YORK ARCHAEOLOGICAL TRUST

71-73 GOODRAMGATE, YORK

EVALUATION REPORT

by I.D. Milsted

REPORT NUMBER 2011/52

YORK ARCHAEOLOGICAL TRUST

York Archaeological Trust undertakes a wide range of urban and rural archaeological consultancies, surveys, evaluations, assessments and excavations for commercial, academic and charitable clients. It can manage projects, provide professional advice and monitor archaeological works to ensure high quality, cost effective archaeology. Its staff have a considerable depth and variety of professional experience and an international reputation for research, development and maximising the public, educational and commercial benefits of archaeology. Based in York its services are available throughout Britain and beyond.

Registered Office: 47 Aldwark, York, UK, YO1 7BX

Phone: +44 (0)1904 663000 Fax: +44 (0)1904 663024

Email: archaeology@yorkat.co.uk Internet: http://www.yorkarchaeology.co.uk

York Archaeological Trust is a Registered Charity No. 509060
A Company Limited by Guarantee Without Share Capital Registered in England No. 1430801

CONTENTS

Figures

Plates

Tables

Abbreviations

YAT York Archaeological Trust

AOD Above Ordnance Datum

BGL Below Ground Level

ABSTRACT

A two-trench evaluation at 71-73 Goodramgate revealed extensive midden deposits of 13th century date at 2m BGL/14.30m AOD. A 14th century building with evidence for 16th century demolition and alteration was found, along with evidence for the disposal of local metal-working waste from the 15th century into the post-medieval period. An 18th/19th century clearance truncated these remains, which were sealed beneath extensive 19th century ground make-up deposits. The lowest midden deposits were waterlogged and contained organic remains with an extremely good level of preservation. Subsequent boreholes revealed a further 3.25m of deposits overlying natural at 5m BGL/c.11.10m AOD.

1. INTRODUCTION

An evaluation was conducted at 71-73 Goodramgate, York (Figure 1) between 11 April and 25 May 2011 on behalf of Town Centre Securities, the site owner, to support a planning application to extend the rear of the shop units into the existing service yard and re-locate an existing electricity sub-station. The evaluation consisted of two main trenches, six hand-dug test pits and two boreholes (Figure 2). This report represents the final assessment of this evaluation, and follows an interim report (YAT report 2011/32) and a separate report on the test-pits and boreholes (YAT report 2011/41).

2. METHODOLOGY

The two main evaluation trenches, measuring 6m x 2m (Trench 1) and 5m x 2m (Trench 2), were cut open with a floor saw and broken out using a 3 ton mechanical excavator. In accordance with the specification issued by the City Archaeologist, John Oxley, deposits identified as modern were removed mechanically using a toothless bucket until significant archaeological deposits were encountered. This occurred at 0.60m BGL / 15.07m AOD in Trench 1 and at 0.90m BGL / 15.45m AOD in Trench 2, from which point excavation continued by hand to the agreed depth limit of 1.25m BGL. In trench 2, following consultation with the client, the city archaeologist and the health and safety representative of YAT, hand excavation continued within an off-set sondage measuring 1.9m x 1.5m and dug to a maximum depth of 2m BGL / 14.33m AOD to try and locate evidence for the Roman fortress wall.

The test-pits were dug purely to assess the foundations of the modern buildings, disturbing relatively modern material, and are discussed fully in YAT report 2011/41. The borehole observations are incorporated into this report.

As indicated by the services plan supplied by the client's engineer, live services were encountered in both trenches. Both areas were scanned with a Cable Avoidance Tool prior to mechanical excavation. In trench 1, at c.0.60m BGL / 15.07m AOD, two water-pipes and an armoured electricity cable were identified, dividing the trench into four separate working areas (Figure 3). In trench 2 the presence of a ceramic drain and an unidentified service cable at c.0.40m BGL / 15.90m AOD split the trench in two. In trench 1, the water pipes were pedestalled on baulks c.0.25m wide, representing the width of the backfill in their service cuts. The electricity cable was pedestalled in the centre of a 1m wide baulk (Plate 1). In trench 2 the drain and cable were pedestalled on a single baulk between 0.60m and 1.4m wide (Plate 2).

All deposits were recorded using the single context recording system set out in the YAT recording manual, and samples were taken in accordance with the specification. The archive currently resides with YAT.

3. LOCATION, GEOLOGY AND TOPOGRAPHY

The site is located between Goodramgate and St. Andrewgate, 55m north-east of King's Square at SE 6048 5200 (Figure 1). The service yard for 71-73 Goodramgate is located at the rear of the shop, to the south-east and is accessed via a security gate from St Andrewgate. 71-73 Goodramgate is currently occupied by two clothing retailers, C-M-D and Bon Marché (Figure 2).

The site lies in an area of clayey glacial till overlying sandstone of the Sherwood sandstone group (British Geological Survey, http://maps.bgs.ac.uk/geologyviewer/, accessed 01/07/2011). The yard is approximately 266 square meters in area, roughly L-shaped, and is generally level at c.15.60m AOD except in the western area, where the ground slopes up to the west to c.16.40m AOD. The yard is surfaced in 0.10m thick steel-reinforced concrete and tarmac.

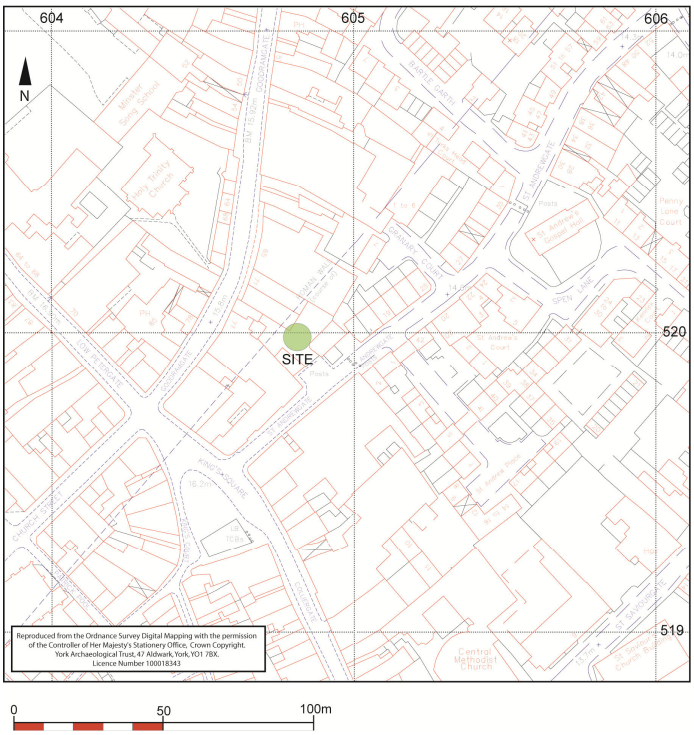

Figure 1 Site location

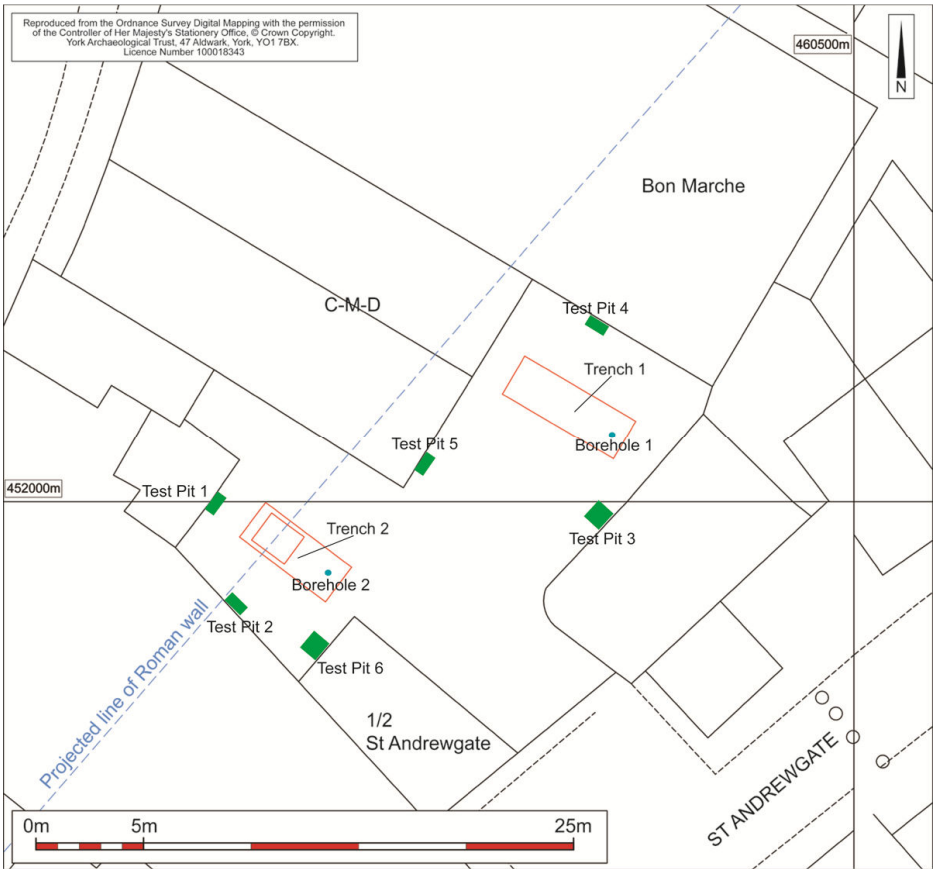

Figure 2 Trenches, test pits and boreholes, with projected Roman wall line

4. ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

Archaeological interest in this part of the city commences with Roman activity, represented by the course of the fortress wall, projected to run beneath the rear of 71-73 Goodramgate (Figure 2). This projection is based on several sightings in the area, in particular the excavations by Miller in 1925-7 and Ramm in 1955 (Stead, 1968, 161, RCHMY1, 29-33). Extensive and well-preserved stretches of the wall have been located close to the current site, in 1957 (Stead, 1968, 152) and 1963 (Wenham, 1968, 165), and more recently it was sighted during the YAT excavations at the Bedern (Ottaway, 1996, 171). The level of preservation varies considerably from standing 2.4m high at King's Square (Stead, 1968, 152; Wenham, 1968, 165) to robbed right down to the foundation at the Bedern (Ottaway, 1996, 171), with as much as 3m of overlying deposits existing in places (Stead, 1968, 153). As remarked upon by Stead, and detailed at the Bedern, there are several construction phases associated with the wall and its rampart (see summary in Stead, 1968, 161-164 and refer to Ottaway, 1996). Some evidence for these structures was hinted at immediately south-west of the current site at 1 King's Square (Hunter Mann, 1988, 9-10); therefore one of the primary aims of this evaluation was to attempt to locate the Roman wall and associated contemporary deposits in order to assess the quality of survival in this area, in addition to determining the extent and character of overlying deposits.

The Anglo-Scandinavian period is represented in this area by a possible building, a few pits and artefacts at the Bedern (Richards, 2001, 408), and in the immediate vicinity by a handful of pottery finds recovered during watching briefs (www.iadb.co.uk/gaz/index.htm), suggesting the presence of occupation deposits of this date even if they remain undefined.

The site lies between Goodramgate, recorded from the 12th century but of Anglo-Scandiavian origin (Palliser, 1978, 10) and St Andrewgate. The site address belies the fact that the nearest medieval road is the latter, which is recorded from the 12th century onwards with the alternative name 'Ketmongergate' or 'Street of the flesh sellers' also in use from this period (Raine, 1955, 55-56). Medieval deposits and structures have been found in most interventions in this area, in particular during the development of the land to the south-east of St. Andrewgate, some 40-50m south-east of the current site. Here, evidence for the medieval street-frontage and backlands was encountered, together with the development of that landscape into the post-medieval period (Whyman, 1993, 12), which when fully excavated revealed a complex sequence of medieval activity. 12-13th century buildings and occupation deposits were identified, along with significant deposits of waterlogged organic midden material; these were levelled in the 14th century with re-deposited clay and waste material, and the area seems by the 15th century to have been used for metal working and further

waste disposal until a major levelling episode dated to the 18th century (Finlayson, 2004, 890-893). Hints of similarly complex deposits have been found elsewhere in this area, particularly at 1 King's Square (Hunter Mann, 1988, 10) and the presence of extensive waterlogged organic deposits is frequently recorded nearby, for example at 25-27 St. Andrewgate (1987.19, www.iadb.co.uk/gaz/index.htm). Medieval metalworking is extensively recorded across this area, from Petergate to St Andrewgate, and in particular at the Bedern Foundry, 100m north of the current site, where metalworking workshops functioned from the mid-late 13th to the mid 16th century, before being replaced by a bakery into the post-medieval period (Richards, 1993, 155).

Therefore, alongside the significant potential for medieval remains to survive at 71-73 Goodramgate, previous work had also identified significant late-medieval and early post-medieval remains, again at St Andrewgate (Finlayson, 2004, 881) and in the various small observations (www.iadb.co.uk/gaz/index.htm). The development of medieval landscapes from the 16th century onwards is significant to the understanding of the development of the modern city, evidence for which is often severely truncated by modern activity.

5. RESULTS

5.1 TRENCH 1

Trench 1 measured 6m x 2m in plan and was aligned north-west/south-east. Its position was chosen to examine the nature of obstructions recorded during the 1960s foundation piling of the unit now housing Bon Marché. These obstructions affected a whole row of piles and it was suggested that they may have encountered the Roman fortress wall despite the projected line of the wall running further to the north-west of this point (Figure 2).

The phases in trench 1 commence with **11** and end with **17**. This is to distinguish them from the trench 2 phases, which are numbered **21-25**. The integrated discussion in **5.3** draws these phasing sequences together in an assessment of the landscape revealed by both trenches. The results of each borehole are included here, as presented in YAT 2011/41.

5.1.1 PHASE 11: 13TH/14TH CENTURY OCCUPATION AND LANDSCAPING

The earliest deposits identified in trench 1, at 0.90m BGL / 14.75m AOD, were homogenous, waterlogged organic clayey silts (contexts 1061, 1062, 1071, 1072, 1075 and 1076) that comprised the final 0.30m of recorded deposits but clearly extended beyond this point (Figures 3 and 6, Plates 3-9, 11). Within these were three substantial oak posts or stakes up to 0.20m wide and of unknown depth (contexts 1067-69, timber numbers ST03, ST05, ST06,

Appendix 5, Plates 6, 10, 11) spaced at three metre intervals in a north-west/ south-east alignment (Figure 3). All were single timbers, rather than forming part of a cluster, suggesting that they represent a fence-line or perhaps reinforcing for the uprights of a building that were subsequently removed, rather than part of a foundation driven through the organic silts from higher up. If this is the case then they may have stake-piled foundations, pad-stones and possibly connecting sill-beams dug into a lower ground level beyond the depth limit of the excavation; if this is so, then these could easily account for the pile obstructions observed in the 1960s.

The organic silts are interpreted as having accumulated around the posts to a depth of at least 0.30m, either within a large building or either side of a fence line, with the 2m width of the trench limiting the interpretation. The borehole in this area recorded a further 2.75m of organic deposits to 11.60m AOD, suggesting a considerable depth of medieval activity and the potential for extensive deposits of earlier periods (YAT 2011.41). The phase 11 silts probably have a mixed origin, containing pottery of 14th century date, with considerable quantities of earlier material (Appendix 1) suggesting possible re-deposition. The organic remains suggested primary domestic occupation debris, mixed with flooring materials and food waste in the form of butchered animal bone that showed no evidence of having been disturbed subsequent to deposition (Appendix 9). The silts also contained some cobbling waste (context 1062, Appendix 4, Plate 35) along with considerable amounts of construction material, including some high-status flanged roof tile (Appendix 2) that may derive from the clearance of earlier structures in this area, further highlighting the mixed nature of these deposits.

The posts are currently interpreted as the remains of a partially demolished late 13th century structure, possibly a building but given the distance between the posts perhaps more likely an old fence-line. This was partially removed and buried beneath a levelling deposit deriving partly from demolition rubble and nearby midden material used as a ground make-up deposit in the early 14th century, removing the linear division aligned perpendicularly to St Andrewgate. Alternatively, it is possible that the posts remained in use as a structure during the deposition of the organic silts, and that a later truncation removed the upper part of them, but their function is unclear if this is the case.

Cut into these organic levelling deposits was a waste-disposal pit, context 1060, at least 0.60m long and containing cess and further fragments of disturbed structural timber, bolstering the idea that this phase represents the abandonment of an earlier occupation phase and a brief period of ‘back-land’ status where waste disposal occurred.

