the fields (mean weight 10gm) but those from Intervention 12 include joining sherds and are larger, an average of 20gm for the Brandsby-type ware and 16gm for the Humberware. It is possible, therefore, that the medieval pottery, especially that from Intervention 12, represents refuse from occupation on the site which pre-dates the ridge and furrow agriculture.

6.0 FURTHER ANALYSIS

The *unguentarium* is an unusual vessel and it would be possible to pursue the suggestion that it is a non-local vessel, brought to York as a container. No other sherds require further treatment, although it would be possible to date the decorated samian ware more precisely through submission of the sherds to a specialist.

6.1 Retention

The majority of the pottery comes from stratified deposits and should be retained for future study.

6.2 Illustration

The *unguentarium* rim should be illustrated.

6.3 Publication

The pottery does not require publication in its own right but a report could be produced summarising the conclusions of this assessment if the site itself is to be published.

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Table 1

Cname	Broad name	Broad source	Narrow cname	source area	full name	Comments	NoSh	NoV	W (g)
YATAA	AMPH	Imported	Amphorae	imported	Unidentified amphora		1	1	3
YATAP27	AMPH	Imported	Amphorae	Western Mediterranean	Amphorae - Peacock and Williams - Gauloise 4		1	1	33
YATB00	BURNISHED	Unknown British?	Grey B.	Unknown British?	Misc Burn	Unknown burnished ware	5	3	75
YATB01	BURNISHED	Regional industries	BB1	Dorset	Black Burnished ware 1		2	2	31
YATE01	EBOR	York	Ebor	York	Ebor 1	Eboracum 1	231	225	1851
YATG00	GREY	Unknown British?	Grey	Unknown British?	Misc grey		2	2	60
YATG01	GREY	York	Grey	York	Local grey		32	31	303
YATM03	MORTARIA	York	Mortaria	York	Eboracum and local mortaria		3	3	208
YATO00	OXID	Unknown British?	Misc. Oxid	Unknown British?	Pentice moulded beakers		2	2	24
YATP00	'WHITE'	Unknown British?	'White'	Unknown British?	White	Misc white, off-white and cream fabrics	1	1	8
YATR02	RUSTIC	York?	Rustic	York?	Rustic 2	Local rustic ware	7	7	39
YATS01	SAMIAN	Imported	SGS	South Gaul	SGS	South Gaulish (mostly La Graufenesque)	19	18	136

Form	Description	NoSh	NoV	W(g)
?	Unknown	209	207	1032
27	Dressel 27 cup	1	1	2
27?	Dressel 27 cup?	2	2	5
37	Dressel 37 decorated bowl	10	9	104
AMPHORA	Amphora	2	2	36
BOWL	Bowl	4	3	42
BOWL/PLATTER	Bowl or platter	1	1	15

Form	Description	NoSh	NoV	W(g)
FLAGON	Flagon	19	17	399
FLAGON/JAR	Flagon or jar	2	2	79
FLANGED BOWL	Flanged bowl	5	1	115
JAR	Jar	28	28	499
JAR/FLAGON	Jar or flagon	1	1	88
MORT	Mortaria	3	3	208
PLATTER	Platter	1	1	24
REEDED BOWL	Reeded rim bowl	3	3	29
UNGUENTARIUM	Unguentarium	1	1	18
Grand total		292	282	2695

cname	full name	earliest date	latest date	NoSh	NoV	w(g)
YG	Yorkshire gritty ware	1050	1250	9	9	40
YORK	York glazed ware? York White ware	1150	1300	4	4	26
BRAN	Brandsby-type ware	1250	1350	8	8	138
HUM	Humberware	1250	1500	22	19	333
RYEDALE	Ryedale ware	1550	1700	3	2	30
PMLOC	Post-medieval local	1550	1750	3	3	35

Int	CNo	cname	NoSh	NoV	W(g)	Subfab	Form	Desc	Part	Use	Condition
12	1154	HUM	1	1	15		DJ		BS		SLIGHTLY ABR
12	1154	HUM	1	1	17		JUG/JAR		BS		SLIGHTLY ABR
12	1154	YATE1	2	2	19		?		BS		VABR
12	1154	YATE1	1	1	19		FLAGON		BS		VABR
12	1154	YATE1	1	1	56		FLAGON	THICK EXT BEAD; INTURNED LIP	R		VABR
12	1154	YATE1	1	1	49		JAR		B	SOME SOOTING EXT	VABR
12	1154	YATS1	1	1	1		?	FRAG	BS		VABR
12	1155	HUM	1	1	34		JUG/JAR		B		ABR
12	1155	HUM	1	1	4		DJ		BS		FRESH
12	1155	YATE1	1	1	34		JAR		R		VABR
12	1155	YORK	1	1	3		JUG	HORIZ GROOVES	BS		ABR
12	1158	BRAN	1	1	8		JAR		BS	SOOTED EXT	ABR
12	1158	BRAN	1	1	3		JUG	HORIZ ROULETTING	BS		ABR
12	1158	BRAN	1	1	36		JUG		B		SLIGHTLY ABR

