JOINT SERVICE CENTRE,

MILLGATE,

WIGAN,

Greater Manchester

Archaeological Excavation Report

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SUMMARY

A major new facility to provide a range of council services on a single integrated site, known as the Joint Service Centre Development, was proposed by Wigan Council in 2006. The development area lies on the eastern fringe of the centre of Wigan, Greater Manchester (centred at NGR SD 58356 05569), bounded by Millgate, Rodney Street, Library Street and the Wiend. It incorporates part of the historic town that is known to contain buried remains of Roman and medieval date. Large gaps exist in the current understanding of Wigan's history, and whilst its Roman origins have long been suspected, this period in the town's history has remained enigmatic. It has frequently been cited as the Roman settlement of *Coccium*, referred to in an early third-century document, although corroborating evidence has been elusive.

In order to secure archaeological interests, a condition was placed on the planning application for the Joint Service Centre Development, which allowed for a programme of archaeological investigation. An early stage in this programme of work was an archaeological desk-based assessment and a field evaluation, which were undertaken by Oxford Archaeology North (OA North) between May and August 2007. The results obtained from the evaluation revealed significant *in-situ* archaeological remains, which comprised deposits of Roman, medieval and post-medieval date. Following consultation with the Greater Manchester County Archaeologist, it was recommended that this merited further, more detailed investigation in advance of construction work.

Between June and September 2008, OA North carried out open-area excavation beneath the car park to the north of the Municipal Buildings, incorporating an area that had been known formerly as Park's Yard. The excavation covered approximately 1110 square metres in a roughly 'L'-shaped plan, and was carried out in three phases to accommodate the necessity of retaining all the spoil on site. The earlier evaluation trenches were encountered but they had not impacted greatly on the archaeology. Intensive development of the site from the eighteenth century onwards had disturbed large areas, resulting in the removal of much of the earliest archaeological evidence.

During the 1980s, archaeological excavations within this same area (Tindall 1983; Jones and Price 1985) yielded significant evidence for Roman activity. Indeed, a stratigraphic sequence of human activity from the late first century AD to the twentieth century was established. This was supplemented subsequently by large-scale excavations undertaken by OA North in 2004-5 on the opposite side of Millgate (OA North 2005a; OA North 2008). Significant finds from that investigation included the complete plan of an early second-century Roman bath-house, numerous medieval features, and extensive remains pertaining to the industrialisation of Wigan in the post-medieval period.

The earliest features exposed in 2008 at the site of the Joint Service Centre included part of a Roman timber building that had also been partly exposed during the adjacent excavations of the early 1980s. The combined evidence from both sites indicated that this was probably a barrack block dating to the late first-early second century AD. The presence of such a building provides strong circumstantial evidence for the existence of a Roman fort on the low hill occupied today by Wigan town centre. Two iron-

smithing hearths of late first- or early second-century date were also excavated, though these seemingly post-dated the disuse and demolition of the putative barrack. No evidence for Roman occupation after the early second century AD was found, but remains of this date could have been destroyed completely by post-Roman disturbances.

Significant archaeological features of medieval date were also exposed, including a kiln or oven of probable late thirteenth-century date, and several pits and linear features. For the most part, these remains were fragmentary, but are likely to represent occupation of burgage plots to the rear of The Wiend. Three sub-phases of activity were recorded, probably extending from at least the thirteenth century to the fifteenth/early sixteenth century. Some evidence for activity on the site in the seventeenth century was also found, as well as for the subsequent intensification of activity associated with the rapid expansion and industrialisation of Wigan during the eighteenth and nineteenth centuries.

ACKNOWLEDGEMENTS

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1. INTRODUCTION

1.1 PROJECT BACKGROUND

1.1.1 In 2006, Wigan Council submitted a proposal for the construction of an integrated council service centre, together with improved leisure facilities that include a new swimming pool, in Wigan, known as the Joint Service Centre Development. The development of land bounded by Millgate, Rodney Street, Library Street and the Wiend, in the centre of Wigan, Greater Manchester, incorporates part of the core of the historic town (Fig 1). From the results of earlier archaeological work in the vicinity of the site, it was clear that the construction programme was likely to have a negative impact on buried remains of Roman, medieval and earlier post-medieval date.

1.1.2 In order to secure archaeological interests, the Greater Manchester Archaeological Unit (GMAU), in its capacity as archaeological advisor to the Local Planning Authority, recommended that a programme of archaeological investigation was carried out to inform the planning process. In accordance with this recommendation, Wigan Council attached an archaeological condition to the planning consent for the development, and a brief detailing the required archaeological works was prepared. In the first instance, a desk-based assessment of the development area was undertaken by Oxford Archaeology North (OA North 2007a). The assessment highlighted those parts of the site that were considered to have some potential to contained buried archaeological remains, and concluded that a programme of targeted evaluation trenching should be carried out. The evaluation was intended to assess the nature, date, extent and significance of any buried archaeological remains in order to devise an appropriate mitigation strategy in advance of development work. In July 2007, OA North was invited by Wigan Council to submit a costed project design to undertake the specified programme of archaeological evaluation. Following the acceptance of the project design, OA North was commissioned to carry out the work, which was completed in July and August 2007. The evaluation comprised the excavation of seven targeted trial trenches, across areas of the site that were considered to have a potential to contain archaeological remains.

1.1.3 The evaluation demonstrated that, whilst archaeological levels had been removed by nineteenth- and twentieth-century disturbances over large parts of the site, important buried remains of Roman, medieval and earlier post-medieval date did survive in some areas, and that these sensitive deposits were threatened with damage or total destruction by the proposed development (OA North 2007b). Consequently, the County Archaeologist, in consultation with representatives of Wigan Council, recommended that a more extensive programme of controlled archaeological excavation be undertaken in these areas prior to the commencement of building works, since *in-situ* preservation of the remains was not a practical option.

1.2 LOCATION, GEOLOGY AND TOPOGRAPHICAL SETTING

1.2.1 ***Location:*** Wigan lies close to the western boundary of the modern county of Greater Manchester, approximately midway between the rivers Mersey and Ribble. The town is situated on the northern bank of the river Douglas, a tributary of the Ribble. The development site lies on the eastern fringe of Wigan's historic core (centred on NGR SD 58356 05569), bounded by Millgate, Rodney Street, Library Street and the Wiend (Pl 1).

Plate 1: Aerial view of the development area prior to the excavation

1.2.2 ***Geology:*** the geology of the Wigan area forms part of the Lancashire Coal Measures, which extend from the Mersey Valley in the south to the Amounderness Plain in the North West (Countryside Commission 1998, 172). The solid geology comprises productive coal measures, with Bunter sandstone and marls to the south (Ordnance Survey 1951). The overlying drift geology consists of glacial and post-glacial tills, with fluvial deposits of gravel along the course of the river Douglas (Countryside Commission 1998, 128), which today lies a short distance to the east of the site.

1.2.3 ***Topography:*** the historic core of Wigan is situated on a low hill that rises from the valley of the river Douglas, which takes a broad loop around the eastern and southern sides of the town. Millgate lies on the eastern fringe of the historic core, and rises fairly steeply from a height of 35m aOD at its south-eastern end, by its junction with Rodney Street, to a high point in excess of 50m aOD near its junction with The Wiend. Beyond The Wiend, Millgate falls to a height of 45.5m aOD at its north-western end. The land to the east of Millgate drops sharply, although the construction of a shopping arcade, a multi-storey car park and Civic Centre on the corner of Millgate and Station

Road has altered its true form (GMAU 1987). A greater understanding of the topography of the area was provided by a contour survey of the town centre undertaken in 1982 by the Greater Manchester Archaeological Unit (GMAU). The results demonstrated that the site straddles the eastern side of a spur on which the historic core of the town is situated.

1.3 HISTORICAL BACKGROUND

1.3.1 ***Prehistoric period:*** there is little evidence for prehistoric activity around Wigan, and none in the vicinity of the site. Stray finds are, however, known from the wider area, including a Neolithic polished stone axe found at Gidlow (Jackson 1936, 74), a Bronze Age axe-hammer, now lost, discovered near Bottling Wood to the north-east of the site (UMAU 2001, 7), and a polished stone axe recovered from Leigh cricket ground in 1912 (Aldridge 1999).

1.3.2 ***Romano-British period:*** Wigan has long been associated with the Roman site of *Coccium*, which is recorded as lying 17 miles from Manchester in a listing of roads, known as the *Antonine Itinerary*, which was probably compiled during the second century AD (Margary 1973). Firm evidence for this association has, however, been lacking, although antiquarian observations and chance finds of Roman artefacts indicated that occupation of some kind had occurred on the site during the Roman period. During the nineteenth century, artefacts were discovered during construction works in the Wallgate, King Street and Darlington Street area (Hannavy 1990, 8), and a particular concentration of finds was identified on the higher ground around Library Street and Millgate (Hawkes 1935, 43). The remains of a probable Roman cemetery were also discovered during the construction of a gas works on the southern edge of the town between 1822 and 1830 (Watkin 1883, 20). Also during the early nineteenth century, a defensive bank and ditch were purportedly visible on the north side of the town centre, although there is some debate over the actual dating of this putative feature, which is now largely considered to be of probable medieval origin (*Section 1.3.9 below*).

1.3.3 It was not until archaeological excavations were carried out at The Wiend during the 1980s that actual settlement remains of Roman date were first identified in Wigan. These investigations revealed the remains of what was then interpreted as a Roman military industrial site, comprising a series of timber buildings, furnaces and hearths associated with a metalled road. It was considered likely that further Roman remains had existed near the summit of the hill in the town centre, but that these deposits had probably been largely destroyed by Georgian and Victorian cellars (Tindall 1983, 29-30). Whilst the results of the excavations added weight to the hypothesis that Wigan was indeed the site of *Coccium*, the nature, function and longevity of Roman settlement remained uncertain. Indeed, the main phase of intensive activity at The Wiend appears to have tailed off during the early years of the third century, and the nature of Roman activity during the third and fourth centuries remains entirely obscure. Similarly, it has been assumed that there was a Roman fort in Wigan, although firm evidence of genuinely military activity remains elusive.

1.3.4 Recent work by the Wigan Archaeological Society (WAS) has furnished information regarding the route of Roman roads in the vicinity of Wigan. One of the most important routes was the road between Wigan and Manchester, which, in general terms, is thought to take the same course as the modern A577 (Aldridge 2005). This has been investigated in several places, including Small Brook Lane, near Atherton, Hatton Fold, Amberwood Common in Higher Ince, and in Ellesmere Park (*ibid*).

1.3.5 ***Early medieval period:*** the character of occupation following the collapse of formal Roman administration in the early fifth century remains entirely obscure. Place-name evidence points to some form of native settlement (Tindall 1985, 20), and the name Wigan is thought to come either from an Old English personal name (*ibid*), or from the Saxon word *waeg*, meaning way, which is often associated with the existence of a Roman road (GMAU 1991, 9). There is no direct evidence for activity in the study area during this period, but the name Standishgate includes the Viking word for street, '*gata*' (Hannavy 2003, 15), which suggests it was a road of some significance. Folkard (1909, vii) claims that there was a church at Wigan before the Norman Conquest, but 'of subsequent re-buildings and restorations there remains no record until 1620, when the chancel was rebuilt'. It has similarly been postulated that the settlement at Scholes originated during the ninth century (Fletcher 2005, 7), but physical evidence is lacking.

1.3.6 ***Medieval period:*** following the Norman Conquest, William I assigned most of the land between the Ribble and Mersey rivers to Roger of Poitou, who made Wigan the administrative centre of the barony of Makerfield (*op cit*, 14). Wigan is not named in the Domesday survey, but is thought to be the 'church of the manor' of Newton (Powell 1998, 6). Nevertheless, much of the surrounding area was probably of little importance, reflecting the expansive peat mosses that dominated the landscape (Hall *et al* 1995, 122). Wigan began to prosper during the thirteenth century, in part due to the granting of a market charter and three-day fair in 1245 (Hannavy 1990, 20).

1.3.7 The town attained Royal Borough status a year later and gradually grew in size and prosperity. As a Royal Borough, the citizens received the rights and privileges of freemen, or burgesses, which included the right to rent burgage plots as free tenants of the lord of the manor. The size of the burgage plots was specified as five roods of land, for which an annual rent of 12d was levied (Bridgeman 1888-90, 9-10).

1.3.8 During this period, Wigan was influenced by the control of several prominent families, including the Norrises, Banastres, Standishes, and Gerards, all of whom owned large halls and land in the vicinity. By the end of the thirteenth century, however, the Bradshaighs began to emerge as the most influential family in the region, and acquired Haigh Hall in 1295 (Fletcher 2005, 14).

1.3.9 By the early fourteenth century, Wigan was one of the larger chartered towns of Lancashire, together with Lancaster, Preston, Liverpool, Manchester and Warrington (White 1996, 129), as demonstrated by its assessment in the exchequer lay subsidies of 1332 (Morris 1983). During the reign of Edward III

(1327-77), charters were awarded to the town for the streets to be paved. The expansion of Wigan at this time was also reflected in the construction of a bridge over the river Douglas at the bottom of Millgate, which was authorised by an Act of Parliament in 1334 (Hannavy 1990, 36). Medieval documents also mention other features of this area, including a Holy Well off Millgate and a Jewish Settlement at a place named 'Jew's Yard' off Millgate (UMAU 2001, 9). A corn mill was located at the bottom of Millgate on the river Douglas, from at least the fourteenth century, where the people of Wigan were required by law to mill their corn (*op cit*, 10).

1.3.10 Whilst medieval Wigan was essentially an agricultural town, industrial activity is known to have developed at an early date, such as textile manufacture, coal mining and metal working, including the production of iron, pewter and brass (Powell 1998, 8). The manufacture of felt hats was also carried out, and whilst this was originally a cottage-based industry, mills for this purpose were built in 1782 (*ibid*).

1.3.11 Textile production during this period was, however, dominated by the woollen industry, which was sufficiently well-established by the early fourteenth century to support three fulling mills (Hannavy 1990, 34). However, there was a significant decline in trade during the mid-fifteenth century and many burgage plots may have been wholly or partly abandoned at this time (UMAU 2001, 10). Despite this, it is probable that the modern street pattern in the town centre reflects the medieval development of the settlement and that many of the late post-medieval properties in the historic core originated during the medieval period.

1.3.12 It has been suggested that the town was provided with some kind of defensive circuit during the late medieval period, possibly in the form of an earthen bank and ditch (Powell 1998, 8). The putative defences may have enclosed an irregular, oval-shaped area bounded (approximately) by the river Douglas, Dicconson Street (towards the southern end of Standishgate), New Market Street, Dorning Street and King Street (*ibid*). Wigan was certainly one of the principal boroughs in Lancashire at this time, a fact reflected in the size of the contribution the town made to Charles I's 'ship-money' levy; Wigan contributed £50 to this fund, whilst Preston, Lancaster and Liverpool contributed £40, £30 and £25 respectively (Folkard 1909, ix).

1.3.13 Physical remains of medieval Wigan have been uncovered in several excavations within the town centre. Cultivation soils and a timber-lined well or cistern were excavated at The Wiend (Jones and Price 1985, 29), whilst postholes and pottery dating to the fourteenth or fifteenth century were uncovered at Chapel Street (GMAU 1987, 2). The remains of two medieval burgage plots and a substantial town house constructed of timber were also discovered on Hallgate (GMAU 1991). The excavated burgage plots were found to be at least 5m wide, and between 30m and 40m in length.

1.3.14 ***Post-medieval period:*** in broad terms, the period from the sixteenth to the eighteenth century was one of increased growth and prosperity for Wigan. By 1538, John Leland was able to describe the settlement as 'a paved town as big as Warrington, but better builded...' (Chandler 1993, 269). The town probably increased in size by almost a third during the sixteenth century, attaining a population of approximately 4000 by 1600 (Hannavy 1990, 46), and by the 1630s Wigan had become one of the largest towns in Lancashire. As a result of this population increase, new buildings appear to have been constructed in the central part of the town, infilling many of the medieval burgage tails.

1.3.15 In 1627, the Wigan Company of Pewterers was founded, and the town emerged as one of the most important centres for pewter production in the county (Powell 1998, 10), whilst other metalworking industries also developed (Tindall 1985, 23). In particular, the manufacture of brass products, bell founding and watch-making emerged as important industries during the seventeenth century and in the mid-seventeenth century, a company of Founders was set up (Hawkes 1935, 50). Pewterers are mentioned in the Court Leet Rolls of 1626-91, held by Wigan Archives Service. Robert Baldwin, a pewterer on Standishgate, made a complaint to the court in 1635 (Roll 3, 1635); Robert Greene, a pewterer on Millgate, was presented to the court for assault in 1649 (Roll 7, 22/12/1649); and Elizabeth Ford, the widow of a Millgate pewterer named John Ford, is named in 1682 (Roll 50, 1682). Similarly, braziers and bell founders are mentioned: for instance, Gilbert Orrell, a brazier in The Wiend, complained in 1673 that John Houghton, a tailor, had built a house next to his and attached it to his own (Roll 36, 1673). One of the earliest recorded braziers and bell founders was Robert Orrell, who was working in Wigan in 1587 until 1614. He recast the great bell of Bodfari Church in Flint in 1592 and, in 1600, he cast a bell for the Holy Trinity in Chester (Hawkes 1935, 50). It is possible that Gilbert Orrell, the brazier in The Wiend in 1673, was a descendant of Robert. A later Robert Orrell was also working as a brazier in The Wiend until his death in *c* 1723. His will, dated 1721 (D/D Lei Add 12/3), and a conveyance in 1723 (D/D Lei Add 12/4; D/D Lei Add 12/5) describe his lands as a burgage plot on The Wiend, with a shop, and five 'closes or peels of land' elsewhere in Wigan. Again, it is tempting to suggest that Robert and Gilbert were related, although this remains unproved.

1.3.16 John Scott is recorded as a bell founder in the early seventeenth century in Wigan. His business passed down several generations, until the death of William Scott in 1713 (Hawkes 1935, 50). In the Court Leet Rolls of 1626-91, William Scott, a bell founder in Millgate, made a petition in 1679 to 'lay his dunghill at the bottom of Millgate' (Roll 46, 1679). It is possible that this was the same William Scott, descended from John Scott, and that the family business was located on Millgate at least during the late seventeenth century, if not earlier. Following the demise of William Scott, a bell founder named Ralph Ashton was working in Wigan, although the location of his workshop is not known. He was succeeded by his son and grandson, and the business finished around 1767 (Hawkes 1935, 50). The metalworking trades continued to be of importance to the eighteenth-century town, as illustrated by a contemporary account of 1754, which observed that Wigan was noted for the design and manufacture of clocks and for its non-ferrous metal foundries,

producing small bells, candlesticks and other household goods (Berg and Berg 2001, 295).

1.3.17 The Court Leet Rolls of 1626-91 also give some clues as to the changing layout and appearance of Wigan in the seventeenth century. A proposed new stone bridge across the river Douglas between Millgate and Scholes is mentioned in 1665 (Roll 24, 1665); pales and flags were to be removed from in front of various houses on Millgate in 1688 in order for them to be made level with the street (Roll 60, 1688); and in 1691, Henry, William, Myles and James Tompson, William Cooper, Edward Moorecrofte, James Cooper and Thomas Fazakerley were brought to the court for taking timber away from a chapel on Millgate on the Sabbath day (Roll 67, 1691). The Woolpack Inn on Millgate is mentioned in 1688, when William Scott and Betty Bancks of the Wool Pack were presented to the court for putting rubbish in the street (Roll 60, 1688).

1.3.18 Despite the improvements documented by the Court Leet records, the outbreak of the English Civil Wars in 1642 resulted in a severe check to the town's fortunes. Wigan entered the war as a Royalist stronghold, but was captured by Sir John Seaton in April 1643 and was later subjected to punitive taxation under the Commonwealth (Hannavy 2003). It was not until the eighteenth century that the town once again achieved economic success and renewed expansion. An eyewitness account of Wigan towards the end of the century gives the impression that development at this time was rather *ad hoc*: 'The main streets of the town are broad, but irregularly built, with a mixture of old and modern houses' (Aikin 1795, 294). The growth of Wigan during this period was largely due to the coal, iron and textile industries, and in particular the manufacture of woollen cloths, linen, calicos and checks. The town specialised in woollen bedding textiles, which were produced in cottage hand-loom shops (Powell 1998, 9). Associated with this trade were the textile-finishing industries, and the dyeing industry in Wigan was concentrated in the Millgate area from at least the early nineteenth century (Hannavy 1990, 114).

1.3.19 Wigan also had a flourishing pottery trade, which can be traced back, on documentary evidence, at least as far as the mid-seventeenth century; in 1635 Robert Baldwin, pewterer, complained that 'James Harvey, alderman, Robert Markland, John Scott, John Hindley, Richard Scott and William Scott the younger, all potters, threw their waste earth into the gutter in Standishgate Street, to the great danger of the petitioner's house etc' (Roll 3, 1635). In 1664, the rector allowed that 'the potters of Wigan for the tyme (*sic*) being may dig clay in the waste of the said manor as heretofore potters of Wigan have used to do…' (Folkard 1909, xiv). Pottery manufacture had ceased by the early part of the nineteenth century, however, presumably as a result of the growth of the industry in areas such as Stoke-on-Trent and Merseyside (*ibid*).

1.3.20 Coal mining in the Wigan area during the medieval period had been carried out on what was essentially small-scale, opencast sites, but by the sixteenth century mining was mostly underground (Hannavy 1990, 69). A document of 1619 provides one of the earliest references to a coal pit on Millgate itself, whereby Bishop Bridgeman, Rector of Wigan, gave permission to Peter Platt

to drain 'water from his coal-pit near the Millgate into the street' (Folkard 1909, xi).

1.3.21 Further mining of this pit took place in 1620 by Peter Platt's widow Ann, although she had to 'stop-up' the pit due to flooding. However, her son Oliver later re-opened the shaft and dug another pit lower down the street in order to drain water from it (Fletcher 2005, 66). The site of Peter Platt's pit is thought to be on the west side of Millgate between College Avenue to the south and Hewlett Street to the north, a shaft having been exposed when the Wigan and District Mining & Technical College was constructed. Further evidence for mining was found to the south of College Avenue, when the public baths were constructed in 1961 (*ibid*). Coal mining within the town was eventually forbidden by Bishop Bridgeman in 1635:

'Whereas I am given to understand that divers inhabitants within the town and burrow (*sic*) of Wigan have presumed to dig for coles under the wasts and streets thereof; I do now forbid all and every inhabitant of the said town and manor to dig for coles or to make any soughes under any of the streets, or any part of the wast, within that Town and Manor, as they will answer it at their perills' (*ibid*).

1.3.22 Despite this ban, coal mining continued to be carried out by the residents of Wigan, as evidenced by several complaints in the Wigan Court Leet Records around the year 1700 (*ibid*). At Easter 1700, a complaint was made by Christopher Baldwin, a pewterer, that Richard Naylor, a maltster, had sunk a coal pit within five yards of his back door in Standishgate and was encroaching on the highway (Hawkes 1935, 54).

1.3.23 By the late eighteenth century, the Wigan coalfield had become the centre of the region's coal trade, and was recognised as one of the most important of the Lancashire coalfields (Farrer and Brownbill 1908, 357). This was partially on account of rich deposits of cannel coal, which burns with a bright flame and produces very little ash, and thus was in great demand for household use and invariably sold for a higher price than ordinary coal.

1.3.24 One of the earliest maps of Wigan (LRO DP175) was produced in 1712 to illustrate the proposed river Douglas Navigation (Pl 2). Whilst schematic, the map shows relatively dense development along Millgate, although this appears to have been focused along the western side of the road. The completion of the Douglas Navigation in 1742 effectively provided Wigan with a direct link to the Ribble estuary and the sea, boosting trade outside of the region (Clarke 1994).

Plate 2: A map of the river Douglas, surveyed by Mr Thomas Steers in c *1712 (DP175)*

1.3.25 *Millgate and The Wiend:* the renewed prosperity of the town in the eighteenth century had led to new building, including a new Town Hall on the Market Place in 1720, a grammar school on Rodney Street in 1723 and new streets of Georgian housing. Millgate became a fashionable area for the middle classes to live in the eighteenth century, and had several fine town houses. Thomas Whitehouse, a liquor merchant, who wrote a *History of Wigan* in 1829, occupied one such house in 1786 for ten years, and included two watercolours of the house which had been built by the former mayor, Alexander Radcliffe, in his history (Pl 3).

Plate 3: The house in Millgate, built by Alexander Radcliffe Esq (Whitehouse 1829, 5)

1.3.26 *Standishgate:* several people engaged in the manufacture of pewter and textiles are listed as living on Standishgate from at least the beginning of the seventeenth century, although there are references to pewterers as early as 1470 (SMR No 4770.1.0). A deed of 1606-7 lists a potter called Edward Marckland on Standishgate (QDD/16/m4d), a panmaker named Thurstan Pemberton is listed in 1619-20 (QDD/28/m1), and a theft is recorded from a pewterer named James Scott in 1629 (QSB/1/62/53).

1.3.27 ***Industrial period:*** by the later eighteenth century, cotton was beginning to be the dominant element of the textile industry. In 1754, the Swedish industrial spy, RR Angerstein, noted that 'large numbers of women and children were occupied with the spinning of cotton' (Berg and Berg 2001, 295). Some 40 years later, Aikin (1795, 294) commented that 'the cotton manufactory, as in all other places, intrudes upon the old staple of the place'. Although slow by national standards, the introduction of steam-powered mills during the early part of the nineteenth century meant that the textile industry remained an important part of the local economy. At one point in the nineteenth century, the industry accounted for over 50% of the employment in the town (Hannavy 1990, 116). The new process of ring spinning was introduced in a Wigan textile mill in 1887, and from 1888 the Wigan firm of Ffarington, Eckersley & Co Ltd became for three decades the largest ring spinners in Britain (Williams with Farnie 1992, 35).

1.3.28 The earliest detailed survey of Wigan is provided by a map of the town drawn by Mather in 1827. This shows clearly the three main streets in Wigan, radiating out from the church, and the outlines of long plots of medieval origin to the rear of the buildings at the street front. In particular, the properties fronting onto Millgate are shown to have long burgage plots, with property boundaries extending down the bank to the river Douglas. It is of note that Mather's map shows that a meander in the river had been canalised, relative to the plan of 1712 (Pl 2). A more detailed plan of the town in the mid-nineteenth century is provided by the Ordnance Survey map of 1848, which shows considerable growth.

1.3.29 Further improvement of transport links, including a canal branch to Manchester and the construction of the railways, continued to enhance Wigan's productivity during the nineteenth century. The construction of the Central Station a short distance to the east of Millgate is of particular relevance. This was the third railway station to be built in Wigan, and was erected in 1892 by the Grand Central Railway Company (Hannavy 1990, 96). Its construction demanded considerable landscaping works, which included infilling the original course of the river Douglas (which was canalised into its present course) and the raising of ground levels along the western side of the Douglas Valley.

1.3.30 The continuing prosperity of the town meant that the population increased at a tremendous rate during the nineteenth century. Many of the inhabitants were housed in tightly-packed courts and small terraces, as shown on Ordnance Survey mapping, with the result that sanitation was often extremely poor (UMAU 2001, 12). As a result, the waterworks and gas works were improved,

public swimming baths were built and roads widened and improved (*op cit*). According to Edward Baines, writing in 1825, 'the springs in the neighbourhood of Wigan are numerous' and a new baths was 'recently built' to tap the water from a spring near Scholes Bridge. The water was 'strongly impregnated with sulphur, and which, from its resemblance to the celebrated Yorkshire spa, obtained the name of "New Harrogate"' (Baines 1825, 612).

1.3.31 The coal industry continued to expand through the nineteenth century; by 1874 there were 140 collieries operating in the Wigan area, many of which continued in use into the twentieth century (Ashmore 1982). During the twentieth century, however, Wigan's two main industries, coal and textiles, declined, although engineering and food processing contributed increasingly to the area's economy (McNeil and Nevell 2000, 66). The Central Station was closed in 1965, and had been demolished by 1982. During the 1960s, the street plan in the vicinity of the site was remodelled through the construction of the modern ring road (UMAU 2001, 12).

2. ORIGINAL RESEARCH AIMS

2.1 ACADEMIC AIMS AND OBJECTIVES

2.1.1 The main research aim of the archaeological evaluation was to assess the survival of archaeological deposits across the proposed development site, and to attempt to characterise and date any remains that were encountered. The objectives of the evaluation were defined thus:

i) to assess the nature, date, density, extent, function and state of preservation of archaeological remains;

ii) to assess the potential of any surviving remains to inform a greater understanding of the development of land-use in the area;

iii) to formulate a strategy for appropriate mitigation, in consultation with the other relevant parties.

2.1.2 The aims of the excavation carried out subsequently were to excavate and record in detail the surviving archaeological remains, and to obtain a full range of artefactual and environmental materials that would enable the stratigraphic sequence to be characterised, dated and interpreted. In particular, it was hoped to:

i) advance understanding of Roman occupation and land-use in this part of Wigan;

ii) contribute to existing archaeological knowledge relating to the material culture, form and development of Roman settlement in the North West;

iii) identify deposits relating to post-Roman occupation, in order to inform an understanding of the development of Wigan during the medieval and post-medieval periods.

3. STRATIGRAPHIC NARRATIVE

3.1 INTRODUCTION

3.1.1 This section presents the results obtained from the archaeological fieldwork undertaken as part of the Wigan Joint Service Centre development. An area comprising approximately 1110 square metres was fully excavated over four months in 2008 (Fig 2). The site occupied the southern aspect of a natural ridge upon which the historic core of Wigan is situated. There is some evidence to suggest, however, that the slope was terraced during the Roman period (OA North 2005a). In addition, the crest of the ridge appears to have been reduced, probably as a result of late medieval or post-medieval activity, resulting in the removal of early anthropogenic evidence to the north of the site. The gradient of the natural slope has been further altered in more recent times, particularly in the southern part of the study area, where the ground level had been built up during the 1980s, represented by a levelling horizon (***1001***). This episode coincided with the demolition of several upstanding buildings close to the junction of The Wiend with Millgate.

3.1.2 The redevelopment of the site during the 1980s was preceded by some archaeological excavation, carried out in 1982-4 by the Greater Manchester Archaeological Unit (Jones and Price 1985). In total, five trenches were excavated, some of which lay partially or entirely within the present study area; these trenches were re-excavated in 2008, but, where relevant, the original context numbers are given where known, with the prefix *Wiend*. The fact that the site had been excavated previously, combined with the numerous modern service trenches, meant that only small islands of archaeological stratigraphy survived intact.