5.1.2 PHASE 12: 14TH CENTURY STRUCTURES AND WASTE DISPOSAL

The Phase 11 pit was cut by the construction of a 0.30m wide wall, 1049, aligned north-west/south-east, of which only the heavily truncated remains of the mortar foundation survived (Figure 4, Plate 13). 3m west of this, a 0.30m x 0.20m rectangular pit containing two driven stakes may be the remains of a small piled footing for a structural upright timber (contexts 1070, 1073, 1074; Figure 4, Plate 12). It is not possible to relate these two features, but they probably represent elements of temporary structures in an open 'back-land' area. Alternatively, they could conceivably be internal structural alterations to the phase 11 timber structure if it survived into the 14th century rather than being demolished, as is preferred in this assessment.

The rather ephemeral phase 12 structural remains were followed by a further layer of 0.20m thick, organic clayey silts (1053, 1054, 1065, 1066) which raised the ground level to around 14.80m AOD with a mixture of domestic waste and demolition debris and include two examples of a tile-type of unknown function not seen in York previously (in contexts 1061 and 1065; Appendix 2). The silts appear to have accumulated around wall 1049 as this was robbed during the next phase of activity. As the phase 12 silts contain less residual material than those of phase 11 it is suggested that they represent primary waste deposition rather than deliberate ground-raising with re-deposited material; whilst the condition of the animal bone did suggest some re-deposition this may also relate to weathering from exposure, which might be expected from undisturbed midden (Appendix 9).

The general interpretation offered in this assessment is that there may be considerable structural remains of 13th century date and earlier beyond the depth limit of trench 1, and that the first two phases identified during this evaluation represent the abandonment of these and a relatively short period of open ground with temporary structures that was used primarily for domestic waste disposal until approximately the mid 14th century.

5.1.3 PHASE 13: MID 14TH CENTURY DEMOLITION AND LEVELLING

The phase 12 wall, 1049, was robbed and the backfill sealed beneath substantial imported levelling deposits of clay (1036, 1037, 1041, 1042) containing much residual pottery, mainly of 12th-14th century date but including a small amount of Roman (Appendix 1). These raised the ground level to around 14.90m AOD and are interpreted as part of a site-wide ground preparation for the activity described in phase 14. At the south-eastern end of trench 1, a small timber post-setting (context 1051) appears to represent a temporary structure as it was sealed beneath the levelling deposits described here.

At the north-western end of the trench, a 175 x 355 x 365mm block of partially dressed magnesium limestone (context 1010) with some poorly preserved 13th century claw tooling marks had been laid on the earlier phase 12 levelling deposits and partially buried with a dump of 13-16th century plain roof tile (contexts 1045 and 1046, Plate 14). Like post-setting 1051, this was sealed beneath the clay levelling deposits, and it may represent a foundation for part of a building. However, no other structural remains were encountered within the trench, and although context 1010 occupied approximately the same location as the earlier phase 12 stake-pit foundation (contexts 1070, 1073-4) there was no evidence in the intervening levelling deposits for any relationship between the two. Therefore, given the isolated nature of 1010, together with evidence from trench 2 for 14th century construction, it is felt in this assessment that the stone block and tile dump represent demolition debris from a nearby building, incorporated into the levelling deposits described above, which brought the ground level at the north-western end of trench 1 to c.14.90m AOD, approximately the finished level of the trench 2 building (phase 22, **5.2.2**).

5.1.4 PHASE 14: MID-LATE 14TH CENTURY OCCUPATION

At the south-east end of the trench, an area of burnt orange, red and dark grey silty sands (1030, 1031) were interpreted as spreads of 14th century hearth lining from a possible nearby industrial activity or, more likely, the remains of oven-waste or the rake-out deposits from a domestic hearth (Appendix 7, Figure 6, Plate 15). Cut into this at the extreme south-eastern limit of excavation were three small post-holes (1024, 1025, 1029, Figure 5, Plate 15), possibly representing a temporary structure relating to the burnt spreads. Too little survived to take this interpretation much further, but it is felt that following the general clearance and levelling of the previous phase, some domestic activity took place in the 'back-land' of a property probably fronting onto medieval St Andrewgate/Ketmongergate. These features were sealed beneath further levelling deposits of silty clay (1023) containing medieval plain tile, bringing the ground level up to 14.90-14.95m AOD.

5.1.5 PHASE 15: 15TH-16TH CENTURY BACKLAND AND INDUSTRIAL ACTIVITY

The activity in this phase was more substantial than anything preceding it, and affects the whole of the trench. At the north-western end of the trench, a large pit (1040) was dug, measuring at least 1.6m across and 0.70m deep although only a quarter of it was within the excavated area (Figures 5 and 6, Plate 3 and 9). The backfills contained extensive refuse material, including 14th-16th century construction debris, butchery waste, cess, 16th century pottery and a considerable quantity of re-deposited metalworking residue, including copper alloy strips (SF8, context 1035). The uppermost fill, 1021, was a spread of charcoal-rich material containing a considerable amount of copper-alloy working waste and mould

fragments that, together with the material in 1035, may represent direct disposal of waste from a nearby workshop (Appendix 7).

Two smaller pits, 1020 and 1022, also contained considerable amounts of copper-alloy waste and charcoal along with additional evidence for iron smithing (Appendix 7), further suggesting that the phase 14 clearance and levelling described above prepared the area for industrial activity, although as no evidence for *in situ* metal working was found, this activity has been interpreted as waste disposal. A gully, 1016, measuring 0.40m wide and at least 1.6m long, aligned north-west/south-east (Figure 5, Plate 16) may have been a drain or boundary marker; it was initially interpreted as a beam-slot, but apart from a single post-hole containing some 17th century pottery, no other structural evidence was observed to sustain this interpretation. Its alignment matches that of earlier linear features, suggesting that despite the considerable amount of landscaping and re-working over at least 300 years observed in trench 1, the property boundaries or at least their alignments may have remained relevant, suggesting an interesting degree of continuity that is not reflected in trench 2, and is discussed further in section **5.3**.

5.1.6 PHASE 16: 18TH/19TH CENTURY CLEARANCE AND LEVELLING

The features described above in phase 15 were all truncated at around 0.60m BGL / 15.07, AOD, suggesting that a wholesale clearance had occurred. Above this, a mixed clayey sandy silt containing 18th and 19th century construction debris (1003, 1077, 1078, 1079) raised the ground level by 0.40-0.50m. This clearly represents intentional levelling and ground-make-up, using mixed re-deposited material.

5.1.7 PHASE 17: MODERN SERVICES AND SURFACE

No direct evidence was found in trench 1 for the construction of the standing buildings, although this was observed in the test pits (see YAT report 2011/41). However, two lead water pipes within 0.20m wide trenches were encountered, together with an armoured electricity cable that had been laid at a depth of 0.60m BGL with no protective tiles or warning tape, suggesting that it is contemporary with the standing buildings (Plate 1). The location of the power cable was known from the services plan and confirmed with the Cable Avoidance Tool, and it clearly supplied Bon Marché with power from the electricity sub-station currently housed in C-M-D.

The modern yard service consisted of 0.14m thick steel-reinforced concrete on a 0.12m thick bed of crushed limestone fragments. The finished ground level varied from c.15.70m AOD at the north-west and south-east end of the trench and c.15.60m AOD in the centre, reflecting

an intentional depression in the centre of the yard for a drain that was located to the south-west of the trench.

5.1.8 BOREHOLE 1: OBSERVED SEQUENCE BY D.T. EVANS

Between ground level at *c.*15.60 and 15.10m AOD / 0.5m BGL there was a layer of pale greyish-brown crushed limestone (700). This overlay a 0.7m deep deposit of dark brown slightly clayey silt with occasional charcoal (701) to 14.40m AOD. This deposit sealed a 2.3m deep layer of black slightly organic clayey silt (702) observed to 12.20m AOD. Below this was a 0.5m deep deposit of light greyish-brown slightly sandy clay (703) observed to 11.60m AOD. This overlay a firm, mid grey slightly sandy clay (704), interpreted as natural, which was observed down to 9.10m AOD / 6.5m BGL where archaeological monitoring ceased. The borehole was scheduled to reach a depth of -2.90m AOD / 18.5m BGL.

5.2 TRENCH 2

Trench 2 measured 5m x 2m was aligned north-west – south-east. It was located directly over the projected course of the Roman fortress wall in the proposed position of the new electricity sub-station (Figure 2). The first phase of hand-excavation to 1.25m BGL / c.15.08m AOD encountered medieval structures and deposits, and so in consultation with the client and the city archaeologist, hand-excavation continued within an off-set sondage measuring 1.9m x 1.5m and dug to a maximum depth of 2m BGL / 14.33m AOD, to try and locate evidence for the Roman fortress wall.

5.2.1 PHASE 21: 13TH-14TH CENTURY MIDDEN/STABLE WASTE

The earliest deposits encountered in trench 2, at c.1.5m BGL / 14.80m AOD were a series of very organic waterlogged clayey silts, (contexts 2017, 2034, 2032, Figures 3 and 7, Plates 17-25 and 26). These were observed for 0.5-0.6m until the maximum depth limit of excavation within the sondage but clearly extended beneath this point. They are dated to the 13th-14th century on the basis of a small amount of well stratified roof tile. In general, the amount of cultural material was low, with the pottery assemblage being entirely residual 12th century material (Appendix 1). This is significant because the environmental assessment of the samples from these contexts contained very high quantities of wild flowers, fruits and leaf material along with crop processing waste, strongly suggesting that they derived in the main from byre foddering and flooring materials, with a small amount of mixed-in domestic waste (Appendix 8). The small amount of processed animal bone and re-deposited pottery in 2034, the earliest deposit in this group, suggests a certain degree of levelling with domestic midden, overlain by 2032/2017, which are interpreted as primary dumping of stable waste in the form of used byre flooring and the debris from foddering, suggesting that livestock were kept in the immediate vicinity during this period. Occasional deposits of domestic midden

continued, including discarded leather shoes (SF31, context 2032; Appendix 4, Plate 36), along with occasional fragments of worked horn core (SF 35, 44; context 2034; Appendix 3) and a fragment of possible glass linen smoother (SF32, context 2032; Appendix 3) indicating that the area investigated by trench 2 represents open ground in the 'back-land' used primarily to dispose of stable waste, with some casual dumping of domestic waste as well.

The quality of waterlogged organic preservation in this part of the site is very high, with up to 90 plant species identified in a single 10ltr sample of context 2017 (Appendix 8) and the preservation of fragile animal bone described as 'exceptional' (Appendix 9). The borehole sample of this area (YAT 2011.41) identified a further 3.25m of organic deposits below those encountered in trench 2, to a maximum depth of 5m BGL / 11.10m AOD in this area. The potential, therefore, for excellent preservation of environmental data for earlier periods, including the Roman, is considerable. This is discussed further in section **5.3**.

5.2.2 PHASE 22: 14TH CENTURY BUILDING

This phase saw the construction of a substantial building in the 14th century. A large sub-circular pit, 2028, at least 1m across and more than 0.80m deep, was cut at 1.5m BGL / 14.80m AOD to contain a timber pile-cluster, 2026 (Figures 4 and 7, Plates 27-29, Appendix 5). This comprised a central group of re-worked oak structural timbers set on end, the largest of which was 0.25m across in section, with an outer group of purpose-cut 0.16m wide round alder stakes driven around it, of which five were visible within the trench. The central group was set with the upper ends projecting some 0.25m above the level of the pit cut at c.15.05m AOD to articulate with the foundation material above it, tying in the pile cluster with the footing in a manner typical of medieval building techniques (Steve Allen, pers. comm., Figure 7). The preservation of the wood was excellent, due to the waterlogged conditions noted above.

To the north-west of this cluster, a spread 0.40m wide spread of mortar and cobbles aligned south-west/north-east, 2031, may have been the truncated remains of a wall but are interpreted here as a spread of construction material used as a 'setting-out' marker for the cobbled wall footing above it (Figure 7, Plates 18 and 30). This spread was sealed by a series of clay-silt spreads, 2025, 2029 and 2025, which contained 14th century and residual 13th century pottery and were interpreted as construction spreads and trample which brought the ground level up to the top of the projecting central part of the pile cluster. All these deposits were then sealed beneath 2024, a substantial 1m wide L-shaped packed cobble foundation deposit aligned south-west/north-east with a return to the south-east (Figure 4, Plate 31). This followed the line of spread 2031 and the south-east return articulated with the

projecting timbers of the pile cluster (Figure 7, Plates 17-18 and 27-29), leading to the interpretation that all these deposits represent a single building operation.

In the interior angle of this wall footing, to the south-east, a crude surface of packed cobble and 13-16th century tile had been laid (contexts 2015, 2016, 2020, Plate 32). This surface, 0.18m thick and consisting of several bands that may represent repairs or re-surfacing, was very rough in texture and may suggest that the whole structure was an out-house, or that these interior deposits represent floor make-up for a better surface that was subsequently removed. Fragments of copper-alloy working crucibles were found in 2020, possibly suggesting the use of the building but more likely reflecting the re-deposition of industrial material from nearby. A thick organic silt overlying this surface, 2014/2018, with industrial residues including further fragments of copper-alloy crucibles, was initially thought to be a use-deposit but is now interpreted as a post-demolition levelling spread in the next phase and discussed below in **5.2.3**. It seems likely, therefore, that the contemporary interior and exterior surfaces of the building have been truncated along with any evidence for their function; however these surfaces are not thought to have been significantly higher than the construction level, at c.14.80-15.00m AOD.

The foundation, with its large pile cluster, is thought to have carried a substantial building. The scale of the pile cluster may represent concern on the part of the builders as to the solidity of the underlying ground; it is also possible that the single pile-cluster was required to support a significantly larger element of the superstructure like a tower. However, as so little of the building was exposed in a 2m wide trench, it is perfectly possible that other pile-clusters were used elsewhere in the structure, and so no specific interpretation of the building's form is possible. However, its scale and position some 15-20m from the nearest known 14th century street frontages suggests that it may have been part of a major building that would represent a significant change in land-use from the earlier open-ground of phases 21 and 22. The large quantity of relatively high-status medieval curved and flanged roof tiles in the construction spreads 2029-2030, within the cobbled footing 2024 and the sub-floor/crude surface 2020 are in an unusual concentration for York (Appendix 2) and may suggest either the re-deposition of demolished material from mixed sources including those of high-status, or more interestingly may reflect the materials used to construct the phase 22 building. Wall footing 2024 also contained a further example of the unidentified tile type referred to above in section **5.1.2** (Appendix 2, Plate 37).

5.2.3 PHASE 23: 16TH CENTURY+ CLEARANCE, LEVELLING AND CONSTRUCTION

Wall footing 2024 was sealed beneath a series of slightly organic sandy silts, 2023, 2018 and 2014. In the complete absence of any surviving superstructure on wall footing 2024, these

spreads are interpreted as post-demolition levelling deposits, deposited after the phase 22 building was dismantled. The spreads all contain 14th century pottery, but this is considered residual as cut through them at the north-western end of the trench, was a 1m wide brick and tile-lined lime mortar mixing tank, 2021, constructed with bricks of 16-18th century date (Figure 5, Plates 24-25 and 33-34). The earlier spreads are interpreted as a levelling deposit, laid prior to nearby construction activity. This activity was evidenced by the tank, which still contained a deposit of pure lime-mortar, 2019. The mortar was a single deposit, which when taken together with the relatively small size of the tank might suggest a relatively small-scale operation such as the re-pointing or alteration of an existing building rather than a large construction event. It may be that the phase 22 structural remains in trench 2 are part of a building that was partially dismantled in the early post-medieval period phase 23 and the resulting open area used as a service yard during renovation works elsewhere in the vicinity, probably within the same plot, and possibly involving a surviving element of the original building.

As referred to above, spread 2014, which sealed the earlier interior surface, contained significant quantities of industrial residues suggestive of a nearby kiln, evident as charcoal in the environmental samples (Appendix 8) or waste products suggesting a copper alloy working workshop (Appendix 7). Although this could represent a use-deposit within the phase 22 building, the additional presence of large amounts of demolition debris in 2014, including further examples of higher-status curved and flanged roof tiles, together with the evident truncation of the earlier building, make it more likely that this deposit contains re-deposited industrial waste together with the remains of the earlier phase 22 building. It is still possible that this derives from the original use of the earlier building, but there with no direct evidence in the form of features such as hearths to support this, the interpretation cannot be taken any further. However, the presence of metal-working waste in trench 1 and elsewhere does reflect the well-documented presence of metal-working in this area during the 14th and 15th centuries. This is discussed further in section **5.3**.