Int	CNo	cname	NoSh	NoV	W(g)	Subfab	Form	Desc	Part	Use	Condition
12	1158	BRAN	1	1	20		JUG/JAR		BS		SLIGHTLY ABR
12	1158	HUM	1	1	11		JUG		BS		SLIGHTLY ABR
12	1158	HUM	3	3	14		JAR		BS		VABR
12	1158	HUM	2	1	102		JUG	HANDLE AND PART OF HANDLE TO BODY	H;B S		VABR
12	1158	HUM	3	1	34		JUG	PART OF HANDLE TO BODY JOIN	BS		VABR
12	1158	HUM	1	1	13		JUG/JAR		B		VABR
12	1158	YG	6	6	30		JAR		BS		ABR
12	1159	BRAN	1	1	35		JUG	ROD	H		ABR
12	1159	HUM	2	2	19		JUG/JAR		BS		SLIGHTLY ABR
12	1159	YATE1	8	8	34		?		BS		VABR
12	1159	YATE1	1	1	7		JAR		R		VABR
12	1159	YG	1	1	3		JAR		BS		ABR
12	1159	YORK	1	1	10		JAR		R		ABR
12	1160	YG	1	1	5		JAR		BS		ABR
13	1167	YATE1	3	3	22		?		BS		VABR
13	1167	YATG1	4	4	11		?		BS		VABR
13	1167	YATE1	1	1	6		BOWL		R		VABR
13	1169	YATE1	2	1	49		FLAGON		R;H		VABR
13	1169	YATE1	1	1	30		FLAGON/JAR		B		VABR
13	1169	YATE1	1	1	18		JAR		R		VABR
13	1169	YATE1	2	2	23		REEDED BOWL		R		VABR
13	1169	YATS1	1	1	22		37	DEC	BS		VABR
13	1170	PMLOC	1	1	3		FLP		R		FRESH
13	1170	YATE1	15	15	57		?		BS		VABR
13	1170	YATE1	1	1	10		BOWL		R		VABR
13	1170	YATE1	2	2	113		FLAGON		H		VABR
13	1170	YATG1	1	1	49		FLAGON/JAR		B		ABR
13	1170	YATG1	2	2	20		JAR		R		VABR
13	1170	YATO0	1	1	21		?		BS	SOOTED INT/EXT	ABR
13	1170	YATS1	1	1	2		27		BS		VABR
13	1170	YATS1	2	2	18		37	DEC	R		VABR
13	1171	PMLOC	1	1	7		FLP		BS		FRESH
13	1172	YATE1	1	1	3		?		BS		VABR
13	1172	YATE1	1	1	4		FLAGON		BS		VABR
13	1172	YATR2	6	6	31		JAR		BS		VABR
13	1173	PMLOC	1	1	25		FLP		R		FRESH
13	1173	YATB0	1	1	34		?		BS		ABR
13	1173	YATB0	2	1	26		BOWL		BS	SOOTED EXT	ABR
13	1173	YATE1	32	32	183		?		BS		VABR