3.1.3 In the following narrative, the major events in the evolution of the site are presented chronologically, as a series of occupation phases (Table 1). An attempt has been made to allocate all the excavated contexts to a period of activity. The phasing corresponds broadly to that established for the excavations undertaken at the Grand Arcade in 2005 (OA North 2008), and, for the most part, this exercise proved successful, though no evidence for Roman activity of Phase 2 was recorded in the present study area.

Phase	Sub-phases	Date Range
Phase 1	1A, 1B, 1C, 1D	Late first–early second century AD (Roman: Flavian/Trajanic)
Phase 2	-	Early-mid-second century AD (Roman: Hadrianic/early Antonine). ***Not recorded at Park's Yard***
Phase 3	3A, 3B, 3C	Twelfth – mid-sixteenth century (medieval)
Phase 4		Mid-sixteenth–seventeenth century (early post-medieval)
Phase 5		Eighteenth century (pre-industrial)
Phase 6	6A, 6B	Nineteenth–twentieth century (industrial and modern)

Table 1: Principal phases of archaeological activity identified in Wigan

3.2 NATURAL SUBSOIL

3.2.1 The natural subsoil (***1007***) was consistent across the entire area excavated, predominantly a mid-yellow-orange clay-sand with laminated boulder clay deposits. The subsoil sloped downwards from the north-western part of the site to the south-east, reflecting the natural slope of the hill, and perhaps accentuated by the landscaping and terracing of the natural topography.

3.3 PHASES 1 AND 2: ROMAN OCCUPATION (LATE FIRST–MID-SECOND CENTURY AD)

3.3.1 With the exception of three small flint flakes of probable prehistoric date that were recovered from Roman and post-Roman levels (*Section 4.12.2*), the earliest evidence for human activity on the site can be dated to the Roman period. Over the entire site, the earliest archaeological remains had suffered severe disturbance as a result of post-medieval (particularly nineteenth- and twentieth-century) activity. This caused the fragmentation of surviving Roman (and medieval and early post-medieval) levels, and resulted, in some areas at least, in the latest surviving Roman archaeology being directly overlain by modern deposits. Indeed, in the excavated areas closest to the top of the hill (*ie* on the northern part of the site) virtually all archaeological deposits had been shaved off by modern development. To the south, slightly below the summit, Roman levels were sealed by a thick build-up of medieval cultivated soils (*Section 3.4*), which had protected the earlier deposits.

3.3.2 A sequence of Roman activity, probably extending from the late first century AD to the early second century, was recorded. The same sequence (and, in some cases, even the same features and deposits) was also recorded during The Wiend excavations of the early 1980s (Tindall 1983; Jones and Price 1985), which is not surprising, since some of the earlier trenches were contiguous with the areas investigated in 2008. Indeed, so close was the concordance between the two sites, that it proved impossible to understand adequately the Roman remains excavated in 2008 without reference to the earlier work.

3.3.3 Broadly speaking, two main phases of Roman occupation (Phases 1 and 2) have been recorded during the course of excavations within Wigan town centre; the earlier probably dating to the Flavian/Trajanic period (*c* AD 70-120), the later (Phase 2) being of Hadrianic/early Antonine date (*c* AD 120-60). With the exception of a few sherds of possibly early third-century pottery from the Grand Arcade site (OA North 2005), no pottery or other artefacts of third- or fourth-century date have been recovered from controlled excavations, not even as residual material in post-Roman contexts. However, several late third- and fourth-century coins have been recovered as chance finds in the town (*Section 1.3.2 above*), which suggests that the settlement was not completely abandoned in the later Roman period. No evidence for Roman occupation later than the mid- or later second century was identified in the 2008 excavation, not even in the form of residual pottery in post-Roman levels, and only limited deposits of this date were found in the 1980s. Notwithstanding the possibility that later occupation levels could have been removed by extensive post-medieval and modern construction works, the paucity of Hadrianic/early Antonine material provides a strong indication that

the site was not intensively occupied during this period, whilst the total absence of later pottery and coins suggests that the site was wholly or largely abandoned during the later Roman period.

3.3.4 ***Phase 1: Flavian/Trajanic Activity (c AD 70-120):*** the initial Roman occupation of the area (Fig 3) represents the earliest stratified activity from the excavations. It proved possible to identify four sub-phases of activity within this broad phase. The first activity was represented by a handful of stratigraphically early features, the significance of which is unclear. However, they appear to have been stratigraphically contemporary with a timber structure excavated at The Wiend (Wiend ***620***, *Section 3.3.6*). This was followed by an intensification of occupation (Phase 1B), marked by the construction of a north-east/south-west road (Wiend ***376***), flanked on the north by a long, narrow timber structure (Wiend ***207***) aligned parallel to it. In the small area available for investigation south of the road, several pits and other features were recorded.

3.3.5 After the building and, presumably, the road had gone out of use, spreads of sandy soil covered many of the earlier remains. These were not identified clearly in 2008, but were recorded at The Wiend during the 1980s. In the area occupied previously by the building (Wiend ***207***), many cut features were dug through these soils, the majority being postholes and/or small pits, but a few hearths were also present, some of which yielded small amounts of smithing slag. Whilst the postholes presumably indicated the presence of one or more structures at this time, no coherent pattern could be discerned. Again, most of these were recorded in the 1980s rather than during the investigations in Park's Yard as part of the Joint Service Centre scheme in 2008. To the south, in the area of the road (Wiend ***376***), several more substantial iron-smithing hearths were also found. These were associated with pebble and stone surfaces, concentrations of metalworking debris, charcoal and ash.

3.3.6 *Phase 1A:* towards the south end of The Wiend site, several stratigraphically early features appeared to represent the remains of a timber building (Wiend ***620***) pre-dating the establishment of a road (Wiend ***376***; *Section 3.3.7*). The structure was aligned north-east/south-west and may have been rectangular in plan (Fig 4). No part of this structure was certainly identified during the excavations of Park's Yard, though a fragmentary gully or slot (***1267***/***1323***), 0.45m wide and 0.23m deep, might possibly have formed part of the east wall. This was traced for *c* 1.8m, but its alignment was not really consistent with the rest of the building, so it may not have been associated with the structure. The only other early feature at Park's Yard was a small oval pit or hollow (***1314***; not illustrated), 0.45 x 0.32m and 70mm deep, filled with pale grey silty sand (***1313***). It yielded no artefacts but was cut by a later construction trench for Building ***207*** (*Section 3.3.11*).

3.3.7 *Phase 1B*: at the beginning of the second phase of acitivity, a minor road (***376***/***427***) was laid out in the southern part of the site (Fig 5). This overlay the remains of Building ***620***, but shared the same north-east/south-west alignment. The road was first recorded in the 1980s at The Wiend (Tindall 1983; Jones and Price 1985), but was also partly excavated at Park's Yard in 2008 (***1432***). It comprised a rough surface of sandy gravel, cobbles and broken stone slabs, 0.1-0.15m thick and 3-4m wide, laid above possible make-up deposits of sandy material, *c* 0.1-0.2m thick. Neither edge of the road was defined or bounded by ditches, gullies or any other surviving features, as is frequently the case in Roman roads (Margary 1957).

3.3.8 Only a small area south of the road was available for investigation (Fig 5), and even there the Roman levels had been fragmented severely by modern features. The earliest recorded deposit was a layer of compacted, pale grey sandy clay (***1442***), up to 0.37m thick (Pl 4), that may have been deposited to level-off the natural north to south slope in this part of the site. It was cut by a pair of large pits (***1435***, ***1436***) located immediately adjacent to the southern edge of the road. A third pit (***399***) of a similar type was located during the 1980s, *c* 4m to the north-east. All three features were interpreted initially as construction pits for substantial iron-smithing hearths, and, indeed, they were certainly utilised later for that purpose (*Section 3.3.21*). However, careful consideration of the stratigraphic sequences suggests that the lower fills of these features were unrelated to the overlying hearths, which appear to have been constructed in hollows that had formed in the tops of the pits, either through settling of the underlying fills or incomplete infilling of the earlier features.

*Plate 4: Phase 1 levelling deposit **1442***

3.3.9 The two pits excavated at Park's Yard were situated only 0.4m apart (Pl 5). Both were sub-rectangular, aligned north-east/south-west, with near-vertical sides and more-or-less flat bases. The westernmost (***1436***) measured 2.6 x 1.4m and was 0.65m deep, whilst ***1435*** had dimensions of *c* 2 x 1.8m and was 0.7m deep. What was almost certainly the same pit had been recorded (in section only) at The Wiend, though only its fills had been numbered. The base of ***1435*** was filled to a depth of 0.15m with a loose, pale grey-brown silty sand (***1434***). This was overlain by 0.1m of pale grey sandy silt (***1433***) containing ash and charcoal flecks, which extended up the southern edge of the cut and spilled over into adjacent pit ***1436***, which it filled to a depth of up to 0.2m.

*Plate 5: Phase 1B, pits **1435** (right foreground) and **1436***

3.3.10 Immediately south of pits ***1435*** and ***1436***, possible levelling deposit ***1442*** was overlain by a compacted pebble surface (***1444***), 30mm thick. This extended for approximately 2 x 1.2m within the excavated area, although its full extent is unknown, since it had been destroyed to the north-east and south-west by later features, and extended beyond the eastern trench edge. It was cut by a north-east/south-west-aligned slot (***1446***), 0.61m wide and 0.29m deep, with a V-shaped profile and a pale grey-brown sandy silt fill (***1447***). This was traced for only 1.5m, having been destroyed to north and south, and was directly overlain by a post-Roman soil deposit. Feature ***1446*** could not be linked stratigraphically to any of the Phase 1B features and deposits to the north, so its attribution to this phase of activity is tentative.

3.3.11 Probably not long after the road was established, its northern edge was cut by the construction trench for the south wall of a substantial timber building (***207***; Fig 5). Elements of this structure, which occupied the central and northern parts of the site, were excavated during the 1980s (Tindall 1983; Jones and Price 1985) and again in 2008, but the known remains are nevertheless very fragmentary, and it is clear that only part of the building lay within the excavated areas. The evidence available in the 1980s led the excavators of The Wiend sites to interpret the structure as a possible open-ended store-building similar to those known from other sites in the region, and indeed more widely in Roman Britain (*ibid*). However, evidence generated by the excavations in

2008, taken in conjunction with the results of the earlier work, strongly suggests that it was in fact a barrack block of conventional Roman type.

3.3.12 Building ***207*** was approximately 9.2-9.4m wide externally (*c* 8.2-8.4m internally, measured to the inner edges of the construction trenches), in excess of 23m long and, like the adjacent road, was aligned north-east/south-west. The remains of the structure were generally better-preserved at, and towards, its south-western end, becoming increasingly fragmentary to the north-east. The north-eastern end of the building had been destroyed completely.

3.3.13 The external walls were marked by well-defined construction trenches, 0.5-0.7m wide and 0.45-0.85m deep. Where the evidence survived, it could be demonstrated that these were continuous, and had clearly all been excavated at the same time. The trench for the south wall, part of which lay within the Park's Yard site (***1194***/***1212***/***1322***/***1345***), was traced for over 21m, though it was fragmentary (Pl 6). The north wall had been almost completely destroyed within the excavated areas, being marked only by a short segment of construction trench at The Wiend (Jones and Price 1985). A stretch of the construction trench for what appeared to have been the west wall was also recorded at that site (*ibid*). No trace of the east wall was found, since it almost certainly lay well beyond the areas of investigation.

*Plate 6: Phase 1B putative barrack (Building **207**), showing construction trench **1322** for the south wall, and internal partition **1312***

3.3.14 Internally, the building was divided longitudinally into two unequal halves by a wall, represented by a construction trench up to 0.5m wide and 0.33m deep, part of which was excavated in 2008 (***1312***; Pl 6). The areas on either side of this wall were sub-divided into rooms of roughly equal size by partitions, represented by slots aligned perpendicular to ***1312*** and the external walls. If the building was indeed a barrack, the opposing rooms on either side of the wall

would have formed a series of two-room compartments, or *contubernia*, each housing a sub-unit of soldiers.

3.3.15 If this interpretation is correct, two near-complete *contubernia*, represented by R1/R2 and R3/R4 (Fig 6), lay within the areas investigated, together with at least two other fragmentary compartments (R5/R6 and R9/R10). Overall, it is suggested that the excavated area of the building contained five compartments, of which one (R7/R8) lay wholly between the areas of investigation. At Park's Yard, the position of the partition between *contubernia* R1/R2 and R3/4 was marked by a well-defined slot (***1307***/***1419***; Fig 5), up to 0.45m wide and 0.3m deep, but the other compartment walls, all of which were excavated in the 1980s, were less well-preserved.

3.3.16 There was some evidence to indicate that the walls of the building, including the *contubernia* partitions as well as the external walls, were of post-in-trench construction, with uprights set at intervals in the construction trenches, which were then backfilled around them. No evidence for the character of the infilling between the principal uprights had survived, but it is likely to have comprised wattle panels plastered with clay and rendered.

3.3.17 No floors or occupation deposits had survived internally, nor was any evidence for doorways noted. The latter had doubtless been constructed in such a way as to leave no trace in the archaeological record, since doors would certainly have existed between the front and rear rooms of each *contubernium*, and from the front room of each compartment onto the road. The presence of several short, shallow slots in some of the rooms excavated at The Wiend (*eg* ***244*** and ***267***; Fig 5), most of which were aligned perpendicular to the medial wall, could indicate the existence of boarded floors, the slots marking the position of vanished joists. Elsewhere, however, other narrow slots and associated postholes (including ***1310*** at Park's Yard) may have represented the remains of internal furnishings or fittings, or even light wooden screens.

3.3.18 The excavated evidence suggested Building ***207*** had only a single principal structural phase, though poor preservation may have precluded the survival of evidence relating to subtle internal changes. No spreads of demolition debris were recorded in association with the structure, and it seems likely that it was deliberately and carefully dismantled. At The Wiend, a wide but fairly shallow cut on the line of the construction trench for the south wall may have been formed by the removal of structural elements such as wall-panels, but this is not completely certain. That the upper part of this feature may have remained partly open for some time was suggested by the presence of metalworking debris, charcoal and other burnt material seemingly derived from the smithing hearths of Phase 1D (*Section 3.3.21*) in its uppermost fills, including Park's Yard layer ***1321***.

3.3.19 *Phase 1C:* at The Wiend, the levelled remains of the putative barrack were overlain by spreads of sandy loam, 0.1-0.25m thick (Tindall 1983; Jones and Price 1985), and what was probably the same material also extended over part of the road (***376***) to the south. However, similar deposits were not recorded during the Park's Yard excavations of 2008. Although presumably indicative of a phase of abandonment, or at least considerably reduced activity, the soils at The Wiend yielded over 200 sherds of pottery, which could have derived from

rubbish dumped on the site from adjacent activity areas. However, the assemblage was not appreciably different in character or date from that associated with the underlying occupation levels of Phase 1B, which suggests that it may have been largely residual.

3.3.20 *Phase 1D:* in the central and northern parts of the site, which had been occupied during Phase 1B by the putative barrack (Building ***207***), the Phase 1C soils at The Wiend were cut by many small features, mostly postholes and shallow pits (Fig 7). A few hearths, some of which yielded small amounts of smithing slag, were also recorded. In this area, the only features excavated in 2008 that could be tentatively assigned to Phase 1D were two small, intercutting pits (***1372***, ***1374***). Both measured *c* 0.7-0.8m in diameter and *c* 0.2-0.3m deep, and were filled with charcoal-rich silty soils and burnt clay.

3.3.21 To the south, in the area of the Phase 1B road (***376***), Phase 1D was dominated by two substantial iron-smithing hearths (Fig 7), two of which (***1429***, ***1397***) were excavated in 2008 (***1397*** was also partly excavated during the 1980s). Both had been placed in bowl-shaped hollows that had developed above disused pits of Phase 1B (*Section 3.3.9*), ***1436*** in the case of hearth ***1429***, and ***1435*** in the case of ***1397***. These probably formed through settling of the underlying pit fills, or were the result of incomplete infilling of the earlier features. Either way, they were evidently of a convenient size and shape to have been utilised in construction of the hearths. Stratigraphically, it was possible to demonstrate that the two hearths recorded in the 1980s post-dated the accumulation of the Phase 1C soils, and it is certain that the other (***1429***) must also have done so, since it was inextricably linked with its near-neighbour, ***1397***.

3.3.22 Two phases of use were evident in both of the hearths, and all were aligned north-east/south-west. Although the features excavated at The Wiend were interpreted as possible bloomery furnaces (Jones and Price 1985, 30), re-examination of the associated metalworking debris (*Section 4.8*) indicates that they were in fact almost certainly used for secondary iron smithing.

3.3.23 The hollows in which hearths ***1429*** and ***1397*** were constructed were partially filled with a possible bedding layer of orange-yellow silty sand (***1431***), up to 0.2m thick, overlain by broken stone fragments (***1430***). Both these deposits also extended across the narrow space (*c* 0.4m) between the two hollows. They were sealed by a compacted pebble and gravel surface (***1427***), 70mm thick, that not only covered the base of both hollows, but also extended over a wider area around the hearths, forming a probable working surface measuring in excess of 5.36 x 4.72m (Fig 8). Above this, the base of each hearth was formed of broken stone slabs and fragments (***1402***/***1420*** in ***1429***; ***1399*** in ***1397***), 80-120mm thick (Pl 7), set into the base of the hollows. Both were roughly sub-rectangular in plan, 2.3 x 1.4m in the case of ***1429***, *c* 3 x 1.5m for ***1397***.

*Plate 7: Stone bases for Phase 1D metalworking hearths **1429** and **1397***

3.3.24 The base for hearth ***1429*** was overlain by a layer of dark grey/black, charcoal-rich sandy silt (***1398***/***1418***), up to 0.14m thick, which yielded a considerable amount of ironworking slag. In ***1397***, a patch of intensely burnt material (***1413***), comprising a concreted deposit of slag and burnt clay, 1.3 x 0.5m and 0.12m thick, lay directly above the hearth base, and was sealed by 50mm of dark red-brown/black sandy silt (***1410***), containing more slag and charcoal. A further deposit of black, charcoal-rich silt and slag (***1401***), up to 70mm thick, sealed ***1410*** and extended south towards the edge of hearth ***1429***, though it did not impinge on that feature. Indeed, it was noticeable that, with the exception of the latest Phase 1 deposit (***1367***), none of the material associated with the use of the two hearths overspilled into the neighbouring feature, suggesting that they may have been separated by a screen or other structure that had left no other trace in the archaeological record.

3.3.25 Following the deposition of ***1401***, the south-eastern edge of ***1397*** appears to have been defined by a line of unbonded stone fragments (***1400***), 0.3m wide (Pl 8). This was abutted by a further layer of charcoal-rich silt and slag (***1367***), 0.1m thick, representing the final use of the hearth. Unlike all the earlier deposits relating to the working of ***1397***, ***1367*** extended south and overspilled into hearth ***1429***, which may, therefore, have already gone out of use.

3.3.26 Approximately 0.4m south of hearth ***1429***, a large pit (***1421***) had been dug through metalled surface ***1427*** (Fig 7), which was laid down at the time hearths ***1429*** and ***1397*** were constructed, and was probably contemporary with both. It was probably circular (the southern half had been destroyed), *c* 2.15m in diameter and 1.28m deep, with near-vertical sides and a slightly rounded base. With the exception of a small patch of charcoal-rich silt (***1424***) at the base of the cut, the pit was filled with a single deposit of mid-yellowish-grey silty clay (***1422***) with few inclusions. Subsequently, the pit may have been recut (***1425***) this being partly filled with a deposit of charcoal, burnt clay and metalworking

debris (***1426***) that may well have derived from one of the adjacent hearths. However, the upper part of the feature appears to have remained at least partly open into the medieval period, since it was filled with, and sealed by, an overlying layer of medieval soil (***1244***; *Section 3.4.11*).

*Plate 8: Phase 1D hearth **1397**: charcoal deposit **1401** and stone edging **1400***

3.3.27 Ultimately, hearths ***1429*** and ***1397*** were replaced by a single feature (***1365***; (Pl 9). The latest deposit associated with the use of hearth ***1397*** (***1367***) was overlain by a spread of pale grey-brown silty loam (***1378***), 0.1m thick, prior to the construction of a curvilinear setting of unbonded stone slabs and fragments (***1365***; Fig 8) that appear to have defined the south-eastern edge of a new hearth, *c* 2.2 x 1.9m. This had been constructed largely over Phase 1 hearth ***1397***, but deposits associated with its use also extended southwards, sealing the remains of ***1429***.

3.3.28 The base of the hearth comprised a layer of broken stone fragments (***1370***; Fig 8), 30mm thick, which survived in only a limited area on the northern and eastern sides of the feature. This was overlain by 50mm of black, charcoal-rich sandy silt (***1364***, ***1387***) containing ironworking slag, and similar deposits (***1368***, ***1369***) also extended west from the hearth. Disuse of ***1365*** was marked by the accumulation of a layer of mid-grey-brown sandy silt (***1362***), 50mm thick, which partly covered its lining and interior. This was in turn overlain by a roughly circular deposit of compacted, yellow-orange sandy gravel and crushed stone (***1361***), 1.6 x 1.5m and 70mm thick. This had the appearance of the base or foundation for a vanished feature of some kind, but as it had not been in any way affected by heat, this is unlikely to have been a hearth. It was sealed by an extensive soil deposit of probable medieval date (***1244***).

*Plate 9: Phase 1D hearth **1365***

3.3.29 *Dating evidence:* the small assemblage (19 sherds) of samian recovered from the 2008 excavations as a whole (including material from post-Roman contexts), is entirely of Flavian/Trajanic date (*Section 4.2*), as was the somewhat larger collection (64 sherds) recovered during the 1980s. Stratigraphically, the earliest material came from the construction trench for the south wall of the Phase 1B timber building (***207***), including Park's Yard ***1311*** and ***1321***, which yielded sherds of *c* AD 70-100/10. Several fragments with the same date-range were recovered from Phase 1C soils at The Wiend (*ibid*), and rather more came from Phase 1D deposits at both sites, mostly from contexts associated with the smithing hearths on the southern part of the site. The coarse pottery too (*Section 4.2*) is entirely consistent with a Flavian/Trajanic date for the Phase 1 occupation.

3.3.30 ***Phase 2: Hadrianic/early Antonine Activity (c AD 120-160):*** despite the fact that some Hadrianic/early Antonine stratigraphy and pottery were found during The Wiend excavations of the 1980s (Jones and Price 1985), not a single sherd of pottery attributable to this period was recovered from the 2008 excavation, even as residual material in later contexts. Nor was there any reason to suppose that the latest surviving Roman levels on the site should be assigned to this phase of occupation. Indeed, ceramic evidence demonstrates that all the Roman activity recorded on the site was pre-Hadrianic (*ie* attributable to Phase 1), rather than later.

3.4 PHASE 3: MEDIEVAL OCCUPATION (TWELFTH TO MID-SIXTEENTH CENTURIES)

3.4.1 As was the case with the Roman levels, medieval deposits on the site had been disturbed severely and fragmented by post-medieval features. In the northern part of the site, closest to the top of the hill, the complete absence of any soil horizons, that should almost certainly have accumulated between the end of Roman activity and the beginning of the medieval period, implies that the site has been subject to some major earth-moving works. Indeed, the only medieval remains to have survived in this part of the site were two heavily truncated features. However, to the south, slightly down the slope, quite thick deposits of medieval cultivation soil were present, sealing the latest Roman levels, and several medieval features were also found in this area; thus the lack of soil build-up between the Roman activity and the development of the medieval town is surprising. In most cases where stratigraphic relationships had survived, these were sealed by the cultivated soils, though a few had been dug through these deposits. Consequently, it proved possible to sub-divide the medieval stratigraphic sequence into three phases: the stratigraphically earliest features (Phase 3A); the cultivated soils that sealed them (Phase 3B); and the features cutting the soils (Phase 3C). The two truncated features at the north-east corner of the site produced some of the latest medieval pottery recovered from the site (*Section 4.3*) and were therefore assigned to Phase 3C on that basis. The features constituting Phase 3A were mostly probably pits and postholes, but included a substantial stone and brick-built kiln or oven. Phase 3C comprised only a few truncated pits and gullies. No evidence for occupation of early medieval (*ie* pre-Norman) date was found.

3.4.2 ***Phase 3A:*** in the central-southern part of the site was a group of five certain or probable medieval features concentrated in a discrete area measuring no more than *c* 5 x 3m (Fig 9). Three of these (***1202***, ***1210***, ***1266***) were small pits or possible postholes, one (***1200***) was a possible ditch terminal (or another pit), whilst the fifth, and by far the most significant, was a substantial kiln or oven (***1258***), the base for which had survived virtually intact.

3.4.3 Kiln ***1258*** comprised a shallow, sub-rectangular pit (***1302***), in excess of 2.3m long (its south-eastern end had been destroyed), 1.4m wide and up to 0.5m deep, aligned north-west/south-east (Fig 10). On three sides, the edges of the cut were near-vertical, whilst the base was essentially flat. However, the north-western edge was stepped (Fig 11) to accommodate the flue. The cut was filled to a depth of *c* 0.3m with a mixed deposit of compact, dark grey/black clay-sand (***1443***), containing a moderate amount of charcoal and a few small stones (Pl 10). The precise significance of this is unclear. It may have been debris generated by the primary use of the kiln, before the insertion of a stone/brick floor and flue, although the natural subsoil into which ***1302*** had been dug showed no evidence of having been burnt or otherwise subjected to intense heat. However, it is difficult to see what other interpretation could be placed upon layer ***1443***, unless it is envisaged as a 'make-up' deposit laid beneath the floor of the kiln.

Plate 10: Section through Phase 3A kiln **1258***, looking north-east, showing burnt deposit* **1443** *beneath brick floor* **1445**

3.4.4 Whatever the significance of ***1443*** may have been, it was overlain by the floor (***1445***) of the kiln proper (Fig 10). Floor ***1445*** was sub-rectangular in plan, in excess of 1.5m long, *c* 1.05m wide and up to 0.2m thick, and was constructed of fairly thin clay bricks close-set on edge to form a reasonably level surface (Pl 11). The long (south-western and north-eastern) edges of the floor were bordered by a 'kerb' of thick stone slabs set, like the bricks, edgewise into the underlying deposit. The surface had clearly been subjected to very intense heat, particularly towards the centre of the kiln, where the surface of the individual bricks had largely disintegrated. Whether the bricks had been fired prior to use, or were initially unfired 'mud-bricks', is not known.

3.4.5 The flue, located at the north-western end of the kiln, was 1.1m wide, internally, and had been floored with thick stone slabs set on edge at the same level as the kiln's brick floor (Fig 10). The edges were also formed of thick slabs set on edge, which stood to a height of *c* 0.4m above the floor. The southernmost had been set into the underlying material, but that to the north rested directly on the stone floor. From floor level, the flue stepped up at an angle of approximately 45^{o} to the mouth (Fig 11); the angled step was faced with three stone slabs, whilst the mouth of the kiln itself was surfaced with larger slabs, 0.4m in width. At this level, the south-west wall of the flue had been destroyed, but the north-east wall was constructed of stone blocks and slabs, aligned with the edge-on slab that had been set onto the floor of the flue itself; the remains of two unbonded courses had survived. The evidence suggested that the flue was originally at least 1.4m in length, measured from the brick floor of the kiln to the end of its north-eastern wall.

Plate 11: Phase 3A kiln **1258***, looking north-west, showing brick floor* **1445** *and the stone-built flue*

3.4.6 The brick floor of the kiln was directly overlain by up to 0.15m of loose, dark grey-brown sandy silt (***1303***) containing much charcoal, numerous small burnt clay/daub fragments, and nearly 300 sherds of medieval pottery (*Section 4.3*). The daub fragments were sufficiently numerous to suggest that they may have derived from the kiln's superstructure, which is likely to have consisted of a clay dome. Palaeobotanical analysis of the deposit (*Section 4.14*) also revealed large quantities of charred oat grains, oat awns, and very many seeds of weeds associated with arable cultivation, particularly corn marigold and corn spurrey. Layer ***1303*** was in turn overlain by up to 0.2m of mixed, yellow-brown silty clay (***1279***) containing very little charcoal that, like ***1303***, was confined to the kiln's interior. It is possible that this material marked the disuse of the kiln, but it is said to have been partly overlain by another deposit of black, charcoal-rich silt, up to 0.1m thick (***1257***) that extended north-west from the mouth of the flue (Fig 12), partially covering the stone slabs there, and covered an area of *c* 2 x 1.4m. This layer, which was interpreted as material raked-out from the kiln, yielded a suite of charred plant remains very similar in character to that found in deposit ***1303***, comprising many oat grains

and awns, and many seeds of corn marigold and corn spurrey (*Section 4.14*). Whilst it would be tempting, on this evidence, to equate the two deposits (despite the fact that they appear to have been separated, stratigraphically, by layer ***1279***), ***1257*** was unlike ***1303*** in that it contained no burnt clay/daub fragments and yielded only two sherds of medieval pottery. It may be, therefore, that the deposits represented two distinct episodes of similar activity, one occurring before the accumulation of ***1279***, the other subsequent to the deposition of that material.

3.4.7 Also situated beyond the south-western end of the kiln was a sequence of three deposits, all of which could have been associated with that feature, although no direct stratigraphic links were recorded. The earliest (***1441***; not illustrated) was a compacted layer of orange/grey clay-sand, up to 0.32m thick, which covered an area in excess of 3.2 x 3.1m. The significance of this deposit, not all of which could be exposed, is unclear, but it may have been a working surface related to the kiln. This seems particularly likely in view of the fact that it was overlain by a layer of dark brown/black, charcoal-rich sandy silt (***1439***), which may represent material raked-out of the kiln's flue. This covered at least the same area as ***1441*** (it too was not fully exposed), and was up to 0.15m thick. It was overlain by a quite extensive (*c* 3.8 x 2.9m) layer of loose, orange-brown stony, silty sand (***1438***; Fig 12), 0.16m thick, which was directly sealed by a Phase 3B soil deposit (***1403***, *Section 3.4.11*).