5.2.4 PHASE 24: 18TH – 19TH CENTURY DEMOLITION AND CLEARANCE

The phase 23 mortar mixing tank and levelling deposits were sealed beneath a 0.10m thick trench-wide spread of silty clay, 2012/2013, which while it contained several fragments of copper alloy and evidence for metal-working, is felt to represent a trample or levelling deposit associated with a site-wide clearance in the 18th or early 19th century, as it was level and of a uniform thickness, and sealed beneath 2004/2006. This was a 0.25m thick spread of rubble consisting chiefly of 14-16th century brick and tile with 15th century pottery, and was interpreted as a demolition deposit, consisting of the remains of several buildings demolished and cleared in one operation (Figure 7, Plates 17-25). Amongst these may well be the

remainder of the phase 22 building altered during phase 23. Interestingly, the high-status roof tiles noted in earlier phases are absent from 2004/2006 (Appendix 2), supporting the interpretation that the phase 23 construction activity represents a significant change to the earlier phase 22 building, as the latter may have had a less decorative roof. This is discussed further in section **5.3**.

The demolition spread 2004/2006 was in turn sealed beneath a mixed ground make-up deposit, 2003/2005, which was c0.70-0.80m thick and contained 19th century pottery, along with an assemblage of 17th century+ clay pipes, an unusual 17th century tin glazed tile (Appendix 2, Plate 38) and an faunal assemblage suggestive of butchery waste (Figure 7, Appendix 9). This deposit of mixed refuse and demolition rubble brought the ground level up to c.15.90m AOD at the south-eastern end of the trench and c.16.20m AOD at the north-western end, creating the significant slope still evident in the existing surface.

5.2.5 PHASE 25: MODERN SERVICES AND SURFACE

An early 20th century ceramic drain (context 2009/2010) aligned approximately north-south cut through deposit 2003-2005 at the south-eastern end of the trench, and was interpreted as having carried waste water from the buildings at the King's Square end of the site to a still-active surface water drain 5m to the north of trench 2 in the current yard surface. Cut through the backfill of the drain was a narrow cable of unknown purpose in a degraded wooden conduit, aligned north-east/south west (context 2007/2008; Plate 2). These services were sealed beneath the 0.08m thick crushed stone (2002) and 0.10m thick tarmac (2001) of the current yard surface, at c. 16.38m AOD at the north-western end, and 16.10m AOD at the south-eastern end of the trench.

5.2.6 BOREHOLE 2: OBSERVED SEQUENCE BY D.T. EVANS

In this borehole the uppermost deposit was observed between ground level at 16.10m AOD and 15.60m AOD / 0.5m BGL and consisted of pale grey crushed limestone (800). Below this was a 0.75m deep layer of mixed crushed limestone and mid brown silt (801) observed to 14.82m AOD. Under this was a 2.75m deep deposit of very dark brown – black slightly clayey silt with occasional brick / tile (802) observed to 12.10m AOD / 4m BGL where it became wet and stony. Between 12.10m AOD / 4m BGL and 11.10m AOD / 5m BGL there was a wet mixture of gravel and dark brown silt (803) and from 11.10m AOD / 5m BGL there was a firm, wet, mid brown clay (804), interpreted as natural. Archaeological recording stopped at this point although as with Borehole 1 this borehole was to reach a depth of *c.*-2.40m AOD / 18.5m BGL.

5.3 DISCUSSION

It is very likely that the Roman fortress wall does lie beneath the area evaluated by trench 2, as the projected line is based on a good body of evidence. The failure to locate the wall or any deposits of Roman date during this evaluation is explained by the depth limit of excavation, which at c.14.30m AOD was 1m above clay deposits tentatively identified as the Roman rampart during excavations at 1 King's Square in 1988, immediately adjacent to the site to the south-west (Hunter-Mann, 1988, 10). The surviving stretches of the wall seen in the 1950s and 60s on the other side of King's Square, 100m south-west of the current site, were located at c.14m AOD by Stead and c.15m AOD by Wenham, (Hunter-Mann, 1988, 9 and pers. comm.). The wall survived to a height of c.2.4m above its foundations in Stead's trench, so the approximate level of its foundation would be c.11.50m AOD; the Bedern excavations, 100m north-east of 71-73 Goodramgate, located the clay and cobble foundation at c.11.40m AOD, cut into a clay and turf rampart (Ottaway, 1996, 171). If the wall at 71-73 Goodramgate had been robbed as extensively as at the Bedern, then structural remains would lie approximately 3m below the point reached during the evaluation trench 2, c.5m below the current yard surface. The borehole in trench 2, which was located a few metres to the south-east of the projected wall-line, encountered archaeological deposits to a depth of 11.10. AOD, 3.25m deeper than reached during the evaluation, including an unidentified spread of gravel 0.5m thick directly overlying natural. It is clearly not possible to assess the condition of the wall in this area, but on the basis of the total deposit depth recorded in borehole 2 and the known depth of the wall foundation, whatever may remain of it and any associated deposits and features will lie between c.11.10m and c.13m AOD, approximately 3-5m below the level of the yard surface in the south-western part of the site. If not robbed to its foundation, this means that up to 1.5m of upstanding Roman masonry could remain *in situ* in the area of 71-73 Goodramgate, along with a significant depth of waterlogged Roman deposits. The extent and quality of organic survival demonstrated in the medieval deposits demonstrates the significant potential of this area for good survival of significant earlier material.

No deposits or features of Anglian or Anglo-Scandinavian date were encountered, and there was a very low level of residual sherds of this date in later deposits. The presence of extensive waterlogged deposits, however, as confirmed by the boreholes, means there is very good potential for well-preserved remains of this date to survive at lower levels than those attained by the evaluation trenches.

The sequence of well-preserved medieval deposits encountered at 71-73 Goodramgate correlates well with that published at St Andrewgate (Finlayson, 2004) and could be considered part of the same landscape. For this reason, the St Andrewgate excavation forms

the primary comparative material for this discussion; however, it must be stressed that the 1995 excavation covered the south-east side of St Andrewgate, whereas 71-73 Goodramgate is on the north-west side. It is not certain which of the three possible medieval street fronts – Goodramgate, King's Square or St Andrewgate - the sequence at the modern 71-73 Goodramgate relates to. No building fronts were identified, unsurprisingly as these have frequently been shown elsewhere to lie beneath the modern, wider road surfaces (Dean, 2008, 31). The site is physically closer to St Andrewgate than the others and the alignment of the phase 11 fence/building in trench 1 is more akin to the north-west/south-east orientation of the plot boundaries on the south-eastern side of St Andrewgate than the more east-west alignment of the plots at the southern end of Goodramgate (Figure 2). It therefore seems likely that the activity at the current site relates to the rear of properties fronting onto the north-west side of St Andrewgate, but this has not been conclusively proven.

The extensive and very well-preserved waterlogged 13th - 14th organic silts encountered in both trenches (Phases 11, 12 and 21) strongly suggest 'back-land' middening of both domestic waste and in particular that associated with keeping livestock in the form of byre flooring and foddering waste. This closely matches the earlier phases identified in the 1995 St Andrewgate excavation, where, as in trench 1 at 71-73 Goodramgate, 13th century midden was found in association with a dilapidated timber structure, in this case a fence-line aligned north-west/south-east (Finlayson, 2004, 951). Much of the 71-73 Goodramgate midden seemed to derive from stable-waste; well-preserved and extensive deposits of stable-waste have been observed across the wider area on several occasions (M. Stockwell, pers.comm.). It therefore seems reasonable to interpret the 13th/early 14th century at the current site as a period of extensive midden deposition from nearby dwellings. This created a gradually sloping profile downward from south to north from around 14.90m AOD to 14.70m AOD. The animal bone assemblage suggests a general range of typical domesticated animals rather than any specialised function, with a typically domestic consumption rather than the larger-scale butchery waste one might expect from a property on 'Ketmongergate', although it must be stressed than a very small percentage of the area has been excavated to this date.

The development of the area in the 14th century displays a contrast between the two 71-73 Goodramgate trenches. In trench 1, phases 12 and 13 are characterised by large-scale levelling, reflecting the pattern observed nearby (Finlayson, 2004, 951). The phase 13 levelling in trench 1 raised the ground to the level at which the trench 2 phase 22 building was constructed, at around 14.80-90m AOD. The demolition rubble in phase 13 may derive from the vicinity as structures were cleared for new buildings such as those found at St Andrewgate during this period (Finlayson, 2004, 898 and 951). However, the buildings found

in 1995 did not have timber pile and cobbled foundations like the structure in phase 22. Truncated timber-pile pits were found at 1 King's Square (Hunter-Mann, 10), immediately south-west of trench 2, and it may be that in this period the southern part of the modern 71-73 Goodramgate site changed in focus from the St Andrewgate axis to one relating more to that of King's Square/Colliergate. On the basis of the tile found in the construction deposits, this may reflect a higher-status, certainly than earlier activity, and possibly in contrast with that in trench 1. Overall, the re-development of this area reflects the development of the city's houses and other secular buildings from the 14th century onwards (Dean, 2008, 33) and is therefore entirely to be expected.

As stated above, the function of the phase 22 building is unknown, but it seems there may be a possibility of copper alloy metalworking taking place there. This would reflect the evidence for *in situ* metalworking at St Andrewgate from the later 14th century until the 18th century (Finlayson, 2004, 951-2), but in the area of trench 1 no corroborating evidence was found until later phases. Here, it seems that the burnt spreads of phase 14 represent further 'back-land' activity following the general levelling and ground-raising also seen elsewhere, which may relate to buildings fronting the north-western side of St Andrewgate. It is not until the late 15th/early16th century that metal-working residues appear in the form of discarded waste in the trench 1 phase 15 pits or the contemporary levelling associated with the phase 23 alterations to the 14th century structure in trench 2. The mixture of ferrous and non-ferrous waste is entirely in keeping with the local, domestic industrial activity (Finlayson, 2004, 951-953) and it may be that the northern area of 71-73 Goodramgate functioned in the same way from the 15th century onwards, with metal-working activity at the front end of the plot and the back-land used for disposing of waste. The trench 1 deposits further serve to characterise the wider area as a metalworking 'zone', particularly given the proximity of the Bedern foundry; the 71-73 Goodramgate sequence affirms the pattern of 'domestic' industrial activity at the southern end of St Andrewgate, in contrast to the larger-scale operation at Bedern foundary to the north (Finlayson, 2004, 955).

This is the point where the difference between the two trenches is clear. In trench 2, the phase 23 evidence suggests the partial demolition of the earlier, perhaps higher-status building, as part of construction activity not seen to the north in trench 1. This may constitute re-building or renovation of existing structures to the south in a manner seen frequently across the medieval city (Dean, 2008, 33) and reinforces the impression that this part of the site related to activity in King's Square rather than St Andrewgate, certainly by the 16th century and as suggested above as early as the 14th. The complete truncation of these structures in phases 16 and 24 makes it difficult interpret the trench 2 activity any further. In contrast, the 'back-land' industrial waste disposal in trench 1 seems to continue into the 17th

century with the re-instatement of linear features aligned north-west/south-east, correlating spatially and chronologically with the evidence from St Andrewgate for a continuity of the medieval land-use into the post-medieval period.

The 18/19th century clearance of phases 16 and 24 truncated the earlier deposits to around 15.07m AOD in trench 1 and around 15.25m AOD in trench 2, where a further 0.20-0.30m of demolition rubble thought to derive from the remains of the phase 22/23 building raised the level to around 15.45m AOD. This clearance, and the 0.60-0.90m of ground make-up overlying it, may not be immediately contemporary between the trenches, but reflects the early modern development of the area seen elsewhere (Finlayson, 2004, 908).

6. LIST OF SOURCES

British Geological Survey, http://maps.bgs.ac.uk/geologyviewer/, accessed 05/07/2011
YAT Gazetteer, www.iadb.co.uk/gaz/index.htm, accessed 05/07/2011

7. ACKNOWLEDGEMENTS

Research and author	I.D. Milsted
Illustrations	I.D. Milsted
Editor	M.R. Stockwell

The author wishes to thank the client, Town Centre Securities, the consultant engineer, John Cochrane and the staff of C-M-D and Bon Marché for their assistance, cooperation and patience. Thanks also to John Oxley for guidance and advice, and to all the specialists.

8. BIBLIOGRAPHY

Dean, G., 2008, *Medieval York*, The History Press, Stroud

Finlayson, R., 2004, *Medieval Metalworking and Urban Life at St Andrewgate, York*, The Archaeology of York 10/7

Hunter-Mann, K., 1988, 'The Square Holes', in *Interim*, volume 13 number 2, pp8-10

Ottaway, P.J., 1996, *Excavations and Observations on the Defences and Adjacent Sites, 1971-90*, The Archaeology of York 3/3

Palliser, D.M., 1978, 'Medieval street names of York', *York Historian,* Vol 2, pp 2-16

Raine, A., 1955, *Mediaeval York*, John Murray, London

RCHMY1, 1962. An Inventory of the Historical Monuments in the City of York, Volume 1 Eburacum, RCHME

Richards, J.D., *The Bedern Foundry*, The Archaeology of York, 10/3

Richards, J.D., *The Vicars Choral of York Minster The College at Bedern*, The Archaeology of York 10/5

Stead, I.M.,1968, 'An excavation in Kings' Square, York, 1957' in *Yorkshire Archaeological Journal*, Volume XLII, part 166, pp151-164

Wenham, L.P.,1968, 'Discoveries in King's Square, York, 1963' in *Yorkshire Archaeological Journal*, Volume XLII, part 166, pp165-168

Whyman, M., 1993, *An Archaeological Evaluation of Land behind St. Andrewgate and Spen Lane*, YAT report 1993/5