Int	CNo	cname	NoSh	NoV	W(g)	Subfab	Form	Desc	Part	Use	Condition
13	1173	YATE1	3	3	24		FLAGON		R;B S		VABR
13	1173	YATE1	5	1	115		FLANGED BOWL		F;B; BS		VABR
13	1173	YATG1	10	10	52		?		BS		ABR
13	1173	YATG1	1	1	11		JAR		B		ABR
13	1173	YATR2	1	1	8		JAR		BS		VABR
13	1173	YATS1	1	1	3		27?		BS		VABR
13	1173	YATS1	6	5	61		37	DEC	R;B S		VABR
13	1174	YATB0	2	1	15		?		BS		ABR
13	1174	YATE1	12	12	25		?		BS		VABR
13	1174	YATE1	4	3	80		FLAGON		R;B S;H		VABR
13	1174	YATE1	2	2	15		JAR		BS		VABR
13	1174	YATG0	1	1	18	MGSQ	UNGUENTARIUM		R		SLIGHTLY ABR
14	1157	HUM	1	1	3		JAR		BS		ABR
14	1157	HUM	1	1	39		JUG/JAR		B		SLIGHTLY ABR
14	1157	HUM	1	1	15		JUG		H		VABR
14	1157	RYEDALE	2	1	22		BOWL		BS		ABR
14	1157	YG	1	1	2		JAR		BS		SLIGHTLY ABR
14	1157	YORK	1	1	4		JAR		BS		SLIGHTLY ABR
14	1187	YATE1	14	14	72		?		BS		VABR
14	1187	YATE1	1	1	44		JAR		R		VABR
14	1187	YATE1	1	1	24		PLATTER		B		VABR
14	1187	YATM3	1	1	100		MORT		R		VABR
14	1187	YATS1	1	1	4		?		B		VABR
14	1187	YATS1	1	1	19		?		B		VABR
14	1187	YATS1	3	3	1		?	FRAGS	BS		VABR
14	1188	BRAN	1	1	5		JUG	HORIZ ROULETTING	BS		ABR
14	1188	HUM	1	1	3		JUG		BS		ABR
14	1188	YATE1	13	13	61		?		BS		VABR
14	1188	YATE1	1	1	15		BOWL/PLATTER		B		VABR
14	1188	YATE1	1	1	21		JAR		BS	SOOTED EXT	VABR
14	1188	YATE1	2	2	33		JAR		R		VABR
14	1188	YATM3	1	1	41		MORT		R		VABR
14	1189	HUM	1	1	4		JUG/JAR		BS		SLIGHTLY ABR
14	1189	YATE1	7	7	27		?		BS		VABR
14	1189	YATE1	1	1	24		JAR		R		VABR
14	1189	YATG1	1	1	22		?		BS		ABR
14	1189	YATM3	1	1	67		MORT		B		VABR
14	1189	YATS1	1	1	3		37	DEC	R		VABR

Int	CNo	cname	NoSh	NoV	W(g)	Subfab	Form	Desc	Part	Use	Condition
14	1190	YATB1	1	1	5		?		BS		ABR
14	1190	YATE1	5	5	28		?		BS		VABR
14	1190	YATG1	2	1	9		?		BS		ABR
14	1191	YATAP?	1	1	3		AMPHORA		BS		VABR
14	1191	YATE1	3	3	13		?		BS		VABR
14	1191	YATE1	1	1	11		FLAGON		R		VABR
14	1191	YATG1	1	1	4		JAR		BS		ABR
14	1192	YATE1	19	19	94		?		BS		VABR
14	1192	YATG1	1	1	7		?		B		ABR
14	1193	YATB1	1	1	26		JAR	EARLY2ND CENTURY	BS		FRESH
14	1194	BRAN	1	1	18		JAR		R		ABR
14	1194	BRAN	1	1	13		JUG		BS		ABR
14	1194	HUM	1	1	6		JAR		BS		ABR
14	1194	YATE1	11	11	42		?		BS		VABR
14	1194	YATE1	2	2	25		FLAGON		H		VABR
14	1194	YATE1	1	1	4		JAR		R		VABR
14	1194	YATE1	1	1	6		REEDED BOWL		R		VABR
14	1194	YATG1	3	3	48		JAR		R;B S		VABR
14	1194	YORK	1	1	9		JAR		R		FRESH
14	1195	YATE1	6	6	37		?		BS		VABR
14	1195	YATE1	1	1	88		JAR/FLAGON		B		VABR
14	1196	YATE1	11	11	44		?		BS		VABR
14	1196	YATE1	1	1	11		FLAGON		H		VABR
14	1196	YATE1	1	1	34		JAR		R		VABR
14	1196	YATG1	2	2	34		JAR		B;B S		ABR
14	1196	YATP0	1	1	8		?		BS		VABR
14	1198	YATE1	13	13	38		?		BS		VABR
14	1198	YATG1	2	2	16		JAR		R;B S		VABR
14	1199	YATE1	1	1	1		?		BS		VABR
14	1201	YATAP27-30	1	1	33		AMPHORA		BS		VABR
14	1201	YATE1	8	8	45		?		BS		VABR
14	1201	YATE1	1	1	7		FLAGON	PLAIN FLARED RIM	R		VABR
14	1201	YATE1	1	1	7		JAR		R		VABR
14	1201	YATG1	2	2	20		?		BS		VABR
14	1201	YATO0	1	1	3		?		BS		VABR
14	1201	YATS1	1	1	2		27?		B		VABR
14	1213	RYEDALE	1	1	8		BOWL		BS		ABR
14	1213	YATG0	1	1	42		JAR		R		ABR

APPENDIX D CERAMIC BUILDING MATERIAL ASSESSMENT

Cecily Spall

1.0 INTRODUCTION

A medium assemblage (20.86kg) of ceramic building material (CBM) was submitted for assessment and full recording. The assemblage was recovered during an archaeological evaluation undertaken by Field Archaeology Specialists at Heworth Croft, Heworth, York.