3.4.8 The only other deposits found in association with kiln ***1258*** were two layers of grey-brown silty sand of limited extent, one of which at least seemingly post-dated the disuse of the structure, and a slightly more extensive clay deposit that sealed both those layers and the kiln itself. Adjacent to the south-west wall of the kiln was a small patch of material (***1297***; Fig 12), up to 0.15m thick, whilst putative rake-out deposit ***1257*** was overlain by a spread of similar material (***1203***; not illustrated), 1.4 x 0.6m and 0.2m thick, which also partly covered the kiln flue. These deposits, together with the remains of the kiln itself, were completely sealed by a layer of compacted pale brownish-yellow silty clay (***1232***; not illustrated), up to 0.15m thick, which covered an area of approximately 2 x 2m. This was itself sealed by a soil layer attributed to Phase 3B (***1198***, *Section 3.4.11*).

3.4.9 All the other features attributed to Phase 3A were located in close proximity to the west and north-west sides of kiln ***1258*** (Fig 9). The most northerly, situated *c* 2.7m north-west of the mouth of the flue, was a small circular pit or, more probably, a posthole (***1210***), 0.4m in diameter and 0.3m deep, filled with pale grey silty sand (***1209***) containing some small pieces of metalworking slag. Less than 0.3m south of this was feature ***1200***, which may have been the north-eastern terminal of a north-east/south-west-aligned ditch, the greater part of which had been destroyed, though it might equally have been an oval or sub-rectangular pit. As it survived, it was in excess of 1.2m long, 0.8m wide and 0.52m deep, with near-vertical sides and a flat base. It was filled with a loose, orange-brown sandy material (***1199***), containing some charcoal and fragments of metalworking slag. The north-eastern end of ***1200*** was cut by a small oval pit or posthole (***1266***), 0.6 x 0.4m and 0.2m deep, filled with loose, mid-grey-brown silty sand (***1265***).

3.4.10 Immediately adjacent to the south-western edge of kiln ***1258*** was another small, circular pit (***1202***), 0.8m in diameter and 0.3m deep, with a rounded, bowl-like profile and a mixed fill of dark grey sandy silt (***1201***). This cut clay deposit ***1232***, which itself stratigraphically post-dated the disuse of the kiln (*Section 3.4.8*).

3.4.11 ***Phase 3B:*** all the Phase 3A features were sealed by layers of homogeneous cultivation soil, which had survived only in the southern part of the site (Fig 13), where they had been fragmented by the digging of later cellars and other post-medieval features. All were mid-dark brown or grey-brown silty loams, containing infrequent small stones. They were best-preserved in the south-eastern part of the site, where an accumulation of four distinct soil deposits (earliest to latest: ***1237***, ***1236***, ***1230***, ***1229***), with a combined thickness of up to 1.4m, was recorded between the foundations of later post-medieval buildings (Pl 12). To the north-west, over the central-southern part of the site, the soils (***1123***=***1176*** above ***1124***=***1175***; ***1198***, ***1244***, ***1403***) survived only on a few stratigraphically isolated 'islands', separated by later intrusions. However, it seems likely that they originally formed part of a single, much more extensive, soil horizon, which probably corresponded to layers ***127***/***203***, ***350***, and ***502***/***522***, which were all identified in the excavation of the 1980s. Layer ***1198*** sealed kiln ***1258*** and all the deposits associated with it, as well as all the other Phase 3A features recorded in the vicinity of the kiln.

Plate 12: Section through Phase 3B cultivation soils **1229**, **1230**, **1236** *and* **1237**, *looking east*

3.4.12 ***Phase 3C:*** the uppermost of the Phase 3B soil layers on the south-eastern side of the area investigated (***1229***; Fig 13), was cut by a long, rectangular pit or trench (***1226***) in excess of 2.28m long (it extended beyond the excavated area), 0.85m wide and 0.63m deep (Fig 13), with steeply sloping sides and a flat base. It was filled principally with a pale orange-brown silty sand (***1227***), overlain by a thin upper fill of mid-brown silty sand (***1228***). A small pit (***1394***), lying largely beyond the limits of the excavation, was also recorded in this area. It may have been roughly oval or circular in plan, 1.04m long, in excess of 0.3m wide, and over 0.35m deep (it was not bottomed), and was

filled with dark grey silty sand (***1395***) that yielded a single sherd of green-glazed medieval pottery.

3.4.13 Further to the north-west, in the central-southern part of the site, Phase 3B soil ***1403*** was cut by a gully (***1416***), up to 0.4m wide and 0.2m deep, filled with mixed grey-brown sandy silt (***1417***). This was traced for approximately 2m on a broadly north-west/south-east alignment, but had been destroyed to the north-west and south-east by later features.

3.4.14 The only other features that could be tentatively assigned to Phase 3C were two large, heavily truncated pits (***1086***, ***1096***) situated towards the north-east corner of the site (Fig 14). Although both were isolated from the stratigraphic sequence recorded further south, each yielded a few sherds of late medieval (*c* fifteenth-century or later) pottery, and have therefore been attributed to the latest recorded phase of medieval activity on that basis. Feature ***1086*** was a long, rectangular pit or trench, 1.4 x 0.6m and up to 0.43m deep, with near-vertical sides and a flat base. It was aligned north-west/south-east, and was filled with dark brown/black silty sand (***1087***). Immediately east of the southern end of ***1086*** was ***1096***, a large, probably originally sub-square, pit, the northern part of which had been destroyed. This measured 2.85m by at least 1.5m and up to 0.8m deep, with steeply sloping sides and a rather undulating base. It contained seven discrete fills (earliest to latest; ***1103***, ***1102***, ***1101***, ***1100***, ***1099***, ***1098***, ***1097***), principally grey or brown silty or sandy deposits, most of which contained varying amounts of small coal fragments.

3.4.15 ***Dating evidence:*** two radiocarbon determinations were obtained from deposit ***1303***, the primary fill overlying the brick floor of Phase 3A kiln ***1258***. The first yielded a date range of cal AD 1260-1400 (690±35 BP; SUERC-24690), whilst the second was virtually identical, at cal AD 1270-1400 (670±35 BP; SUERC-24691). In both cases, there was a higher level of probability that the date fell within the earlier part of the likely range (*Appendix 1*). On this evidence, the use of the kiln is likely to have occurred in the second half of the thirteenth century or the first quarter of the fourteenth century.

3.4.16 Additional support for the idea that the kiln was in use during the second half of the thirteenth century is provided by the large ceramic assemblage recovered from deposit ***1303***. This comprises nearly 300 sherds of twelfth- to thirteenth-century pottery, with no certainty later material present (S*ection 4.3*). Pottery of the same type and date also came from several other deposits either directly or broadly associated with kiln ***1258***, including deposit ***1443***, which lay beneath the brick floor, and perhaps indicated a phase of use prior to the laying of that surface, the secondary fill of the kiln (***1279***), which overlay ***1303***, clay deposit ***1232*** that directly sealed the remains of the feature, and the fill of pit ***1201***, which cut deposit ***1232***.

3.4.17 Phase 3B soil deposit ***1198***, which accumulated in the general area previously occupied by Phase 3A kiln ***1258***, yielded twelfth- to thirteenth-century pottery of very similar type to that recovered from the kiln itself (*Section 4.3*), and from other Phase 3A features and deposits on this part of the site. The only other Phase 3B deposit to contain pottery was ***1244***, which yielded four sherds

of possible fourteenth- or fifteenth-century date, in addition to some earlier material.

3.4.18 Phase 3C pit ***1096*** yielded 16 sherds of Midlands Purple-type ware (from tertiary fill ***1101*** and uppermost fill ***1097***); the absence of any later material in the assemblage would suggest a likely fifteenth- or sixteenth-century date (*Section 4.3*). The other Phase 3C pit, ***1086***, contained only two sherds, a fully reduced green-glazed fragment, probably of the fifteenth-seventeenth centuries and an eighteenth-century glazed sherd that is considered to be intrusive.

3.5 PHASE 4: EARLY POST-MEDIEVAL OCCUPATION (MID-SIXTEENTH AND SEVENTEENTH CENTURIES)

3.5.1 Physical remains that could be attributed securely to the early post-medieval occupation of the site (Phase 4) were limited to the remains of two pits, both of which had been truncated by later activity. The most significant was a small pit (***1299***; Pl 13), which measured 0.89 x 0.44m and was 0.31m deep, located in the south-western part of the site. Despite its modest dimensions, this feature yielded a large group of pottery (*Section 4.3*).

Plate 13: South-facing section through pit **1299**

3.5.2 A much larger pit (***1165***; Pl 14) with near vertical sides, measuring 3.68 x 2.20m and 2.25m deep, was recorded in the centre of the site. The upper 1.17m of the feature had seemingly been excavated during the archaeological works of the early 1980s, as the upper fill (***1193***), a homogeneous dump of mixed soil, contained two context labels and other modern rubbish. The lower fills were *in-situ*, however, and appeared to represent several episodes of dumping, implying a gradual filling with material derived largely from the local natural subsoils. These deposits yielded early post-medieval pottery, in addition to residual Roman and medieval material. The rationale for this feature remains uncertain, although the possibility that it represented a well cannot be discounted entirely.

3.5.3 Pit ***1165*** was cut by a smaller pit (***1170***) that contained similar fills to the larger feature. However, this had been truncated, and its fills yielded no artefacts, so its attribution to Phase 4 must remain tentative.

3.5.4 ***Dating evidence***: the fill (***1300***) of pit ***1299*** yielded an important assemblage of pottery that can be dated to the second half of the seventeenth century or the early eighteenth century. The group of 278 sherds is dominated by seventeenth-century material, principally early Black wares and brown-glazed red earthenwares, but includes a slipware dish and two sherds of mottled ware, for which a date no earlier than the very end of the seventeenth century, or the early eighteenth century, would be appropriate. Pit ***1165***, though considerably larger, contained only 15 post-medieval sherds, including sixteenth- and seventeenth-century Midlands purple-type ware and early eighteenth-century mottled ware.

Plate 14: Pit **1165**, *partly excavated*

3.6 PHASE 5: THE EIGHTEENTH CENTURY

3.6.1 A distinctly eighteenth-century phase of occupation proved difficult to disentangle from the complex remains of nineteenth- and twentieth-century date (*Section 3.7*) that survived over much of the site. However, the archaeological evidence is consistent with the cartographic and documentary data in suggesting that occupation on the site may have been relatively unintensive (at least away from the main street frontages) before the early nineteenth century.

3.6.2 A very large, but shallow, pit (***1079***; Fig 14) had been dug directly into the natural subsoil. This extended west of the site and was destroyed to the south by a later cellar (***1043***; *Section 3.7.4*), but measured in excess of 5m north to south, at least 4.5m east to west, and was 0.55m deep. Its shallow depth and irregular plan suggest that it may have been dug for the extraction either of coal, which, in places, formerly lay at or close to the ground surface in this area, or for exploitation of the natural sandy clay. The whole feature was filled with grey-brown clay silt (***1078***) that yielded pottery of eighteenth-century date but no later material.

3.6.3 A second large feature (***1104***) was also recorded to the east of the later cellar, cutting the natural sandy clay. This was probably a large pit, but it had been destroyed to the west by the cellar and to the east by other features. Whether or not it was a coal-extraction pit, or something else, it was very substantial, *c* 3m wide and 2.7m deep, with a flat-bottomed, V-shaped profile, and was filled with a single deposit of clean, mid-brown sandy silt (***1105***). The latest pottery present in its fill suggested a late eighteenth- or early nineteenth-century date for its filling.

3.6.4 Many other pits and hollows of widely varying shapes, sizes and depths, though generally far smaller than possible coal-pits ***1079*** and ***1104***, were recorded over the northern part of the site (Fig 14). A particular concentration was noted at the extreme north-west corner **(*1039*, *1047*, *1050*, *1066*, *1071*, *1091***), north and east of feature ***1027***, and a group of generally smaller features (***1055***, ***1057***, ***1060***, ***1061***, ***1068***, ***1093***) was present on the east and north-east. All these cut directly into the natural subsoil and were cut or overlain by nineteenth- and twentieth-century features and deposits of Phase 6 (*Section 3.7*), but only one (***1047***) yielded any datable material, namely mottled ware and other pottery of eighteenth-century date.

3.6.5 One of the most significant features that can be tentatively assigned to Phase 5 was a large, circular brick-lined pit or shaft (***1027***), which had been dug directly into the natural sandy clay in the north-western part of the site (Fig 14; Pl 15), but also cut pit ***1079***. This was 1.86m in diameter, externally, and was lined with two layers of unbonded hand-made bricks (***1008***), each brick measuring *c* 250 x 110 x 70mm. Its fills were hand-excavated to a depth of 1.5m below the modern surface, but further investigation with an auger demonstrated that it was in excess of 7m deep, though its base was not reached. The earliest excavated fill (***1026***) comprised a dump of firm orange sandy material and broken brick fragments, which was at least 0.2m thick.

This was overlain by two deposits composed largely of loose, uncompacted coal dust and small coal fragments (***1017*** below ***1016***), with a combined thickness of 1.05m. The top of the feature was filled with 0.25m of orange-brown silty sand (***1015***).

Plate 15: Brick-lined pit/shaft **1027**

3.6.6 The precise significance of feature ***1027*** is unclear, though it was obviously far too deep and substantial to have been a mere rubbish pit. The fact that a (possibly contemporary) brick-lined drain (***1082***; *Section 3.6.4*) appeared to be aligned towards ***1027*** from the south suggests that it may have been a well or sump. However, there was no direct evidence that the drain was related to the use of ***1027***, or even that the two features were directly contemporary. Another possibility, suggested both by the character of its excavated fills (largely comprising coal dust and small coal fragments), and by the fact that a coal seam, known to have been worked from at least the eighteenth century (Hull 1861), lay at a depth of *c* 17m beneath the site, is that it may have been a ventilation shaft for an early coal mine. The date of the feature is also uncertain; its fills, which were clearly deposited after it had gone out of use, yielded pottery of late eighteenth- to mid-nineteenth century date (*Section 4.4*), in addition to earlier post-medieval (seventeenth- and eighteenth-century) material. However, the fact that the feature does not appear on the earliest detailed map of the area, produced by Mather in 1827, suggests that it may already have gone out of use and disappeared from view by that date.

3.6.7 To the south, the northern surviving end of drain ***1082*** (Fig 14) lay 1.2m south-east of ***1027***, and this feature extended southwards for *c* 3.5m before it

had been destroyed by a later cellar (***1043***). This also cut pit ***1079***. Internally, the channel was 0.4m wide and 0.22m deep, and was lined (but not floored) with three courses of hand-made bricks, each measuring *c* 200 x 100 x 70mm. That the channel had been capped originally with stone slabs was indicated by the presence of three roughly squared sandstone flags, the best preserved measuring *c* 0.4 x 0.23m, at the north-western end of the feature. The base was filled with 0.14m of mid-grey sandy silt (***1080***), overlain by an upper fill of loose, dark brown sandy silt (***1081***) containing some wood fragments.

3.6.8 Over the rest of the site, evidence for Phase 5 activity was scant (Figs 14 and 15), being confined, as elsewhere, to a few truncated pits and other negative features, all of which directly cut the natural subsoil and were cut and/or overlain by features and deposits of nineteenth- or twentieth-century date. By far the most substantial features were four large pits (***1111***, ***1186***, ***1187***, ***1215***), all of which may have been formed through opportunistic exploitation of the local coal seams, though this is not certain. Feature ***1215*** lay towards the centre of the site; it was roughly circular, *c* 2.7m in diameter and 1.8m deep, and was filled with mid-grey-brown sandy silt (***1214***) that contained no pottery later in date than the mid-eighteenth century. Towards the south-west corner was a very large, oval pit (***1111***), 4 x 2m and over 3m deep (it was not bottomed), that for safety reasons was largely excavated mechanically (Pl 16), though a sequence of fills was recorded. At the base of the machine-cut section was 1.1m of mid-grey sandy silt (***1151***). This was overlain by 0.1m of black charcoal and ash (***1149***), which was in turn sealed by a further 1.8m of dark grey/black clay-silts (earliest to latest: ***1148***, ***1140***, ***1112***). The bulk of the ceramic assemblage from these fills was of seventeenth- and early eighteenth-century date, though a small amount of pottery datable to the early nineteenth century was also present.

Plate 16: Machine-excavated section through pit **1111**

3.6.9 Two other large pits (***1186***, ***1187***), situated almost side-by-side (their upper edges were only 0.1m apart), were recorded on the southern edge of the site, south-east of feature ***1111***. Both were rectangular, the northernmost (***1186***) measuring 2m east to west, at least 1.57m north to south (it had been destroyed to the north), and 1m deep, that to the south (***1187***) being at least 2.5 x 2.1m long (it was destroyed to the south, east and west by later disturbances) and 1.05m deep. They each had near-vertical sides and flattish bases, and were filled with deposits of dark grey/black sandy silt (***1185*** and ***1188*** respectively) containing brick, slate and coal fragments, as well as other debris. These soils had been contaminated with diesel oil at some stage, but this had presumably leaked into them from some vanished modern feature above, since most of the associated pottery was eighteenth century in date, and nothing in the assemblages post-dated the late eighteenth- or early nineteenth century.

3.6.10 ***Dating evidence:*** most of the pottery assemblages recovered from Phase 5 features appear to date to the late eighteenth and early nineteenth centuries. This includes the material from brick-lined pit/shaft ***1027***, and from pits ***1104***, ***1111***, ***1186*** and ***1187***. However, the latest pottery from the fill (***1078***) of feature ***1079***, a possible large extraction pit pre-dating ***1027***, comprised eighteenth-century Mottled ware and tin-glazed wares, and the assemblage from pit ***1047*** was also exclusively of an eighteenth-century date. The fill (***1185***) of pit ***1186*** yielded a good assemblage (46 fragments) of late seventeenth- and early eighteenth-century clay tobacco pipes (*Section 4.5*), but the presence of two sherds of pearlware in this deposit (*Section 4.4*) suggests a date no earlier than the late eighteenth or early nineteenth century, unless these fragments were intrusive.

3.7 PHASE 6: THE INDUSTRIAL PERIOD (NINETEENTH AND TWENTIETH CENTURIES)

3.7.1 For the most part, activity in the nineteenth and twentieth centuries was characterised by the construction of buildings, alleys/yards and many other associated features over virtually the whole of the area. This development reflects the rapid expansion of Wigan as an industrial centre during this period, and the concomitant increase in population (*Section 1.3.26*). For the first time, large open areas to the rear of the main street frontages were infilled with buildings, often laid out adjacent to an alley, court or yard extending back from the main street. However, an earlier phase of nineteenth-century activity was also evident, comprising several large, deep pits, some filled mainly with coal dust and small coal fragments. These, whilst yielding nineteenth-century pottery, invariably lay beneath the remains of later buildings or external surfaces. It seems likely that they were coal extraction pits, created by the small-scale, and probably opportunistic, exploitation of the local coal measures, which, in places, lay very close to the surface beneath the town. This phase of activity has been designated Phase 6A, whilst the bulk of the evidence for nineteenth-century and later occupation, represented by the construction of buildings, yards and associated features across the Park's Yard site, is designated Phase 6B.

3.7.2 ***Phase 6A:*** in the northern part of the site, three possible coal-extraction pits were recorded (Fig 14). The most northerly (***1034***) extended north beyond the limit of excavation, so its full extent is unknown. However, it was probably circular or oval, *c* 4m east to west and in excess of 2m wide, with vertical or near-vertical sides. The mixed fills of redeposited natural subsoil interleaved with coal dust, black soil and brick rubble, were removed mechanically to a depth of *c* 4m, without the base of the feature being reached. With the exception of an early nineteenth-century clay pipe fragment (*Section 4.5*), no datable artefacts were recovered. Some 4.5m to the south-east was a similar feature (***1094***), oval in plan, *c* 3 x 2m and at least 3m deep (it was not bottomed), filled with a loose deposit composed largely of coal dust and small coal fragments (***1095***). Approximately 7m to the south-east, machine-excavation of a small trench beneath the construction levels of Park's warehouse (Phase 6B, *Section 3.7.5*) demonstrated that this building had been constructed over an extremely large, oval pit or shaft (***1041***), *c* 5 x 4m and in excess of 4m deep (the base was not observed), filled with loose earth, rubble and industrial debris (***1042***).

3.7.3 Two more pits of this type (***1222***, ***1341***) were recorded further south, in the central part of the site. The more northerly of these (***1222***; Fig 15) had seemingly been partly excavated during the excavations of the early 1980s, but the lower part of its original fill remained *in-situ*. This feature was oval, 2.8 x 2.1m and at least 3m deep (it was not bottomed), and was filled with a dark brown/black firm clay silt (***1223***) containing a few brick fragments. Pit ***1341***, which lay approximately 7m to the south, was rectangular, *c* 3.35 x 2.1m and over 1m deep; its fill of mixed black sandy silt (***1342***) yielded nineteenth-century pottery and clay tobacco pipe fragments, in addition to residual material of earlier post-medieval date.

3.7.4 ***Phase 6B:*** in the northern part of the site, two cellars (***1035***, ***1043***) were amongst the earliest Phase 6B structures recorded (Fig 14). Both were either square or rectangular in plan, but extended west of the excavated area, so their full east to west dimensions are not known. They exhibited slightly differing alignments, suggesting that they were not built at precisely the same time, an hypothesis supported by the fact that, whilst ***1035*** was constructed entirely of brick, ***1043*** had clearly been stone-built originally, but was reconstructed subsequently in brick, probably on at least two occasions. Cellar ***1043*** at least cannot have been built before the end of the eighteenth century, since its surviving stone walls cut across a feature, possibly an early coal extraction pit (***1079***) that yielded pottery of the period *c* 1795-1815 (*Section 4.4.26*). Both cellars were ultimately filled with demolition rubble prior to their remains being covered by a modern car park.

3.7.5 Cellar ***1043***, which was located near the north-west corner of the site (Fig 14; Pl 17), was 4.2m wide internally, north-west to south-east, and in excess of 5m long, with a floor (***1054***) of large, rectangular sandstone flags (*c* 0.75 x 0.5m and 60mm thick) carefully laid in rows. Where a few flags were missing at the north-east corner, a void, *c* 2m deep, was apparent. The east wall of the cellar (***1052***), and its south-east corner, were constructed of irregularly coursed, roughly squared sandstone blocks of various sizes (Pl 18), bonded

with a pale pink-brown sandy mortar, which survived to a height of 0.85m above the floor level. Along the entire length of the east wall, the stones from which the original vaulted ceiling had once sprung remained in place (Pl 18), though all trace of the ceiling itself had gone. In the south wall, close to the south-east corner of the cellar, were the remains of a rectangular opening, presumably either a doorway or a window, set *c* 0.4m above the floor level and constructed of large, well-dressed stone blocks.

Plate 17: The northern part of the site in Phase 6B, showing cellars **1035** *and* **1043** *on the west (left), yard/alley surfaces* **1025** *and* **1003** *in the centre, and the remains of William Park's warehouse (Structure* **1014***) on the right*

3.7.6 Cellar ***1035***, which was located at the extreme north-west corner of the site (Fig 14; Pl 17), measured 6.5m internally, north-west to south-east, and in excess of 1.5m wide. Its walls (***1004*** on the south, ***1005*** on the east, and ***1006*** on the north) were constructed from hand-made bricks (each *c* 220-230 x 100-110 x 70-80mm), bonded with a dark-grey, gritty mortar. The walls were only one brick wide, except for the foundations (above which the walls were offset), which were two or three courses high and two or three bricks wide. The east and north walls stood to 14 and 15 courses (*c* 1.3-1.4m) high respectively, but the south wall was reduced to only 0.8m. There was evidence that the south wall had been reconstructed at some stage on a slightly different alignment. No flooring or other internal deposits were recorded.

Plate 18: South-east corner of cellar **1043***, showing its stone construction and evidence for a vaulted ceiling*

3.7.7 The north wall (***1051***), and most of the excavated section of the south wall (***1053***), were brick-built, but the fact that the two were composed of slightly different bricks bonded with very different mortars indicates that the original stone cellar underwent at least two major structural alterations during its lifetime. Although no direct stratigraphic links existed between the two different brick builds, that in the north wall may have been the earliest. There, the bricks were bonded with a pale pink-grey lime mortar, though evidence for repairs using a dark grey/black, gritty mortar, were evident in places. This later mortar was identical to that used in the construction of the south wall, and was also evident in the remains of brick repairs that had survived in the east wall, suggesting that all these structural elements were contemporary. On the same evidence, the bricking-up of the door/window in the original, stone-built south wall was also undertaken at this time, as was the construction of a brick wall (***1009***) that ran north-westwards for 3m from the north-east corner of the cellar (Fig 14).

3.7.8 Adjacent to the east wall of cellar ***1043*** were the remains of a brick-built yard or alleyway surface (***1025***), the earliest surviving surface of Park's Yard (Fig 14; Pl 17). This was up to 2m wide and was traced for 15m on a north-west to south-east alignment. It was formed of hand-made bricks of various styles and sizes, set on a 0.4m-thick layer of dark brown/black silty clay (***1106***) containing many small fragments of metalworking debris, broken brick fragments and small stones. Towards its northern surviving end, the surface had been repaired, over a stretch *c* 5m in length, with large, broken sandstone fragments. This need for repair probably resulted from subsidence of the original brick surface into ***1094***, a possible coal-pit that had been infilled with loose coal dust.

3.7.9 On the west, surface ***1025*** abutted the east wall of cellar ***1043***, whilst to the east it extended beneath a much later alleyway surface (***1003***), 2.1-2.2m wide (Pl 17), composed of granite setts laid in regular east/west rows, and north- to south-aligned bands of larger, rectangular blocks. This lay directly beneath the modern tarmac car park surface and was of comparatively recent date; it was not removed due to the presence of live electricity cables beneath. On the east it was bounded by a brick wall (***1018***), four bricks (*c* 0.5m) wide, beyond which were the remains of William Park's iron and steel warehouse (Structure ***1014***). The excavated remains of this building measured *c* 15.5m internally, north-west to south-east, by 4.5m, but the structure extended east and south of the area investigated. Its northern boundary was represented by a brick wall (***1019***), five bricks (0.6m) wide, which had clearly been constructed after wall ***1018*** was already in place. The west wall (***1020***), which had been built immediately up against the east face of wall ***1018***, was also largely brick-built, though the uppermost surviving course was composed of roughly squared stone blocks. What was probably an entrance into the building from the yard to the west was marked by a pair of rectangular brick jambs set 3.2m apart.

3.7.10 Internally, three long, narrow rows of granite setts (repaired in some places with brick), set *c* 0.3-0.5m apart, extended north-west to south-east (Pl 19), parallel with the long axis of the structure. These features were *c* 0.6-0.8m wide, and seemingly ran the length of the building, though in places they had been destroyed. Their precise significance it unclear; however, since the warehouse appears to have been built over a large pit (***1041***; *Section 3.7.2*), possibly an infilled coal-pit they might have been built in response to the unstable ground conditions caused by the mining, perhaps being intended to support the weight of carts bringing goods into the warehouse.

3.7.11 Several fragments of brick walling, together with the patchy remains of nineteenth- or twentieth-century external surfaces and other contemporary features, were recorded in the comparatively poorly preserved central and southern parts of the site. For the most part, these remains were extremely fragmentary, having been largely destroyed when the site was levelled for construction of the modern car park, though a few noteworthy features remained reasonably intact.

Plate 19: The interior of Structure **1014***, looking north-west*

3.7.12 As in the northern parts of the site, the principal surviving features in these areas were the remains of nineteenth-century cellars (Fig 14). One of the best preserved (***1127***) was situated towards the south-west corner of the site. However, that this was not the earliest structure in this area was indicated by the presence of a north-east/south-west-aligned brick wall foundation (***1146***), 0.56m wide, that was sealed beneath the flagged floor. This feature was not recorded outside the confines of the cellar, but there were indications that it may have continued beneath the north-east and south-west walls. Also sealed by the cellar floor was a stone-capped brick-lined drain (***1147***), 0.4m wide, which ran diagonally, almost north to south, across the south-east corner of the cellar. However, like wall ***1146***, this feature seems to have extended beneath the cellar walls, suggesting that it was part of an earlier structural phase. The drain probably had a direct stratigraphic relationship with wall ***1146***, but this could not be established.

3.7.13 Cellar ***1127*** measured *c* 4.35 x 3.58m internally, and was built of hand-made bricks bonded with pale brown sandy mortar. The walls stood to a maximum of 25 courses (*c* 2.2m) in height above the floor level (Pl 20), though at least two structural phases were evident in the north-west, south-east, and south-west walls (***1128***, ***1131***, ***1136***), where the upper courses were of wire-cut bricks bonded in dark grey/black ashy mortar. The northern end of the north-east wall (***1130***) had also been rebuilt using the same materials. The internal faces of all four walls retained traces of a whitewash or thin plaster rendering. The floor was made of large, rectangular sandstone flags (***1129***), 100mm thick and ranging in size from *c* 0.3 x 0.4m to 0.8 x 0.6m.

Plate 20: Cellar **1127***, looking south-west*

3.7.14 On the west wall, a flight of four stone steps (***1134***), the lowest laid above the flagged floor, led up to a bricked-up doorway (***1135***), and another bricked-up door was evident in the south wall (Pl 20). Internally, a short brick wall or buttress (***1132***) extended into the cellar for *c* 0.95m from the south wall. This was 0.37m wide and 1.95m high, and was capped with two moulded sandstone coping stones. It was positioned *c* 1.5m from the south-west corner of the cellar (immediately west of the bricked-up doorway in the south wall), thereby forming a small alcove at the south-west corner. Built into the south-east corner was a square brick feature of unknown purpose (***1138***), which survived to a height of 1.95m. In all cases, these features represented later additions, built directly over the flagged floor. Ultimately, cellar ***1127*** was filled with demolition rubble which was in turn sealed directly by the tarmac of the modern car park.

3.7.15 In the central part of the site, another complete cellar (***1328***) was exposed (Pl 21). That this was certainly of nineteenth-century date was indicated by the fact that it post-dated feature ***1341***, a possible Phase 6A coal-pit (*Section 3.7.3*), which itself yielded fragments of nineteenth-century pottery. The cellar was roughly square, 4 x 3.6m internally, and was, like the cellars excavated elsewhere, constructed of hand-made bricks bonded with a pale pink-grey sandy lime mortar. However, it had been more comprehensively levelled than many of the other cellars, since its walls survived to only 0.4-0.7m in height. Internally, it was floored with sub-angular stones and some cobbles set on edge into the underlying natural subsoil (***1333***), though a few repairs utilising hand-made bricks were also noted. A small iron grate was set one course above the floor level in the north-east wall, close to the north-east corner of the cellar.