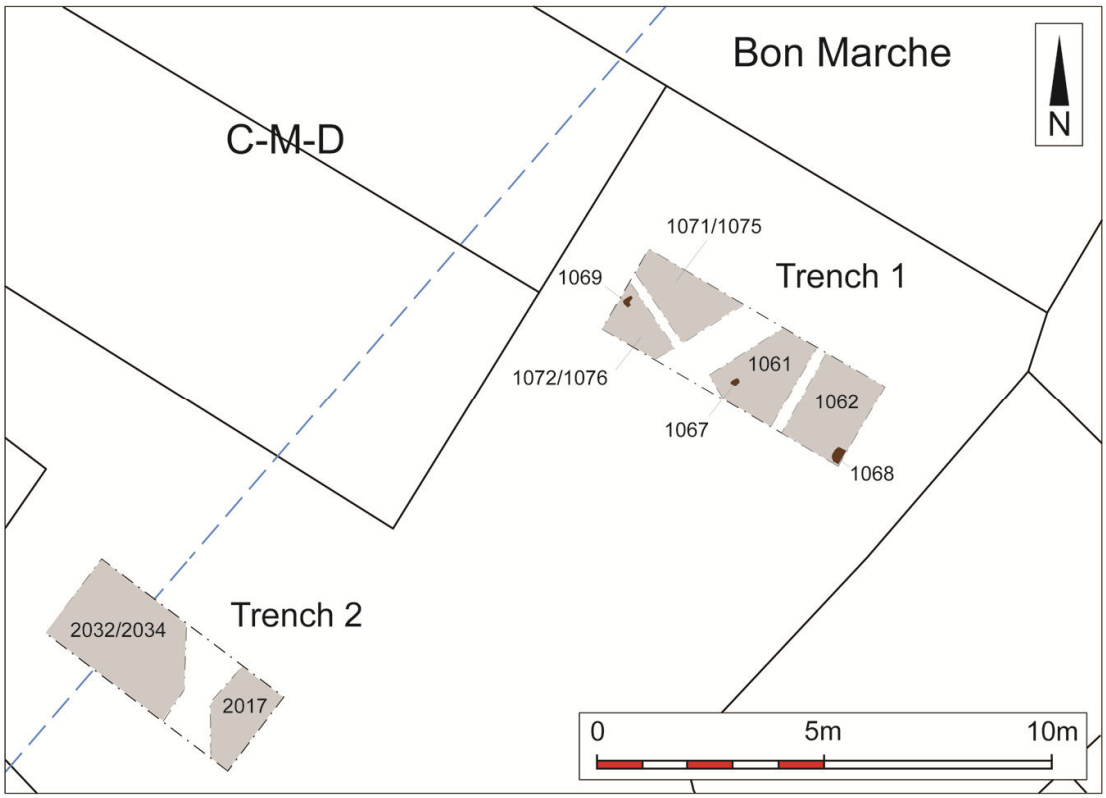

Figure 3 Phases 11 and 21, also showing baulks beneath services

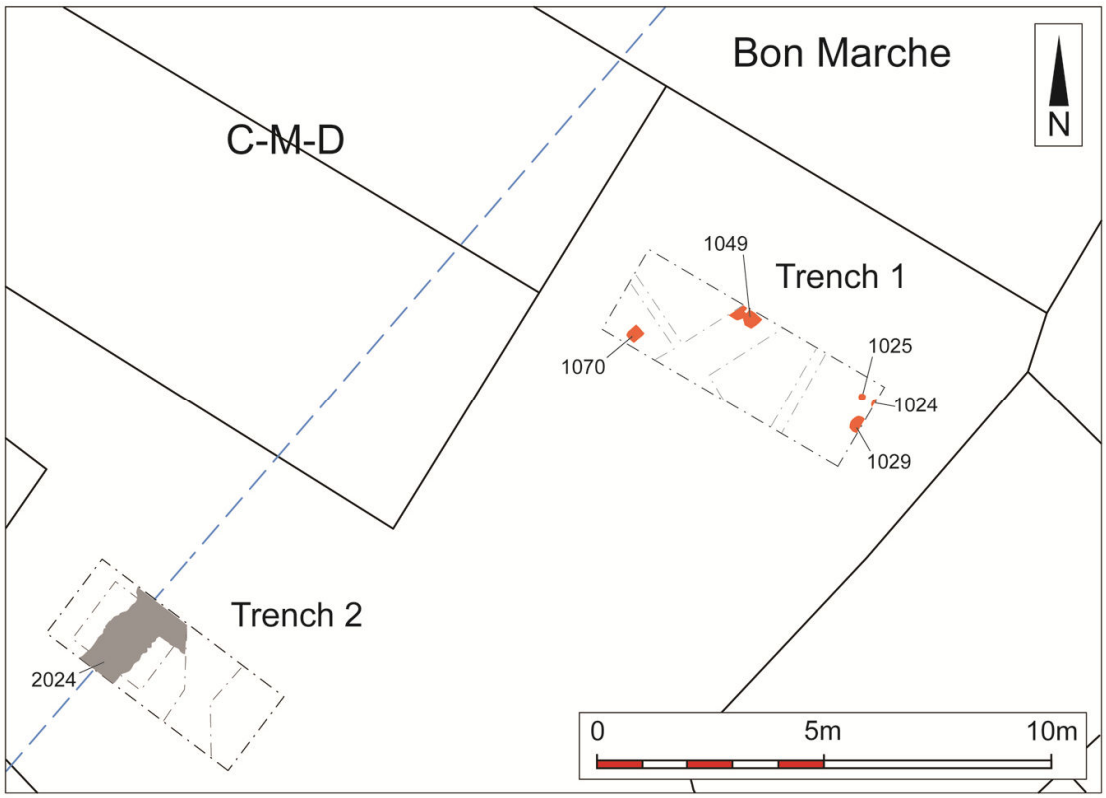

Figure 4 Phases 12, 14 and 22

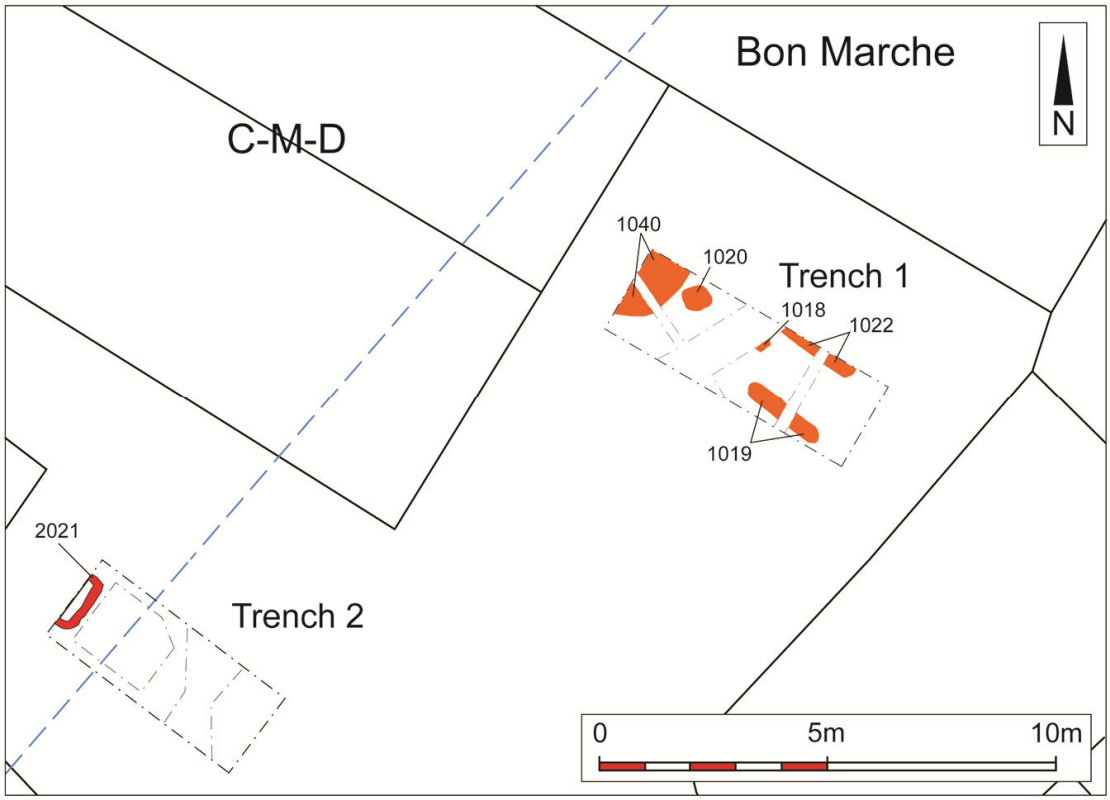

Figure 5 Phases 15 and 23

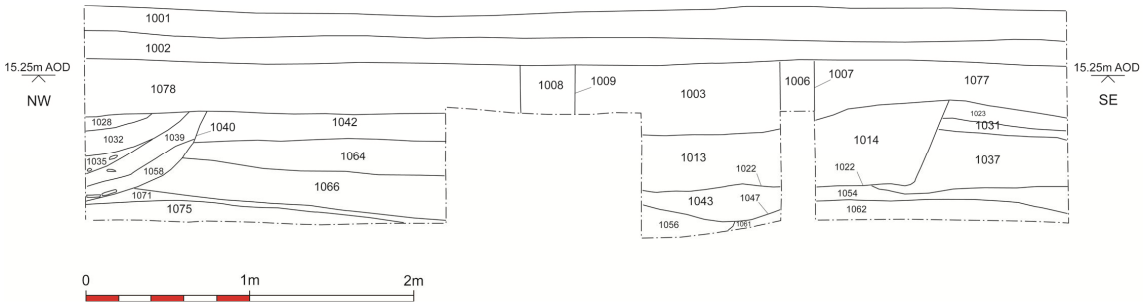

Figure 6 Trench 1, south-west facing section

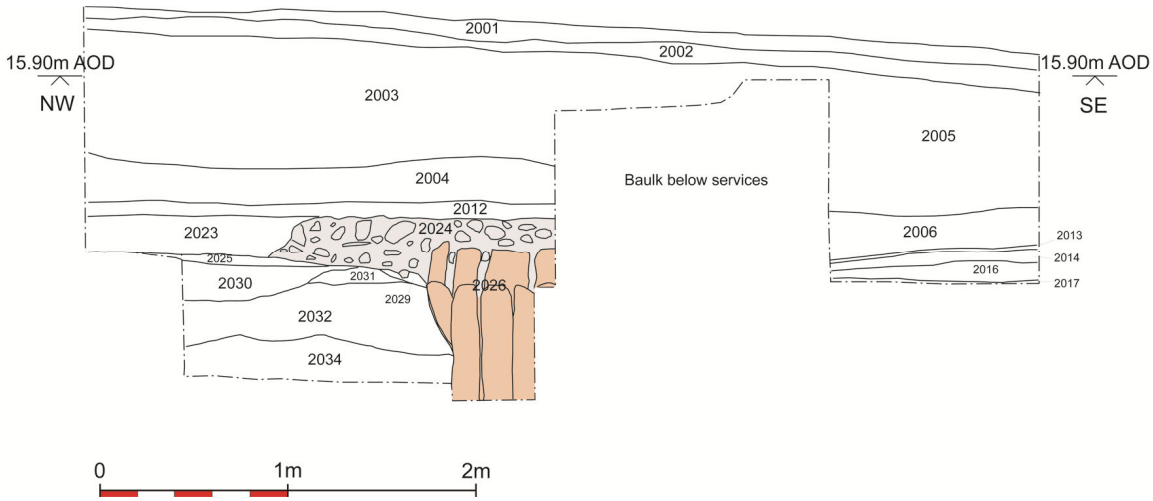

Figure 7 Trench 2, south-west facing section,
showing cobbled footing 2024 and pile cluster 2026 coloured for clarity

Plate 1 Trench 1 Limit of excavation, looking south-east

Plate 2 Trench 2 Limit of excavation, looking south-east

Plate 3 Trench 1 SW facing section, north-west end

Plate 4 Trench 1 SW facing section, south-east end

Plate 5 Trench 1 NW facing section, with post 1068

Plate 6 Trench 1 NE facing section south-east end, with post 1067

Plate 7 Trench 1 NE facing section, central part, with post 1068

Plate 8 Trench 1 NE facing section, north-west end

Plate 9 Trench 1 SE facing section

Plate 10 Post 1069, looking north-west

Plate 11 Posts 1068 and 1067, within midden deposits 1062 and 1061, looking north-east

Phase 12 stake-pit 1074 with phase 11 post 1069, looking north-west

Plate 13 Phase 12 wall footing 1049 (robbed in phase 13), looking north-east

Plate 14 Phase 13 block 1010 with tile dumps 1045/1046, looking south-west

Plate 15 Phase 14 hearth-spread 1031 with post-holes, looking south-east

Plate 16 Phase 15 gully cut 1019, looking south-east

Plate 17 Trench 2 SW facing section, north-west end, upper part

Plate 18 Trench 2 SW facing section, north-west end, lower part (prior to exposure of 2026)

Plate 19 Trench 2 SW facing section, south-east end

Plate 20 Trench 2 NW facing section

Plate 21 Trench 2 NE facing section, south-east end

Plate 22 Trench 2 NE facing section, north-west end, upper part

Plate 23 Trench 2 NE facing section, north-west end, lower part

Plate 24 Trench 2 SE facing section, upper part

Plate 25 Trench 2, SE facing section, lower part

Plate 26 Phase 21 midden 2034 within sondage, looking north-west

Plate 27 Phase 22 pile cluster 2026 after first stage of excavation, looking north-east, showing upper projecting timbers with cobble foundation 2024 in section

Plate 28 Phase 22 pile cluster 2026 after sondage excavation, looking north-east, showing lower round-cut stakes around the re-used structural timbers in the centre

Plate 29 Pile cluster 2026 exposed in sondage section, looking east

Plate 30 Phase 22 construction spread 2031, looking north-west

Plate 31 Phase 22 cobbled footing 2024, looking north-east

Plate 32 Phase 22 rough surface 2020, looking south-east

Plate 33 Phase 23 mortar mixing tank 2021 with fill 2019 in section, looking north-west

Plate 34 Mortar mixing tank 2021, looking west

Plate 35 Leather shoe fragment SF15, from context 1062

Plate 36 Leather shoe SF 31, from context 2032

Plate 37 Unidentified tile from context 2024

Plate 38 17th century tin glazed tile, from context 2003

APPENDIX 1: POTTERY REPORT BY DR. A.J.MAINMAN

This assemblage of just under 300 sherds is typical of medieval York. The range of forms and fabrics is what is now well-known for domestic refuge material spanning the 12th to the 16th century, with some later material.

There is very little residual Roman or Anglo-Scandinavian (Torksey, Stamford, York wares) pottery, and no evidence of Anglian activity. The Anglo-Norman gritty wares and, to a lesser extent the splashed wares, are typical of the later 11th and 12th centuries although production of both continues into the 13th century.

The succeeding products, the York Glazed, Brandsby-type and sandy redwares of the 13th and 14th centuries are present throughout much of the sequence in the typical jug and occasional cooking vessel forms.

There is little Humber ware, the ubiquitous product of the later 14th and 15th century suggesting that these layers are not well-represented. The same is true of the 16th and 17th century Cistercian and Back wares which are present in only a few contexts. 18th century wares are virtually absent and there are a few contexts with 19th century earthenwares and transfer printed wares.

There are one or examples of imported pottery, namely the ?Pingsdorf sherd in context 1053 and the Rouen sherd in context 2029, but again these are not unexpected.

As this is a small assemblage of a type seen on many sites of medieval date in York, it has little value beyond providing dates for the stratigraphic sequence and no further work is recommended.

Phase	Group	Context	Spotdate	Details
11	11	1061		3 gritty wares 2 splashed wares 3 York Glazed wares 9 Brandsby
11	11	1075	12th century	5 splashed
11	12	1071	13th century	2 gritty wares 2 splashed 4 York Galzed
11	12	1072	13th century	1 gritty ware 1 York Glazed
12	14	1049	13th century	2 York Glazed ware
12	16	1053	14th century (or later)	1 gritty ware 1 splashed 1 ?Pingsdorf 5 York Glazed ware 2 ? later earthenwares
12	16	1054	14th century	2 gritty ware 2 splashed wares 17 YorkGlazed/Brandsby

12	16	1065	13th century	3 gritty wares 2 splashed 9 York Glazed ware 1 splashed
12	16	1066	13th century	3 gritty wares 2 splashed 4 York Glazed
13	17	1050	11th century	1 gritty ware
13	18	1043	13th century	1 Brandsby
13	19	1036	14th century	1 Roman 1 gritty ware 4 York Glazed ware 2 splashed 2 gritty ware 4 Brandsby
13	19	1037	12th century	3 splashed
13	19	1059	13th century	1 splashed 1 sandy red
13	19	1064	13th century	2 gritty ware 2 York Glazed ware 2 ? sandy red ware
13	21	1042	13th century	2 gritty wares 4 splashed 1 Brandsby ware
14	23	1030	13th century	1 gritty ware 2 York Glazed ware
14	23	1031	14th century	1 Brandsby ware 1 ?York ware
15	24	1027	16th century	1 reversed Cistercian ware
15	24	1028	16/17th century	1 Cistercian 3 earthenwares
15	24	1032	15th/16th century	4 Humber wares including a Bung hole cistern 1 Hambleton ware
15	24	1034	13th century	1 York Glazed ware 1 sandy red ware 1 scrap
15	24	1035	13th century	6 York glazed/splashed 1 gritty ware
15	26	1011	14th century	3 Brandsby
15	26	1012	17th century	2 Cistercian/Black wares
15	26	1016	10th century	1 Torksey-type ware
17	28	1004	14th century/19th century	3 Brandsby ware 1 sanitary pipe
21	1	2017	12th century	1 gritty ware 1 splashed
21	1	2032		11 gritty wares 3 splashed 1 19th century (intrusive? v small) 1 Torksey ware
21	1	2034	12th century	13 gritty wares 1 Stamford 3 splashed
22	2	2024	13th century	1 splashed 1 York Glazed ware
22	2	2029	13th century	1 Rouen polychrome
22	2	2030	14th century	1 gritty ware 1 Brandsy-type 1 developed Stamford 6 splashed (1 v odd rim)
22	2	2031	12th century	4 splashed
22	3	2015	12 th century	1 splashed
22	3	2020	14th century	1 gritty ware 1 splashed 5 York Glazed ware (in seal) 3 Brandsby
23	4	2014	14th century	5 Brandsby
23	4	2018	14th century	9 Brandsby
23	4	2023	14th century	2 splashed 5 Brandsby 1 Yorkshire red
23	5	2021	13th century	3 York Glazed
24	6	2004	15th century	1 Humber
24	6	2006	14th century	1 Brandsby ware

24	6	2012	14th century	9 Brandsby ware
24	6	2013	14th century	1 Brandsby
24	7	2003	Mid 19th century	18 earthenwares 2 transfer printed wares
24	7	2005	Mid 19th century	4 earthenware

Table 1 Pottery by phase

APPENDIX 2: THE BUILDING MATERIALS BY J.M. MCCOMISH

A total of 103925g of ceramic building material (CBM) and possible stone roofing tiles was recorded from the site, with forms ranging from Roman to modern in date, though the overwhelming bulk (87.2%) was of medieval date. The CBM was recorded to a standard YAT methodology and the results are summarised on Table *1 below.