2.0 ASSESSMENT PROCEDURE

The assemblage was recorded using a system based on that used by the Museum of London and was undertaken in accordance with the draft Minimum Standards for Recovery, Curation and Publication for Ceramic Building Material issued by the Archaeological Ceramic Building Materials Group (ACBMG 2002).

Each piece of CBM was recorded individually and information about form, date, dimensions and weight were captured alongside features of note such as stamps, glazes or imprints. Marks from manufacture were recorded, such as indented borders and over- or under-firing. Evidence for re-use was also noted, such as mortar or sooting. A small area of the CBM was broken off to inspect a clean section of fabric, which was viewed using a hand lens (x10 magnification). The material was referenced to the fabric series of Roman and medieval fabrics compiled and maintained by Field Archaeology Specialists. Whether a piece of CBM was retained was also noted. A disposal strategy was implemented and due to the abraded nature of the assemblage, most of the material was discarded after full recording. All information captured was entered directly into a Microsoft Access 2002 database and forms the full catalogue (below) and part of the excavation digital archive.

3.0 ASSESSMENT

3.1 ROMAN MATERIAL

Roman CBM comprised approximately 54% of the total assemblage and included the usual roofing material and brick. The fabrics were limited to the typical range known in York, and with the exception of two tegulae fragments, were abraded and in many cases allocated as Roman only by fabric. No CBM forms which are diagnostic of date were present in the assemblage, which is broadly dated to the 1st to 4th century.

Roofing material

Tegulae and imbrices were present in the assemblage but all were relatively small fragments of the forms. Three tegulae had preserved flanges; one with a Betts' Lower cutaway type D modified to the slightly different York form from C1169 (Betts 1985 160).

Brick

Brick fragments were also present. Although some of these may actually have been from tegulae, no distinguishing features were present and they were subsequently recorded as brick. Again, the brick fragments were generally small and abraded, even in assemblages that appeared to be Roman in date.

3.2 MEDIEVAL MATERIAL

Approximately 43% of the overall assemblage was dateable to the medieval period.

Roofing material

The assemblage consisted wholly of roofing tile, most allocated as plain, which is broadly dated to the 13th to 16th century. Only two tile fragments preserved evidence for suspensory form, a square-peg tile from furrow F56 C1159 and a nib-tile from C1154. The two furrows F55 and F56 from Intervention 12 accounted for the two largest assemblages from the site and the condition and preservation of the fragments was consistent with plough abrasion. The fabrics were generally clean and well-sorted, which is normally a feature of early plain roof tile production. Brick was also absent from the assemblage, which may suggest a pre-14th century date for the assemblage. In York, nib-tile is introduced from the 12th century. This particular form of nib-tile, which has a discrete lump of clay attached to the sanded side of the tile, is dated to the mid-12th century onwards (Garside-Neville 1996, 296), which may also be indicative of an earlier rather than later date for the assemblage.

3.3 MODERN MATERIAL

Only 3% of the total assemblage was dateable to the modern period. Five fragments of machine-made brick were recovered from F64 C1171; four were small undiagnostic lumps, and the remaining piece was very compact, well-fired and preserved a small area of frog. They are all dateable to the mid-19th century onwards, but given the quality of the large fragment are probably 20th century in date. Two land drain samples were retained from drains F68 and F69. Both are of a horseshoe with integral footplate from and are machine-extruded, again giving a date of at least the mid-19th century.

4.0 DISCUSSION

The Heworth assemblage is small and in poor condition; only a few fragments were retained for further analysis and archive, and there is little further work to be undertaken on the material. Comparison with the assemblage from the earlier phase of evaluation shows the assemblages to be largely similar, although medieval brick and ridgetile was present in the Phase 1 evaluation. The presence of Roman roof tile and brick, although abraded might suggest Roman occupation, but the material was heavily abraded even in assemblages of Roman date. The medieval material was also poorly preserved, but was clearly abraded by inclusion in an active medieval plough horizon and this may be a more reliable indication of medieval occupation at or near the site. It is also possible, however, that all the material arrived at the site through dumping and night soiling.