Plate 21: Cellar **1328***, looking south*

3.7.16 At the edge of the site was a large, circular brick-built feature (***1376***), 3.18m in diameter (Pl 22), set in a circular construction pit (***1379***), *c* 3.7m in diameter. The gap between the brickwork and the cut was packed with clay, whilst the interior was rendered with a thick (20mm) coating of pale brown lime mortar with a smooth, even finish. The walls were two bricks thick and composed entirely of headers; the bricks themselves were wire cut, and measured 240 x 120 x 70mm. The base of the feature was floored with stone flags, averaging *c* 0.7 x 0.5m and 60mm thick. It was ultimately filled with black soil, building rubble and other debris containing nineteenth- and early twentieth-century pottery. Immediately south of ***1376*** were the remains of a brick-lined drain (***1382***/***1383***) that passed around the east side of ***1376*** and continued to the north. It was 0.55m wide, externally (0.21m internally), and 0.28m deep, and was both floored and capped with thin sandstone slabs.

3.7.17 ***Dating evidence:*** because safety considerations dictated that the fills of the deep Phase 6A features at Park's Yard should be excavated largely mechanically, little artefactual material was recovered from these deposits. However, the latest pottery from the fill (***1042***) of feature ***1041*** dates to the first quarter of the nineteenth century.

3.7.18 The bulk of the artefactual material recovered from Phase 6B deposits can be dated to the period from the mid-nineteenth century to the early twentieth century. However, a considerable amount of earlier post-medieval pottery was also present as residual material in deposits of this date.

Plate 22: Circular brick structure **1376**, *looking north-east*

4. THE FINDS AND ENVIRONMENTAL EVIDENCE

4.1 INTRODUCTION

4.1.1 The programme of archaeological investigation as part of the Joint Service Centre Development yielded a considerable artefactual assemblage. Whilst the collection was dominated by fragments of pottery, including material of Roman, medieval and post-medieval date, other material classes, such as iron, lead, glass, flint and animal bone, were also recovered.

4.2 ROMAN POTTERY

4.2.1 ***Samian:*** in total, 19 sherds of samian ware, weighing 66g and representing a maximum of 18 vessels, were recovered from the 2008 excavation (Table 2). Each sherd was catalogued on a Microsoft Access database. Full details of sherds and numbers of vessels, including weights and measurements of rims for Estimated Vessel Equivalents (EVEs), are in the project archive. A catalogue of all 18 vessels is presented in *Appendix 2*.

4.2.2 The products of the samian industry were highly standardised, and their study and publication have developed along standardised lines; the standard terminology has therefore been employed. The abbreviations SG and CG denote vessels which were produced in South Gaulish and Central Gaulish workshops; 'Ind' denotes a vessel of indeterminate form. Vessel types are Dragendorff's (1895) form numbers unless stated; for other terminology, see Webster 1996.

4.2.3 Date-ranges, such as *c* AD 70-110 or *c* 120-200, have been given rather than the use of epochs (*eg* Flavian-Trajanic or Hadrianic-Antonine). However, these are employed simply to facilitate analysis of the material, and should not be thought more precise than the use of epochs. EVEs have been so little employed in samian reports that external comparisons are as yet well-nigh impossible (Willis 1998, 94). The provision of measurements for EVEs and weights should facilitate the integration of the samian ware into the pottery assemblage as a whole. Maximum numbers of vessels are also given, used in preference to the estimation of minimum numbers, which is misleading, especially in the case of small fragments of the same date, origin and form. Willis (2005, 5.2.2) has noted that, although such a method has a potential problem of multiple counting of sherds from the same vessel in more than one context, multiple counting should arise primarily amongst the plain wares, since most moulded bowls have distinctive decoration.

Fabric	Vessel Type	Sherds	Vessels	EVEs by Rim	EVEs by Footring	Weight (g)
SG	Dish	7	6	0.08	0.25	45
SG	Cup	1	1	0.05	0.00	2
SG	Bowl, moulded	8	8	0.05	0.00	16
SG	Indeterminate	3	3	0.01	0.00	3
	Total	**19**	**18**	**0.19**	**0.25**	**66**

Table 2: Fabrics and types of vessel, according to sherd numbers, numbers of vessels, and EVEs

4.2.4 All 18 vessels were produced in South Gaul in the Flavian or Flavian-Trajanic periods (*c* AD 70-110). None was closely datable, but the material in general seems likely to have been Flavian (*c* AD 70-96) rather than later. The very small sample is not statistically reliable, but the large proportion of moulded bowls, representing around half of the maximum numbers of vessels, may well reflect military occupation on the site. There were, however, only scraps of decoration extant, nor were there any potters' stamps. One dish (14; *Appendix 2*) bore a fragment of a graffito that had been inscribed, presumably by its owner, on the footring of the vessel, but evidence for wear was reduced by the abraded and eroded condition of many of the sherds, the average weight of which was only 3.5g. One sherd (6; *Appendix 1*) showed signs of burning, whilst another vessel (18; *Appendix 2*) may have been repaired.

4.2.5 *Overview of samian from Park's Yard and adjacent sites*: in addition to the 19 sherds recovered from the 2008 excavations, a further 64 came from The Wiend excavations of the early 1980s, which were contiguous with the areas investigated in 2008. The total assemblage of 83 sherds from both sites represents a maximum of 68 vessels, but only 0.75 EVEs by rim percentage and 240g by weight. The material was all in poor condition, although only 6% of the sherds were burnt. The average sherd weight was very small (3g) and 27% of the vessels were of indeterminate form. There were no potters' stamps and no decorated pieces could be identified in detail with any certainty.

4.2.6 However, moulded bowls comprised as much as 38% of the collection (52% if indeterminate sherds are disregarded), a similar proportion to that found in the samian assemblage from the Grand Arcade site on the east side of Millgate (Ward 2008), where moulded bowls formed 51% of the assemblage (58%, excluding indeterminate sherds). This extremely high proportion of moulded bowls must signify the existence of a high-status site at Wigan, and, moreover, one with a significant military involvement (Willis 2005, table 42).

4.2.7 The samian provides little precise dating evidence for the Roman occupation at Park's Yard, though it suggests that occupation did not continue beyond the end of the first century AD. There were no products of pre-Flavian date in the sample and little, if anything, that could be ascribed specifically to the early Flavian period. The bulk of material was probably produced in the period *c* AD 80-100, as was also the case at the Grand Arcade (Ward 2008), though on that site the material was in much better condition.

4.2.8 ***Other Roman pottery:*** excluding samian ware (*Section 4.2.1-7*), the 2008 excavations yielded 167 sherds of Romano-British pottery, weighing 3.579kg. An archive catalogue was compiled according to the standards laid down by the Study Group for Romano-British Pottery (Darling 2004). Pottery was recorded detailing specific fabrics and forms, decorative treatment, condition, cross-joins/same vessel, and was quantified by sherd count, weight and rim percentage values, giving Estimated Vessel Equivalents (EVEs). All the pottery from the site was catalogued in the archive and the stratified pottery was examined in order to date the Roman stratigraphic sequence. Key groups are illustrated and catalogued (*Appendix 3*); unillustrated material is summarised. The fabric series was cross-referenced to National Fabric Collection codes (Tomber and Dore 1998) where possible.

4.2.9 *Fabrics and forms*: much of the pottery was in poor condition. The fabric was first examined by eye and sorted into groups on the basis of colour, hardness, feel, fracture, inclusions and manufacturing technique. A sample of the sherds was further examined under a x30 binocular microscope to verify these divisions. The size of the sample was as large as was felt necessary for each fabric group. The different wares present in the assemblage are quantified in Table 3, and their relative proportions are presented in Figure 16. The relative proportions of pottery forms are given in Figure 17.

4.2.10 Finewares include fine fabrics with surface treatments such as mica-dusting and colour coats:

TS Samian ware (*Section 4.2.1-7*).

CC4 Used to make a small folded roughcast beaker with everted rim. Orange-buff with brown colour coat. Hard, smooth fabric with fairly smooth fracture. Sparse, ill-sorted fine quartz and ill-sorted, medium to fine red-brown inclusions. These are probably imports, perhaps from the Argonne (Tomber and Dore 1998, ARG CC).

4.2.11 Eight mortaria sherds were recovered from the site. A total of five different fabrics could be identified:

M15 *Wilderspool 1*: bright orange-brown, slightly abrasive fabric, often with thin cream slip which often survives only in traces. Frequent sand-sized up to small inclusions, mostly quartz, with some opaque, black and red-brown material. Mixed trituration grits: quartz, quartz sandstone, red-brown and pale brown and hard grey material.

M17 *Probably Wilderspool*: powdery, fine-textured, orange-brown fabric with pink core and traces of cream slip. Moderate, sporadic, ill-sorted, inclusions, quartz with some black material. No trituration grit present. Related to Tomber and Dore (1998) WIL WS.

M32 *Possibly Lincoln*:slightly powdery, slightly micaceous cream; self-coloured. Frequent, tiny to small inclusions, quartz and opaque red-brown material with very occasional larger inclusions of the same type. Some quartz and red-brown trituration grit with rare quartz sandstone and rare black on surviving surface; ?rare flint embedded in upper surface of flange.

M33 *Midlands*: soft, slightly micaceous, pinkish cream fabric with thick orange-pink core. Moderate inclusions, transparent and pinkish quartz with rare orange-brown material. No trituration grit survives.

M34 *Possibly local*: oxidised, quartz-tempered mortarium sherds, which generally lack trituration grits and white slip. Likely to be local, but cannot be adequately assigned

due to the lack of diagnostic features. One basal sherd has worn quartz and quartz sandstone trituration grits.

4.2.12 Oxidised wares comprised the following fabrics:

OAA1 Cheshire plains fine ware, orange to pale orange. Soft, with powdery/sandy feel and smooth fracture. Sparse, well-sorted, fine quartz and sparse ill-sorted fine to medium, rounded red-brown inclusions. Micaceous. Fragments of beakers with zones of rouletting demarcated by single or double horizontal grooves and a rim from a bowl with an internally grooved rim, and also a few centimetres below the rim, as in samian form 29 bowls. Body sherds from a probable flagon were also found, and a two-ribbed handle.

OBA1 As OAA1 but buff or brownish orange. One scrap.

OAA2 Medium orange to pale orange/buff. Soft with powdery/sandy feel and irregular fracture. Common, well-sorted, fine quartz and sparse ill-sorted fine to medium, rounded red-brown inclusions. As OAA1 but more quartz. A turned base and sherds with rouletting. One sherd has traces of red slip (OAA2/RSA1).

OBA2 Buff, soft with powdery/sandy feel and irregular fracture. Common, well-sorted, fine quartz and sparse ill-sorted fine to medium, rounded red-brown inclusions. As OAA1 but more quartz. One scrap.

OAB1 Cheshire Plains medium orange, hard to soft, with rather sandy feel and quite smooth fracture. Sparse-moderate, ill-sorted medium to coarse sub-angular quartz, sparse, ill-sorted, rounded red/brown and grey inclusions. Two reeded-rim bowls (one over-fired and one probably under-fired), a turned base, an over-fired and distorted necked jar with blunt everted rim, and a narrow-necked jar with everted rim and shoulder cordon were identified. One flange may have come from a flanged bowl. Three abraded sherds were identified with traces of red slip (RSB gritty). These had sparse coarse inclusions of quartz and feldspars similar to one of the M34 flanges from mortaria or bowls. They were examined by Kay Hartley, who considered them too thin-walled to be mortaria. She noted it is also very unusual and surprising for a potter to add this sort and quantity of inclusions when making such thin-walled vessels. They are not like Wilderspool products, despite the red-brown slip on one sherd, but will be from a source in the North West. The potter has, however, managed to produce a fairly smooth upper surface on the base sherd which has a raetian slip on the inside surface. This sherd is very flat and likely to be from the inside base surface of a dish (for an example with red slip, see Hartley 1981, fig 29.1, no 11).

4.2.13 White-slipped wares comprised the following fabrics:

FLB1: Orange, quite pale with white slip. Soft with smooth or sandy/powdery feel and slightly irregular fracture. Sparse well-sorted sub-angular quartz and rare rounded grey inclusions. The rim of a burnt or misfired flagon was identified. The rim and upper neck suggest a ring-necked flagon with larger upper ring and slightly splayed neck of the late first to early second century AD.

FLB2 Red-orange. Hard with sandy feel and irregular fracture. Traces of white slip. Moderate well-sorted medium, sub-angular quartz, sparse, coarse, rounded grey inclusions. A turned base, probably of a flagon.

4.2.14 White wares comprised the following fabrics:

FLA1 White or off-white, sometimes with darker cream slip. Fairly hard, with smooth feel and fracture. Clean fabric with sparse medium sub-rounded quartz and rounded red/brown inclusions. FLA1P – pinkish colour. Possibly Tomber and Dore (1998) MAH WH. Body sherds and a turned base were identified, all probably from flagons.

FLA4 Verulamium-region flagon/amphora ware. Tomber and Dore (1998) VER WH. Body sherds only.

4.2.15: Reduced coarse wares comprised the following fabrics*:*

GRA1C Dark grey with brown core. Hard and over-fired sherds present with smooth feel and fracture. Rare, fairly fine quartz and grey inclusions. Two vessels were identified, a rouletted beaker and the base of a platter or dish with a grooved circle inside the base, and an applied round-sectioned footring.

GRB1 Medium hard to soft, depending on soil condition and firing. Fairly smooth feel if surface unabraded, sandy if abraded. Sparse-moderate, well-sorted medium sub-angular quartz, as OAB1, sparse ill-sorted medium-fine rounded grey inclusions. Darker grey slip. All the vessels identified are jars, with necks or sloping rebated shoulders and blunt ended, everted or bead rims, or everted rim tips and grooves or cordons on the shoulder. The vessel group was common in Flavian groups at Middlewich and is related to the pre-Flavian continental jar form represented by Usk no 11 (Greene 1993). It was less numerous than the neckless everted-rim jars of Flavian-Trajanic type at Barton Street in Manchester, a site with less Flavian samian (Wild 2007), suggesting it was more common in the Flavian period than the Trajanic period, although variants continued to made into the early Hadrianic period (Gillam 1970, 107-8). One body sherd has applied decoration which appeared to be rustication and another body sherd may have a roughly applied circle of the circle--and-dot type.

4.2.16 All the amphorae sherds from the site derive from Dressel 20 Spanish oil amphora from the Roman province of Baetica (Tomber and Dore (1998) BAT AM). The globular-shaped Dressel 20, with its short, thick, oval handles and basal wort is the most commonly found amphora form imported into Roman Britain (Williams and Peacock 1983). They were made to transport by sea the large surplus of olive oil produced by the many estates situated in the valley of the River Guadalquivir and its tributaries between Seville and Cordoba (Peacock and Williams 1986, Class 25). This region of Spain was famous in antiquity for its fertility (Columella *De Re Rustica* 5, 85 (Forster and Heffner 1954); Pliny, *Naturalis Historia* 17.93 (Rackham 1950)), and especially for the intensive cultivation of the olive, which produced an abundance of good quality olive oil for export (Pliny, *Naturalis Historia* 15.3.8 (Rackham 1945); Strabo iii.2.6 (Jones 1923)). The Dressel 20 form was made over a long period, from the reign of Claudius (AD 41-54) until shortly after the middle of the third century AD (Martin-Kilcher 1987).

Ware	Fabric	No sherds	Weight (g)	Rim %
Samian	SG	19	66	19
Samian (total)		*19*	*66*	*19*
Fine wares	CC4	2	4	8
Fine wares (total)		*2*	*2*	*8*
Mortaria	M34	5	182.6	
	M17	1	43.8	
	M32	1	94.1	8
	M33	1	32	6
Mortaria (total)		*8*	*352.5*	*14*
Oxidised wares	OAA1	59	354.8	17
	OAA1/FLB1	4	46	
	OAA2	6	82.3	
	OAA2/RSA1	3	22.1	

	OBA1	1	1	
	OBA2	1	1.8	
	OAB1	23	229.1	48
	RSB gritty	3	12.7	
Oxidised wares (total)		*100*	*749.8*	*65*
White-slipped wares	FLB1	1	5.6	20
	FLB2	4	24.7	
White-slipped wares (total)		*5*	*30.3*	*20*
White wares	FLA1	6	83.3	
	FLA1P	6	61.9	
	FLA4	2	5.2	
White wares (total)		*14*	*150.4*	
Reduced coarse wares	GRA1C	2	22.2	
	GRB1	27	305.4	66
Reduced coarse wares (total)		*29*	*327.6*	*66*
Amphorae	DR20	9	1964.5	
Amphorae (total)		*9*	*1964.5*	
Overall total		**186**	**3645.1**	**192**

Table 3: Quantification of Roman pottery fabrics

4.2.17 *Phase 1 stratified group*: small numbers of coarse ware sherds were recovered from stratified Phase 1 deposits. No Black-burnished ware sherds were identified from the site, suggesting that Roman occupation had ceased before the institutional supply of this ware to the North began in *c* AD 120 (Tyers 1999). All the jar forms present on the site have an upright or sloping neck, and no certain rusticated sherds were identified. Although two sherds appeared to have applied decoration, this was seemingly curvilinear, and is therefore more likely to come from a ring-and-dot jar (Gillam 1970, types 67 and 68, dated *c* AD 70-100 and *c* AD 80-130 respectively). Darling (2002, 192-223) noted at Wroxeter that the necked jars, types 27 and 29-31, similar to several jars from Park's Yard (1, 2, 6, 7, 9; *Appendix 3*), were the most common early form, and that rusticated jars were limited to late groups and had burnished rims and shoulders (see also Evans 2000, 212, type JM1); none of the Wigan jars were burnished. At Middlewich, necked jars were significantly more common in a phase dated by samian to the Flavian period than neckless rusticated jars with everted rims (Leary 2008, 72), whilst at Barton Street, Manchester, a site with little Flavian samian (Wild 2007), necked jars were less numerous than the neckless everted-rim jars. This suggests that such necked jars were more common in the Flavian or Flavian-early Trajanic period than in the Trajanic period as a whole.

4.2.18 Other types suggestive of an early date include a possible samian form 29 copy, and sherds from several beakers, with zones of rouletting demarcated by horizontal grooves or cordons (10; *Appendix 3*). The body form is similar to the earlier examples of this type dating to the Flavian period, contrasting with

the bag-shaped examples from Wilderspool (Hartley and Webster 1973, nos 35-7), but more like the profile of jars from late Flavian sites, such as at Inchtuthil (Darling 1985) and Castleford (Rush 2000). However, the form continued in use into the Trajanic period (Gillam 1970, no 68). The form and fabric of these beakers is similar to a beaker type characteristic of the primary phase of occupation in the fort at Carlisle (Swan *et al* 2009, fig 300, nos 5 and 10), closely dated by dendrochronology to AD 72/3-AD 83/4 (Caruana 1992). Two reeded-rim bowls from Park's Yard (3, 4; *Appendix 3*), and a narrow-necked jar with everted-rim (8; *Appendix 3*), are certainly Flavian-Trajanic, but cannot be more precisely dated (Darling 2002, 197).

4.2.19 Overall, therefore, the ceramic forms present in the assemblage, including all those stratified in Phase 1 deposits, point to a date in the Flavian-Trajanic period for the Roman occupation at Park's Yard. However, the jar types suggest that the most intensive activity is more likely to have occurred during the Flavian period (*c* AD 70-96) rather than later, though some early second-century sherds were also recovered from post-Roman contexts.

4.2.20 *Functional groups and site status*: the size of the group precludes detailed analysis, but the proportion of the assemblage (by sherd count) made up of amphora sherds, at 5%, fits with the pattern established for military sites in Roman Britian (Evans 2001, fig 11). This is consistent with the samian evidence, which is also strongly suggestive of military involvement. Conversely, however, the generally poor showing of fine wares might point towards a relatively low-status site, or one with a specialised function (or functions), and the relatively high proportion of jars (*c* 57% of the assemblage) also contrasts with the norm for most military sites (Evans 1993, fig 6).

4.2.21 The presence of several over-fired, under-fired, and distorted sherds in the assemblage suggests that a pottery kiln may have operated nearby. This is not unexpected, since small pottery kilns associated with forts of the late first-early second century are known at a number of sites in the North (Swan 1984). Possible products of this kiln recovered from the site include several necked jars (1, 2, 6, 7, 9; *Appendix 3*), two reeded-rim bowls (3, 4; *Appendix 2*), and (possibly) a platter or dish (14; *Appendix 3*), and a partially reduced ring-necked flagon (12; *Appendix 3*), although the latter may merely have been burnt. Rouletted beakers may also have been produced locally, although none of the sherds from the site were obviously misfired or distorted.

4.2.22 Two fabrics were apparent in these putative local wares, a very fine fabric (OAA1) and a coarser fabric (OAB1/GRB1), which may have been produced in both an oxidised and reduced finished ware. Another ware (GRA1C), represented by a basal sherd from a platter or dish with an applied rounded footring, and several sherds from a rouletted beaker, may also have been made locally. These may in fact represent misfired examples of fabric OAA1, since their inclusions are similar.

4.2.23 *Pottery supply*: the bulk of the assemblage comprises wares that include the distorted and over-fired sherds; as such, it seem likely that most of the pottery from the site was produced locally. However, a roughcast beaker (CC4) is

certainly a continental import, probably from the Argonne region (*Section 4.2.10)*, whilst the amphora sherds all derive from southern Spain (*Section 4.2.16*). Regional imports include mortaria from the Midlands and Wilderspool, whilst the single stamped mortarium (11; *Appendix 3*) may be a Lincoln product (*Section 4.2.11*). Several small flagon (FLA4) sherds are likely to have derived from the Verulamium industry near St Albans, which traded flagons and mortaria with the North West during the late first-early second century AD (Swan *et al* 2009). Additionally, a few white ware (FLA1) flagon fragments may come from the Mancetter-Hartshill or Wroxeter kilns (*Section 4.2.14*).

4.2.24 In the North West, the largest known centres of pottery production were both in Cheshire, at Holt (Grimes 1930), which supplied the legionary fortress at Chester, and at Wilderspool (Hartley and Webster 1973). Small-scale production is also known at Northwich in the Trajanic period (Hanson 1972), Middlewich in the Flavian-Trajanic period (G Dodds *pers comm*), and Manchester in the late first/early second century AD (Clark nd). Webster (1971, 63) suggests a local source for some of the coarse wares from the stream deposit at Melandra Castle in Derbyshire, which dates from the Flavian-Trajanic and early Hadrianic periods. At Castleshaw, Clark considered that the small ceramic assemblage was dominated by local Cheshire Plains ware, though a vitrified Flavian mortarium waster also suggested on-site production (Clark 1989, 74 and 76 no 5). Further north, Swan (1984) records a waster from Ribchester, suggestive of pottery production there in the late first-early second century AD, and this is also noted by Hird (2000, 191). As already noted, small pottery kilns located near Flavian/Trajanic military sites are not uncommon in the region (Swan 1984, 87; Swan *et al* 2009) and it is probable that the waster sherds from Park's Yard point to the likelihood of a similar development at Wigan.

4.3 MEDIEVAL POTTERY

4.3.1 ***Introduction:*** in total, 598 sherds of medieval pottery were recovered during the 2008 excavation, all of which were examined. Some 440 sherds (73.6% of the assemblage) derived from features and deposits of Phase 3A, with much smaller quantities coming from the Phase 3B soils (45 sherds, representing 7.5% of the total), and Phase 3C features (11 sherds, or 1.8% of the total). The remainder of the collection (102 sherds, 17.1% of the total) derived from post-medieval deposits, or were unstratified.

4.3.2 The fact that the bulk of the medieval pottery from the site was retrieved from stratified medieval contexts suggested that the material had suffered little post-depositional disturbance. This is corroborated by the unabraded condition and moderately large size of many of the sherds. As might be expected, the collection comprises mainly vessel body sherds, although a variety of diagnostic rims, handles, and bases were also retrieved. Only a few sherds are decorated, suggesting the assemblage is dominated by functional utilitarian wares (*Appendix 4*).

4.3.3 ***Methodology:*** the material was examined with a x10 hand lens, quantified by sherd count and weight, and divided into fabric and vessel types. Individual rim, handle, and base sherds were recorded separately to allow an estimate to be made of the minimum number of vessels present. Although few joins were evident, there were enough diagnostic sherds to give some indication of distinctive vessel types (Plate 23).

4.3.4 ***Fabric types:*** in total, five separate fabric types were identified. Fabric types 1 and 2 were closely related, and may have the same provenance. In some cases, the number of sherds recovered was sufficient only to provide a basic outline of the pottery type. In the case of Fabrics 4 and 5, the amount of variation between individual sherds could conceivably warrant the identification of further fabric types. In a very small number of instances, individual sherds appear to have been imports from outside the area, and although these have not been included in the typology, they are mentioned where appropriate.

Plate 23: Fragments of medieval pottery recovered from the excavation

4.3.5 *Fabric 1*: this was the second largest fabric type from the site, represented by some 239 sherds, or 40% of the total. The fabric belongs to the gritty ware tradition, as does its close relation, Fabric 2 (*Section 4.3.6*), and is likely to have been of local manufacture. The fabric is generally oxidised, varying in colour from orange through to buff, with a few sherds being either fully or partially reduced. It is generally quite hard, although some softer sherds were noted; such variations in texture and colour are likely to have been produced by variable firing conditions within the kiln, rather than any deliberate act. Well-sorted quartz was the predominant inclusion, with grains less than 0.5mm, though small quantities of mica were also present, making both Fabrics 1 and 2 quite distinct from the pottery types found further north, such as those produced at Samlesbury or Docker Moor (Wood *et al* 2009; Edwards 1967). Occasional splash glazing, in some cases deliberate, in others dripping from other vessels within the kiln, was apparent, and very occasional instances of more substantial glazing were also noted. The glaze varies in colour from pale olive-green to orange. Decoration is entirely restricted to rilling or thumbed rims. The predominant vessel types are jars and/or cook-pots with everted or lid-seated rims. The estimated number of jugs is seven, with single instances of an everted and simple rim being seen, and a possible instance of a balluster jug. A single pipkin handle was also recovered.

4.3.6 *Fabric 2*: this was very similar to Fabric 1, the 261 sherds recovered representing some 43.6% of the total assemblage. The fabric is generally orange through buff to grey. Some partial reduction was also noted. Several sherds were noted with an orange to dark orange slip over both exterior and interior surfaces. The quartz inclusions are less well sorted when compared to Fabric 1, with the largest measuring 1.5-2mm. Mica and coal are occasional inclusions. Olive-green to orange glazing, where present, is generally splashed. Decoration is restricted, as with Fabric 1, to rilling and thumbed rims, with the exception of a single sherd with a stamp. Vessel types are limited to jars/cook-pots with a variety of rims, including lid-seated, everted, clubbed, flanged, and bevelled. There are fewer jugs than in Fabric 1, with both strap and rod handles being represented.

4.3.7 Two sherds in Fabric 2 were identified as wasters. This, together with several wasters found during excavations at Hallgate in Wigan (GMAU 1991, 12-13), suggests that some of this pottery was probably being produced in Wigan.

4.3.8 *Fabric 3 (Midlands Purple ware)*: some 27 sherds of this fabric were recovered. The fabric is hard, comparable to stoneware in some instances, and is almost invariably reduced, although there are some oxidised sherds. These latter may derive from the later medieval orange-ware tradition, but have been grouped together, as thin-section analysis has shown their inclusions to be the same as those of pottery produced in Staffordshire (Ford 1995, 35). Well-sorted quartz and frequent quartz sand inclusions were noted in some of the sherds, although in other instances the fabric was much finer and no inclusions could be discerned. Glazing is variable, being patchy on some sherds, but with a more substantial covering on others. Few forms could be identified, with the exception of a single jar and a hollow-ware vessel with a simple rim. Midlands orange and Purple wares are generally thought to make an appearance in the

late fourteenth/early fifteenth century, although a fifteenth- and sixteenth-century date would seem more appropriate at Park's Yard. However, it was a long-lived ware, continuing in production into the eighteenth century (Ford 1995, 35-6).

4.3.9 *Fabric 4*: this is a hard, white to pinkish-white fabric, densely gritted, with small grains. Splashed apple-green glaze was noted on a few sherds. The material recovered from the site is restricted, mostly, to unglazed body sherds with no diagnostic features. The ware is thought to be a regional import, and, in view of the presence of Midlands Purple ware within the assemblage, it might tentatively be identified as Midlands white ware, which has a date range from the late twelfth century to the fourteenth century (*op cit*, 33-4).

4.3.10 *Fabric 5*: only five sherds in this sandy fabric were recovered, and it is not clear if variations within the fabric and glazing are typical, or whether more than one fabric type might be represented. The quartz sand inclusions are well sorted and the fabric is both oxidised and partially reduced. A defining characteristic is the quite thick, dark green dipped glaze, with a distinct speckled appearance.

4.3.11 ***Dating and provenance:*** some 92.5% of the assemblage (Fabrics 1 and 2) falls within the Northern Gritty ware tradition, and was undoubtedly produced locally. Gritty wares were the dominant pottery type produced throughout the region during the twelfth and early thirteenth centuries (McCarthy and Brooks 1992; J Edwards 2000).

4.3.12 By far the largest group within the assemblage was associated with Phase 3A kiln ***1258***, the fills for which yielded 290 sherds, all in Fabrics 1 and 2. A further 53 sherds were recovered from palaeoenvironmental samples taken to establish the function of the feature, which seems to have been a corn dryer (*Section 4.14*). These were too small to identify firmly as either Fabric 1 or 2, but appeared unlikely to have belonged to other fabric types. The majority of the pottery in this group comprised body sherds, though an estimated 25 vessels were inferred from rim counts; sixteen of these were jars, seven were jugs and two were pipkins. Pipkins, or handled cooking pots, are a type of vessel that appear, certainly east of the Pennines, in the twelfth century (Didsbury and Watkins 1992, 91). It is apparent from the limited number of forms, and the lack of such forms as cisterns and balluster jugs, that the material associated with Phase 3A was probably deposited no later than the thirteenth century, an hypothesis supported by radiocarbon dates obtained from kiln ***1258*** (*Section 4.16.2*).

4.3.13 Pottery of the same type and date also came from several other deposits either directly or broadly associated with kiln ***1258***. These included clay deposit ***1232*** that directly sealed the remains of the feature, and the fill of pit ***1201***, which cut deposit ***1232***. The possible Midlands white wares (Fabric 4), if correctly identified, date from the late twelfth century to the fourteenth century (Ford 1995, 33-4). However, only three sherds were associated with the activity of Phase 3A.