ROMAN

There were two fragments of tegulae and four fragments of Roman brick which together accounted for 1.8% of the total volume of CBM; all of this was clearly residual.

MEDIEVAL

There were eighteen fragments of flanged tile, together with one definite and seven probable examples of curved tile, all of late 12th to early 13th century date. One of the flange tiles had a circular peg-hole 9mm in diameter, while the curved tile had a peg-hole 10mm in diameter and was glazed. The remaining six probable curved tiles were insufficiently preserved to have nail holes, but all were glazed. Three of the flanged tiles and two of the probable curved tiles had reduced cores. All of these tiles were in fabrics M1, M2 or M6 which are commonly seen within York, and all were of typical dimensions. Curved and flange tiles were associated with high status buildings and are relatively rare on excavations within York; at this site they accounted for almost 6% of the total volume of CBM implying that a high status building was located nearby.

The bulk of the CBM was roofing tile of 13-16th century date comprising 26 peg tiles, 245 plain tiles, one hip tile, two nib tiles and fifteen ridge tiles, all of which were typical in terms of their fabrics and dimensions for York as a whole. There were seventeen peg tiles with square peg-holes, eight with circular peg holes and one with a diamond shaped peg hole; this site conforms to the pattern usually seen in York where square shaped holes dominate with lesser numbers of circular peg-holes and small numbers of diamond shapes. The plain tiles showed various features relating to manufacture including four with indented borders, thirteen with smoothing lines on the top, two with grip-marks from being lifted while wet, twenty with reduced cores, one with glaze on the upper surface and one which had blown during firing to a thickness of 40mm. Both of the nib tiles present had rectangular nibs stuck to the back of the tile, in one case the tile was sufficiently well preserved to show that there were two nibs originally. The hip tile had a circular peg-hole 9mm in diameter. The ridge tiles included one with smoothing lines on the upper surface, two examples with reduced cores, one with glaze on the upper surface and one which had blown when fired.

There were 22 fragments of medieval brick of 14-16th century date, these were all made in sanded moulds, one had an indented border and one had rain marks on the upper surface showing that it had been dried outdoors rather than under cover. The bricks were in fabrics commonly seen in York.

Two fragments of stone were present which may have originally been roofing tiles; one was of oolitic limestone and the other of magnesian limestone. As both types of stone were in use during both the Roman and medieval periods the date of these fragments in unclear.

Three of the fragments interpreted as being of medieval date were highly unusual and have been termed 'Other' on the YAT database; these tiles were from Contexts 1061, 1965 and 2024. The example from 2024 was the most complete, measuring 120x119mm in size and 13mm in thickness. The upper surface of the tile had been trimmed adjacent to all four edges creating a rather uneven upper surface which had been glazed, though the glaze was patchy, in addition the tile was pierced by four 9mm diameter circular holes placed near the corners. The other two examples were poorly preserved but were clearly of identical form to the example from Context 2024; they each comprised a corner of the tile with the partial remains of one hole. No comparable tiles have been found in York and their function is unclear; although the example from Context 2024 is roughly the same size as many medieval decorated floor tiles, it is far thinner and lacks the trimmed sides and even upper surface seen on floor tiles, in addition no floor tiles are known pierced by holes of this type. The tiles do not seem to represent wall tiles; it would not be necessary to have four large holes to attach such a tile to a wall, in addition the uneven upper surfaces and poorly applied glaze would suggest that display was not the primary function. It is possible that these tiles were intended for drainage or for ventilation, though the size of the holes would make then relatively inefficient for either of these purposes.

POST-MEDIEVAL AND MODERN

Post-medieval and modern material accounted for 11% of the total volume of CBM seen. There were nine fragments of post-medieval brick of 16-18th century date all of which were made in sanded moulds; a turning mark was present on the base of one of the bricks, which is a feature commonly seen on bricks of this date. Two fragments of pan tile of 17th century or later date were also present. A single fragment of a tin glazed wall tile was present dating to 1618-1663, this would have been one of four adjoining tiles forming a rose design inside a garter type edging and it was made in London, as similar example can be seen in the Museum of London on line catalogue, accession number 6924a, http://www.museumoflondon.org.uk/ceramics/pages/object.asp?obj_id=117674 (accessed on 31 May 2011). Tin glazed tiles are uncommon finds within York.

Context	Date	Forms
603	13-16TH	Plain
1004	14-16TH	Plain, Medieval brick
1011	13-16TH	Plain
1015	14-16TH	Medieval brick
1016	13-16TH	Plain
1021	13-16TH	Plain
1023	13-16TH	Plain
1027	13-16TH	Plain
1028	16-18TH	Plain, Peg, Post-medieval brick
1030	L12-E13TH	Flange
1031	14-16TH	Plain, Medieval brick
1032	14-16TH	Plain, Medieval brick, Peg
1034	13-16TH	Plain, Peg
1035	14-16TH	Plain, Peg, Medieval brick, Ridge
1036	13-16TH	Plain, Ridge, Peg
1037	13-16TH	Plain, Peg, Ridge
1041	13-16TH	Plain
1042	16-18TH	Plain, Peg, Post-medieval brick
1045	13-16TH	Plain, Peg
1046	13-16TH	Plain
1049	13-16TH	Plain?
1053	13-16TH	Plain
1054	13-16TH	Roman brick, Plain, Flange, Nib
1055	13-16TH	Plain
1056	13-16TH	Plain
1057	13-16TH	Plain
1058	13-16TH	Plain
1059	13-16TH	Plain
1061	13-16TH	Plain, Peg, Ridge, Other, Flange
1064	13-16TH	Plain, Roman brick
1066	13-16TH	Plain
1071	13-16TH	Plain, Stone Peg?
1072	13-16TH	Plain, Stone Peg?
1075	13-16TH	Plain, Flange
1075	L12-E13TH	Curved?
1965	13-16TH	Plain, Other
2003	17TH+	Pan, Plain, Post-medieval brick, Tin Glaze

2004	14-16TH	Plain, Peg, Medieval brick
2005	16-18TH	Roman brick, Medieval brick, Post-medieval brick, Plain
2006	14-16TH	Plain, Medieval brick, Ridge
2012	13-16TH	Peg, Nib, Plain
2014	13-16TH	Peg, Flange, Plain, Ridge, Curved, Hip
2015	13-16TH	Plain
2017	13-16TH	Peg
2020	13-16TH	Ridge, Plain, Flange, Curved
2021	16-18TH	Plain, Peg, Post-medieval brick
2024	13-16TH	Plain, Curved, Flange, Ridge, Other
2027	13-16TH	Ridge
2029	13-16TH	Ridge, Flange
2030	13-16TH	Tegula, Plain, Ridge, Flange
2032	1-4TH	Roman brick, Tegula
2034	14-16TH	Medieval brick

Table 2 Summary of CBM present

FRAGMENTS OF BUILDING STONE

Five fragments of stone were recovered from the excavations, none of which merited full recording as architectural fragments. Unworked blocks of magnesian limestone were present in Contexts 1023 and 1034 which measured 130x98x55mm and 410x495x175mm in size respectively and a block of unworked oolitic limestone was present in Context 1061 which measured 440x320x95mm in size. A third magnesian limestone block from Context 1059 was roughly shaped into a rectangular block in cross-section and was triangular in plan measuring 205x137x75mm in size. None of these blocks had any surviving tool marks and none can be closely dated.

The fifth stone from Context 1010 was of magnesian limestone, measured 175x355x365mm in size and was roughly square in plan with the partial remains of two dressed faces surviving, one face had the badly preserved remains of claw tooling while the second face had badly preserved coarse chisel marks; this stone dates to the 13th century or later.

SUMMARY AND RECOMMENDATIONS

The material from the site is largely typical for York as a whole, but two aspects are of interest firstly the proportion of curved and flange tiles suggests the presence of a high status

building in the vicinity, secondly the presence of three unusual pierced tiles of uncertain function is notable.

While the bulk does not merit any further research, a search of relevant literature should be made for examples of pierced tiles to determine if other examples are known and if so, to determine their function.

APPENDIX 3: ASSESSMENT OF SMALL FINDS BY N.S.H. ROGERS

A total of 51 small finds were recorded – of these 5 are made of leather (SFs15, 16, 31, 34, 36) and are reported on by Ian Panter, 2 are of wood (SFs10, 13) and were studied by Steve Allen, and 20 appear to be related to metalworking (SFs1-5, 7, 14, 18-20, 23, 24, 27, 37, 39, 42, 43, 45, 47, 48) and are reported upon by Rachel Cubitt. The remaining small finds are assessed in this report.

IRON

Of the 13 iron small finds, eight comprised nails (SF6 C.1031, SF9 C.1037, SF11 C.1036, SF12 C.1037, SF26 C.2020, SF29 C.2025, SF30 C.2029, SF38 C.1042), while SF46 C.1023 comprised a nail with a possible knife corroded to a 13th-16th century tile. SF21 C.2015 appears to be a bar or strip. Three objects require further conservation investigation to enable identification: SF25 C.2019 appears to be a large structural fitting, SF28 C.2023 is a large object of unknown function, and SF51 C.1054 may represent folded strips.

COPPER ALLOY

SF8 C.1035 appears to be three strip fragments

STONE

SF17 C.1062 is a gaming counter, while SF33 C.2032 may be part of a stone vessel

FIRED CLAY

All the fired clay small finds are tobacco pipes (SFs40, 49 C.2003; SF41, C.2005) and all appear to be of late 17th century form

BONE

Both small finds of bone are horn cores from the same context (SFs35, 44 C.2034), comprising one offcut of horn working, one ?worked horn core, and one unworked horn core.

GLASS

SF32 C.2032 appears to be a linen smoother fragment, while SF22 C.2012 is an undiagnostic glass fragment

SHELL

SF50 C.2029 is a deliberately perforated oyster shell

CONCLUSIONS

The small assemblage from Trench 1 comprises a stone counter (SF17), a possible knife (SF25), possible iron strips (SF51), and copper alloy strips (SF8), in addition to nails (SFs6, 9, 11, 12, 38) which provide little information relating to activity associated with this trench. There is more – but still scanty - material from Trench 2 including some objects associated with various medieval crafts such as the ?linen smoother used in textile production (SF32), the worked horn core from the production of horn objects (SFs35, 44), and the bar/strip SF21 which might relate to ironsmithing. The perforated shell SF50 may have been a personal accessory. Nails also appear (SFs26, 29, 30). All the tobacco pipes (SFs40, 41, 49) are of late 17th century form but all seem to be residual in their deposits.

None of the small finds in this report hints at any activity before the medieval period - most of the material appears likely to be medieval, with the latest date provided by the late 17th century tobacco pipes. The apparently rather random collection of material suggests that it represents discarded or dumped debris, some associated with craftworking, and perhaps not originating far from the site.

RECOMMENDATIONS

Although not a very informative assemblage, this complements the evidence provided by the other small finds from this excavation, and in turn the considerably larger body of evidence from previous excavations within the same area. It should be incorporated into any further archaeological assessment of this area of the city.

Find	Context	Material	Name
SF1	1011	Copper Alloy	Waste
SF2	1013	Copper Alloy	Fragments
SF3	1021	Copper Alloy	Fragments
SF4	1021	Copper Alloy	Fragments
SF5	1021	Slag	Slag
SF6	1031	Iron	Nail
SF7	1032	Slag	Slag
SF8	1035	Copper Alloy	Strips
SF9	1037	Iron	Nail
SF10	1037	Wood	Object
SF11	1036	Iron	Nail
SF12	1037	Iron	Nail
SF13	1050	Wood	Object
SF14	1042	Copper Alloy	Fragment
SF15	1062	Leather	Shoe
SF16	1062	Leather	Shoe fragment
SF17	1062	Stone	Gaming Counter
SF18	1013	Copper Alloy	Waste
SF19	2004	Fired clay	Crucible
SF20	2013	Copper Alloy	Waste
SF21	2015	Iron	Object

SF22	2012	Glass	Fragment
SF23	2012	Copper Alloy	Waste
SF24	2012	Slag	Slag
SF25	2019	Iron Wood, Mortar	Object
SF26	2020	Iron	Nail
SF27	2023	Slag	Slag
SF28	2023	Iron	Object
SF29	2025	Iron	Nail
SF30	2029	Iron, Stone	Nail
SF31	2032	Leather	Shoe
SF32	2032	Glass	Linen Smoother
SF33	2032	Stone	Vessel Fragment
SF34	2032	Leather	Fragment
SF35	2034	Bone	Horn Cores
SF36	2034	Leather	Fragment
SF37	1014	Fired clay	Mould
SF38	1042	Iron	Nail
SF40	2003	Fired Clay	Tobacco Pipe
SF41	2005	Fired Clay	Tobacco Pipe Bowl
SF42	2014	Fired clay	Crucible fragment
SF43	1028	Fired clay	Fragment
SF44	2034	Bone	Horn Core Offcut
SF45	2018	Fired clay	Crucible fragment
SF46	1023	Iron, Ceramic Building Material	Object, Nail, Tile
SF47	2020	Fired clay	Crucible fragment
SF48	1035	Slag	Slag
SF49	2003	Fired Clay	Tobacco Pipes
SF50	2029	Shell	Object
SF51	1054	Iron	Object

Table 3 Small finds list

APPENDIX 4: LEATHER OBJECTS BY I. PANTER

A total of five small finds of leather were recorded from the site and these were assessed after conservation. Typology and dating are based on the Coppergate shoes (Mould et al 2003) and animal species has been identified from grain pattern alone. The term bovine is used here as no attempt has been made to distinguish between young and mature, and following convention, sheep/goat is also used.

The presence of cut-down shoe elements, plus two fragments of secondary offcuts suggests cobbling waste, dating from the 14th century onwards. Both bovine and sheep/goat are represented, with the latter being used to produce more supple shoe uppers, and the soles typically cut from the more robust bovine hides.

Of note is the complete shoe from context 2032 (Sf31), a typical turn-shoe with a one piece upper with side seam. A simple lace was used to tighten the shoe around the ankle. A wide top-band, decorated with four simple incised lines has been added using whipped stitching, The upper leather has been cut from sheep/goat skin, whilst no grain pattern survives on the sole. Wear holes are present at toe and seat areas of the sole indicative of a well used shoe. The sole has an indistinct waist and stylistically can be dated to the 13th/14th Century (Mould et al 2003). Fragments from its pair were also recovered from the same context (Sf34) including an identical decorated top-band, parts of the sole, and the cut down upper with drawstring attached, and secured by a knot.

Another diagnostic find is sole SF15 (context 1062) which is similar to the Coppergate Type d3, a style which was introduced from the 13th C. onwards. SF 16 (context 1062) consists of four sole fragments, one of which has a very narrow waist (Coppergate Type e) and dated to the 14th /15th centuries.
The leather has been conserved and no further work is required, but the finds should be retained.

REFERENCE

Mould, Q., Carlisle, I., and Cameron, E. 2003. Leather and Leatherworking in Anglo-Scandinavian and Medieval York. The Archaeology of York. The Small Finds. 17/16. Craft Industry and Everyday Life. CBA.

APPENDIX 5: ASSESSMENT OF WOOD ASSEMBLAGE BY S.J. ALLEN

Most of the wood was viewed and recorded on site, with a few samples being recovered for examination in the laboratory. Many of the vertically set pieces passed below or beyond the limit of excavation and could not be recovered except as samples for species identification purposes.

Apart from a bag of 22 fragments (trimmed and untrimmed roundwood, chippings and charred pieces, derived from *Corylus avellana L*, *Quercus spp*. and *Alnus spp*.) from context 2032, the remaining wood from the trenches consisted of small stakes and piles. Some of these are grouped into distinct associations and probably form either reinforcement for what are (now missing) upright timber earthfast posts or a pile-built structure. Most piles are cut from medium diameter *Quercus spp*. wood with some sapwood (and occasional bark on the smaller roundwood pieces) present, but none have sufficient rings to allow for successful dendrochronological dating. The remaining piles are cut from *Fraxinus excelsior L*. branch wood, and the stakes from *Alnus spp*. roundwood. All of these wood species are native and there is no indication that the wood need have been brought in from any great distance. There is some evidence for reuse in the pile group (2026) where two of the four piles (ST 07, ST09) have been cut from reused timber, but the majority of the wood can clearly be regarded as in its primary context.

The presence of other stakes placed to support the larger driven piles suggests two possibilities affecting the use of this property. The piles needed to be substantial enough to provide footings for a significant structure such as a building and/or the builders considered the ground they were building on to be actually or potentially unstable. This could perhaps reflect the nearby presence of the filled in Roman fortress ditch or the presence of ground disturbed by pit digging beyond the area exposed by these trenches.