5.0 CATALOGUE

CNo	FNo	E_Date	L_Date	Fabric	Form	Cor	W (g)	Th (mm)	L (mm)	Bdth (mm)	Retained	Comments
1154		16		0	plain	1	748	20			No	unabraded, post-medieval
1154		13	16	29	plain		36	12			No	
1154		13	16	23	plain	1	100	13			No	
1154		13	16	53	plain		126	15			No	
1154		12	16	6	nib tile		174	24			Yes	abraded
1154		1	4	56	tegula		378	18			Yes	with flange
1154		1	4	68	rbrick		138				No	abraded
1154		1	4	24	rbrick		70				No	abraded and sooted
1154		13	16	30	plain		46	14			No	
1154		13	16	6	plain	1	144	13			No	abraded
1154		13	16	14	plain		104	20			No	
1154		13	16	6	plain		62	13			No	
1154		13	16	54	plain		64	17			No	
1154		1	4	55	rbrick		30				No	abraded
1154		1	4	0	rbrick		102				No	3 medium abraded frags
1154		13	16	0	plain		46				No	3 small abraded frags
1154		13	16	15	plain		106	12			No	
1157		13	16	0	plain		46				No	2 small frags

CNo	FNo	E_Date	L_Date	Fabric	Form	Cor	W (g)	Th (mm)	L (mm)	Bdth (mm)	Retained	Comments
1157		13	16	0	plain		54				No	7 small abraded frags
1157		13	16	23	plain		54	12			No	abraded
1158	55	13	16	0	plain		84				No	7 small frags
1158	55	1	4	0	rbrick		20				No	1 small abraded frag
1158	55	13	16	8	plain		62	11			No	abraded and sooted
1158	55	13	16	23	plain	1	74	13			No	abraded
1158	55	13	16	6	plain		62	15			No	
1158	55	13	16	6	plain		42	13			No	abraded
1158	55	13	16	13	plain		36	14			No	
1158	55	23	16	15	plain		34	13			No	
1158	55	13	16	0	plain		152				No	19 small abraded frags
1158	55	13	16	6	plain		64	15			No	abraded
1158	55	13	16	23	plain		42	14			No	abraded
1158	55	13	16	6	plain		22	14			No	abraded
1158	55	13	16	6	plain		28	11			No	abraded
1158	55	13	16	6	plain		36	11			No	abraded
1158	55	13	16	6	plain		28	13			No	abraded
1158	55	12	16	23	plain		30	13			No	abraded
1158	55	13	16	23	plain		22	13			No	abraded
1159	56	1	4	0	rbrick		288				No	7 medium abraded frags
1159	56	13	16	6	peg tile	1	176	13			No	square, abraded and sooted
1159	56	13	16	0	plain		102				No	4 small frags
1159	56	1	4	55	imbrex		28				No	abraded
1159	56	13	16	6	plain	1	72	13			No	
1159	56	13	16	23	plain	1	140	16			No	abraded
1159	56	13	16	6	plain	1	90	13			No	abraded
1159	56	13	16	71	plain		62	15			No	
1159	56	13	16	6	plain		82	14			No	abraded
1159	56	13	16	23	plain		30	14			No	abraded
1159	56	13	16	55	plain		68	13			No	abraded
1159	56	13	16	6	plain		48	12			No	abraded
1159	56	13	16	0	plain		124				No	12 small abraded frags
1159	56	13	16	8	plain		34	11			No	
1160	57	1	4	0	rbrick		2				No	1 small abraded frag
1167	63	1	4	0	rbrick		2				No	1 small abraded frag
1169		1	4	2	tegula	1	776	24			Yes	with flange and lower cutaway betts type D york modified
1169		1	4	55	imbrex		408	33			No	abraded
1169		1	4	0	rbrick		176				No	3 medium abraded
1169		1	4	60	rbrick		424				No	large but abraded fragment
1170		1	4	60	tegula		560	22			Yes	with flange
1170		1	4	0	rbrick		78				No	4 small abraded frags
1170		1	4	55	rbrick		156	35			No	abraded
1170		1	4	55	rbrick		88	35			No	abraded
1170		1	4	0	rbrick		78				No	7 small abraded frags
1170		13	16	6	plain		26	13			No	abraded
1171	64	19	20	0	brick		82				No	4 small machine-made
1171	64	19	20	0	brick		58				No	machine-made with frog
1171	64	1	4	55	rbrick		150				No	abraded