4.3.14 In broad terms, gritty wares were superseded by Partially-Reduced Grey wares during the later thirteenth and fourteenth centuries (McCarthy and Brooks 1992; Edwards 2000). However, at Park's Yard, these wares are completely absent. The assemblage also contains no fully reduced Grey wares, apart from a single unstratified sherd, which formed part of a widespread 'Reduced Greenware' tradition in northern England, and formed the dominant fabrics across much of Lancashire during the fifteenth and sixteenth centuries (McCarthy and Brooks 1992, 29). The absence of these fabrics at Park's Yard cannot be readily explained. Truncation of later medieval deposits by later post-medieval construction works is a possible scenario, but the lack of these fabrics even as residual material in later deposits (Fabrics 1 and 2, for example, occur frequently in later levels) would mitigate against this. The presence of four Fabric 5 sherds in a Phase 3B soil deposit (***1244***), together with sherds in Fabrics 1-4, might indicate a fourteenth- or fifteenth-century date for this material, but only five sherds of this ware were recovered from the entire site. The ceramic evidence therefore seems to point to a possible break, or reduction, in activity at Park's Yard during the fourteenth or fifteenth century (perhaps represented in the stratigraphic record by the Phase 3B soil build-up), until the arrival of Midland Purple ware, perhaps at some stage in the fifteenth or early sixteenth century.

4.3.15 Phase 3C pit ***1096*** yielded 16 sherds of Midlands Purple ware (from tertiary fill ***1101*** and uppermost fill ***1097***), and a single sherd in Fabric 4. The Midlands Purple ware comprised mainly body sherds, with only a single rim sherd present, for which the vessel type could not be established. The absence of any later material suggests a likely fifteenth- or sixteenth-century date for deposition. The other Phase 3C pit, ***1086***, contained only two sherds, a fully reduced green-glazed fragment, probably a regional import of the fifteenth-seventeenth century, and an eighteenth-century glazed sherd that is considered intrusive.

4.3.16 ***Comparative material:*** there are clear parallels between the assemblage and material recovered from earlier excavations at the Grand Arcade, on the east side of Millgate (OA North 2008), at Standishgate (OA North 2005b), at Hallgate (GMAU 1991), and during the excavations undertaken in the early 1980s at The Wiend (GMAU 1987). In all cases, the dominant fabrics were gritty wares: two gritty fabrics were identified at Park's Yard (Fabrics 1 and 2); three were suggested for the material from the Grand Arcade site (Fabrics 1-3); and two were also identified at Hallgate. As might be expected, the material from The Wiend excavations, which were contiguous with the Joint Service Centre site, was very similar. Hallgate was dominated by material analogous to Fabric 1, but with very little material similar in type to the Joint Service Centre Fabric 2. Hallgate also had a larger percentage of pottery in a sandy fabric.

4.3.17 There was also some disparity between the assemblages from Park's Yard and the Grand Arcade site, in that the ceramic assemblage from the Grand Arcade had a more diverse repertoire of fabric types (OA North 2008), and included two small groups of Partially Reduced Grey ware and Samlesbury wares (20 and 18 sherds respectively), which were not apparent at the Joint Service

Centre. This lends additional support to the idea of a break or reduction in activity at the Joint Service Centre during the fourteenth century and (perhaps) the fifteenth century.

4.3.18 Several jars from Hallgate and from the Grand Arcade site have analogues with jars found at the Joint Service Centre. The similarities are defined by everted or clubbed rims, some of which were probably intended to be lid seated. Two jars from deposit ***1443***, a burnt material sealed beneath the brick floor of Phase 3A kiln ***1258***, which both exhibited thumbed everted rims, share these characteristics with two vessels from Hallgate (GMAU 1991, 15, 16, figs 4:9, 7:29), as well as a rim from an unstratified jars at the Grand Arcade site (OA North 2008, 247, fig A4.1). Other examples include two jars from ***1303***, the primary fill of kiln ***1258***, which resemble a vessel from the Grand Arcade (OA North 2008, 247, fig A4.3), and another from Hallgate (GMAU 1991, 15, fig 4:10). Pipkin handles from kiln ***1258***, in both Fabrics 1 and 2, are stylistically comparable to all but one of the handles found at the Grand Arcade, all in Fabric 1 (OA North 2008, 250, fig A4.15), and also an illustrated example from Hallgate (GMAU 1991, 16, fig 6:24).

4.3.19 A few body sherds from the Joint Service Centre were in a whitish fabric (Fabric 4) with occasional traces of splash glazing, and appear to be analogous to Fabric 4 at the Grand Arcade (OA North 2008, 111). Although there were no diagnostic features from either small assemblage, other than traces of copper green glazing on a Grand Arcade sherd, this material may have a Staffordshire provenance, and has tentatively been identified as Midlands white ware. Such material has a date range of the late twelfth to fourteenth century (Ford 1995, 33-5).

4.3.20 The presence of Midlands Purple-type ware on the Park's Yard and Grand Arcade sites casts some additional light on medieval ceramic traditions in Wigan. Prior to the appearance of this ware, what evidence there is for the supply of medieval pottery to the town suggests that it may have been dominated either by locally produced wares (*Section 4.3.7*) and/or by wares originating in the northern part of the region, such as Partially Reduced Grey wares, which characterise thirteenth- and early fourteenth-century deposits throughout North Lancashire and Cumbria (McCarthy and Brooks 1992), or Samlesbury-type wares (Wood *et al* 2009). The appearance of Midlands Purple-type ware might suggest that, from the fifteenth century onwards, Wigan was looking increasingly south to the Midlands for pottery supplies, rather than to the north.

4.3.21 ***Regional imports:*** with the exception of the Midlands Purple-type wares, none of the assemblage can be identified with certainty as being an import, but the presence of white gritty wares, which were also recorded during the Grand Arcade excavation (OA North 2008, 111), have been ascribed tentatively to the Midlands white-ware tradition (Ford 1995 33-5). Although Wigan lies well to the north of what is considered the usual distribution area for this ware, it is possible that such material has been overlooked or misidentified in other south Lancashire assemblages. Another possible source is Chester, white wares from which have been found as far afield as Kirkudbright in south-west Scotland

(Jope and Hodges 1955, 92-3). A single, small sherd from a fully reduced green-glazed vessel with distinctive applied pellets was recovered from Phase 3C pit ***1086***; this is thought to be a regional import, though its provenance is not known.

4.3.22 ***Vessel types:*** the vessel types found at Park's Yard, and for that matter at both the Grand Arcade and Hallgate sites, were quite conservative in their repertoire. All three assemblages are dominated by jars, some used as cooking pots, pipkins and jugs. The jars are often quite large, though smaller examples were noted with everted or clubbed rims, often appearing to be lid-seated in character. Glazing, where seen, is splashed, although sherds with more extensive areas were noted, but are few in number. Decorated sherds are far more limited at Park's Yard, being limited to occasional examples of rilling and ribbing, and a single instance of a stamp on a Fabric 2 sherd. Thumbed rims were recorded in three cases. Decoration on Midlands Purple-type ware is also uncommon, but applied thumb strips, as seen on a single sherd from the site, have been noted elsewhere (Ford 1995, 35).

4.3.23 Two pipkin handles were recovered, but no other parts of these vessels were recognised. The absence of feet would indicate that tripod pipkins were not current in the area. Jug types were also difficult to discern, as the sherds tended to be limited to handle fragments, which were the main identifying feature. Only two jug rim sherds were recovered, both in Fabric 1, and both from fill ***1303*** in kiln ***1258***. Glazing was the only decoration present on the jug forms.

4.3.24 ***Thin-section analysis:*** a sample of the medieval pottery from the excavation, together with comparative material recovered from other excavations in Wigan (*eg* GMAU 1991) and from a medieval kiln site at Samlesbury in Lancashire (Wood *et al* 2009), was subject to thin-section analysis by Beth Ricketts at the University of Southampton (Ricketts 2010). This allowed for small fragments of the pottery sherds to be mounted on slides and ground down to a thickness of *c* 0.03mm. This permits the composition of the pottery to be assessed at a microscopic level, so that the clay matrix and also any other mineral inclusions can be seen.

4.3.25 The pottery subject to thin-section analysis was of a similar nature, with only minor differences being observed. The different fabrics noticed within hand-specimen analysis were not witnessed as different in thin section. A general material type therefore can be associated with the majority, and, in short, all of the pottery sampled was very similar and clear site-to-site differences cannot be made. A main fabric type could be identified, and although there were some differences from sherd to sherd, for example the sizing of the larger quartz grains, this did not show any clear differences in pottery fabric between or within the sites. There was some variation in sandstone inclusions, but again it was difficult to see whether this constituted a different fabric.

4.3.26 There was nothing to suggest that the sherds were not of local origin, with nearly all the inclusions observed being found locally within the geology of Wigan. Where anomalies do occur, such as granite and other igneous inclusions, this is most likely a cause of drift geology and therefore is still

likely to have come from a local clay source. The pottery from Wigan and Samlesbury was seen to be of the same fabric type, but in thin section, a slight difference was noted in the sandstone used. Samlesbury sandstone is finer and smaller than that witnessed in the Wigan sherds. This can be inferred as being as a result of the different sandstone beds present in Samlesbury and Wigan (Ricketts 2010).

4.4 POST-MEDIEVAL POTTERY

4.4.1 ***Introduction:*** in total, 1493 fragments of post-medieval pottery were recovered from the excavation. The fragments are generally in good condition, and include several near-complete vessels, together with many large fragments, large proportions of rims and bases, and many joining sherds. Some 1447 sherds, representing *c* 97% of the assemblage, were recovered from stratified deposits; the remaining 44 sherds (*c* 3%) were unstratified. Quantifications by context are presented in *Appendix 5*.

4.4.2 The chronological distribution of the assemblage is summarised in Table 4. The largest proportion, just over 41% (617 sherds), came from deposits of the Industrial Period (Phase 6B), datable to the nineteenth and twentieth centuries, of which two-thirds (397 sherds) were recovered from the modern demolition debris (***1001***) generated by site clearance in the late twentieth century. Significant groups were also recovered from deposits of Phase 5 (broadly eighteenth to early nineteenth century) and Phase 4 (*c* mid-sixteenth to seventeenth/early eighteenth century), representing nearly 32% and 20% of the total assemblage respectively. However, in the case of Phase 4, almost all the material (*c* 95%) came from a single deposit, fill ***1300*** of pit ***1299***. A much smaller group, representing just over 4% of the total, was recovered from Phase 6A deposits, which are broadly datable to the first half of the nineteenth century. Only three sherds (0.2% of the total assemblage) were intrusive within stratigraphically earlier levels: a single sherd in Roman Phase 1B and two in medieval Phase 3A.

Phase	No of sherds	% of total
1B	1	0.07
3A	2	0.13
4	293	19.62
5	473	31.68
6A	63	4.22
6B	617	41.33
unstratified	44	2.95
Total	**1493**	**100**

Table 4: Distribution of post-medieval pottery by Phase

4.4.3 ***Range of material:*** the bulk of the assemblage comprises Blackwares, although within this large and somewhat heterogeneous group, a range of related fabrics can be discerned. These include Midland Purple-type wares, early Blackwares and a range of eighteenth-century dark-glazed red earthenwares that have been sub-divided into four specific fabric types (Fabrics 1A-D). The earliest of these types may be dated to the seventeenth century. However, local post-medieval coarsewares in the North West have

been little studied (Newman and McNeil 2007, 128), and it is possible that some of them may date as early as the sixteenth century.

4.4.4 Seventeenth- and eighteenth-century finewares include mottled ware, red slip-coated cream-coloured earthenware, black-glazed cream-coloured earthenware, trailed and combed slipware, and fine brown stoneware. Eighteenth-century finewares include small quantities of tin-glazed earthenware, creamware and pearlware. White earthenware and porcelain are of nineteenth-century date, some of the former being transfer-printed.

4.4.5 In total, 11 post-medieval fabric types were identified. Fabrics 1A-D were fairly closely related, and may have the same origins. In some cases, the number of sherds recovered was insufficient to provide a basic outline of the pottery type, and these have not been included in the fabric series. However, where fabrics, possibly only numbering single sherds, are thought to be imports from outside the area, they have been retained within the typology. Where possible, the nomenclature devised by Barker (2008) for the identification of Staffordshire fabric types has been used, in order to standardise descriptions.

4.4.6 *Fabric 1 (dark-glazed red earthenwares)*: a series of possibly related (DGRE), that have been sub-divided into Fabrics 1A-D. It is not clear whether the fabrics are from the same source, but the differences between them may be due to the degree of preparation of the clay; thus, the fabrics that exhibit marbling, laminations or banding may have had little preparation. Such attributes have been noted in Blackwares from Liverpool and its wider environs (Philpott 1985, 85). Glazing can be brown to purple, through to black.

- Fabric 1A: mid-red with white marbling, containing *c* 2% fine to medium quartz sand. The vessel types represented appear to be mainly pancheons and large jars;
- Fabric 1B: pale red-brown, with less distinct marbling, containing *c* 2% fine to medium quartz sand. The vessel types represented appear to be mainly pancheons and jars;
- Fabric 1C: a hard, pale red fabric with occasional marbling and coarse sand inclusions. The vessel types represented are jars, pancheons and cisterns;
- Fabric 1D: purple-red with marbling, containing *c* 2% quartz sand. The range of vessels include jars, pancheons and cisterns, as well as a more unusual item in the form of a dripping pan.

4.4.7 *Fabric 2 (early Blackware)*: a lead-glazed earthenware, with its origins in the Cistercian ware tradition of the late fifteenth to early sixteenth century. The fabric is free from inclusions, varying between red and purple, and is usually covered internally and externally with a dark treacle-brown to black glaze (Barker 2008). Forms present at Park's Yard comprise multi-handled cups or posset pots. This type of pottery dates to the late seventeenth and early eighteenth centuries.

4.4.8 *Fabric 3 (Slip-coated ware)*: a buff-bodied, once-fired earthenware, characterised in the Park's Yard assemblage by a dark red slip beneath a lead

glaze, giving a dark brown appearance. Forms identified at Park's Yard are mugs and possibly jars. An eighteenth-century date for the production of this type of pottery has been proposed, although with the possibility that it continued into the nineteenth century (Barker 2008).

4.4.9 *Fabric 4 (Mottled ware)*: a mostly buff-coloured fabric with a streaked, mottled brown lead glaze, the main period of production being *c* 1700-70 (*ibid*). Vessels represented on the site include jars, mugs and jugs.

4.4.10 *Fabric* 5 *(Midlands Purple-type ware)*: a highly fired earthenware or stoneware originating in the late medieval period and continuing into the seventeenth century (*ibid*). The fabric was invariably reduced to a grey or purple colour, although there were some oxidised (orange) sherds. Glazing was variable, being patchy on some sherds but exhibiting a more substantial covering on others. Jars and jug were the only forms present on the site.

4.4.11 *Fabric 6 (tin-glazed earthenware)*: a very fine, pale cream-white fabric with no visible inclusions. Generally, the decoration is hand-painted in blue, although some other colours were occasionally used. Vessel types at Park's Yard appear to be plates, bowls and cups.

4.4.12 *Fabric 7 (slipware)*: this is a general term for several vessels recovered from the Park's Yard site, and include applied slip-decorated wheel-thrown dishes and sherds of slip-trailed vessels. The small assemblage from the site includes a near-complete wheel-thrown dish and early Staffordshire-type products dating from the mid-late seventeenth century (*ibid*).

4.4.13 *Fabric 8 (industrial slipwares)*: dating from *c* 1795 onwards (Noel Hume 1969, 131), these, as the name implies, were factory-made slipwares and have distinctive annular or banded decoration. At Park's Yard, sherd size was small, and consequently vessel identification was not always possible, but hollow wares and a probable teapot were recognised.

4.4.14 *Fabric 9 (stonewares)*: several different types of stoneware were recovered from the site, all in small quantities. These included the ubiquitous stoneware bottles produced from the nineteenth century onwards, as well as Brown salt-glazed (BSG) stonewares with a lustrous finish. This latter type of stoneware, although first produced in the seventeenth century, was common from the eighteenth century, whilst production continued in Nottinghamshire into the nineteenth century (Barker 2008). Mugs and jars in BSG were identified in the site assemblage. White salt-glazed press-moulded plates were also recorded, and date to the eighteenth century. Several possible imports were also noted, in the form of single sherds of grey stoneware, including one with incised decoration, probably imported from the Low Countries or Germany, identified tentatively as Westerwald (Gaimster 1997).

4.4.15 *Fabric 10 (glazed orange and yellow earthenwares)*: buff-coloured with a lead glaze varying from straw yellow, to orange. Uncommon on the site, but bowls were identified. A mid-eighteenth-century date has been established in Staffordshire for this fabric type (Barker 2008).

4.4.16 *Fabric 11 (refined white earthenwares)*: fine white fabric primarily used for pearlwares and creamwares of varying types (*eg* hand-painted, transfer-printed,

polychrome wares). Vessel forms include plates, platters, cups, quart cups, saucers.

4.4.17 *Fabric 12 (English porcelain)*: a white, translucent, semi-vitreous fabric, both decorated and undecorated. Much of the pottery of this type is likely to be of similar provenance to the pearlwares and creamwares of Fabric 11. The vessel forms are also similar to that of Fabric 11, and include small plates, cups and saucers.

4.4.18 ***Dating and provenance:*** the bulk of the assemblage dates mainly from the period spanning the seventeenth to nineteenth centuries, with eighteenth-century products dominating. The predominant pottery type appears to be dark-glazed red earthenwares, which may have originated as early as the seventeenth century, but continued to be produced into the nineteenth century (Philpott 1985, 85-6). The presence of Midlands Purple-type ware, which is known to have been produced with Cistercian wares as early as the fifteenth/sixteenth century (Ford 1995, 16, plate 5; Boyle and Rowlandson 2009), and also early Blackwares (Fabric 2), which date to the seventeenth century and are also related to Cistercian wares, clearly demonstrate activity on the site during these periods. Further, the presence of Midlands Purple-type wares in both the medieval and post-medieval periods (albeit in very small quantities in the earlier period) demonstrates not only a degree of ceramic continuity, but also a continuity of occupation from the medieval to post-medieval periods. These wares are difficult to provenance, but are likely to be of local origin; similar material has been recovered from excavations at Halewood and Speke Hall in Merseyside (Davey 1987). The provenance of the Blackwares is also unknown, and whilst it could have been produced locally, it may equally have been a product of the documented kilns at Prescott and Rainford, on Merseyside (McNeil 1989; Davey 1987).

4.4.19 The slipware dates from the seventeenth-eighteenth century. Pottery similar to the thrown sherds, particularly those from Phase 4 pits ***1165*** (fill ***1193***) and ***1299*** (fill ***1300***), were produced from the mid-seventeenth century onwards. They bear some similarity to 'red paste' Staffordshire slipware, and very similar material to that from ***1165*** was recovered from South Castle Street, Liverpool (Davey 1987, 33). The provenance of this material is not known; it could have been produced at a number of centres in the north of England. A large fragment from a thrown dish, displaying a sun-burst design bordering a central pomegranate-type fruit (Plate 24), may date from the eighteenth century, and a Staffordshire origin seems likely. A few fragments of slipware (probably hollow wares), from Phase 5 pits ***1186*** (fill ***1185***) and ***1215*** (fill ***1214***), have comparators at Liverpool, and can be dated to the eighteenth century (*op cit*, 34-5).

4.4.20 The tin-glazed earthenwares are likely to be products of the delftware industry in Liverpool, which was established during the early eighteenth century (Archer 1997). Delftware was never cheap, reflecting the laborious process of decoration involved in its manufacture, although it attracted a broad clientele; a piece of delftware in a humbler home was often a treasured possession, handed down through generations as an heirloom (Ray 2000, 5). However, delftware reached the height of its popularity in the decades 1720-40, and

demand declined rapidly thereafter. The industry was extinct by the end of the eighteenth century, reflecting the introduction and rapid dominance of refined earthenwares (Barker 1999, 226-7).

Plate 24: Fragments of a slipware dish

4.4.21 Both Staffordshire and Liverpool are likely to have been the production centres for a number of the pearlwares from the site. A maker's mark on one basal sherd, providing a provenance of Longton (one of the towns of Stoke-on-Trent), illustrates at least some of the imports were from Staffordshire. Several other fragments suggest they may have derived from the Herculaneum potteries in Liverpool (Hyland 2005).

4.4.22 *Phase 4 stratified groups:* of the 293 post-medieval pottery sherds recovered from Phase 4 deposits on the site, the vast majority (278) came from fill ***1300*** of pit ***1299***, with only 15 recovered from ***1165***, the only other feature on the site attributable to Phase 4. In the case of the assemblage from pit ***1299***, with the exception of the fine sun-burst slipware dish (Pl 24), the entire collection comprises sherds from vessels in Fabrics 1A-D (dark-glazed red earthenwares) and Fabric 2 (early Blackwares), which may be defined, respectively, as fine wares and coarse wares, and may well represent material derived from a single household. As such, it contains some interesting and unusual vessels. Not only are there the usual storage vessels, such as jars and cisterns, and vessels for food preparation such as pancheons, but also rare items, such as two possible dripping pans. One is nearly complete, whilst the other is more fragmentary; both were wheel-thrown and then cut in half, rather than being hand-made. The

fine wares comprise two partial multi-handled drinking vessels and the base of a third (Barker 1986, 64-6, figs 4-6).

4.4.23 Overall, the group appears to date to the period from the second half of the seventeenth century to the early decades of the eighteenth century. A date later rather than earlier within this range is supported by the presence of two sherds of Mottled ware, which first appears in the Midlands in the 1680s (Barker 2008).

4.4.24 In pit ***1165***, fill ***1166*** yielded residual medieval sherds in addition to Midlands Purple-type ware, though the presence of early eighteenth-century Mottled ware suggests that the latter may also have been residual. The disturbed upper fill of the pit (***1193***) also contained Midlands Purple-type ware and two sherds of early Staffordshire-type slipware datable to the mid-seventeenth century.

4.4.25 *Phase 5 stratified groups:* in brick-lined pit/shaft ***1027***, the penultimate fill (***1016***) was the earliest deposit to yield pottery. This contained a range of late eighteenth- and early nineteenth-century wares, such as hand-painted pearlware, blue and green shell-edge plates, creamware, porcelain and industrial slipwares, as well as residual Midlands-Purple-type wares and other earlier material. The uppermost fill (***1015***) contained a similar assemblage, as well as residual medieval material. North of ***1027***, only one Phase 5 feature (***1047***; *Section 3.6.7*) produced contemporary pottery, in this case Mottled ware and dark-glazed red earthenware, suggesting an eighteenth-century date for the deposition of its fill (***1046***).

4.4.26 Immediately south of feature ***1027***, and stratigraphically pre-dating it, possible coal-extraction pit ***1079*** (fill ***1078***) yielded eighteenth-century mottled ware and tin-glazed ware. The presence of a mocha-ware teapot from nearby pit ***1104*** (fill ***1105***) is suggestive of activity in the period *c* 1795-1815, whilst late seventeenth- and early eighteenth-century material came from fills ***1112*** and ***1148*** of possible coal pit ***1111***, in the south-western part of the site. However, the upper fill of this feature (***1151***), though also containing late seventeenth- to early eighteenth-century pottery, yielded annular ware, indicating a date in the first quarter of the nineteenth century for deposition.

4.4.27 Also within the southern part of the site, fill ***1214*** of pit ***1215*** contained nothing that need be later than the middle of the eighteenth century. Pits ***1186*** and ***1187*** both produced quite large pottery assemblages (100 and 69 sherds respectively) of similar date. The fill (***1185***) of ***1186***, although containing a variety of different wares, can probably be dated to *c* 1750-1820 from the presence of a scratch-blue-type decorated cup and a creamware teapot. The recovery of pearlware from fill ***1188*** of pit ***1187*** also suggests a deposition date in the period *c* 1780-1830, and this deposit also yielded eighteenth-century mottled ware and tin-glazed earthenwares.

4.4.28 *Phase 6 stratified groups:* few of the features attributed to Phase 6A yielded much pottery. Within the northern part of the site, the fill (***1042***) of pit ***1041*** contained a range of wares including residual Midlands Purple-type ware, though the presence of annular ware, pearlware and transfer-printed sherds

indicated a nineteenth-century date for deposition. To the south, pit ***1341*** (fill ***1342***) yielded a Blackware cup and a possible waster, in the form of an over-fired salt-glazed stoneware bowl of possible seventeenth-century date, in addition to a small amount of nineteenth-century material.

4.4.29 Notable assemblages from Phase 6B deposits include that from fill ***1011*** of cellar ***1043***, at the north-west corner of the site, which yielded dark-glazed red earthenware, shell-edged plates and annular wares, indicative of a nineteenth-century date. To the south, circular brick structure ***1376*** (fill ***1377***) contained transfer-printed wares, including early Wedgewood black, which are normally dated to the last quarter of the eighteenth century and first quarter of the nineteenth century (Noel Hume 1969).

4.4.30 ***Comparative material:*** few good, well-stratified assemblages of post-medieval pottery from excavations in the North West have been published, with the notable exception of several important groups from Merseyside. These include material from an eighteenth-century pottery production site at Prescott (McNeil 1989), and assemblages from South Castle Street, Liverpool (Davey and McNeil 1985), Rainford (Davey 1987, 121-42), Norton Priory (Brown and Howard-Davis 2008), The Old Hutt, Halewood, and Speke Hall (Higgins 1989). The early Blackware cups from Park's Yard have some similarities with those found at South Castle Street (Philpott 1985, 90, fig 30), although they are more readily compared with typical Staffordshire products, mostly from Burslem (Barker 1986, 64-5).

4.4.31 In Wigan itself, the Grand Arcade excavations yielded an assemblage of almost 1300 sherds of post-medieval pottery, representing an important comparator for the Park's Yard material. The bulk of the assemblage from that site comprised dark-glazed red earthenware, as was also the case at Park's Yard. However, a notable difference was the presence at the Grand Arcade of Cistercian-type ware, indicative of sixteenth-century activity (OA North 2008), though the precise significance of this is unclear.

4.4.32 Imported stonewares, including Westerwald stoneware, also formed a small but discrete group within the Grand Arcade assemblage, whilst other stonewares, such as Rhenish-type ware, may be attributable to John Dwight, who was working in Wigan during the seventeenth century and was noted for his stoneware (Green 1999). Two possible imports of stoneware found at Park's Yard also demonstrate that, from the seventeenth century, some products of the international pottery trade were reaching Wigan. The presence of imported pottery in sixteenth- and seventeenth-century deposits has been noted in Chester (Rutter 1988, 56) and at Norton Priory (Brown and Howard-Davis 2008).

4.5 CLAY TOBACCO PIPES

4.5.1 In total, 288 fragments of clay tobacco pipe were recovered from 27 deposits across the site. These included 21 pit fills (yielding 175 fragments) and four layers (41 fragments). The remaining 72 fragments derived from modern demolition levels (***1001***), or were unstratified. None is complete, although 41 spurred and heeled bowls of various sizes, in addition to narrow- and medium-bored stems, were identified. Several fragments are decorated, and four heel-stamped makers' marks are present. Generally, most of the groups recovered from individual features were small, with the exception of fill ***1016*** in Phase 5 brick-lined pit/shaft ***1027***, which yielded 77 fragments, and fill ***1185*** of Phase 5 pit ***1186*** (30 fragments; *Section 3.6*). A catalogue of all the clay tobacco pipe from the site is presented in *Appendix 6*.

4.5.2 The dimensions of the bowls in general typological terms suggest they were manufactured in the seventeenth and eighteenth centuries (Oswald 1975), although several early nineteenth-century examples are also present. However, there is a paucity of elaborately decorated bowls, or large-bored stems typical of the mid- to late nineteenth century. The high proportion of pipes deriving from stratified deposits has assisted in the establishment of a closely dated chronology for the sequence of post-medieval occupation recorded on the site. A similar assemblage was recovered from the Grand Arcade site east of Millgate (OA North 2008), which, in view of the proximity of this site to Park's Yard, provides an important comparator for the assemblage.

4.5.3 ***Seventeenth- and early eighteenth-century pipes***: fragments of clay pipes recovered from fill ***1300*** of Phase 4 pit ***1299*** include a Rainford-type bowl (Davey *et al* 1982), and a stem fragment of probable eighteenth-century date. Taken together with the large pottery assemblage from the same deposit, a late seventeenth- to early eighteenth-century date can be ascribed to the clay pipes from this feature.

4.5.4 Some of the earliest clay tobacco pipes recovered from the site came from fill ***1188*** of pit ***1187***, which yielded 46 fragments of a late seventeenth- to early eighteenth-century date. However, this feature also yielded a small amount of late eighteenth- to early nineteenth-century pottery, and for this reason it has been assigned to Phase 5, rather than Phase 4, though it is possible that the sherds in question were intrusive.

4.5.5 Some of the clay pipe fragments from pit ***1187*** are likely to be products of the Rainford kilns, identified by the heel-stamped maker's mark 'IB' (Davey *et al* 1982). The group also includes nine heeled bowls, many with a pronounced forward lean, some of which were lightly polished, or have rilled decoration; in addition, numerous narrow- and medium-bored stems are present. Of the stems, a medium-bored example exhibits a zigzag roller-stamped decoration closely resembling that found on early eighteenth-century clay pipe stems in Chester (Rutter and Davey 1980).

4.5.6 Other Rainford heel stamps identified in the Park's Yard assemblage include a pipe stamped 'HB' (from fill ***1342*** of Phase 6A pit ***1341***), and a possible

Rainford manufacturer identified by the heel-stamped mark 'IG', which came from fill ***1151***, the upper fill of Phase 5 pit ***1111***. Rainford pipes have been identified within assemblages from other sites in Wigan, such as those recovered from excavations at Hallgate (GMAU 1991) and the Grand Arcade site (OA North 2008). The unidentified 'IG' mark could either be that of a Rainford manufacturer or a local producer; certainly, some of the early eighteenth-century pipes from the Grand Arcade site were manufactured either in Wigan itself or the local area (OA North 2008, 129).

4.5.7 ***Eighteenth-century pipes:*** pipes from this period include a group of 30 fragments from fill ***1185*** of Phase 5 pit ***1186***. Amongst these is another unidentified stamp, possibly from either a Rainford manufacturer or a more local producer, marked with the letter 'S' on an undecorated heeled bowl. In addition, two spurred bowls and a spurless bowl are likely to date to the mid-eighteenth century.