There is little surviving in the way of measurable toolmarks, through the few distinct worked surfaces suggest a combination of hewing and cleaving to produce the required shapes. With such a lack of recordable technology and potential for dendrochronology, there is no intrinsic evidence for dating these pieces other than through sampling for ^{14}C analysis- for which any of the pieces recovered might be suitable. Other than this there is no significant reason to retain the recovered fragments or to conduct further recording.

CIFR records have now been completed for all of the Structural timbers (ST01-ST15).

APPENDIX 6: CONSERVATION ASSESSMENT BY K. KENWARD

This report aims to meet the requirements of MAP2 (English Heritage, 1991) to produce a stable site archive (Phase2: Fieldwork). This has involved X-radiography and an assessment of the condition, stability and packaging of the finds. Urgent first-aid treatments have been undertaken as required, to enable safe storage for the long term.

The potential of the assemblage for further analysis and research is also discussed (MAP2 Phase 3: Assessment). The condition of the various classes of material is summarised and indicators of unusual preservation are noted. There are recommendations for investigative conservation, for additional specialist support, and topics for further research are raised.

MATERIAL QUANTIFICATION

A total of 37 small finds were assessed.

Material	Quantity
Iron	16
Copper alloy	12
Glass	3
Horn core	1
Leather	5

Table 4 Conservation assessed finds by material

METHODOLOGY

All metal finds were X-rayed using standard Y.A.T. procedures and equipment. The X-rays were given a reference number in the YAT Conservation Laboratory series and the number was written on the packaging for each object X-rayed. Five X-ray plates were produced (X7788, X7798, X7799, X7800 and X7802). Each image on the X-ray was labelled with its small find number. The plates were packaged in acid-free archival envelopes. The plate number was linked to the IADB find record for each object.

All finds were examined under a binocular microscope at X20 magnification alongside their X-ray image where they existed.. The material identifications were checked and observations made of the condition and stability of the finds. Remedial conservation treatments were carried out where appropriate in order to stabilise the material for long term storage.

Assessment and treatment details were recorded in the Conservation Work Record area on IADB, the information can be printed out through SQL Query.

CONDITION ASSESSMENT SUMMARY

Iron: 16 bags containing iron finds were assessed; 12 contained objects of which 8 were nails, the remaining 4 being probable slag. The overall condition of the iron is good although active corrosion was noted on four of the objects. This was small scale and usually on places where damage had occurred. This should stabilize in desiccated storage. The X-rays show mineralisation of all of the cores to varying degrees; some, for example sf21, still has a dense metal core present whilst others, for example sf46 consisting of 3 objects associated with a building tile, are almost totally mineralised. None of the objects appear to have surface plating present. Fragments of mineral preserved organic material were noted in the crusts of some objects but these seemed to have come from the burial environment and therefore were incidental to the objects. Only on sf25 were the mineral preserved organic remains (wood) felt to be part of the object, in this case possibly the remains of a handle or support of some kind, held in place by an iron loop. No corrosion products indicative of wet, anoxic burial conditions were seen; the overall condition of the objects suggests a moist, well aerated burial environment.

Copper alloy: 12 bags of copper alloy fragments were assessed, all bar one of which appear to be waste from metal working. The exception, sf8 is a folded strip in fair overall condition but with very little metal surviving in its core.. Although powdery green/blue corrosion products are visible on most of the pieces they appear to be in a stable condition. The X-rays show the cores of the pieces to be uneven, patchy and often granular as might be expected of waste material.

Glass

3 wet packed items initially described as glass were assessed. One (sf22) was a piece of opaque glass in good condition which was solvent dried. One (sf33) was found not to be glass but a fragment of stone, probably unworked, whilst the material identification of the 3rd piece (sf32) is uncertain. It has areas of an outer glass-like surface but an inner granular substrate which requires further analysis to identify.

Horn: The two pieces (SF35), were identified as horn cores by M. Felter. Both are in good condition.

Leather: All pieces were stabilised by impregnation in 25% v/v glycerol in water for 5 days then freeze-dried (Heto run 338, 2/6/11 to 6/6/11. The complete shoe upper (SF 31) was

pinned to plastazote formers prior to freezing and freeze-drying in order to retain its shape. All pieces are fairly supple and stable, although delamination is occurring to a few fragments.

STATEMENT OF POTENTIAL

Indicators of preservation

The survival of waterlogged leather and wood indicates the presence of anoxic waterlogged deposits and the condition of the metal work suggests moist, well aerated conditions.

Industrial activity

The fragments of copper alloy waste and the iron slag suggests some level of metal working on the site. The mortar deposit on sf25 also suggests some industrial activity as might sf28, should it prove to be a pair of tongs on investigation.

RECOMMENDATIONS FOR ANALYSIS

Investigative conservation to aid interpretation/identification

Three iron objects require further work: SFs 25, 28 and 51. The mineral preserved organic material surviving on SF25 may require investigation using the Scanning Electron Microscope (SEM).

X-ray Fluorescence (XRF)

SF32, potentially very decayed glass, should be submitted for XRF analysis to identify its composition. The object should be kept wet until its composition can be ascertained.

LONG TERM STORAGE

With the exception of the waterlogged wood (reported elsewhere) the artefacts are now stabilised and packed for long-term storage and a programme of regular monitoring and maintenance should be implemented.

APPENDIX 7: METALWORKING DEBRIS BY R.S. CUBITT

24 items of metalworking debris were subjected to brief visual analysis. Table 5 shows the make up of the assemblage.

Activity	Classification	Weight (g)	No. of items
Iron working	non-diagnostic ironworking slag	2681	3
Copper alloy working	crucible	352	3
	probable crucible	2035	1
	mould	62	2
	waste	74	7
	dross	35	1
	runner	2	2
	failed casting	40	2
Non-diagnostic	cinder	37	2
	fired clay	108	1
Total		**5426**	**24**

Table 5 The Goodramgate metalworking debris by type

IRON WORKING

Evidence for ironworking was encountered in the form of three pieces of non-diagnostic ironworking slag with a total weight of around 2.6kg. It is not possible to tell by visual analysis whether this material derives from smelting iron or the working of iron objects by a smith. Loose soil within the finds bags was scanned with a magnet to check for hammerscale, a diagnostic smithing residue, but none was found. Smithing is perhaps the most likely source of this material as smelting operations are usually undertaken away from urban areas at the source of the raw materials.

COPPER ALLOY WORKING

The majority of the metalworking debris relates to the casting of copper alloy objects. There are a three definite fired clay crucible fragments, all body sherds from a type of thick walled crucible that was in use in the Medieval period. Two of these have droplets of copper alloy on their interior surfaces confirming that they were used for processing this metal. A fourth very large (2kg) fragment of fired clay may be part of a crucible that has deformed due to excessive heat. This object requires further investigation.

Two fired clay mould fragments indicate that vessels were being cast. Both are fragments from the cope (outer) part of a vessel mould. One is from the area of the vessel rim. 40g of copper alloy fragments from the site are perhaps failed vessel castings. There are two fragments which are possibly runners, formed from metal that solidified in the channel through which the alloy was poured into the mould. A further 74g of waste and 35g of dross represents alloy lost in the process of pouring and oxidised material skimmed from the top of the molten liquid in the crucible.

NON-DIAGNOSTIC DEBRIS

37g of cinder was recorded. These are fragment that have spalled away from the side of the hearth/furnace having been formed as a result of high temperature reactions between the clay lining and the alkali fuel ash. It is not usually possible to identify which process this material related to. However, in this instance there are droplets of copper alloy on all of these fragments. A further fragment of fired clay is mostly likely part of an over-fired brick (McComish, pers comm.).

DEBRIS FROM SOIL SAMPLES

Spot samples were taken from three contexts thought to contain metalworking debris. These were scanned with a magnet for hammerscale and sieved for finds retrieval. Details of the samples and the items found within them are given in table 6.

Sample	Context	Context description	Weight of soil sieved	Weight of residue	Residue contained
2	1011	spread of black ashy silt	10kg	2793g	lots of mould, waste, slag, coal/charcoal, negligible amount hammerscale.
3	1021	spread or dump of ashy cinder	20kg	3831g	lots of mould, waste, slag, coal/charcoal, negligible amount hammerscale.
5	1031	burnt spread	10kg	1390g	small amounts fired clay, mould, copper alloy waste, charcoal, negligible hammerscale.

Table 6 Results of the soil sample processing

Only negligible amounts of hammerscale were found in the samples. Not sufficient to suggest iron smithing is taking place in the immediate vicinity. Instead the samples produced further evidence for copper alloy casting. All of the material from the samples is additional to that listed in table 1 as sample processing took place after the main phase of finds recording.

Samples 2 and 3 contained large quantities of copper alloy waste, mould fragments and piece of coal/charcoal. Sample 5 was rather different in character, containing much less debris in general and much less coal/charcoal. It comprised mainly fragments of orange fired clay that could be mould material or hearth/furnace lining. Some of these fragments do have droplet of copper alloy adhering to them suggesting that the feature is connected to metalworking.

Evidence for industrial activity was also recovered during the environmental assessment of samples from contexts 1054, 1035 and 2014 undertaken by Northlight Heritage (Miller 2011). It would be advisable for the residues from these three samples to be assessed by this researcher. It is not clear from the descriptions given by Miller whether the debris encountered relates to iron or copper alloy working. The report does not specify whether the metallic slag encountered is hammerscale.

INTERPRETATION BY PHASE

With the exception of the crucible fragments it not possible to obtain independent dates for metalworking debris. The site has been phased on the basis of pottery data. Table 3 shows that debris is divided between seven of the phases which have been arranged in chronological order. This demonstrates that evidence for metalworking first appears in the 14th century, metallic slag is recorded in a spread associated with the use of a building in phase 12 (Miller 2011). A small amount of copper alloy debris was contained in a make up deposit in the following phase. Crucible fragments were recovered from a surface associated with a building of the same period in trench 2 (phase 22).

Phase		12	13	22	14	23	15	24
Century		14	mid14	14	14/15	16	16+	19
Iron	Non-diagnostic iron slag					2220	461	
Copper alloy	crucible			152		200		
	Probable crucible							2035
	mould						62	
	waste						48	18
	dross						35	
	runner						1	
	Failed casting		7				33	
Non-diagnostic	Cinder						27	10
	Fired clay						108	
Totals			**7**	**152**		**2420**	**775**	**2063**
No. of samples with debris		1			1	1	3	

Table 7 Weight of debris, and number of samples containing debris, by phase. 9g unstratified material is excluded

The hearth or mould fragments contained in the sample from context 1031 (phase 14) suggests an industrial feature in a backyard area that is related to copper alloy working.

The bulk of the non-ferrous debris comes from 16th century phases. The ironworking evidence is currently wholly restricted to these phases, although this picture may change once the nature of the debris found in the environmental samples is known. It is noted that all the material in phases 15 and 23 was recovered from spreads and backfill deposits rather than industrial features such as hearths and workshops.

The small quantities of waste and cinder in phase 24 probably represents earlier material that has been disturbed during the 19th century demolition of earlier buildings. The large ?crucible fragment that requires further investigation also comes from this period.

CONCLUSION AND RECOMMENDATIONS

The evidence from Goodramgate points to the casting of copper alloy vessels taking place probably from the 14th centuries and certainly by the 16th century. Evidence for ironworking is restricted to the 16th century.

Much of the material was recovered from spreads and may have been dumped on this site so it is not possible to say where it originated. Workshops may have been situated on this plot, but outside the excavation limits, or elsewhere in the local area. It should be noted that a number of larger sites excavated nearby have produced substantial evidence for metalworking over roughly the same period, 13th-16th centuries. These excavations were located in the Bedern (Richards 1993), on St Andrewgate (Finlayson 2004) and along Petergate (currently unpublished). At St. Andrewgate, for example, there was evidence for both ferrous and non-ferrous metalworking taking place both along the street frontage and towards the rear of properties (Finlayson 2004, 968). It is highly likely that this site on Goodramgate formed part of this same industrial zone.

It is recommended that the debris from Goodramgate assessed here is retained and included in a reconsideration of metalworking activity in this zone of the city. Debris found within the soil samples should be small found and recorded to the same level of detail as the rest of the assemblage. The residues from samples assessed by Northligh Heritage should be made available to this researcher. Further identifications for certain fragments mentioned in the text above should be sought.

REFERENCES

Finlayson, R. 2004 *Medieval Metalworking and Urban Life at St Andrewgate, York*. AY10/7.

Miller, J 2011 *71-73 Goodramgate Environmental Assessment Report*.

Richards, J.D. 1993 *The Bedern Foundry*. AY10/3.

APPENDIX 8: ENVIRONMENTAL ASSESSMENT BY DR. J. MILLER

Excavations carried out at 71-73 Goodramgate, York between 11 April and 16 May 2011 revealed significant organic deposits relating to multi-period occupation dating from the 13th century. Ten bulk samples from rich organic deposits were assessed for environmental potential and revealed evidence of industrial and domestic practices. Samples examined from Trench 2 were especially rich in waterlogged botanical material, with several suggesting byre flooring and foddering with domestic waste inclusion, whilst those from Trench 1 were more indicative of small scale industrial activities, demolition and post-demolition midden accumulation. All of the samples analysed contained abundant organic materials and a more detailed examination would permit a more rigorous interpretation of domestic and industrial activity over time within medieval Goodramgate.

METHOD

Samples examined were sealed within 10litre plastic tubs. In accordance with requested procedures, a subsample relating to approximately 50% volume of each was soaked to help disaggregate it and then sieved to remove silt and clay for closer examination and sorting. Sediment was rinsed through a stack of 500µm, 1mm and 4mm sieves, with each resulting fraction that included waterlogged materials retained wet for further observation. Samples without fragile un-carbonised materials were dried prior to sorting. Sorting in each case was undertaken using a Zeiss binocular microscope and independent Scott variable cold light source at variable magnification of between x4 and x45. Samples without waterlogged plant materials or invertebrates were 100% sorted for charcoal, bone, pot and slag >4mm and all cereals within the >1mm fraction were recovered. The notable abundance of un-carbonised plant remains within the waterlogged samples necessitated a different approach including a detailed record of the >4mm fraction for bone, charcoal, wood and large organics but only a <10% sub-sample of the >1mm fraction for waterlogged seeds. Furthermore, although different seed taxa were recorded, actual numbers were not noted at this stage.

RESULTS

Results are given in Table 8 on a 5-point scale rare to abundant, with T recording trunk wood and RW round wood. For bone, M is mammal, F is fish, B is bird and R is rodent.

TRENCH 1

Only context 1062 of all the Trench 1 samples had retained waterlogged fragile organics. The remainder contained only carbonised botanical remains and significant structural debris within a silty clay matrix. Charcoal preservation was mainly good and full examination would assist in the interpretation of trade and taxon availability.

Phase 11: Context 1062 [14] contained notable volumes of construction materials including stone, tile and mortar within a silty clay. The organic component was highly suggestive of domestic occupation debris including flooring materials and food preparation waste. Butchered large mammal bone was notable, with occasional blade marks observed. Some of the mammal bone was burnt. Vertebrae and ribs of large fish were also recorded, as well as one rodent foot bone. Moderate quantities of small trunk and round wood charcoal and carbonised cereals and nutshell concur with the suggestion of domestic occupation hearth waste. Two moderate off-cuts of leather suggest leather-working practice in the vicinity. Un-carbonised seeds include a combination of wild foods, contaminants of arable crops of good well-drained soil and wild ruderal weeds of wetter places, which together may suggest deposition of domestic food waste onto a wet, growing midden or a combination of floor 'rushes' and food waste. This layer may represent demolition or abandonment of a domestic dwelling and midden, or re-deposition of such materials for levelling.

Context 1071 [21] was similar to (1062) in that significant mortar, brick and tile were recorded within a silty clay base, although sample 21 had not remained permanently waterlogged since deposition and only carbonised plant remains and bone were recovered. Occasional carbonised cereals including wheat, oat and barley imply varied arable practice and were with moderate quantities of large trunk wood charcoal of major trees including oak, elm and ash. Large fish had been prepared for consumption and both calcined and un-burnt fragments of butchered small mammal were noted, including one young ovicaprine tooth. The abundance of demolition debris together with domestic hearth and food preparation waste would concur with the interpretation of re-deposited domestic materials for levelling, or middening over a robbed out or levelled area.