CNo	FNo	E_Date	L_Date	Fabric	Form	Cor	W (g)	Th (mm)	L (mm)	Bdth (mm)	Retained	Comments
1171	64	1	4	56	rbrick		130	23			No	
1171	64	1	4	0	rbrick		26				No	3 small abraded
1172	63	1	4	0	rbrick		16				No	2 small abraded frags
1173	63	1	4	0	rbrick		90				No	11 small abraded frags
1173	63	1	4	55	imbrex		158	16			No	
1173	63	1	4	55	rbrick		162	45			No	abraded, rain marked
1173	63	1	4	61	rbrick		266	31			No	abraded
1173	63	1	4	60	tegula		252	20			No	
1173	63	1	4	68	rbrick		202	30			No	
1173	63	1	4	55	rbrick	1	208	47			No	abraded
1173	63	1	4	55	rbrick		214				No	abraded
1173	63	1	4	55	rbrick		80	54			No	abraded
1173	63	1	4	55	rbrick		78				No	abraded
1173	63	1	4	55	rbrick		80				No	abraded
1173	63	1	4	55	rbrick		62				No	abraded
1173	63	1	4	55	rbrick		82				No	abraded
1173	63	1	4	60	rbrick		86				No	abraded
1173	63	1	4	68	tegula		128	20			No	abraded
1173	63	1	4	68	rbrick		86				No	abraded
1173	63	1	4	55	rbrick		58				No	abraded
1173	63	1	4	55	rbrick		52				No	abraded
1173	63	1	4	55	imbrex		58	14			No	
1174	63	1	4	56	rbrick	1	902	51			No	overfired and slightly
1174	63	1	4	55	rbrick		176	29			No	abraded
1174	63	1	4	0	rbrick		90				No	2 small abraded frags
1178	68	19	20	0	horseshoe	4	2982	18	320	110	No	
1179	69	19	20	0	horseshoe	3	1230	12	340	73	No	
1187	73	1	4	0	rbrick		114				No	2 medium abraded frags
1187	73	13	16	0	plain		36				No	2 small frags
1187	73	1	4	0	rbrick		110				No	5 small abraded frags
1187	73	13	16	6	plain	1	28	12			No	abraded
1188	74	1	4	0	rbrick		74				No	6 small abraded fragments
1188	74	1	4	55	tegula		408	23			No	abraded
1188	74	1	4	56	rbrick		786	37			No	
1188	74	1	4	2	rbrick		48				Yes	abraded, finger marked,
1188	74	13	16	23	plain		40	13			No	abraded
1188	74	13	16	53	plain		24	11			No	abraded
1188	74	1	4	0	rbrick		66				No	4 small abraded frags
1189	74	1	4	0	rbrick		34				No	4 small abraded
1189	74	13	16	36	plain		80	13			No	
1189	74	13	16	29	plain		42	11			No	
1189	74	13	16	16	plain		104	13			No	
1189	74	1	4	61	rbrick		272	29			No	abraded
1189	74	1	4	61	rbrick		594	26			No	abraded
1189	74	1	4	61	rbrick		84	26			No	abraded
1189	74	13	16	0	plain		72				No	2 abraded frags
1189	74	1	4	0	rbrick		130				No	2 medium frags
1190	75	1	4	0	rbrick		22				No	abraded
1190	75	1	4	0	rbrick		10				No	1 small abraded frag
1192	78	1	4	0	rbrick		70				No	2 small abraded frags

CNo	FNo	E_Date	L_Date	Fabric	Form	Cor	W (g)	Th (mm)	L (mm)	Bdth (mm)	Retained	Comments
1192	78	1	4	0	rbrick		22				No	2 small abraded frags
1193	78	13	16	0	plain		10				No	1 small abraded frag
1194	78	1	4	0	rbrick		40				No	4 small frags
1194	78	13	16	0	plain		40				No	3 small frags
1194	78	13	16	23	plain		32	14			No	
1194	78	1	4	55	rbrick		68	30			No	abraded
1194	78	1	4	12	rbrick		66				No	abraded
1194	78	1	4	55	rbrick		68				No	abraded
1194	78	1	4	0	rbrick		10				No	3 small abraded frags
1194	78	13	16	0	plain		18				No	2 small abraded frags
1195	76	1	4	0	rbrick		96				No	4 small abraded frags
1195	76	1	4	55	imbrex		40	22			No	abraded
1195	76	13	16	4	plain		36	13			No	abraded
1196	77	1	4	0	rbrick		44				No	2 small abraded frags
1196	77	13	16	6	plain		112	16			No	abraded
1196	77	13	16	52	plain		184	15			No	
1196	77	1	4	55	tegula		96				No	small abraded
1196	77	1	4	0	rbrick		38				No	6 small abraded frags
1196	77	13	16	6	plain		24	14			No	abraded
1198	80	1	4	0	rbrick		104				No	7 small abraded frags
1198	80	1	4	55	rbrick		144	22			No	abraded
1198	80	1	4	0	rbrick		62				No	4 small abraded frags
1199	79	1	4	55	rbrick		34				No	abraded
1201	79	1	4	56	rbrick		88	15			No	abraded
1201	79	1	4	0	rbrick		116				No	3 medium abraded frags
1201	79	1	4	0	rbrick		38				No	3 small abraded frags