4.5.8 ***Nineteenth-century pipes:*** fill ***1016*** in Phase 5 brick-lined pit/shaft ***1027*** yielded the largest assemblage of clay tobacco pipe fragments recovered from the site, totalling 77 fragments. The group contains just five bowls, including simple leaf-decorated, moulded types, and two Masonic-style decorated pieces, similar to examples from the Grand Arcade site (OA North 2008, 127), that are dated to the period *c* 1820-40 (*Appendix 6*). Other Rainford-type pipes of later manufacture include a floral decorated example, from fill ***1031*** in Phase 6A pit ***1034***, which is similar to a type made at Rookery Farm during the early nineteenth century (Davey *et al* 1982, D, fig 2). A small group of seven fragments recovered from Phase 6B deposit ***1196*** included two spurred bowls, one of eighteenth-century date, the other early to mid-nineteenth-century, both of which were residual. Modern demolition level ***1001*** (Phase 6B) yielded a variety of Rainford-influenced pipes, including a stem stamped 'BERCH', and others of possible local manufacture. These comprised almost complete examples with fluted and leaf seam-decorated pipes, all of probable nineteenth-century date, in addition to spurred bowls and numerous stems, including tapered coarse types and mouth pieces.

4.6 CERAMIC BUILDING MATERIALS

4.6.1 In total, 59 fragments of ceramic building material and 19 pieces of fired clay were recovered from 22 stratified and unstratified deposits; a catalogue is presented in *Appendix 7*. These comprised brick, roof and floor, and glazed wall tiles, daub and unidentifiable undiagnostic fragments. Of these, approximately 50% (recovered from deposits ***1070***, ***1078***, ***1151***, ***1122***, ***1124***, ***1271***, ***1166***, ***1279***, and ***1437***) can be dated to the Roman period, with the remainder of the assemblage dating to the eighteenth or nineteenth century Examination of the forms and fabrics was based on the types identified from the assemblage recovered from the Grand Arcade site along Millgate (OA North 2008); accurate dimensions of the brick and tile were not ascertained, given their fragmentary nature.

4.6.2 The Roman forms included *imbrex*, round-pegged *tegulae* roof tiles (ten), flat or floor tiles (three), small brick fragments (two), and several undiagnostic

fragments, of which five pieces may be of Roman date. Many of the fragments were light or mid-red sandy types, such as the bricks collected from Phase 5 deposits ***1070*** and ***1151*** and are similar to the fabrics (T41 and T411) identified at the Grand Arcade site (*ibid*). The lack of other building material of Roman or medieval date suggests that the fragments did not derive from a building in the close proximity. The remaining fragments were too small to identify.

4.7 COPPER ALLOY

4.8.1 In total, three copper-alloy objects were recovered from stratified post-medieval deposits (***1013, 1018*** and ***1185***). The small assemblage comprised a dress pin, a small key, and a perforated token. All were in fair condition, with little evidence of surface corrosion, although the surfaces of the token were abraded and worn. The dress pin and the token are clearly of post-medieval date; the key cannot be dated with any degree of certainly, although the possibility that it is of a Roman date cannot be dismissed.

4.8 IRON

4.8.1 In total, 49 items of iron were recovered from the excavations. The material for the most part is in poor condition, with many fragments encrusted with dense corrosion, which in some cases prohibited precise visual identification. Of these, 45 fragments were retrieved from 19 stratified deposits; the remaining four fragments were unstratified.

4.8.2 Of the identifiable objects, nine derived from secure Roman deposits (***1211***, ***1321*** and ***1375***), a single blade from the fill (***1166***) of a late medieval pit, and the remainder derived from post-medieval deposits. The entire assemblage is dominated by 32 nails, and other structural items, such as split pins and riveted braces, in addition to a variety of socketed tools. These included chisels, a joiner's dog, and a square-sectioned rod, which may represent stock deriving from metalworking. Many of the nails were of the flat or dome-headed type with square-shafts, and were similar to the types categorised by Manning (1986). Some were probably Roman but, as nails are difficult to date with precision, this can only be confirmed by stratigraphic evidence.

4.8.3 The identified objects contribute to the dating evidence and provide evidence of daily life during the Roman and medieval period, although the group of nails and unidentified fragments is of restricted range and adds little to an understanding of the site.

4.9 METALWORKING RESIDUES

4.9.1 ***Introduction:*** two phases of excavation on the site during 1982-4 and 2008 produced a combined total of 48kg of metalworking debris, and identified a series of heating structures dated to the Roman period. The material recovered from both excavations was examined for the purposes of this report in order to provide as large a sample as possible, and to re-assess the conclusions drawn from the preliminary inspection of the residues that was carried out in the 1980s (Jones and Price 1985).

4.9.2 Several small hearths, excavated between 1982 and 1984, were dated to not later than the mid-second century AD, and measured up to 1.2m in diameter. These were described as little more than fireplaces, but were interpreted as being used for welding or maintenance smithing (Jones and Price 1985). Two larger hearths were thought to be the bases of bowl furnaces for the smelting of iron, although no specialist examination of metalworking debris was undertaken to support this interpretation. However, re-examination of the debris has indicated that it is consistent only with the smithing of iron, probably carried out on a small scale, intermittently and not within a permanent workshop. Smaller amounts of debris, but no structures, suggest that iron smithing was also carried out in the vicinity during the medieval and eighteenth- and nineteenth-century occupation of the site.

4.9.3 Structural remains, identified during further excavation of the site in 2008, comprised additional hearths, and the excavations also recovered metalworking debris, dated fairly tightly to the first quarter of the second century. These were situated on the south side of the putative Flavian/Trajanic fort (*Section 3.3.21*).

4.9.4 Although the hearths had survived very well archaeologically, there was no evidence of any structures in which they had been housed. No record survives of any soil samples taken from the earlier excavations. However, several deposits from the 2008 excavation were sampled either for environmental purposes, or specifically because their content of industrial waste of fuel was considered to be of importance.

4.9.5 ***Methods:*** a total of 49.5kg of metalworking debris was examined from the site. This included 30kg from the 1982-4 excavations, 18.2kg of bulk debris from the 2008 excavations, and a further 1.2kg of soil sample residues from the later excavations. The material was examined visually with the aid of streak plate and magnet, and classified into the standard categories based on those used by the former English Heritage Ancient Monuments Laboratory (Bayley *et al* 2001). The detailed breakdown of debris, by context, is presented in *Appendix 8*. The classified data are grouped into metallurgical, and other, activities in Table 5.

Activity	Classification	Weight (g)
Smelting	Blast-furnace slag	78
Smithing	Smithing hearth bottoms	8405
	flake hammerscale	Nine instances (not weighed)
	spheroidal hammerscale	Two instances (not weighed)
	ferruginous concretion with hammerscale	1132
Undiagnostic ironworking	Undiagnostic ironworking slag	28,180
	iron-rich cinder	2069
	dense slag	124
Metalworking or other high-temparature process	Vitrified hearth/furnace lining	3529
	cinder	3176
	fired clay	135
	Clinker	27
	burned stone	68
Fuel	Charcoal	101
	coke	15
	coal	113
Other material	Stone	193
	iron object	813
	ferruginous concretion	110
Total		**48,268**

Table 5: Metalworking debris from all contexts

4.9.6 ***Slag Classification:*** although some slag is visually diagnostic of specific metallurgical processes, other debris is less distinctive and it is not always possible to determine which metallurgical, or other high-temperature, process it derives from. However, its association with other diagnostic material or metallurgical features often gives a good indication of its actual origin.

4.9.7 With the exception of two fragments of later and presumably intrusive blast-furnace slag, there was no debris from the smelting of iron at The Wiend. There was also no evidence for the smelting, casting or other working of any non-ferrous metals.

4.9.8 ***Results:*** iron smithing was evident in the assemblage. Most obvious amongst the bulk slags, smithing hearth bottoms normally have a characteristic plano-convex section, typically having a rough convex base, and a vitrified upper surface, which is flat or even slightly hollowed as a result of the downward pressure of air from the tuyère. Compositionally, smithing hearth bottoms are predominantly fayalitic (iron silicate) and form as a result of high-temperature reactions between the iron, iron-scale and silica from either the clay hearth lining or possibly the sand used as a flux by the smith. Numerous examples were identified at The Wiend. The statistics for these (Table 6) show the assemblage as a whole to be very variable, but of the lesser number of dated hearth bottoms, it is clear that the Roman examples are very small.

		Weight (g)	Length (mm)	Width (mm)	Depth (mm)
All	range	84-1055	70-170	50-140	20-90
n=24	mean	350	107	81	43
	std dev	258	25	21	14
Roman	range	170-258	80-110	60-80	40-45
n=5	mean	203	94	71	42
	std dev	37	10	8	2
Medieval	range	254-1055	115-170	80-140	35-90
n=5	mean	650	135	102	53
	std dev	324	21	22	19

Table 6: Smithing hearth bottom dimensions, n=24

4.9.9 In addition to bulk slags, iron smithing also produces micro-slag of two types (Starley 1995): flake hammerscale consists of fish-scale-like fragments of the oxide/silicate skin of the iron, dislodged during working; and spheroidal hammerscale results from the solidification of small droplets of liquid slag expelled during hot working, particularly when two objects are being fire-welded together or when the slag-rich bloom of iron is first worked into a billet or bar. Hammerscale is considered important in interpreting a site because it tends to build up in the immediate vicinity of the smithing hearth and anvil, and may give a more precise location of the activity than the bulk slags, which may be transported elsewhere for disposal (Mills and McDonnell 1992). These micro-slags were occasionally identified in the soil and fine debris in the bottom of the bags containing larger material. However, the residues from the processed soil samples provide a more reliable measure of the presence and amount of this material within those contexts sampled.

4.9.10 Most of the material could be classified only as undiagnostic ironworking slag. In the absence of other diagnostic debris, however, it is thought that this probably also derives from smithing. Dense slag, present in only one context, was a similar fayalitic slag, but, with lower porosity iron-rich cinder, was distinguished by its significant content of iron not chemically combined as silicates, but visible as rust-orange-coloured hydrated iron oxides and iron hydroxides.

4.9.11 Quantities of vitrified hearth/furnace lining may derive from either iron-smelting furnaces of iron-smithing hearths, or other high-temperature processes. This material forms as a result of a high-temperature reaction between the clay lining of the hearth/furnace and the alkali fuel ash or fayalitic slag. As in the present assemblage, it may show a compositional gradient from unmodified fired clay on one surface to an irregular cindery material on the other. An associated material, cinder, present in unusually large quantities, comprises only the lighter portion of this, a porous, hard and brittle slag formed by the reaction between the alkali fuel ash and fragments of clay that had spalled away from the heath/furnace lining.

4.9.12 Evidence for fuel is very clear on the site. Occasional fragments of charcoal were present in the soil-sieving residue and flot bags, but coal was also widely

recognised, sometimes in the heated form of coke. It is impossible to tell whether this was coal converted to coke prior to use, or simply partly burned fuel. Further evidence for coal smithing comes from the very clinkery nature of the slags, which are distinctly hard and porous compared to debris from charcoal-fired smithing hearths.

4.9.13 Some stone included in the finds bags is unlikely to be related to any metalworking activity, but the fragments of burned stone may have come from either ironworking or domestic hearths. Ferruginous concretion may be naturally formed iron pan. However, the presence of hammerscale embedded in at least one piece suggests that the high iron concentrations which form such deposits may be linked to iron working on the site.

4.9.14 ***Soil samples:*** hammerscale provides an important indicator of the location and extent of iron smithing on an archaeological site (Bayley *et al* 2001, 14). Although hammerscale was occasionally identified in bags of bulk slag, examination of soil samples either collected specifically for the purpose of identifying and quantifying these micro-slags, or for environmental purposes, is potentially more informative. Table 7 presents the results of bags of 'flot' residues examined.

Context	Sample	Weight (g)	Hf	Hs	Quantity	Period
1037	1	11	y	n	very low	Eighteenth/ nineteenth century
1038	2	48	n	y	occasional only	Eighteenth/ nineteenth century
1056	3	14	y	n	low	?
1070	5	21	y	y	low	Eighteenth/ nineteenth century
1080	7	98	y	y	occasional only	Eighteenth century
1081	8	137	y	y	low	Eighteenth century
1054	9	119	n	y	occasional only	Twentieth century
1103	10	339	y	y	occasional only, also much coal	Medieval
1123	11	134	n	y	very low	Medieval
1124	12	35	y	y	very low	Medieval
1140	14	158	n	y	very low + part burned coal	Nineteenth century
1149	15	64	y	y	Most on site, 1%	Nineteenth/ twentieth century
Total		**1237**				

Table 7: Hammerscale in flot samples

4.9.15 ***Metalworking activity by phase:*** contextual phasing for the 1982-4 excavations was only available through reference to the draft site report (Jones and Price 1985). Table 8 therefore provides a breakdown of slag, and metalworking activity, for debris from the 2008 excavation only. The only possible smelting evidence, a single piece of blast-furnace slag, can be seen to derive from a nineteenth-century context, distancing it further from any Roman or medieval activities. Slag from such, later, furnaces was commonly transported and used as hardcore (Simons 1883), and it is not surprising that such material might occur at some distance from any furnace. This leaves

smithing as the only activity positively identified by diagnostic slags. In fact, this is a small proportion of the assemblage compared with undiagnostic types, but it would seem most likely that the debris grouped as undiagnostic iron working and the hearth lining also derives from iron smithing. The bulk of this (if not the hearth bottoms) comes from Roman contexts, confirming the presence of iron working on site at this date. Reference to the draft site report (Jones and Price 1985) confirms the excavator's linking of ironworking debris to certain hearths and the specialist's examination of debris from hearth ***521***, for example, shows that its contents included smithing hearth bottoms and hammerscale, clear evidence that this hearth was used for smithing. Further ties between the hearths described in the report and diagnostic slag within the assemblage include six smithing hearth bottoms in a deposit immediately overlying hearth ***405***, and some flake hammerscale in deposit ***1367***, associated with the use of hearth ***398***/***1397***.

Activity	Classification	Roman	Medieval	Eighteenth Century	Eighteenth/ Nineteenth Century	Nineteenth Century	Twentieth Century	Total
Smelting	blast-furnace slag					78g		
Smithing	smithing hearth bottoms	1014g	3335		84g			4433g
	flake hammerscale	Five instances	Two instances		One instance	One instance		Not quantified
	spheroidal hammerscale	One instance				One instance		Not quantified
Undiagnostic iron working	undiagnostic ironworking slag	6325g	1674g		1292g	4g		9295g
	iron-rich cinder	255g	13g			32g	12g	312g
Metalworking or high-temperature process	vitrified hearth/furnace lining	980g	88g			11g	90g	1169g
	cinder	609g	232g		190g	7g		1038g
	fired clay	32g	29g			5g		66g
	clinker					27g		27g
Fuel	charcoal	1g	100g					101g
	coke					9g	6g	15g
	coal	2g	96g		7g	7g		105g
Other material	stone	180g						180g
	iron object					247g		247g
	ferruginous concretion	30g		80g		80g		110g
Total		9428g	5567g	80g	1573g	1552g	108g	18,308g

Table 8: Metalworking debris by phase (dated 2008 contexts only)

4.9.16 The question needs to be posed of whether the slag encountered in medieval and later contexts is residual Roman material or genuine evidence of later

activity. For the medieval period, no smithing hearths were reported, but several deposits, particularly ***1198*** and ***1199*** (*Section 3.4.11*), produced concentrations of smithing debris, including flake hammerscale and smithing hearth bottoms. The latter were notably larger than those found in Roman contexts. There therefore does indeed appear to have been iron smithing in the immediate vicinity at the time that these Phase 3/4 deposits were accumulated. A good case could also be made for post-medieval iron smithing. Eighteenth-century deposit ***1085*** and nineteenth-century deposit ***1151*** both produced small but typical iron-smithing assemblages.

4.9.17 The latest evidence for iron smithing on the site is the hammerscale-rich soil sample from pit fill ***1149***, dated to the eighteenth/nineteenth century. The origins of the material forming nineteenth-century fill ***1042***, of pit ***1041***, are less easy to interpret; the piece of blast-furnace slag, clinker and slag-attacked refractory brick point to origins in relatively recent large-scale industrial processes. It would seem likely that this material had been imported to the site, perhaps purely for backfilling.

4.9.18 ***Conclusion:*** of the 48.2kg of bulk debris examined from the two phases of excavations, the main diagnostic types indicate that the only metalworking activity on the site was iron smithing. A small amount of other debris, from later more diverse industries, appears to have been dumped in the nineteenth century, but almost certainly originated elsewhere. The site records indicate a sequence of hearths of variable size during the Roman phases of occupation. Unusually for iron working, these appear to have cut into floor levels, yet have no evidence of having been sited within structures. The presence of smithing debris within at least one hearth (***521***) and in the vicinity of others does appear to link some of the more modest-sized hearths to iron smithing. However, particularly for the larger hearths, it is less obvious that they were directly involved in iron working and they may have served some other function. Their large size is also at variance with the small size of the smithing hearth bottoms dated to the Roman phase. On balance, it would seem likely that iron smithing took place on a small scale, without a permanent workshop, and undertook fairly modest tasks, perhaps the repair of tools of other objects.

4.9.19 No structural evidence for medieval iron smithing was recovered from the excavations. However, the bulk debris and hammerscale in soil samples does point to modest quantities of debris being deposited on the site during this phase, presumably from local working. Smaller quantities of clearly ironworking debris continue to be deposited in the eighteenth and nineteenth centuries.

4.10 LEAD

4.10.1 In total, three pieces of lead were recovered from demolition deposit ***1001*** and from the fills of a Roman ditch (***1306***) and a modern pit (***1185***). These comprised two pieces of waste products, sheet and off-cuts, measuring less than 20mm in length, and window kame. The waste possibly dated to the Roman period, based on stratigraphic evidence, although the window kame can be ascribed a post-medieval date.

4.10.2 A similar collection of lead, although more plentiful, was recovered from Roman deposits at the Grand Arcade site (OA North 2008). It was assumed that small-scale working of lead was undertaken on the site, although the absence of lead slag suggests that repair work rather than smelting processes was occurring in Wigan.

4.11 GLASS

4.11.1 In total, 76 fragments of glass were collected from 21 stratified deposits (72 fragments) or were unstratified (four fragments). The assemblage included fragments of glass vessels (25 fragments), window panes (nine fragments), and bottles (37 fragments, including nine complete). The assemblage mostly dates to the post-medieval period, with a small proportion (three fragments) of window- and vessel-glass dating to the Roman period.

4.11.2 Many of the fragments are poorly preserved, although others are in reasonable condition. The assemblage includes small quantities of diagnostic fragments, such as rims and bases, with many fragments deriving from single vessels. The presence of three melted lumps might suggest some contact with reasonably high temperatures, perhaps in domestic refuse.

4.11.3 All of the post-medieval window-pane fragments are plain, except one, which is textured. The post-medieval bottle colours include dark green, brown and blue, and the form of the former comprise shaft, globe and onion types, dating to the seventeenth/eighteenth centuries. In addition, there were several eighteenth- and nineteenth-century rectangular and cylindrical bottles, including one with an internal screw top. Two of the complete nineteenth-century medicine bottles have embossed text naming the bottle manufacturers and/or the manufacturers of the contents: ATKINSON & DARKER; and WIDDOWS PECTORAL ELIXIR. The remaining complete bottles include medicine bottles of square and cylindrical types, a large mould-blown wine bottle from modern pit ***1185***, a perfume bottle, and a hexagonal moulded milk bottle.

4.12 WORKED STONE

4.12.1 In total, 19 fragments of worked stone and flint tools were collected from the excavation. These included nine pieces of building material, including a sandstone roof tile with a round peghole, a small grooved sandstone ashlar stone and burnt flat tiles. The remaining pieces included three flint waste flakes, a roundel and three worn fine-grained sandstone hone blocks and grinding implements. The fragments derived from deposits which stratigraphically had a broad date range between the late first century AD and the nineteenth century, although over 50% of the assemblage derived from either Roman (***1321***, ***1364***, ***1368***, ***1378***, ***1410***) or medieval (***1123***, ***1166***, ***1232***, ***1417***) fills and layers.

4.12.2 The colour and quality of the flint flakes varies, and is of relatively poor-quality opaque, grainy material, often mottled, or containing structural imperfections (Plate 25). This suggests that the flint was collected

opportunistically from relatively local secondary sources, such as river terrace gravels, coastal deposits and boulder clays. The flakes could feasibly date anywhere from the Late Mesolithic period to Early Bronze Age.

Plate 25: Flint flakes recovered from the excavation

4.12.3 The roundel, grooved sandstone, and architectural fragments were made from hard fine- and coarse-grained sandstones, reflecting the range of sources used during the Roman period. The grooved sandstone, burnt flat tiles and hone stones indicate industrial activity or manufacture in the proximity, such as a workshop or smithy.

4.13 ANIMAL BONE

4.13.1 ***Introduction:*** in total, 43 animal bone fragments, the number of individual specimens (NISP), were recovered from the excavation, weighing 11.7kg. The material was identified using the reference collections held by the author and with reference to Halstead and Collins (1995) and Schmid (1972). All parts of the skeleton were identified where possible, including long bone shafts, skull fragments, all teeth and fairly complete vertebra. Sheep/goat distinctions were made using reference material and published work by Boessneck (1969), Kratochvil (1969), and Prummel and Frisch (1986).

4.13.2 For each bone, the following information was recorded where appropriate: context reference; species or species group; element; number of bones; side; the diagnostic zone as either more than or less than half present; fusion state; butchery; measurements; tooth wear development; and other comments. Pathology and other developmental or congenital anomalies were also noted.

4.13.3 The diagnostic zones used followed those described in Serjeantson (1996). Measurements followed those set out in Payne and Bull (1988), Davis (1992) and, von den Driesch (1976). Skull and horncores were described following Grigson (1976), Armitage (1982), and Armitage and Clutton-Brock (1976).

4.13.4 ***Late medieval material:*** stratigraphically, the earliest animal bone recovered from the excavation could be dated to the late medieval period, and comprised a single cattle horn fragment, recovered from pit ***1084***, from the point of the horn. Horn is the world's first plastic, being malleable when hot, *ie* after boiling, in which state it can be worked into different shapes. It is quite likely that the remainder of this horn was utilised in such a manner.

4.13.5 ***Post-medieval material:*** in total, 19 fragments were identified to a species level (Table 9), the majority excavated in small quantities from eight separate pits. Three of these pits can be considered as nineteenth- or twentieth- century in date. A horse humerus had a knife mark associated with the filleting of meat from the animal. The measurement of this bone was used to calculate a height of 15.19 hands, within the height range of a horse (over 14.2 hands) rather than a pony (below 14.2 hands). In addition, a sheep/goat mandible had a knife mark from where the jaw had been removed from the skull, and a large mammal rib fragment and a cow/red deer pelvis fragment had both been sawn through to dismember the animals.

Species	**Pits**	**Structure *1008***	**Surface *1183***	**Total**
Horse	2			**2**
Cattle	5	5		**10**
Pig	1			**1**
Sheep/Goat	1	1	2	**4**
Sheep	1			**1**
Goat	1			**1**
Cattle/Red Deer	5			**5**
Medium Mammal	7	2		**9**
Large Mammal	8	1		**9**
Total	**31**	**9**	**2**	**42**
Total identified to a species level	**11**	**6**	**2**	**19**

Table 9: Eighteenth- to nineteenth/twentieth-century animal bone

4.13.6 ***Discussion:*** the small collection of animal bone adds little to the knowledge of animal husbandry of these periods. However, the occurrence of horn from a medieval pit may suggest that this material was brought onto the site to be worked into an object, the point perhaps being discarded after the rest of the horn was utilised. An abattoir is marked at the site on the Ordnance Survey map of 1890, but there are no large deposits of animal bone in the archaeological record. What was excavated is likely to have been incidental inclusions in the archaeological features. However, the presence of horse bones from an eighteenth- or nineteenth-century pit may suggest that knackering took place at the site, although only two bones were recovered. The meat of these animals was most likely sold as dog food.

4.14 CHARRED AND WATERLOGGED PLANT REMAINS

4.14.1 ***Introduction:*** in total, 29 bulk samples were taken from several features during the excavations. Following a rapid assessment, analysis was undertaken of the plant remains from 11 of the samples. Four came from Roman contexts: a hearth (***1365***); and three pits (***1374***, ***1372***, ***1435***). The remaining seven samples came from medieval features, including pit ***1202***, layer ***1244***, layer ***1257***, kiln/oven ***1258*** (two samples), linear feature ***1416***, and the primary fill (***1443***) of kiln/oven ***1258***. The majority of the plant remains were charred, and all of the samples contained abundant charcoal. Two of the medieval features (layer ***1257*** and fill ***1303***) contained a large variety of species, and the preservation in the medieval contexts overall was excellent.

4.14.2 The *North West Regional Archaeological Research Framework* (Brennand 2006; 2007) has highlighted the sparse environmental record from Roman sites other than military installations, as well as medieval and post-medieval sites in the region, and has reiterated the importance of significantly expanding the existing dataset. Any archaeobotanical data from the Wiend excavations would therefore not only provide information about the immediate surroundings of the site itself, but also add significantly to an understanding of the Roman and medieval/post-medieval economic/agrarian practices and environs of the North West.

4.14.3 ***Methodology:*** some 10-40 litres of each sample was processed by hand flotation and the flots collected onto a 250µm mesh and air-dried. The flots were then examined with a Leica MZ6 binocular microscope, any charred and waterlogged seeds being identified if possible and counted. Charred plant remains were also counted, since there is a mathematical relationship between, for example, the numbers of grains to internode fragments in cereals, which can assist the interpretation of the crop husbandry stages represented. Identification was aided by comparison with the modern reference collection held at OA North; nomenclature follows Stace (1997).

4.14.4 ***The Charred Plant Remains from Roman contexts:*** fill ***1364***, which overlaid fill ***1433*** of hearth ***1365*** (*Section 3.3.27-28*), contained *Hordeum* (barley), and *Triticum* sp (wheat). One rachis was found in the ash layer (***1433***) below the hearth, and small quantities of *Chrysanthemum segetum* (corn marigold) were present in fill ***1364***. Both fills contained abundant charcoal. Fill ***1364*** also contained abundant heat-affected vesicular material and industrial waste.

4.14.5 Pit fill ***1375*** (*Section 3.3.20*) contained four *Hordeum vulgare* and two *Triticum* sp grains, as well as charred weed seeds, including *Plantago major* (greater plantain) and *Stellaria graminea* (lesser stitchwort). It also contained some industrial waste, heat-affected vesicular material, cinder, coal, and mammal bone. Another pit (***1373***) contained two *Hordeum vulgare* and five *Triticum* sp grains and small numbers of *Plantago major*. This pit also contained abundant charcoal and small quantities of heat-affected vesicular material, coal and mammal bone.

4.14.6 ***The Waterlogged Plant Remains from Roman contexts:*** hearth fill ***1364*** contained *Juncus* (common rush), *Betula* (birch), and *Urtica dioica* (common nettle). The underlying layer (***1433***) contained *Juncus* and *Betula*, as did pit fill ***1372.*** The good preservation of the seeds and of the other plant remains suggests they may be modern contaminants.

4.14.7 ***The Charred Plant Remains from medieval contexts:*** all seven of the medieval features analysed contained charred cereal grains and charred weed seeds. The most abundant plant remains came from two samples from a kiln/oven, one sample from a layer (***1257***) which surrounded the feature, and another from fill ***1443***, which came from a cut beneath it. Three other features, soil horizon ***1244***, linear feature ***1417*** and the fill from a circular pit (***1201***), contained smaller numbers of charred cereals and charred weed seeds.

4.14.8 The two samples from the fills of the kiln/oven (***1258***; *Section 3.4.3-6*) contained more than 3000 *Avena* sp (oat) grains and more than 200 awns in 70 litres of material, and one of the samples also contained 40 *Triticum* sp (wheat) grains. A few intact floret bases from the oats indicated they were a cultivated type (*Avena sativa*). The abundant Poaceae (large grasses) seeds are also likely to be oats, but given the state of preservation, this cannot be certain. Over 100 undiagnostic glume fragments (palaea and lemma) were present, along with small numbers of undifferentiated coleoptiles and culm nodes. Both samples contained a wide variety of charred weed seeds, the most abundant being *Chrysanthemum segetum* (more than 16,000), *Spergula arvensis* (corn spurrey), Fabaceae, less than 4mm (pea family), *Rumex acetosella* (sheep's sorrel) and *Lapsana communis* (nipplewort). Other charred weed seeds present included *Anthemis cotula* (stinking chamomile), *Persicaria lapathifolia* (pale persicaria), *Plantago major*, *Prunella vulgaris* (selfheal) and *Stellaria media* (common chickweed). Both samples contained abundant charcoal (*Section 4.15*).

4.14.9 The material (***1443***) from below the kiln/oven produced ten *Avena* sp (oat) grains and 80 awns; it also contained 13 charred Fabaceae (less than 4mm) in ten litres of material. The *Chrysanthemum segetum* count was 524, and small numbers of *Lapsana communis*, *Persicaria lapathifolia*, *Rumex acetosella* and *Spergula arvensis* were present. This sample also contained abundant charcoal.

4.14.10 Layer ***1257***, surrounding the feature, contained more than 3000 *Avena* sp (oat) grains, with ten *Hordeum* (barley) and 30 *Triticum* (wheat) grains, in 30 litres of material. Some of the wheat grains were short and fat, not much longer than their greatest width, and thus were diagnostically bread wheat (van der Veen 1992). The counts for the charred weed seeds included 6981 *Chrysanthemum segetum*, 3043 *Spergula arvensis*, 1833 *Rumex acetosella* and 210 *Lapsana communis*. Other charred weed seeds present included *Plantago*, *Stellaria media*, and Fabaceae (less than 4mm). This sample also contained abundant charcoal.

4.14.11 Fill ***1201***, from the circular pit (***1202***; *Section 3.4.2*), contained one *Avena* sp (oat) and three *Triticum* sp (wheat) grains, and a few charred weed seeds in

30 litres of material. The sample also contained abundant charcoal, with some heat-affected vesicular material, and a moderate amount of coal, mammal bone and insect remains.

4.14.12 Seven *Avena* sp (oat) grains and four awns were recorded in 30 litres of material from soil horizon ***1244*** (*Section 3.4.11*). The sample contained small numbers of weed seeds, including *Chrysanthemum segetum* and *Rumex acetosella*. Abundant charcoal and heat-affected vesicular material were present, with a moderate amount of coal and a few insect remains.