Context 1075 [24] concurred with the interpretation of (1062) and (1071) of demolition and domestic waste including hearth fuel and food processing. Large quantities of trunk-wood charcoal were well preserved and may reflect destruction or robbing of a building or burning of wood-working waste, whether within a domestic or industrial hearth context. However, although the majority of this sample relates to general structural debris, moderate numbers of carbonised wheat, oats, hazel nutshell and some butchered bone of young sheep or goat and large fish confirm there is also a definite domestic midden component to this assemblage. The organic finds from all three Phase 11 samples examined are in keeping with domestic midden practice within the suggested 13-14th period.

Phase 12: Context 1054 [12] consisted of general structural debris including brick, tile, burnt mortar and charcoal, with occasional cereals and metallic slag. There were no waterlogged organic materials present. Two fragments of glazed pot were of moderate size and large

volumes of mammal, fish and moderate sized bird bone were of note. Mammalian long bones had been scraped to remove flesh and then smashed to recover marrow. Charcoal was of both round wood and trunk wood and may be from hearth and structural contexts. The presence of wheat, barley, oats and hazelnuts with the animal bone would imply domestic scale food preparation rather than industrial scale butchery. Together these finds suggest accumulated demolition and domestic debris.

Phase 15: Context 1035 [9] was of similar composition to the Phases 11 and 12 samples examined in that it comprised no waterlogged materials yet significant demolition debris. It is thought to relate to at least the 16th century. The presence of some charcoal, cereals and butchered bone indicates a domestic midden component to this assemblage, whether re-deposited from earlier occupation or contemporary with that particular period of use. Notable evidence of metal working in (1035)[9] suggests small scale industrial processes were ongoing within the area. However, the relative scarcity of charcoal within the sample examined would suggest that this material represents dumped waste materials and that any metalworking hearth was not immediately adjacent.

TRENCH 2

Phase 21: Four samples [28, 33, 35, 37] relating to contexts 2017, 2032, and 2034 from Phase 21 had remained permanently waterlogged since deposition and contained a highly significant un-carbonised plant macrofossil assemblage including over 90 plant taxa. They are thought to relate to 13th century occupation. Only a small volume of organic substrate of each sample was examined for this evaluation but closer examination would permit a more detailed understanding of the domestic processes that have combined to produce such a valuable assemblage.

Context 2017 [28] was highly organic, including large fragments of significant timber planks with small round wood, abundant mature grass/cereal and rush stems, a prolific and varied seed assemblage, broad-leaf twigs and leaf material and numerous blowfly larvae and puparia. Barley and oat bran, mature grass stems and weeds of both cereal cultivation and ruderal places suggest cereal processing waste. Together with the presence of abundant broad-leaf twigs, wild fruits and leaf material, meadow flowers and rushes, this combination suggests byre flooring and foddering of stalled animals. It is likely that fodder was gathered from a variety of places including water meadows and arable field margins. Supplementing fodder with crop processing waste in which cereals are still present suggests a relatively healthy economy. The relative scarcity of animal bone and charcoal yet abundance of invertebrate remains within this context is further supportive of the interpretation of this

deposit as byre flooring and fodder. It is possible that the large planks observed relate in some way to the structure of the byre or a wooden artefact within it.

Context 2032 Spit 2 [33] provided further evidence of byre flooring and foddering materials, with mature grass/cereal stems prolific and bracken, rushes, heather family stems and broad-leaf remains also of note. This combination of flooring and foddering materials emphasises either that byre materials have been gathered from arable, heathland and woodland habitats or that there has been local trade in such materials. Seeds were less numerous than in 2017 but included a similar combination of barley grain and cultivation weeds, wet/drier meadow flowers and ruderal waste ground /field margin casual taxa. Wood fragments included worked off-cuts from large timbers and medium aged round wood that may be residual from wattle stalling or materials strewn onto the floor to absorb liquid and consolidate it. Further confirmation of the suggested byre flooring and foddering status comes from the absence of bone and slag. Charcoal was present in small volumes. Charcoal is known to have been spread on byre flooring to absorb liquid and ahead of manuring for many centuries. Invertebrate remains were occasional, but not extensive, suggesting that the substrate may have been too wet for blowflies or accumulated over the winter months.

Context 2032 Spit 3 [35] was suggestive of byre flooring or household floor rushes, in that monocot remains and arable crop waste were abundant, with weeds of field margins and ruderal waste ground also notable. However, it also contained abundant worked plank off-cuts, mortar and small bone fragments, primarily butchered mammal including a possible small pig toe bone. The presence of hazel nutshell, blackberry and hemp alongside oats and barley alongside the bone would concur with the suggestion that this sample represents at least an element of domestic occupation debris, or midden including a combination of domestic and byre detritus. Blowfly remains would concur with an element of byre flooring or general domestic waste within this sample.

Context 2034 [37] represents further evidence of domestic midden with a likely component of byre flooring waste. There was a notable presence of arable agriculture weeds relating to good, well-drained fertile soils and of crops including oats, barley, hemp and flax. Other weed seeds are indicative of ruderal wasteland but some represent gathering in significantly wetter meadows. The presence of mammal and fish bone, some burnt, with worked trunk wood, charcoal, cereals, flax and hemp are strongly indicative of waste from general domestic activities including food processing and fibre production. The abundance of weed seeds relative to edible seed numbers is more suggestive of byre flooring or domestic floor coverings than a cess pit containing human sewage.

Phase 23: Context 2014 [26] contained remains that were highly suggestive of an industrial kiln or similar process involving heat. Charcoal was not abundant but coal and coal cinder was highly prolific. Mortar was also notable in the large fragments recovered, some burnt. Metallic and other slag, pot and occasional fragments of large butchered mammal plus fish and bird bone were recorded, but waterlogged plant and invertebrate remains were practically absent. Charcoal examined was ashy and had the appearance of having been exposed to prolonged heat. Large trunk wood of oak and beech were observed, which would concur with an industrial process that requires high temperatures. Demolition debris including tile, (some burnt), mortar and rubble were significant within a silty clay matrix and may have consolidated the surface for the industrial process. Alternatively, industrial waste and structural debris may have both been dumped to level or consolidate the surface.

71-73 Goodramgate	Trench	T1	T1	T1	T1	T1	T2	T2	T2	T2	T2
Context		**1035**	**1054**	**1062**	**1071**	**1075**	**2014**	**2017**	**2032 Sp 2**	**2032 Sp 3**	**2034**
Sample		**9**	**12**	**14**	**21**	**24**	**26**	**28**	**33**	**35**	**37**
Wood		-	-	fq (T)	-	-	ra (T)	ab (maj T)	ab (rw + T)	VV ab (T)	ab (T & b)
Charcoal		occ (2.53g)	co (10.64g)	fq (5.36g)	fq (3.71g)	ab (17.17g)	occ (5.24g)		occ (2.35g)	occ (3.46g)	co (3.38g sub)
Ash/cinder							ab (>55.32g sub)	-	-	-	-
Bone		7.81g (m,f,b,r)	26.09g(m,f,b)	23.94g(m,f)	4.58g(f,m)	11.69g(m,f)	6.98g(m,f,b)	1.18g (f)	-	9.08g (m,f,r)	11.68g (m,f)
Leather				2 lge strips	-	-	-	-	-	-	-
Seed		ra (c)	ra (c)	ra (c) ab (wl)	ra (c)	occ (c &wl)	-	ab (wl)	co (wl)	co (wl)	co (wl)
Monocot leaf / stem fgmts		-	-	ab	-	-	-	ab	VV ab	ab	ab
Dicot leaf / stem fgmts		-	-	-	-	-	-	occ	fq	ra	ab
Invertebrates		-	ra	occ	-	-	-	co	occ	fq	co
Pot		-	2 (30.17g)	-	-	-	2 (7.98g)	-	-	1 (?)	-
Metal/metallic slag		fq (18.59g)	occ (4.07g)	ra (<1.0g)	-	occ (8.28g)	2 (3.0g)	-	-	-	ra (<1.0g)
glaze/glass(?) slag							fq (2.42g)	-	-	-	-
Shell/ echinoderm fgmt		ra	-	ra	-	-	-	1	-	-	ra
Carb Macros (sorted 100%)											
Avena sativa/strigosa	cultivated/black oat				4	4		-	-	-	-
Avena sp	oat		3	7	5	16		-	-	-	-
Hordeum vulgare var vulgare	hulled 6-row barley		2	-				-	-	-	-
Hordeum vulgare sl	6-row barley	3	-	-				-	-	-	-
Triticum aestivum	bread wheat					2		-	-	-	-
Triticum sp	wheat		2	-	1			-	-	-	-
Bromus sp	brome grass			1				-	-	-	-
Corylus avellana nutshell	hazel		3	1		2		-	-	-	-
Ericales twigs	heath type			+	+	+		-	-	-	-
W/L Macros (NB sorted <10%)											
Avena bran fgmt	oat	-	-	-	-	-	-	+	+ (occ)	+ (ra)	+ (occ)
Hordeum bran fgmt	barley	-	-	-	-	-	-	+	+ (ab)	+ (fq)	+ (fq)
Aethusa cynapium	fool's parsley	-	-	+	-	+	-	+	-	-	-
Agrostemma githago	corncockle	-	-	+	-	-	-	+	+ (fq)	+	+
Anthemis cf cotula	stinking chamomile	-	-	-	-	-	-	-	+	+ (ab)	-
Asteraceae indet	daisy family	-	-	-	-	-	-	+	-	+	-
Bellis perennis	daisy	-	-	-	-	-	-	+	-	-	-
Betula sp	birch	-	-	-	-	-	-	+	-	-	-
Brassica nigra	black mustard	-	-	-	-	-	-	-	-	+ (occ)	+ (fq)
Calluna vulgaris seed/capsule	heather	-	-	-	-	-	-	-	+ (fq)	-	-
Calluna vulgaris leaf/leafy shoot	heather	-	-	-	-	-	-	-	+ (co)	-	-
Cannabis sativa	hemp	-	-	-	-	-	-	-	-	+ (1)	+

Carex disticha	brown sedge	-	-	+	-	-	-	+	+	+	+ (fq)
Carex hostiana	tawny sedge	-	-	+	-	-	-	-	+	+	+ (fq)
Carex nigra	black sedge	-	-	-	-	-	-	-	+	-	-
Carex pallescens	pale sedge	-	-	-	-	-	-	-	-	-	+
Carex rostrata	bottle sedge	-	-	-	-	-	-	-	+	+	-
Carex sylvatica	wood sedge	-	-	+	-	-	-	-	-	-	-
Carex viridula sl	yellow sedge	-	-	+	-	-	-	-	-	-	+
Carex sp	sedge	-	-	-	-	-	-	+	+	-	-
Centaurea nigra	common knapweed	-	-	-	-	-	-	+	-	-	-
Cerastium fontanum	common mouse-ear	-	-	-	-	-	-	-	+	-	-
Chenopodium album	fat-hen	-	-	+	-	-	-	-	+ (fq)	+	+ (fq)
Chenopodium rubrum	red goosefoot	-	-	-	-	-	-	-	-	-	+
Chrysanthemum segetum	corn marigold	-	-	-	-	-	-	+	+ (co)	+ (fq)	+ (ab)
Cirsium sp	thistle	-	-	-	-	-	-	-	+	+	-
Corylus avellana nutshell	hazel	-	-	+	-	-	-	-	+ (3)	-	+ (fq=12)
Crateagus monogyna	hawthorn	-	-	-	-	-	-	+	-	-	-
Deschampsia cespitosa	tufted hair-grass	-	-	+	-	-	-	+	+	-	-
Epilobium montanum	small-leaved willowherb	-	-	-	-	-	-	-		-	+
Erica tetralix seed	cross-leaved heath	-	-	-	-	-	-	-	+	-	-
Erica tetralix leaf	cross-leaved heath	-	-	-	-	-	-	-	+ (fq)	-	-
Fabaceae pod fgmt + seed (Lathyrus?)	Pea family	-	-	-	-	-	-	-	1	-	-
Fallopia convolvulus	black bindweed	-	-	-	-	-	-	-	-	-	+ (fq)
Galeopsis tetrahit sl	common hemp-nettle	-	-	-	-	-	-	+	-	+	-
Heracleum sphondylium	hogweed	-	-	-	-	-	-	+	-	-	-
Holcus lanatus	Yorkshire-fog	-	-	-	-	-	-	+	-	-	-
Hyoscyamus niger	henbane	-	-	-	-	-	-	+ (co)	-	-	+
Hypochaeris radicata	cat's ear	-	-	-	-	-	-	-	-	-	+
Juncus bufonius	toad rush	-	-	-	-	-	-	-	+	+	-
Juncus effusus/conglomeratus	soft/compact rush	-	-	-	-	-	-	+ (co)	+ (co)	+ (fq)	-
Juncus articulatus/acutiflorus	jointed/sharp-flowered rush	-	-	-	-	-	-	+ (co)	+ (co)	+ (fq)	-
Lapsana communis	nipplewort	-	-	-	-	-	-	+ (fq)	+	+ (fq)	+
Linum usitatisimum seed/ capsule valve	flax	-	-	-	-	-	-	-	-	-	+ (fq)
cf Linum stem scutchings	flax	-	-	-	-	-	-	-	-	-	+ (fq)
cf Lolium sp	cf rye grass	-	-	-	-	-	-	-	+	-	-
Luzula sylvatica	wood-rush	-	-	-	-	-	-	-	+	+	-
Lycopus europaeus	gypsywort	-	-	-	-	-	-	-	+	-	-
Oenanthe sp	water-dropwort	-	-	-	-	-	-	-	-	+	-
Persicaria lapathifolia	pale persicaria	-	-	-	-	-	-	-	+ (fq)	+	+ (fq)
Persicaria maculosa	redshank	-	-	-	-	-	-	+	+	+	-
Plantago lanceolata	ribwort plantain	-	-	+	-	-	-	-	-	-	-
Poa annua	annual meadow-grass	-	-	-	-	-	-	+	+	-	-
Small Poaceae seed/ floret	small-seeded grass	-	-	-	-	-	-	-	+	-	-

Large Poaceae seed/ floret	large-seeded grass	-	-	-	-	-	-	-	+	-	+
Poacae culm/ mature stem	grass/cereal flowering stem	-	-	-	-	-	-	+ (ab)	+ (ab)	-	+ (co)
Polygonum aviculare sl	knotgrass	-	-	+	-	-	-	+ (fq)	-	+ (fq)	-
Potentilla sp	cinquefeille	-	-	-	-	-	-		+	-	+
Prunella vulgaris	selfheal	-	-	-	-	-	-	+ (ab)	-	+ (fq)	-
Prunus avium	wild cherry	-	-	-	-	-	-	+	+	-	-
Prunus insititia	bullace	-	-	-	-	-	-	-		-	+ (1)
Pteridium aquilinum pinnae/ stem	bracken	-	-	-	-	-	-	-	+ (co)	-	-
Ranunculus acris	field buttercup	-	-	+	-	-	-	+ (ab)	+	+	+ (fq)
Ranunculus repens	creeping buttercup	-	-	+	-	-	-	+ (ab)	+	+	+ (fq)
Ranunculus sp	buttercup	-	-	+	-	-	-	-	-	-	-
Raphanus raphanistrum seed/ pod	wild radish	-	-	+	-	-	-	+	-	+	+ (fq)
Rubus fruticosus sl	blackberry	-	-	-	-	-	-	-	-	+	+
Rumex acetosella	sheep's sorrell	-	-	-	-	-	-	+	+	+	+
Rumex acetosa	sorrell	-	-	-	-	-	-	-	-	+	-
Rumex sp	dock	-	-	-	-	-	-	+	+	+ (occ)	+
Sambucus nigra/racemosa	elder/red - berried elder	-	-	+	-	-	-	-	-	+	-
Scirpus sp	wood club-rush	-	-	-	-	-	-	-	+ (fq)	-	+
cf Sparganium erectum	branched bur-reed	-	-	-	-	-	-	+	-	-	-
Stachys sylvatica	hedge woundwort	-	-	+	-	-	-	-	-	-	-
Stellaria media	chickweed	-	-	-	-	-	-	-	+	+	+ (fq)
Torilis cf nodosa	knotted hedge-parsley	-	-	-	-	-	-	-	-	+ (fq)	-
Trifolium petal/floret	clover	-	-	-	-	-	-	+	+	-	-
Urtica urens	small nettle	-	-	-	-	-	-	+		+	-
Veronica beccabunga	brooklime	-	-	-	-	-	-	-	+	-	-
Veronica hederifolia	ivy-leaved speedwell	-	-	-	-	-	-	-	-	+	-
Sphagnum sp leaf	bogmoss	-	-	-	-	-	-	ra	-	-	-
Mosses (weft forming spp)	moss	-	-	-	-	-	-	fq (>5 spp)	+ (occ)	-	-
								-	-	-	-
Invertebrates								-	-	-	-
Earthworm eggs	+ (2)	-	-	+ (occ)	-	-	-	+ (fq)	+ (ra)	-	+ (ra)
Blowfly puparia	-	-	-	+ (2)	-	-	-	+ (co)	+ (occ)	+ (fq)	+ (co)
Blowfly larva	-	-	-	+ (1)	-	-	-	-	+ (occ)	+ (fq)	+ (co)

Table 8 Results of environmental sample assessment

APPENDIX 9: ASSESSMENT OF FAUNAL REMAINS BY C. RAINSFORD

The faunal assemblage from the excavations at 71-73 Goodramgate was assessed with a view to providing a preliminary characterisation of the species composition and preservation quality of faunal material from the various phases. 368 bones were recovered from 44 contexts, and the assemblage was analysed in its entirety.