6.0 ARCHIVE

The retained sample of CBM is small, but should be retained to enable integration within a city-wide study of the use of CBM during the Roman period. The assemblage has some analytical potential should further excavation in the area yield CBM assemblages, especially with regard to the hinterland of Roman York. The tegulae flanges could be drawn if further analysis was commissioned. A copy of the full catalogue will be deposited with the site archive and a copy will be held by Field Archaeology Specialists.

References

- ACBMG, 2002. Minimum Standards for Recovery, Curation and Publication of Ceramic Building Material (Unpublished draft)
- Betts, I.M. 1985. A Scientific investigation of the brick and tile industry of York to the mid-eighteenth century, Bradford University (unpublished DPhil thesis)
- Garside-Neville, S. 1996. 'Ceramic Building Materials', in R. L. Kemp and C. P. Graves, 1996, 'The Church and Gilbertine Priory of St Andrew, Fishergate', *The Archaeology Of York*, 11/2 (York): 294-299

APPENDIX E ZOOARCHAEOLOGICAL AND OSTEOLOGICAL ASSESSMENT

Stephen Rowland with Malin Holst

Summary

Excavations at Heworth Croft carried out by Field Archaeology Specialists between June and July 2004 recovered a small assemblage of hand-collected animal and human bones deriving from 12 contexts identified from a total of four interventions. A small body of material of medieval date was recovered from a series of features identified as plough furrows, while a similarly small assemblage was retrieved from pits and a ditch fill of Roman date. There was evidence for disturbed human cremations in two interventions.

1.0 INTRODUCTION

Phase 2 evaluation consisted of four interventions (numbered 12-15), of which only Intervention 15 failed to produce some quantity of bone. Material of Roman (early 2nd century) date was identified in five contexts in Intervention 13, including four from possible pit F63 (C1167, C1172, C1173 and C1174) and one from layer C1170; in five more contexts from Int 14, including two from ditch F74 (C1188 and C1189), two from sondage F78 (C1193 and C1194), as well as pit backfill F77 C1196. In Intervention 12, material was present in two shallow linear features (F55 C1158 and F56 C1159) interpreted as plough furrows in a medieval ridge and furrow field system, both containing 14th century Humberware. It is possible that F74 in Intervention 14 may also be a medieval plough furrow.

1.1 METHODOLOGY

The faunal remains from each context were rapidly scanned and notes were made on the state of preservation ('excellent', 'good', 'fair' or 'poor'), angularity ('spiky', 'rounded' or 'battered'), taxon and elements present, along with any modifications and pathological lesions. Following the procedures of the Environmental Archaeology Unit (Dobney et al 1999), only non-human mandibles, teeth, or limb bones with at least one articular or metaphyseal surface were identified to species, the rest being identified more generally as medium mammal (sheep or pig sized) or large mammal (cow or horse sized). Where possible, human bones were identified regardless of fragment size or bone zone.

2.0 ASSESSMENT (Table 1, Appendix 1)

Most of the material appeared to be in a good state of preservation, although that from soil layers and medieval plough furrows tended only to be fair and with a degree of fresh breakage. Most fragments tended to be rounded. From a total of 42 stratified bones, ten were identified representing a very limited range of taxa, including seven calcined and rounded human bones from three features (F63 C1167, F77 C1196 and F78 C1194), a well-preserved caprovid humerus with scorching and butchery marks from pit F63 C1174, a pig humerus from F63 C1173 and from medieval furrow F55 C1158, a single cow phalanx. Calcined non-human bone was noted in five contexts, one of which, C1167, also contained calcined human bone; scorched animal bone was recorded in another.