4.14.13 The fill of a linear feature (***1417***; *Section 3.4.13*) contained four *Avena* sp (oat) and one *Triticum* sp (wheat) grain, and two charred Fabaceae (less than 4mm) seeds, from ten litres of material. Other charred plant remains included 18 *Chrysanthemum segetum* and small numbers of *Spergula arvensis* and *Rumex acetosella*. The sample also contained abundant charcoal and moderate amounts of coal and heat-affected vesicular material.

4.14.14 ***The Waterlogged Plant Remains from medieval contexts:*** both samples from the kiln/oven (***1303***) contained waterlogged seeds, of *Juncus* and *Betula*. The soil horizon (***1244***) also contained *Juncus, Chenopodium album* (fat-hen) and *Rorippa* (water-cress). Circular pit ***1201*** contained *Juncus*, *Betula*, and *Chenopodium album*. The good preservation of the seeds and of the other plant remains in the flot suggest they may be modern contaminants.

4.14.15 ***Discussion:*** the charred plant material from the Roman hearth and pits probably represents waste material from a variety of functions occurring in the vicinity, and is likely to have been collected locally. The hearth probably had an industrial purpose, as abundant industrial debris, heat-affected vesicular material and cinder was present. Given the small numbers of plant remains in the other pits, their functions remain uncertain.

4.14.16 The Roman samples, although low in charred plant remains, provide an insight into the type of cereals being grown in the vicinity (*Triticum* and *Hordeum*), and their accompanying weed seeds. Hearth ***1365*** had obviously had some kind of industrial function, although the pits were more ambiguous in their function; they are, however, a valuable addition to the sparse environmental record from Roman sites in the region.

4.14.17 The function of medieval pit ***1202*** is also uncertain, but it seems to have been used for some sort of industrial process, as there was a large quantity of industrial debris found in the sample. The cereal and weed seeds probably represent general domestic waste or floor debris. The soil horizon (***1244***) and linear feature (***1417***) also contained only small numbers of cereals (oats and wheat). The abundant charcoal, and small amounts of heat-affected vesicular material, cinder and coal, suggests the material may have been spread from some feature nearby where burning was taking place, which, again, suggests that the charred cereal and weed seeds may represent domestic waste or floor debris.

4.14.18 The fill (***1433***) from the cut in which the medieval kiln/oven was built contained a very similar assemblage to the fills from the feature itself, primarily abundant crop weeds. Whatever activity was occurring in this feature probably continued in the later kiln/oven. The abundant crop weeds were very similar to those recovered from the kiln/oven samples. These could have derived from the raking out of the kiln/oven.

4.14.19 Chaff was present in the kiln/oven (***1258***), although not in sufficient quantities to suggest that the separation of the cereals from the stalks was being undertaken there; however, chaff does not survive as well as cereal grains (Moffett 2006). A wide variety of weed seeds was present, including abundant quantities of corn marigold and corn spurrey, which are weeds of arable crops. It appears that cereals may have been dried there, probably in sheaves, from a gathered crop that had contained many weeds (J Huntley *pers comm*). Whether this was the sole function of this feature is uncertain, as it was quite small and would only have accommodated a few sheaves at a time.

4.14.20 The survival of the weed seeds is excellent, preserving many of the morphological features, with little distortion, which means they have been charred in an oxygen-poor (reducing) environment (Moffett 2006). The cereals vary in preservation, which could be due to where they were within the sheaf. The charred seeds had not been subject to mechanical damage, which suggests they were still *in situ*. Medieval fields seem to have supported a considerable diversity of arable weeds (*ibid*), which is clearly reflected in this assemblage. The presence of large numbers of *Spergula arvensis* suggests the soils were acidic, as this plant does not like alkaline soils (Stace 1997, 171).

4.14.21 Fills from two medieval corn dryers in the North West have been examined, at Mitchell's Brewery in Lancaster (Huntley and Huckerby in prep) and Audlem in Cheshire (Huckerby 2003). At both sites, oats were the most abundant cereal type, as in kiln/oven ***1258***. At Mitchell's Brewery, barley, bread wheat and rye were also present, alongside small numbers of weed seeds. At Audlem, barley and rye were present in small amounts with, again, a few weed seeds.

4.14.22 Palaeobotanical sampling of medieval features identified during recent excavations at the Grand Arcade site (OA North 2008) mainly produced abundant waterlogged weed seeds from taxa common on cultivated and/or waste ground, and taxa indicative of wet/damp conditions. Few charred cereals were recovered, but one of the features, a pit filled with cess/waste material, contained large amounts of *Spergula arvensis* and *Chrysanthemum segetum*.

4.14.23 The medieval samples, particularly from kiln/oven ***1258***, were particularly rich in cereal remains (mainly oats) and associated crop waste. The abundance and excellent preservation of the cereal remains and weed seeds give a greater insight into the vegetation of the surrounding area. The function of the kiln/oven is less conclusive, as it is morphologically different from corn dryers of the period, and has no other known parallels in the region

(*eg* Huckerby 2003). It could have had multiple functions, being used for drying crops, as it was cooling down from some other use. The cut beneath the kiln/oven had been used for similar functions previously, as reflected in the comparable plant assemblage.

4.14.24 The cereals demonstrate a change in preference to oats during the medieval period from wheat and barley in the Roman period (Huntley and Stallibrass 1995, 75). This could be due to a change in climate, as oats are better suited to a wetter environment, or it could have been a preference locally. The weed seed assemblage is similar in the two periods, although the amount of material was small in the Roman contexts.

4.15 CHARCOAL

4.15.1 ***Introduction:*** two deposits (***1367*** and ***1418***) from Roman hearth ***1397***, and two (***1303*** and ***1443***) from medieval kiln/oven ***1258*** were selected for charcoal analysis to provide information on wood fuel selection and function. Both of the Roman contexts represent the rake-out from different phases of the hearth's use and both contained abundant metalworking debris, which may suggest some sort of industrial function.

4.15.2 ***Methodology:*** the samples selected for charcoal analysis were sieved through a >2mm size mesh. A representative amount of the fragments retained were then scanned using a Leica MZ6 binocular microscope at up to x40 magnification, to provide a general picture of wood species present. Identification was made by use of standard reference books (Schweingruber 1990; Hather 2000) and comparison with reference slides held at OA North.

4.15.3 ***Results:*** a summary of the results of the rapid analysis is shown in Table 10. Preservation in general was fairly poor, many of the fragments being very brittle and highly vitrified. However, many of the better-preserved pieces of oak (*Quercus* sp), with its distinct auxiliary rays, could be easily identified, as could ash (*Fraxinus excelsior*) and alder/hazel (*Alnus glutinosa/Corylus avellana*) charcoal fragments. No attempt was made to differentiate between the latter two.

Phase	Context	Feature	Charcoal summary
2	***1367***	Hearth ***1397*** rake-out	Dominated by immature oakwood or oak sapwood, few fragments of alder/hazel
2	***1418***	Hearth ***1397*** rake-out	Dominated by mature oakwood, little roundwood
3	***1443***	Kiln/oven ***1258*** (beneath kiln base)	Dominated by mature oakwood, little roundwood
3	***1303***	Kiln/oven ***1258*** (immediately above kiln/oven floor)	Dominated by mature oakwood, few fragments of ash and little roundwood

Table 10: Summary of the charcoal results

4.15.4 Both deposits from the Roman hearth (***1367*** and ***1418***) were dominated by oak, with few fragments of alder/hazel. No tyloses, which inhibit water movement and only develop in trees over 50 years old, were observed on the

oak fragments from ***1367***, which may suggest a fairly young tree or oak branchwood was utilised in this instance. However, the presence of tyloses on many of the oak fragments from ***1418***, plus the lack of immature stems or roundwood, suggests that mature trunkwood was used there. The charcoal in both samples was highly vitrified and brittle, which may indicate firing at high temperatures. The samples also contained abundant metalworking waste.

4.15.5 Oak charcoal fragments dominated the two medieval kiln/oven deposits (***1303*** and ***1443***). The former also contained a few fragments of ash. The charcoal fragments in both samples consisted primarily of oak heartwood with little roundwood, which may suggest that mature oak trunkwood was being utilised. Many of the fragments were highly vitrified and brittle, as a result of exposure to high temperatures.

4.15.6 ***Discussion:*** the dominance of oak in the Roman hearth samples may indicate its deliberate selection. If the feature was indeed a metalworking hearth, which the abundant metalworking debris indicates, the process of iron smithing would have required sustained high temperatures and oak would certainly have provided this. It is also possible that oak charcoal, as opposed to oak wood, was used, although there is no reliable method for determining this from archaeological material (Smith 2001; D Challinor *pers comm*). Similarly, there is no way of determining the practice of smithing from the state of the charcoal.

4.15.7 There is other evidence to suggest that charcoal production was being carried out during the Roman period in Britain (Smith 2001; Rackham 2003; OA North 2008) and data from other Roman metalworking sites, like that from Wigan, also indicate the dominance of oak fuel. Similarly, although other wood species, such as alder and hornbeam, make better charcoal (Edlin 1949), it appears that oak was still the preferred wood fuel during this period. Evidence from the Grand Arcade site in Wigan indicates the presence of other tree species, such as *Betula* (birch), *Fraxinus excelsior*, *Corylus avellana*, and *Alnus glutinosa*. However, it appears that oak still provided the main wood fuel for firing the hypocaust system of the bath-house (OA North 2008). The data from the bath-house suggest that a combination of wood fuel and charcoal may have been utilised at the site, the charcoal possibly being derived from another activity which necessitated its production (*ibid*).

4.15.8 Although the exact function of the medieval kiln/oven is unclear, the very abundant charred plant remains suggest that its final firings involved the drying of oats. The dominance of oak from the feature suggests that oak wood or oak charcoal was being used to fire this feature. Very little other work has been carried out on charcoal from medieval kiln/ovens, and therefore it is unclear whether or not there was any deliberate selection of wood types, which may have been dependent on the function of the structure. Similarly, the lack of other charcoal data from this site means that little can be said about the selection of species and feature type/function. This said, it is reasonable to suggest that mature oak trunkwood, which may have held some considerable value during the medieval period, would not necessarily have been utilised, or was even necessary, for heating an oven/corn-dryer. It is likely, therefore, that

the kiln/oven had another, primary, use that required the sustained high temperatures that oak wood or oak charcoal would have provided.

4.15.9 The dominance of oak charcoal in all of the samples may indicate its deliberate selection. Oak has excellent burning properties, especially when seasoned, and although it is not considered the best wood for charcoal production, it is possible that oak charcoal was being utilised at the site. The fact that mature oak trunkwood was being utilised in both the Roman and medieval features may support an industrial function in both cases. Trees of such high value were unlikely to have been used for purely domestic purposes, especially during the medieval period. However, the lack of comparative data from this and other sites means that this must remain conjecture.

4.16 ABSOLUTE DATING

4.16.1 In total, three radiocarbon dates were obtained from the site (Table 11), the material being sent to the Scottish Universities Environmental Research Centre (SUERC) for AMS dating. A fragment of *Corylus avellana* (hazel) charcoal from hearth ***1397*** provided one radiocarbon date, and two radiocarbon dates were obtained from charred *Avena* sp (oat) grains and charred *Chrysanthemum segetum* (corn marigold) seeds from kiln ***1258***. The results of the radiocarbon dates are given in *Appendix 8*.

Laboratory Number	Context Number	Sample Number	Feature	Material	Radiocarbon Age BP	Calibrated Date (two sigma)
SUERC-24692 (GU-19045)	***1418***	50	Hearth ***1397***	*Corylus avellana* charcoal	2090 ± 35	210 - 20 cal BC
SUERC-24690	***1303*** (A)	25	Oven/Kiln ***1258***	Charred *Avena* sp grain	690 ± 35	AD 1260 - 1400
SUERC-24691 (GU-19044)	***1303*** (B)	25	Oven/Kiln ***1258***	Charred *Chrysanthemum segetum* seeds	670 ± 35	AD 1270 - 1400

Table 11: Results of the radiocarbon dates

4.16.2 The two dates from kiln ***1258*** were almost identical and place its use following the construction of the kiln base to the late thirteenth or fourteenth century. The single Iron Age date from hearth ***1397*** is slightly curious, as the artefactual material from the feature supports a Roman date. Of note, however, were the dominant *Quercus* sp (oak) charcoal fragments in this sample, which is considered unsuitable for dating, given the 'old wood' effect. It is possible that the few fragments of *Corylus avellana* in this sample, of which one was dated, also represent residual material from earlier, late Iron Age, activity.

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5. CURATION, CONSERVATION AND DISSEMINATION

5.1 RECIPIENT MUSEUM

5.1.1 Wigan Museum of Life has been nominated as the ultimate repository for the finds and the integrated project archive:

Wigan Leisure and Cultural Trust Heritage,
Library Street,
Wigan,
Lancashire
WN1 1YN
Tel: 01942 828 128

5.1.2 Arrangements were made with the Museum prior to the commencement of the excavations for the deposition of the complete site archive from the 2008 excavations, and the Museum Collections Manager, Yvonne Webb, has acknowledged her willingness to accept the archive.

5.2 STORAGE

5.2.1 The complete project archive, which will include written records, plans, black and white and colour photographs, artefacts, ecofacts and sieved residues, has been prepared for long-term storage following the guidelines set out in *Environmental standards for the permanent storage of excavated material from archaeological sites* (UKIC 1984, Conservation Guidelines 3), and *Guidelines for the preparation of excavation archives for long-term storage* (Walker 1990).

5.2.2 All finds have been packaged according to the Museum's specifications, either in acid-free cardboard boxes or, in the case of less stable materials, in airtight plastic boxes. The metalwork assemblage and the small quantity of medieval glass constitute the only material categories that are potentially unstable; although these materials have been packaged in airtight plastic boxes, they will also need to be stored in controlled conditions.

5.3 DISSEMINATION

5.3.1 The complete results obtained from the archaeological investigation are incorporated in this excavation report, which includes the findings from the detailed analysis of each material category. In addition to Wigan Council Planning Department and Conservation Officer, copies of this archive report will be forwarded to Wigan Museum Services, the Greater Manchester Historic Environment Record, and Wigan library.

5.3.2 Given the regional, or even national, significance of the results, an agreement has been made to publish the site in order to disseminate the findings to a national audience. It is anticipated that the results will be published as an A4

monograph report in OA North's *Lancaster Imprints* series. The publication is scheduled to comprise about 100,000 words of text, including bibliography, preliminaries and so on. The text will be supported by at least 30 line drawings, including artefactual illustrations and interpretative phase drawings, and approximately 30 plates. It must be stressed that these word and figure counts are intended as an approximate guide only.

5.3.3 The publication text will primarily address the revised research objectives for the project, and will present a closely argued stratigraphic narrative detailing the development of the site from the Roman to post-medieval periods. It will also provide an overview and discussion of the finds from the site, both artefactual and environmental, supported by a summary of the specialist reports on all material categories. The site will be placed in its local, regional and national context, and a discussion of the importance of the data in terms of advancing an understanding of the history and development of Wigan and of the wider region will be prepared. This will necessarily include evidence obtained from other archaeological investigations carried out in Wigan and the surrounding area. Catalogued information relevant to the research objectives that requires public dissemination may be provided in another medium, perhaps as an accompanying CD-ROM.

5.3.4 Throughout the project, a high level of communication has been maintained between all members of the project team. It is anticipated that the specialists, especially those with inter-related study areas, will continue to work closely together in order to facilitate integration between material categories, which will be essential in order to meet the research objectives. The finished volume will therefore aim to present a high degree of integration between the artefactual, ecofactual, structural and stratigraphic evidence from the site.

5.3.5 The programme of excavations has generated considerable public interest from the local population, in addition to the wider archaeological community. Liaison with several primary and secondary schools during the course of the project, moreover, has demonstrated the considerable educational potential of the excavation results. A popular publication that presents the results of the excavation in simple terms, and places them in the context of the historical development of Wigan, will thus be prepared in addition to the academic monograph.

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APPENDIX 1: RADIO CARBON DATING CERTIFICATE

Scottish Universities Environmental Research Centre
Director: Professor A B MacKenzie Director of Research: Professor R M Ellam
Rankine Avenue, Scottish Enterprise Technology Park,
East Kilbride, Glasgow G75 0QF, Scotland, UK
Tel: +44 (0)1355 223332 Fax: +44 (0)1355 229898 www.glasgow.ac.uk/suerc

RADIOCARBON DATING CERTIFICATE

14 August 2009

LABORATORY CODE	SUERC-24690 (GU-19043)
Submitter	Elizabeth Huckerby Oxford Archaeology North Mill 3, Moor Lane Lancaster LA1 1GF
Site Reference	The Wiend, Wigan
Sample Reference	Sample 25 Context 1303 A
Material	Charred Seeds : Avena sp (Oat)
$\delta^{13}C$ relative to VPDB	-25.5 ‰
RADIOCARBON AGE BP	690 ± 35

N.B.

1. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

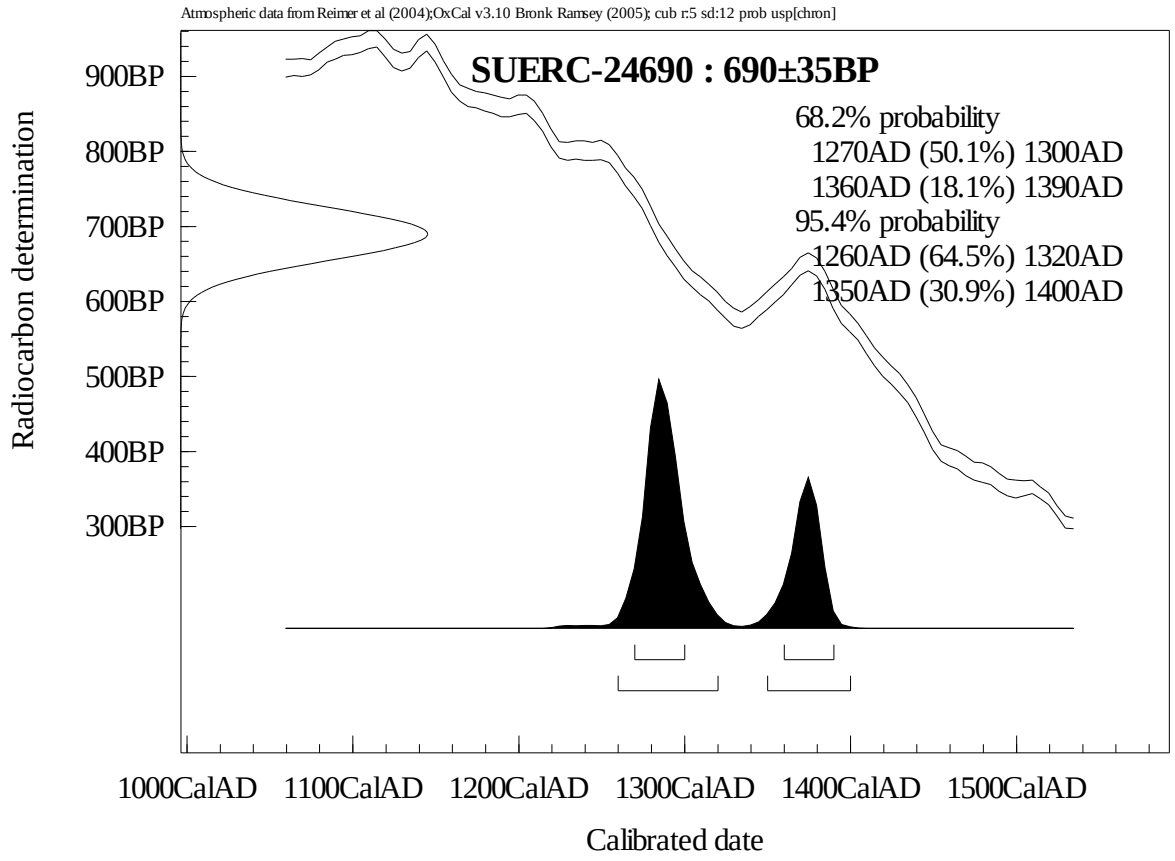
2. The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal3).

3. Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or Telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :- Date :-

Checked and signed off by :- Date :-

Calibration Plot



Scottish Universities Environmental Research Centre
Director: Professor A B MacKenzie Director of Research: Professor R M Ellam
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East Kilbride, Glasgow G75 0QF, Scotland, UK
Tel: +44 (0)1355 223332 Fax: +44 (0)1355 229898 www.glasgow.ac.uk/suerc

RADIOCARBON DATING CERTIFICATE

14 August 2009

LABORATORY CODE	SUERC-24691 (GU-19044)
Submitter	Elizabeth Huckerby Oxford Archaeology North Mill 3, Moor Lane Lancaster LA1 1GF
Site Reference	The Wiend, Wigan
Sample Reference	Sample 25 Context 1303 B
Material	Charred Seeds : Chrysanthemum segetum seeds
$\delta^{13}C$ relative to VPDB	-28.2 ‰
RADIOCARBON AGE BP	670 ± 35

N.B.

1. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

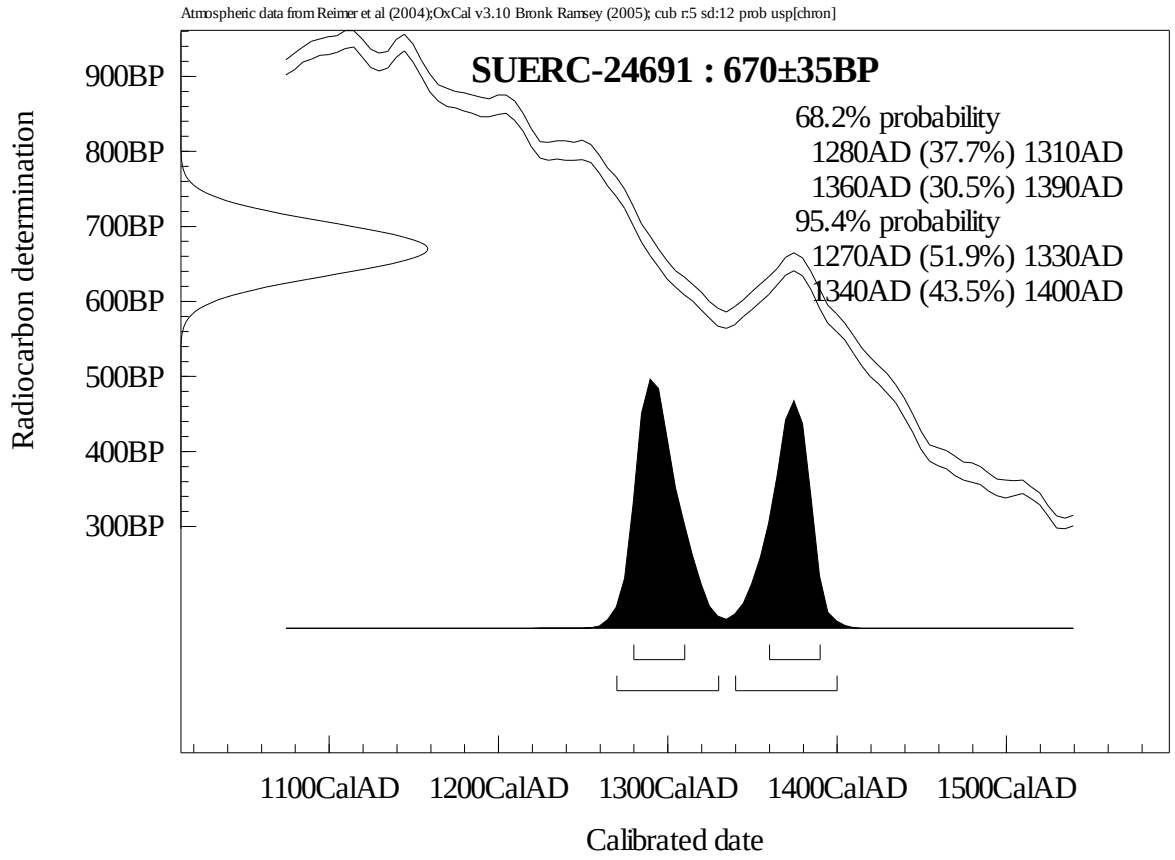
2. The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal3).

3. Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or Telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :- Date :-

Checked and signed off by :- Date :-

Calibration Plot



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RADIOCARBON DATING CERTIFICATE

14 August 2009

LABORATORY CODE	SUERC-24692 (GU-19045)
Submitter	Elizabeth Huckerby Oxford Archaeology North Mill 3, Moor Lane Lancaster LA1 1GF
Site Reference	The Wiend, Wigan
Sample Reference	Sample 25 Context 1303 B
Material	Charcoal : Corylus
$\delta^{13}C$ relative to VPDB	-27.4 ‰
RADIOCARBON AGE BP	2090 ± 35

N.B.

1. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

2. The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal3).

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Conventional age and calibration age ranges calculated by :- Date :-

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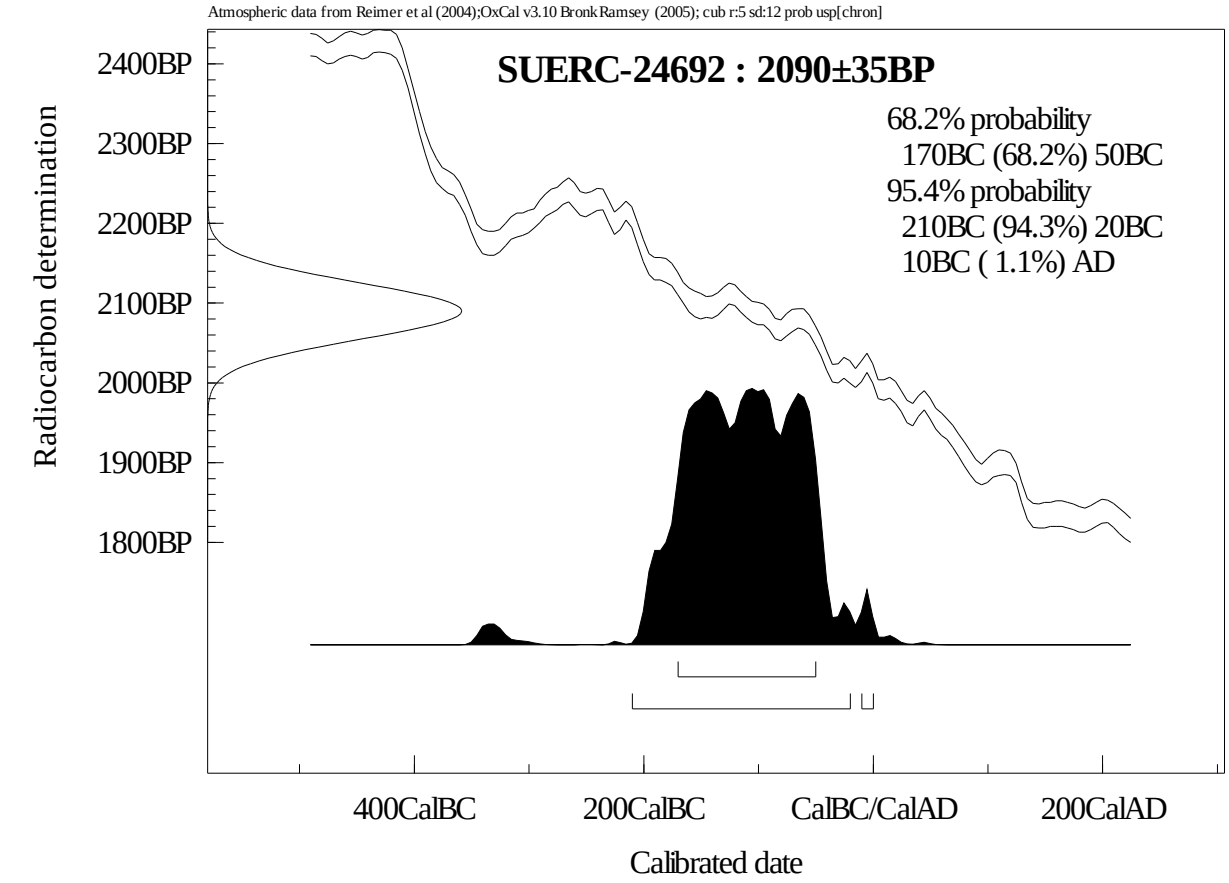
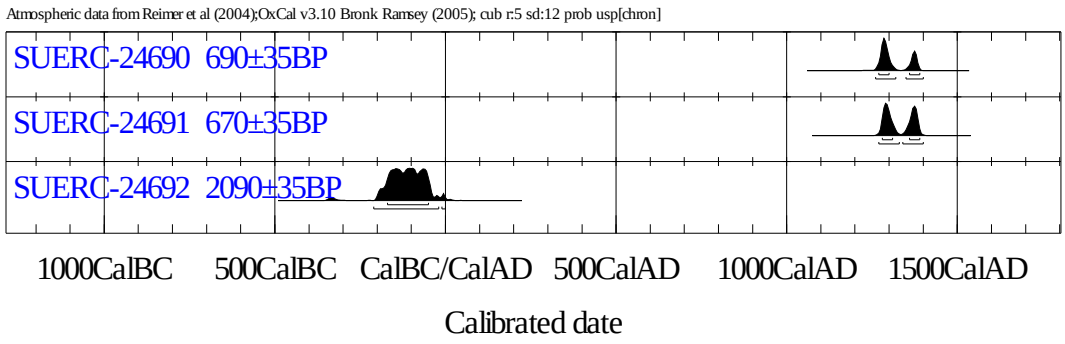
Calibration Plot





APPENDIX 2: CATALOGUE OF ROMAN SAMIAN

A1.1 CATALOGUE OF ALL VESSELS

SG = South Gaulish

1 SG cup, form 35, *c* AD 70-110. Badly abraded rim fragment (5%), diameter 150mm. Weight 2g.
Phase 1B, ***1311***, Building ***207***, fill of construction trench ***1322***

2 SG moulded bowl, form 37, *c* AD 70-100. Small, unidentifiable fragment of badly abraded decoration, taken to be a Flavian form 37 rather than the generally earlier bowl form 29; this is however, a very small fragment. Weight 1g.
Phase 1B, ***1321***, Building ***207***, fill of construction trench ***1322***

3 SG moulded bowl, form 37, probably *c* AD 75-90. Fragment of an abraded ovolo, whose tongue originally ended in an indistinct rosette. Weight 3g.
Phase 1D, ***1362***, soil layer above hearth ***1365***

4 SG moulded bowl, form 37, *c* AD 80-110. Abraded and crumbling rim fragment (3%), diameter 200mm. Weight 2g.
Phase 1D, ***1398***, fill of hearth ***1429***

5 SG indeterminate form (possibly form 37), *c* AD 70-110. Battered fragment. Weight 1g.
Phase 1D, ***1401***, fill of hearth ***1397***

6 SG moulded bowl, form 37, *c* AD 70/80-100/10. Badly abraded and slightly burnt sherd, with only a fragment of decoration surviving; a figure, perhaps a faun or satyr playing a pipe, or similar. Weight 3g.
Phase 1D, ***1418***, fill of hearth ***1429***

7 SG dish, form 18R, *c* AD 70-100. Basal fragment. Weight 1g.
Phase 1D, ***1418***, fill of hearth ***1429***

8 SG moulded bowl, form 37, *c* AD 80-110. Rim fragment (2%). Weight 1g.
Phase 1D, ***1418***, fill of hearth ***1429***

9 SG moulded bowl, form 37, *c* AD 70-110. Small fragment. Weight 1g.
Phase 1D, ***1418***, fill of hearth ***1429***

10 SG indeterminate form (possibly form 37), *c* AD 70-110. Tiny rim fragment (1%). Weight 1g.
Phase 1D, ***1418***, fill of hearth ***1429***

11 SG dish, form 18R or 18/31R, *c* AD 70-110. Basal fragment. Weight 1g.
Phase 1D, ***1426***, fill of pit ***1421***

12 SG moulded bowl, form 30 or 37, *c* AD 70-110. Fragment from the plain band. Weight 1g.
Phase 1D, ***1426***, fill of pit ***1421***

13 SG indeterminate form, possibly form 37, *c* AD 70-110. Small fragment. Weight 1g.
Phase 1D, ***1426***, fill of pit ***1421***

14/15 SG dish, form 18, *c* AD 70-100/10. Badly battered piece of the footring. There is a fragmentary graffito below the base, perhaps the top of a letter A or M, rather than a small X. Weight 11g, with an adjoining fragment of 3g.
Phase 1D, ***1431***, fill of hearths ***1397*** and ***1429***

16 SG dish, form 18R?, *c* AD 70-110. Badly abraded rim sherd (4%), diameter 190mm. Weight 2g.
Phase 3B, ***1198***, soil layer

17 SG moulded bowl, form 37, *c* AD 80-100. Badly battered fragment, probably of a dappled stag, kneeling left over a cut-off grass plant. Weight 4g.
Phase 3B, ***1403***, soil layer

18 SG dish, form 18R or indeterminate, *c* AD 80-110. Badly battered footring fragment (25% complete), diameter 90mm. Probably worn from use. There is a trace of possible repair work, but this is not certain. Weight 25g.
Phase 4, ***1166***, fill of pit ***1165***

19 SG dish, form 15/17, *c* AD 70-110. Abraded rim sherd (4%), diameter 160mm. Weight 2g.
Phase 4, ***1166***, fill of pit ***1165***

APPENDIX 3: SELECT CATALOGUE OF ROMAN COARSE POTTERY

A2.1 INTRODUCTION

A2.1.1 This catalogue was compiled according to the standards laid down by the Study Group for Romano-British Pottery (Darling 2004). Pottery was recorded detailing specific fabrics and forms, decorative treatment, condition, cross-joins/same vessel, and was quantified by sherd count, weight and rim percentage values, giving Estimated Vessel Equivalents (EVEs). All the pottery from the site was catalogued in the archive and the stratified pottery was examined in order to date the Roman stratigraphic sequence. The fabric series was cross-referenced to National Fabric Collection codes (Tomber and Dore 1998) where possible.