METHODS

All material was identified to the lowest taxonomic level possible, and identifications were confirmed by comparison to reference specimens from the Department of Archaeology, University of York. Where identification to taxon was not possible (eg. for ribs, vertebrae, and shaft or cranial fragments without identifiable features), fragments were assigned a size category based on the size of mammal from which they derived. Fish were not identified beyond the level of "fish", and no attempt was made to separate sheep and goats on any element aside from horncore. Butchery and level of fragmentation (completeness relative to whole bone) was recorded for each identifiable bone, and any further taphonomic information was recorded by means of notes for each context. Bone was kept bagged by context following analysis. Data were stored as Excel spreadsheets and notes as MS Word documents. NISP (Number of Identified Specimens) has been used as a descriptive quantification method throughout.

THE ASSEMBLAGE

In general, the preservation of the assemblage was excellent, with little weathering or exposure noted in most contexts. 53% of bones were considered identifiable confidently to species, with a further 10% identified to some degree of certainty. Of these, just under half (45%) were judged to be 50% or more complete relative to the whole element. This is comparable to the level of fragmentation seen from the Link Tunnel area of the Hungate site (40% of frags 50% or more complete; Rainsford 2010). The overall quantity of bone recovered is fairly consistent between phases, with the highest quantity of bone recovered from phases 21 (thirteenth century middening) and 15 (fifteenth century levelling deposits and cess pit).

The assemblage comprised almost entirely of domestic species, primarily the three main farmed mammals (cow, sheep and pig), with some domestic fowl (goose, chicken, duck) and commensal mammals (cat and dog) (Table 9, Table 10). Fish were present in the two largest phases (15 and 21), and red deer was identified from 14th century contexts (phases 12 and 22). The species representation is relatively consistent throughout all phases, with only phase 24 (19th century demolition) notable for consisting entirely of cattle and sheep

elements. The predominant species through most phases is cattle, making up between 33% and 59% of identified bone. This, however, is not the case in the 15th-16th century phases, where sheep and goat bones are more common and the proportion of cattle drops to approximately 14%. It is possible this pattern is due to the specific nature of the material from these phases rather than representing a more general pattern – phase 23 contained only 7 identifiable bones, and the material from phase 15 mostly derives from one deposit in a cess-pit (see below) – but may bear further investigation if more material is recovered from the area. It should be noted additionally that the high percentage of cat in phase 15 is biased by the recovery of an articulated cat burial from the cess-pit contexts.

The identified bone represented primarily adult animals, with sub-adult animals making up only 9% of the identified assemblage (Table 11). It is notable that the proportion of sub-adult animals is below the average 9% in the 13th and early 14th century phases (phases 11, 12, 21 and 22) and above average in the later phases. This is a typical pattern for the city of York, where immature cattle and sheep are uncommon until the 15th and 16th centuries (Terry O'Connor pers. comm. June 2011), and may also reflect the relatively low proportion of pig remains on the site, as pigs tend to occur more often as immature animals. Butchery was noted on 26% of identified bones, a proportion which is again comparable to the Hungate Link Tunnel material (27%, Rainsford 2010), which may indicate that primary butchery waste was the source for at least some of the faunal material. Evidence of butchery is notably low in phase 15, although this is most likely a further indication of the distinctiveness of the cess-pit assemblage.

One example of pathology was noted from context [1054], phase 12, consisting of a sheep mandible with clear evidence of infection around the premolars (Figure 1).

PHASES

Phase 11 – 13th-14th century middening

Preservation of bone from this phase was excellent, with bones from these contexts dark in colour and with no evidence of weathering or transport. Vivianite precipitate was noted on some of the bones, consistent with the bones having derived from an organic, waterlogged context.

Phase 12 – early 14th century middening and internal divisions

As phase 11, but with a few fragments showing some evidence of wear (degree of erosion around edges), which may have occurred prior to incorporation into the organic deposits. In addition to the usual domestic species, 1 red deer metatarsal was recorded from this phase.

Phase 13 – 14th century demolition and levelling

The material from context [1036] (clay make-up deposit) is in appearance very similar to that from the organic deposits of the previous phases, with a little more variability in colour and weathering and marginally higher fragmentation which may indicate a higher degree of exposure or reworking. This phase contained duck and dog elements, which were not recorded elsewhere from the site.

Phase 14 – mid-late 14th century industrial activity / backyards

Only five bones were recovered from this phase, of which only three were identifiable. The condition of the bones was noted as variable, and there was no burning recorded in the faunal material to correspond to the burning present in the context as a whole.

Phase 15 – 15th century levelling, post-medieval industry and waste

The majority of the faunal material from this phase derives from the backfills of cess-pit [G24], primarily from context [1032]. This context contained an articulated cat burial with approximately half the elements present, in addition to a small dump of sheep metapodia (n=5) lacking phalanges which may relate to craft or bone-working activity; two mandibles from (respectively) a young calf and young piglet; fish and bird bone; and some large elements of adult cow. The assemblage therefore appears to derive from a number of sources, including consumption waste, primary butchery waste, craft activity and disposal of feral species or domestic pets. However, as the taphonomy and diagenesis appear consistent within the assemblage, this appears to be a dump of material which has accumulated over a short time and may indicate the variety of processes producing animal waste in the local area.

The other contexts within cess-pit G24 produced far smaller quantities of bone, consistent with [1032]. Aside from the cess-pit, no other contexts in phase 15 produced appreciable quantities of identifiable bone.

Phase 21 – 13th century middening

Bone preservation in this phase was exceptional. The same characteristics pertain as in the midden deposits in Trench 9, but the survival of fragile bone (goose sternum, large fragments of cow skull) indicates both the quality of preservation and that the bone in these deposits has been entirely undisturbed since initial deposition. This quality of preservation is particularly notable in context [2032].

Phase 22 – 14th century building, cobbled & timber pile foundation with rough cobbled floor

Bone from this phase was very similar in general appearance to material from the previous phase (21), as well as the 13th/14th century phases from trench 1, despite not being found in highly-organic contexts. No vivianite precipitate was noted on the bones, and it is possible the bones derive initially from previous midden layers or from contemporary midden deposits elsewhere on the site. In addition to the usual domestic species, 1 red deer distal tibia was present in this phase.

Phase 23 – 16th century levelling of 14th century building

Very little bone was found in this phase (n=20, of which only 7 were fully identifiable). Bone deriving from organic spreads was well-preserved and dark in colour (contexts [2018] and [2014]). Bone deriving from context [2023] (spread) showed more evidence of exposure and transport. 3 bones (2 elements sheep/goat, 1 element pig) were also found from the backfill of a lime mortar mixing tank, which were well-preserved with mortar concretion, and are comparable to those recovered from the backfills of a larger mixing tank from 16th century levels at Hungate (Block H1).

Phase 24 – 19th century demolition and make-up

Fragmentation was unusually low in this context, with 86% of bone identifiable and 60% recorded as 50% or more complete. The only species identified from this phase were sheep/goat and cow. Slightly more weathering was recorded on the bones from the ground make-up layers (contexts [2003] and [2005]) than from those from the demolition layers, which may indicate a longer duration of exposure for bone from the make-up levels. The lack of bones from smaller species from this phase is notable, and suggests that the bones from this phase may represent specific butchery waste rather than general refuse. This is an unusual pattern for this period, and may indicate a connection between the site and the butchery trade in the nineteenth century.

SUMMARY

The assemblage is notable primarily for the exceptional preservation of 13th-14th century faunal material from organic midden deposits (phases 11, 12 and 21), which are well-stratified and may provide useful information regarding the formation of the midden and site use in the medieval period. The presence of red deer elements in the 14th century layers indicates the breadth of dietary resources to be found in the vicinity of Goodramgate, and the site's proximity to the ecclesiastical houses of the Bedern may account for its access to less common and higher status dietary resources (Terry O'Connor pers. comm. June 2011). Although domesticates predominate in these phases, the lack of other game species may therefore be a result of the small size of the excavation and the resultant assemblage.

Preservation of bone in the later phases is not as exceptional as the 13th-14th century material, and in general there is no clear source from which the material is deriving. However, the 15th century cess-pit deposits are an important indication of the range of sources from which faunal material at the site might be derived, and the range of activities occurring in the vicinity of the site at that time. Equally, the slightly unusual composition of the nineteenth century assemblage and the possible link to the butchery trade may bear further investigation, and is worth noting for comparison to other sites within the city. No further work is recommended for this assemblage at the present time.

Species	11	12	13	14	15	21	22	23	24	TOTAL
Cow	5	12	5	1	7	21	11	1	13	**76**
Sheep/goat	3	12	1	1	10	7	3	2	9	**48**
Goat						2				**2**
Pig	1	2	3	1	2	6	1	3		**19**
Deer		1					1			**2**
Dog			1							**1**
Cat					21					**21**
Goose		1			1	5	1	1		**9**
Chicken	2	1			2	1	3			**9**
Duck			1							**1**
Bird					1					**1**
Fish					5	2				**7**
Total ID	**11**	**29**	**11**	**3**	**49**	**44**	**20**	**7**	**22**	**196**
UNID	9	21	20	2	23	51	26	13	7	172
TOTAL	**20**	**50**	**31**	**5**	**72**	**95**	**46**	**20**	**29**	**368**

Table 9 Species representation (NISP) by phase, 71-73 Goodramgate

Species	11	12	13	14	15	21	22	23	24	TOTAL
Cow	45.5	41.4	45.5	33	14.3	47.7	52.4	14.3	59.1	38.6
Sheep/goat	27.3	41.4	9.1	33	20.4	15.9	14.3	28.5	40.9	24.4
Goat						4.5				1
Pig	9.1	6.9	27	33	4.1	13.6	4.8	42.9		9.6
Red Deer		3.5					4.8			1
Dog			9.1							0.5
Cat					42.9					10.7
Goose		3.5			2	11.4	4.8	14.3		4.6
Chicken	18.2	3.5			4.1	2.3				4.6
Duck			9.1							0.5
Bird					2					0.5
Fish					10.2	4.5				3.6
TOTAL	**11**	**29**	**11**	**3**	**49**	**44**	**20**	**7**	**22**	**196**

Table 10 Species representation (% ID frags) by phase, 71-73 Goodramgate

Phase	N	ID	%ID	Complete 50+	%	Sub-adult	%	Butchery	%
11	20	14	70.00	5	35.71		0.00	5	35.71
12	50	31	62.00	16	51.61	1	3.23	9	29.03
13	31	20	64.52	8	40.00	4	20.00	9	45.00
14	5	3	60.00	1	33.33	1	33.33		0.00
15	72	52	72.22	19	36.54	9	17.31	5	9.62
21	95	51	53.68	23	45.10	1	1.96	17	33.33
22	46	25	54.35	13	52.00	2	8.00	8	32.00
23	20	11	55.00	6	54.55		0.00		0.00
24	29	25	86.21	15	60.00	3	12.00	8	32.00
TOTAL	**368**	**232**	**63.04**	**106**	**45.69**	**21**	**9.05**	**61**	**26.29**

Table 11 Identifiable bone, fragmentation, age and butchery by phase. Percentages for fragmentation, sub-adults and butchery are given as percent of total identifiable bone for the phase

APPENDIX 10: CONTEXT AND PHASE REGISTER

Context	Phase	Date	Description
1000	17	20th	Unstratified
1001	17	20th	Concrete surface
1002	17	20th	Hardcore sub-base
1003	16	19th	Ground make-up
1004	17	20th	Backfill
1005	17	20th	Service cut: SE-NW water pipe
1006	17	20th	Backfill
1007	17	20th	Service cut: N-S water pipe
1008	17	20th	Backfill
1009	17	20th	Service cut: Electricity
1010	13	m14th	Block
1011	15	16th+	Backfill
1012	15	16th+	Post hole fill
1013	15	16th+	Pit backfill
1014	15	16th+	Pit backfill
1015	15	16th+	Gully backfill
1016	15	16th+	Gully backfill
1017	15	16th+	Post pad
1018	15	16th+	Posthole cut
1019	15	16th+	Gully cut
1020	15	16th+	Pit cut
1021	15	16th+	Spread/ Pit backfill
1022	15	16th+	Pit cut
1023	15	16th+	Levelling
1024	14	14-15th	Stake hole cut
1025	14	14-15th	Stake hole cut
1026	14	14-15th	Post pad/packing
1027	15	16th+	Pit backfill
1028	15	16th+	Pit backfill
1029	14	14-15th	Stake hole
1030	14	14-15th	Spread
1031	14	14-15th	Spread
1032	15	16th+	Pit backfill
1033	13	m14th	Levelling
1034	15	16th+	Pit backfill
1035	15	16th+	Pit backfill

1036	13	m14th	Ground make-up
1037	13	m14th	Ground make-up
1038	15	16th+	Pit backfill
1039	15	16th+	Pit backfill
1040	15	16th+	Pit cut
1041	13	m14th	Ground make-up
1042	13	m14th	Ground make-up
1043	13	m14th	Robber backfill
1044	13	m14th	Robber backfill
1045	13	m14th	Demolition dump
1046	13	m14th	Demolition dump
1047	13	m14th	Robber cut
1048	13	m14th	Robber cut
1049	12	14th	Wall footing
1050	13	m14th	Post void backfill
1051	13	m14th	Post
1052	13	m14th	Post hole cut
1053	12	14th	Spread
1054	12	14th	Spread
1055	13	m14th	Dump
1056	11	13-14th	Pit backfill
1057	15	16th+	Pit backfill
1058	15	16th+	Pit backfill
1059	13	m14th	Dump
1060	11	13-14th	Pit cut
1061	11	13-14th	Organic spread/midden
1062	11	13-14th	Organic spread/midden
1063	12	14th	Wall construction cut
1064	13	m14th	Ground make-up
1065	12	14th	Organic spread/midden
1066	12	14th	Organic spread/midden
1067	11	13-14th	Timber post
1068	11	13-14th	Timber post
1069	11	13-14th	Timber post
1070	12	14th	Pit backfill
1071	11	13-14th	Organic spread/midden
1072	11	13-14th	Organic spread/midden
1073	12	14th	Stakes

1074	12	14th	Pit cut
1075	11	13-14th	Organic spread/midden
1076	11	13-14th	Organic spread/midden
1077	16	19th	Ground make-up
1078	16	19th	Ground make-up
1079	16	19th	Ground make-up
2000	25	20th	Unstratified
2001	25	20th	Tarmac surface
2002	25	20th	Hardcore sub-base
2003	24	19th	Ground make-up
2004	24	19th	Demolition spread
2005	24	19th	Ground make-up
2006	24	19th	Demolition spread
2007	25	20th	Ground make-up
2008	25	20th	Service cut
2009	25	20th	Ceramic drain
2010	25	20th	Service cut
2011	VOID	VOID	VOID
2012	24	19th	Spread
2013	24	19th	Spread
2014	23	16th	Spread
2015	22	14th	Dump
2016	22	14th	Cobble spread/surface
2017	21	13th	Organic spread/midden
2018	23	16th	Spread
2019	23	16th	Mortar backfill
2020	22	14th	Cobble/tile surface
2021	23	16th	Lining and floor of mortar mixing tank
2022	23	16th	Construction cut for mortar tank
2023	23	16th	Spread
2024	22	14th	Cobbled wall foundation
2025	22	14th	Construction spread
2026	22	14th	Timber pile cluster
2027	22	14th	Construction backfill
2028	22	14th	Construction cut for pile cluster
2029	22	14th	Construction spread
2030	22	14th	Construction spread

2031	22	14th	Construction spread
2032	21	13th	Organic spread/midden
2033	21	13th	Dump
2034	21	13th	Organic spread/midden

Table 12 Context register with phases