Table 1 Raw fragment counts by period for taxa from Heworth Croft

Taxon		Roman	Medieval	Unstratified	Total
<i>Homo sapiens</i>	human	7			7
<i>Sus f. domestic</i>	pig	1			1
<i>Bos f. domestic</i>	cow		1		1
Caprovid	sheep/goat	1			1
<i>Subtotal</i>		9	1	0	10
Medium mammal 1		3			3

Taxon	Roman	Medieval	Unstratified	Total
Large mammal	10	11		21
Bird			1	1
Unidentified	7			7
<i>Subtotal</i>	<i>20</i>	<i>11</i>	<i>1</i>	<i>33</i>
Grand Total	29	12	1	42

3.0 DISCUSSION

There is little that can be deduced from such a small sample of material. The quality, in terms of angularity and preservation of the medieval bone, is consistent with it having been incorporated into a ploughsoil, presumably after the fields had been manured with domestic waste. Similarly, much of the Roman bone, even that identified as human, had suffered some degree of abrasion, and it is likely that ploughing had disturbed one or more cremations in the areas of Intervention 13 and 14.

The occurrence of cremations located close to a known Roman and Anglo-Saxon cemetery is unsurprising, and similarly small and abraded fragments of human bone were recovered during Phase 1 evaluation. The situation of these cremated bones close to the earthwork mound is also of interest, particularly as they lie closer to this feature than to either the projected line of the Roman road or to the Heworth Roman cemetery. Calcined animal bone from Roman features could be domestic waste but it is not unusual to have animal bone from, or associated with, human cremations. The lack of animal bone would suggest little in the way of intensive domestic exploitation of the surrounding area, again supporting the view that Heworth was marginal land during the Roman period. However, the small amount of bone and the high proportion of calcined fragments may relate to post-depositional destruction within a harsh burial environment, as indicated by the soft state of much of the pottery, and it is possible that much more waste was originally deposited.

4.0 POTENTIAL FOR FURTHER ANALYSIS

The assemblage is too small to be of any future value, and as such, it is recommended currently that no further work be carried out on this material.

5.0 ARCHIVE

Electronic and paper records are stored by Field Archaeology Specialists Ltd. It is recommended that the assemblage, along with the assemblage for Phase 1 evaluation, be retained for comparison, should further investigation be undertaken at the site.

References

Dobney, K., Jaques, S.D. and Johnstone, C. 1999. 'A protocol for recording vertebrate remains', *Reports from the Environmental Archaeology Unit* 99/15

Appendix 1 Summary of osteological and zooarchaeological data recorded from Heworth Croft

Key: Int = Intervention, F=Feature, C=Context, Pr = Preservation; g=good, f=fair, p=poor; An = Angularity: s=spiky, r=rounded, b=battered; Size= fragment size (mm), Contents: sh/g = caprovid, lm = large mammal, mm1 = medium mammal 1, unid = unidentified mammal, cal= calcined, char=charred, sc=scorcherd, fb = freshly broken, kn = cut marks, M= measurable, df=distal epiphysis fused.

Int	F	C	Type	Date	Pr	An	Size	Contents
12	55	1158	Furrow backfill	med	f	r/b	20-60	4x lm metatarsal shaft (fb), cow phalanx1
12	56	1159	Furrow backfill	med	f	s	50-100	7x lm femur shaft (fb)
13	63	1167	Pit? backfill	RB	g	r	10-20	probable human (cal): femur shaft frag, clavicle shaft frag, vertebral body frag, rib frag; 6x unidentified (cal)
13		1170	Soil layer	RB?	f	r	5-20	lm: 1xscapula frag, 1xshaft frag; mm1: 1xshaft frag. All part calcined
13	63	1172	Pit? backfill	RB	f	r	30	1x charred lm shaft frag
13	63	1173	Pit? backfill	RB	g	r	15-40	1xlm metacarpal shaft fragment (cal), 1x unid (cal), 1 pig humerus (df, fb)
13	63	1174	Pit? backfill	RB	g	r	20-50	1x lm shaft (cal), 1x sh/g humerus (sc, kn)
14	74	1188	Ditch backfill	RB?	f	r	10-20	5x lm shaft frags
14	74	1189	Ditch backfill	RB?	g	s	20	1x mm1 mandible fragment
14	78	1193	Sondage backfill	RB	g	s	10	1xmm1 shaft frag (cal)
14	78	1194	Sondage backfill	RB	g	r	20	human femur shaft fragment (cal)
14	77	1196	Pit? backfill	RB	g	r	20-30	human: 1x tibia shaft fragment (cal), 1x femur shaft fragment (cal)



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