A2.1.2

CC4	Fine fabric with surface treatment creating a hard brown coat. Probably an import from Argonne (Tomber and Dave 1998, ARG CC).
FLB1	Orange, quite pale fabric with white slip.
GRA1C	Reduced coarse ware, dark grey fabric with brown core.
GRB1	Reduced coarse ware, with darker grey slip than GRA1C.
M32	Mortaria, possibly Lincoln.
OAA1	Cheshire Plains fine oxidised ware.
OAA2	As OAA1, but containing more quartz.
OAB1	Cheshire Plains medium orange fabric.

A2.2 PHASE 1

1. OAA1, slightly distorted rim sherd from necked jar with everted rim, slightly rebated. Partially reduced but not over-fired. 32g, RE 13%.
   Phase 1B, ***1321***, layer, OR 10167

2. GRB1, over-fired distorted rim sherd from necked jar with blunt-ended everted rim and shoulder groove. 31g, RE 10%.
   Phase 1B, ***1321***, layer, OR 10167

3. OAB1, over-fired, slightly distorted and partially reduced rim and body of reeded-rim bowl. The reeding has been done somewhat carelessly. 36g, RE 10%.
   Phase 1B, ***1321***, layer, OR 10167

4. OAB1, rim of reeded-rim bowl, soft, probably under-fired. 6g, RE 6%.
   Phase 1B, ***1321***, layer, OR 10167

5. OAA1, very abraded rim of bowl with grooved rim and groove inside rim, and again on upper body similar to samian form 29 bowl. 3g, RE 4%.
   Phase 1B, ***1321***, layer, OR 10167

6. OAB1, necked jar with bead rim, with sherd from base and lower body, probably of the same jar. 169g, RE 13%.
   Phase 1D, ***1360***, pit fill, OR 10199

7. OAB1, necked jar with blunt-ended, everted rim. Over-fired and distorted. 10g, RE 7%.
   Phase 1D, ***1362***, layer, OR 10393

8. OAB1, narrow-necked jar with everted rim and shoulder cordon. 69g, RE 25%.
   Phase 1D, ***1433***, layer, OR 10366

9. GRB1, necked jar with everted rim tip. 47g, RE 20%. Burnt matter on rim.
   Phase 1D, ***1433***, layer, OR 10366

10. OAA2, body sherds from beaker with rouletted zone demarcated by groove. 22g.
    Phase 1B, ***1442***, levelling deposit, OR 10166

A2.3 LATER PHASES

11. M32 Fabric: slightly powdery, slightly micaceous cream; self-coloured. Inclusions: frequent, tiny to small, quartz and opaque red-brown material with very occasional larger inclusions of the same type. Trituration grit: some quartz, red-brown, with rare quartz sandstone and rare black on surviving surface; ?rare flint embedded in upper surface of flange. A fragmentary and damaged stamp survives; half of the stamp has been removed by the potter himself, no doubt when smoothing the clay added for making the spout, and the rest is damaged. The only known stamp which it can be associated with is one reading CRES, probably for Crescens, but the damage to the Wigan stamp makes it impossible to identify with certainty. The rim-profile and the fabric are, however, identical with the mortaria made by this potter, whose date should be within the period AD100-45. As with the mortaria attributed to Cres, the source is not certain although it was clearly in the Midlands (K Hartley *pers comm*). The distribution for Cres could fit the Lincoln area best, but no examples have yet been recorded there. 94g, Diameter 280mm, RE 10%.
    Phase 5, ***1144***, pit fill, OR 10097

12. FLB1, rim of ring-necked flagon, partially reduced, with larger upper ring and slightly splayed neck of the late first to early second century. 6g, RE 20%.
    Phase 4, ***1166***, fill of pit ***1165***, OR 10197

13. CC4, everted rim indented roughcast beaker. 4g, RE 8%.
    Phase 4, ***1166***, fill of pit ***1165***, OR 10197

14. GRA1C, base of platter or dish. Over-fired? 15g.
    Phase 6, ***1379***, construction pit, OR 10210

APPENDIX 4: LIST OF MEDIEVAL POTTERY

A3.1 DESCRIPTION

Object no	Context	Count	Description	Century
10349	***1001***	9	Medieval coarsewares	Twelfth-fourteenth
10084	***1001***	7	Medieval coarsewares	Twelfth-fourteenth
10234	***1001***	45	Three dark brown-glazed Midland Purple-type ware, hard fired gritty green-glazed red ware, five salt-glazed stoneware, five yellow-glazed red ware, six mottled ware, five dark–glazed red earthenware, coarse and fine fabric 1, nine fabric 4, eight fabric 2, seven brown-glazed red earthenware, blackware (buff) jug	Fifteenth-nineteenth
10011	***1015***	1	Medieval coarseware	Twelfth-fourteenth
10025	***1016***	16	Midland Purple ware, dark-glazed red earthenware, coarse (five fabric 3, four fabric 1, 17 fabric 2), two fine fabric 4, 12 blackware (red and buff) bowls and plates, dark brown-glazed redware, four mottled ware, two dark green-glazed buffware, eight Nottingham- and Brampton-type stoneware	Fifteenth-nineteenth
10018	***1023***	9	Medieval coarsewares	Twelfth-fifteenth
10033	***1070***	11	Medieval coarsewares	Twelfth-fifteenth
10046	***1079***	1	Medieval coarseware	Twelfth-thirteenth
10048	***1087***	1	Medieval coarseware	Fifteenth-sixteenth
10035	***1097***	6	Midland Purple-type, unglazed partially reduced ware	Fifteenth-seventeenth
10087	***1101***	10	Post-medieval: finewares	Fifteenth-seventeenth
10006	***1112***	5	Medieval coarsewares	Twelfth-fourteenth
10007	***1112***	4	Two Midland Purple-type ware with dark green glaze, four dark-glazed red earthenware, fine fabric 4, splash green-glazed redware	Fifteenth-seventeenth
10103	***1122***	7	Medieval coarsewares	Medieval
10104	***1123***	23	Medieval coarsewares	Medieval
10105	***1148***	1	Post-medieval: fineware	Fifteenth-seventeenth
10107	***1151***	15	Medieval coarsewares	Twelfth-fourteenth
10106	***1151***	38	Two fragments Cistercian-ware cup, Midland Purple-type ware strap handle, late medieval speckled red earthenware, two mottled ware, blackware (four purple-red, five red), three dark-glazed red earthenware fabric 1, two creamware bowl, two porcelain cup, ten glazed white earthenware, three annular ware	Fifteenth-nineteenth

10108	***1166***	7	Late medieval/early Post-medieval coarsewares	Fifteenth-seventeenth
10293	***1166***	2	Medieval coarsewares	Twelfth-fourteenth
10294	***1166***	5	Cistercian/blackware comprising four olive green-glazed thin-walled cup in a purple-red fabric, with pimply texture, mottled ware	Sixteenth-eighteenth
10288	***1185***	8	Seven dark brown-glazed buff ware fine ware bowl, green-glazed Tudor Green-type buff ware	Fifteenth-seventeenth?
10339	***1185***	1	Medieval coarseware	Twelfth-fourteenth
10375	***1185***	1	Medieval coarseware	Fifteenth-sixteenth
10094	***1188***	39	Three Midland Purple-type coarse jug with dark green/olive green glaze, dark-glazed red earthenware, coarse (eight fabric 1, including waster, fabric 2, eight fabric 3, five fabric 4), fine (five fabric 1, three fabric 3), six blackware (purple) cup	Fifteenth-nineteenth
10413	***1193***	3	Midland Purple-type ware coarse vessel with wavy incised line decoration, two early Staffordshire-type hand-trailed slipware plate with yellow on orange decoration	Fifteenth-seventeenth
10001	***1198***	31	Medieval coarsewares	Twelfth-fourteenth
10109	***1198***	2	Medieval coarsewares	Twelfth-fourteenth
10412	***1203***	1	Medieval coarseware	Twelfth-fourteenth
10409	***1229***	3	Medieval coarsewares	Twelfth-fourteenth
10411	***1229***	7	Medieval coarsewares	Twelfth-fourteenth
10188	***1230***	7	Medieval coarsewares	Twelfth-fourteenth
10207	***1232***	17	Medieval coarsewares	Twelfth-fifteenth
10216	***1244***	2	Medieval coarsewares	Twelfth-thirteenth
10332	***1244***	18	Medieval coarsewares	Twelfth-fourteenth
10204	***1256***	2	Medieval coarsewares	Twelfth-fourteenth
10201	***1257***	2	Medieval coarsewares	Twelfth-fourteenth
10312	***1264***	5	Medieval coarsewares	Twelfth-fourteenth
10304	***1271***	7	Medieval coarsewares	Twelfth-fourteenth
10261	***1272***	1	Medieval coarseware	Twelfth-fourteenth
10224	***1279***	1	Medieval coarseware	Twelfth-fourteenth
10274	***1300***	14	Twelve fragments Cistercian ware, blackware; cup and tyg	Fifteenth-seventeenth
10172	***1303***	47	Medieval coarsewares	Twelfth-fourteenth
10415	***1303***	86	Medieval coarsewares	Twelfth-fourteenth
10416	***1303***	74	Medieval coarsewares	Twelfth-fourteenth
10165	***1303***	19	Medieval coarsewares	Twelfth-fourteenth
10407	***1356***	8	Midland Purple-type jug handle, brown-glazed hard-fired red earthenware, blackware (purple-red fabric), three dark-glazed red earthenware (light red varieties), blue transfer-printed cup rim	Fifteenth-eighteenth
10399	***1395***	1	Medieval coarseware	Twelfth-fourteenth
10352	***1403***	17	Medieval coarsewares	Twelfth-fourteenth

10382	***1412***	1	Midland Purple-type dark brown-black glaze	Fifteenth-seventeenth
10401	***1417***	5	Medieval coarsewares	Twelfth-fourteenth
10164	***1437***	48	Medieval coarsewares	Twelfth-fifteenth
10155	***1443***	17	Medieval coarsewares	Twelfth-fifteenth
10186	***1443***	9	Medieval coarsewares	Twelfth-fourteenth
10364	unstrat	30	Three Cistercian ware, six blackware (red), two mottled ware, dark-glazed red earthenware, coarse and fine fabric 2, fabric 3, two fabric 4 (Midland Purple-type glaze), blue-striped tin-glazed mug, nine creamware, six blue and black transfer print	Sixteenth-nineteenth
10022	unstrat	6	Medieval coarsewares	Twelfth-thirteenth

A3.2 CATALOGUE OF ILLUSTRATED MEDIEVAL POTTERY

Object no	Context	Figure	Description
10001	***1198***	18.1	Fabric 1 jar rim
10164b	***1437***	18.2	Fabric 1 jar rim
10165d	***1303***	18.3	Fabric 1 jar rim
10165c	***1303***	18.4	Fabric 1 jar rim
10164c	***1437***	18.5	Fabric 1 jar rim
10164d	***1437***	18.6	Fabric 1 pipkin handle
10165a	***1303***	18.7	Fabric 1 jug handle and rim
10165b	***1303***	18.8	Fabric 1 jar
10155c	***1443***	18.9	Fabric 1 jar rim
10155b	***1443***	18.10	Fabric 1 jar rim
10415	***1303***	19.1-5	Fabric 1 jar rims
10224	***1279***	19.6	Fabric 1 unglazed stamped body sherd
10416	***1303***	19.7	Fabric 1 handled jar or jug
10127	***1303***	19.8	Fabric 1 jug strap handle
US		19.9	Fabric 1 waster
10415	***1303***	20.1	Fabric 2 pipkin handle
10155a	***1303***	20.2	Fabric 2 jar rim
10164a	***1437***	20.3	Fabric 2 jar rim
10155d	***1443***	20.4	Fabric 2 jar rim
10415	***1303***	20.5-10	Fabric 2 jar rims
10155a	***1443***	20.11	Fabric 2 jug strap handle
10105	***1148***	21.1	Fabric 3 body sherd with applied thumb strip
10087	***1101***	21.2	Fabric 3 jar

APPENDIX 5: LIST OF POST-MEDIEVAL POTTERY

Object no	Context	Count	Description	Century
10081	***1001***	13	Two sherds Blackware (red), glazed white earthenware light fitting and plate, porcelain, brown-glazed earthenware, blue shell-edge, Nottingham-type stoneware, light green stoneware bottle, light brown stoneware bottle	Eighteenth-nineteenth
10373	***1001***	1	Blackware tyg	Seventeenth-eighteenth
10348	***1001***	10	Dark-glazed red earthenware, coarse (one fabric 1), fine (three fabric 4), two dark brown-glazed red ware, blackware, glazed white earthenware plate, Nottingham-type stoneware, light brown salt-glazed buff fabric	Eighteenth-nineteenth
10077	***1001***	40	Dark-glazed red earthenware, coarse (three fabric 2, four fabric 4), dark-glazed red earthenware, fine (three fabric 1, four fabric 4), blackware (five yellow fabric, one red fabric), seven mottled ware, five glazed white earthenware, including blue flower decoration, two annular ware, blue shell-edge plate, tin glaze, porcelain, Nottingham-type stoneware teapot	Eighteenth-nineteenth
10325	***1001***	23	Dark-glazed red earthenware, coarse (one fabric 3), fine (three fabric 1), two blackware, salt-glazed brown red ware, yellow-glazed red ware, four annular ware, five glazed white earthenware, blue transfer-printed willow and Broseley, pearlware	Eighteenth-nineteenth
10314	***1001***	36	Five sherds Mottled ware, four yellow-glazed buff ware, yellow ware, dark-glazed red earthenware, coarse and fine, four fabric 1, three fabric 2, three fabric 3, 14 fabric 4, English brown stoneware	Seventeenth-nineteenth
10078	***1001***	30	Dark-glazed red earthenware, coarse (four fabric 1, five fabric 4, one fabric 3, four fabric 2), dark-glazed red earthenware, fine (three fabric 4), nine mottled-ware pitcher, Staffordshire slipware plate with piecrust rim	Seventeenth-eighteenth
10379	***1001***	5	Yellow- and green-glazed red earthenware, mottled-type red earthenware, two dark-glazed red earthenware, fine fabric 1, jug rim	Eighteenth-nineteenth
10080	***1001***	11	Green-glazed red earthenware tureen, yellow-glazed red earthenware bowl, nine manganese buff ware	Eighteenth-nineteenth
10280	***1001***	21	Two mottled-ware bowl, two yellow ware, dark brown-glazed red earthenware pie-crust-rimmed dripping tray, dark-glazed red earthenware coarse and fine (four fabric 4, eight fabric 2, four fabric 3)	Eighteenth

10300	***1001***	34	Blackware (two red, eight buff) cups, seven mottled ware, coarse and fine, two light green-glazed buffware, two yellow-ware cup and bowl, salt-glazed stoneware, dark-glazed red earthenware, coarse and fine (three fabric 1, two fabric 3, seven fabric 4)	Sixteenth-eighteenth
10082	***1001***	10	Cistercian-type blackware cup, green shell-edge creamware platter, blue shell-edge pearlware plate, hand-painted salt-glazed pearlware jar, mottled-ware coarse bowl and fine cup, dark-glazed red earthenware, coarse (two fabric 1, one fabric 4), dark-glazed red earthenware, one fine fabric 4	Seventeenth-nineteenth
10256	***1001***	22	Four light brown/yellow stonewares, glazed white earthenware bowl, five dish, eight dark blue chinoiserie-decorated bowl, two asiatic-print shell-edge plates, two annular, Enoch Wood military plate	Eighteenth-nineteenth
10252	***1001***	4	Two mottled-ware cup, Cistercian cup handle, trail slipware	Sixteenth-eighteenth
10234	***1001***	45	Three dark brown-glazed Midland Purple-type ware, hard-fired gritty green-glazed red ware, five salt-glazed stoneware, five yellow-glazed red ware, six mottled ware, dark-glazed red earthenware, coarse and fine (five fabric 1, nine fabric 4, eight fabric 2), seven brown-glazed red earthenware, blackware (buff) jug	Fifteenth-nineteenth
10233	***1001***	34	Dark-glazed red earthenware (seven fabric 1, ten fabric 4, two fabric 2), cistern (17 fabric 3)	Seventeenth-nineteenth
10079	***1001***	40	Dark-glazed red earthenware, coarse (three fabric 1, three fabric 2, two fabric 4, four fabric 3), two blackware (red), two glazed white earthenware, salt-glazed bowl, two blue shell-edge pearlware plate, nine mottled ware, six pale brown English stoneware ornament, brown stoneware bottle	Eighteenth-early nineteenth
10083	***1001***	16	Four dark-glazed red earthenware fine thin-walled vessel, seven fabric 4, five fabric 2	Seventeenth-nineteenth
10390	***1001***	2	Dark-glazed red earthenware, coarse and fine fabric 4, fabric 2	Eighteenth
10004	***1011***	8	Dark-glazed red earthenware, coarse (fabric 1, fabric 2), dark brown-glazed fine redware (fabric 2), blue shell-edge plate, annular ware, three creamware	Eighteenth-nineteenth
10009	***1013***	31	Dark-glazed red earthenware, coarse (fabric 2, fabric 4), fine (fabric 4), blackware (purple-red) coarse handle, mottled ware, Nottingham-type grey-bodied stoneware bowl and jug, three porcelain cup, seven coarse yellow-glazed whiteware, light blue-painted tin glaze, salt-glazed stoneware, eight glazed white earthenware	Eighteenth-nineteenth
10010	***1015***	5	Dark-glazed red earthenware, annular, Nottingham-type rouletted-decorated stoneware, light brown stoneware, hand-painted pearlware	Eighteenth-nineteenth

10025	***1016***	16	Midland Purple ware, dark-glazed red earthenware, coarse (five fabric 3, four fabric 1, 17 fabric 2), two fine fabric 4, 12 blackware (red and buff) bowls and plates, dark brown-glazed redware, four mottled ware, two dark green-glazed buffware, eight Nottingham- and Brampton-type stoneware	Fifteenth-nineteenth
10024	***1016***	95	Pearlware, including 14 blue and green shell-edge plates, blue transfer-print teapot, 22 plates, cups and saucers in willow, Broseley, asiatic, buffalo spode design, 28 hand-painted pearlware jug, 42 hand-painted press-moulded plate and jug, seven creamware	Seventeenth-nineteenth
10014	***1016***	19	Industrial-type slipwares, including two mocha, cats-eye-decorated annular ware, two agate, black basalt lid, four glazed white earthenware, porcelain, creamware press-moulded plate, blue-painted tin glaze	Eighteenth-twentieth
10023	***1017***	7	Dark-glazed red earthenware, coarse fabric 2	Eighteenth-nineteenth
10019	***1023***	13	Blackware (four purple-red thin-walled cup, three red), self-glazed brown earthenware	Seventeenth-eighteenth
10020	***1025***	4	Two salt-glazed stoneware, mottled ware, dark-glazed red earthenware, coarse fabric 3	Eighteenth
10027	***1029***	5	Dark-glazed red earthenware, two fabric 1, fabric 4, blackware (purple-red) bowl, glazed white earthenware	Seventeenth-nineteenth
10013	***1030***	19	Dark-glazed red earthenware, coarse (three fabric 1, fabric 2, fabric 3, two fabric 4), fine (four fabric 1, fabric 2, fabric 3), burnt imported stoneware, hand-painted blue flower-decorated tin glaze, white salt-glazed press-moulded plate, two creamware plate	Eighteenth-nineteenth
10030	***1031***	17	Coarse yellow-glazed red earthenware bowl, dark-glazed red earthenware, coarse (six fabric 1, two fabric 4), three fine fabric 2, blackware (red and buff), four salt-glazed stoneware saucer, glazed white earthenware, tin glaze, light green-glazed grey stoneware (import?)	Sixteenth-eighteenth
10037	***1035***	9	Five mottled-ware coarse large bowl, dark-glazed red earthenware fabric 2, light brown stoneware toilet bowl?	Eighteenth-nineteenth
10038	***1036***	1	Dark-glazed red earthenware fabric 1	Seventeenth-eighteenth
10040	***1042***	25	Two Midland Purple-type ware, three dark-glazed red earthenware, coarse fabric 3, two unglazed red earthenware flower pot, three grey-bodied brown stoneware, blackware (two purple-red, one red), two annular ware, two mottled ware, eight glazed white earthenware pearlware and transfer print	Seventeenth-nineteenth
10042	***1046***	1	Mottled ware, thin-walled	Eighteenth
10043	***1047***	3	Mottled-ware cup handle, dark-glazed red earthenware fabric 1	Eighteenth

10044	***1078***	52	Light blue/grey thin-walled stoneware (Dutch import), salt-glazed stoneware, tin glaze, ten mottled-ware coarse/fine bowls and cup, blackware (three purple-red cup, two red), dark-glazed red earthenware, coarse (three fabric 4, eight fabric 1, five fabric 3), fine (fabric 4), 11 brown-glazed fineware	Sixteenth-eighteenth
10045	***1079***	5	Dark-glazed red earthenware, coarse (fabric 3), fine (fabric 1), blue sponge-printed tin glaze	Eighteenth
10047	***1085***	4	Three dark-glazed red earthenware fabric 1, unglazed red earthenware	Eighteenth-nineteenth
10049	***1087***	1	Brown-glazed red earthenware	Eighteenth
10051	***1093***	28	Dark-glazed red earthenware, coarse (fabric 3, six fabric 1), three fine fabric 4, two blackware (purple), brown-glazed red earthenware, mottled ware, two slipware cup, three creamware plate and bowl, annular, glazed white earthenware, light grey stoneware, four Nottingham-type stoneware, refined stoneware cup	Seventeenth-nineteenth
10089	***1105***	3	Two dark-glazed red earthenware coarse storage jar, fabric 4, mocha-ware teapot with black inlay chequerboard decoration	Seventeenth-nineteenth
10005	***1112***	3	Roman coarseware	Roman
10090	***1122***	6	Blackware (one purple-red, two red), three mottled ware	Seventeenth-eighteenth
10091	***1143***	31	Dark-glazed red earthenware (three fabric 4, four fabric 2), two brown-glazed red earthenware jug, two grey stoneware, five annular, three pearlware, two transfer print in willow and asiatic pattern, two porcelain	Eighteenth-nineteenth
10092	***1144***	4	Dark-glazed red earthenware, coarse (three fabric 1, fabric 4)	Seventeenth-nineteenth
10093	***1148.***	9	Blackware (buff), mottled/manganese speckled ware, tin glaze, creamware press-moulded plate, dark-glazed red earthenware, coarse (three fabric 3, fabric 4)	Seventeenth-eighteenth
10370	***1183***	2	Dark-glazed red earthenware coarse jug (fabric 2), fine bowl (fabric 2)	Eighteenth?
10338	***1185***	24	Blackware (four red, three hard red, two purple), coarse gritty early dark-glazed red earthenware, dark-glazed red earthenware coarse (11 fabric 4), fine (two fabric 2)	Seventeenth-eighteenth
10374	***1185***	41	Mottled-ware coarse and fine bowl, 14 cups, two yellow ware, seven slipware, tin glaze blue-painted plate, and eight cup rims, six salt-glazed stoneware and scratch-blue-type decorated cup and saucer, thin-walled stoneware (import?), two porcelain, creamware teapot	Seventeenth-nineteenth
10282	***1185***	25	Dark-glazed red earthenware, coarse (three fabric 2, five fabric 3, nine fabric 1), fine (three fabric 1, three fabric 3, two fabric 2)	Seventeenth-nineteenth
10229	***1188***	3	Two yellow-ware plate, yellow-glazed redware	Seventeenth-nineteenth

10178	***1188***	22	Two blackware (buff), four dark-glazed red earthenware fabric 2, six mottled ware, coarse and fine, tin-glazed plate, three mottled ware-type coarseware, two pearlware	Seventeenth-nineteenth
10306	***1196***	20	Tin-glazed blue-striped bowl with external floral decoration, three creamware sugar bowl, press-moulded pearlware plate, early eighteenth-century blue-painted pearlware, 18 blue chinoiserie transfer-print, including chinese ladies and ox/child design, annular teapot	Eighteenth-nineteenth
10182	***1196***	15	Dark-glazed red earthenware, coarse (two fabric 2, six fabric 1, fabric 3), fine (fabric 4), two blackware, brown-glazed red earthenware, two mottled-ware cup, yellow and black trail slipware, probably late Staffordshire type	Eighteenth-nineteenth
10296	***1196***	1	Grey-bodied imported stoneware with rouletted decoration	Eighteenth
10239	***1214***	15	Two blackware (purple-red), five dark-glazed red earthenware, fine fabric 3, four mottled ware, three brown-glazed buff ware, trail slipware	Seventeenth-nineteenth
10334	***1214***	28	Dark-glazed red earthenware, coarse (four fabric 3, storage jar, fabric 1, 17 storage jar, fabric 4, pancheon)	Seventeenth-eighteenth
10395	***1225***	4	Three dark-glazed red earthenware fabric 2, willow transfer-print	Eighteenth
10171	***1231***	4	Dark-glazed red earthenware, coarse (two fabric 4, fabric 3), annular ware	Eighteenth-nineteenth
10269	***1234***	2	Glazed white earthenware	Eighteenth-nineteenth
10203	***1255***	3	Blackware dish, two mottled-ware cup	Seventeenth-eighteenth
10311	***1264***	2	Blackware (purple-red), dark-glazed red earthenware	Seventeenth-eighteenth
10259	***1272***	1	Mottled ware	Seventeenth-eighteenth
10278	***1300***	54	Dark-glazed red earthenware (fabric 4); almost complete dripping pan	Seventeenth-eighteenth
10279	***1300***	38	Dark-glazed red earthenware, mid-red fabric 1 storage jar and cistern	Seventeenth-eighteenth
10335	***1300***	35	Dark- and brown-glazed red earthenware (fabric 2); possible dripping pan, six mottled ware	Seventeenth-eighteenth
10266	***1300***	64	Dark-glazed red earthenware (fabric 4) coarse and fine, storage jar, cistern	Seventeenth-eighteenth
10275	***1300***	34	Dark-glazed red earthenware (fabric 3), bowls, pancheon, storage jars	Seventeenth-eighteenth
10417	***1300***	29	Purple-red dark-glazed red earthenware cistern (26 fabric 4), dark-glazed red earthenware, coarse (three fabric 1)	Seventeenth-eighteenth
10000	***1300***	10	Early Staffordshire-type hand-trailed slipware bowl, almost complete; yellow sunburst design bordering a central pomegranate-type fruit	Seventeenth-eighteenth
10157	***1342***	2	Blackware cup (purple-red fabric), over-fired salt-glazed stoneware bowl (?waster)	Seventeenth-eighteenth

10265	***1355***	5	Annular-ware milk jug, decorated with purple stripes bordering a rouletted chevron band, dark-glazed red earthenware (coarse), mottled-ware bowl	Seventeenth-nineteenth
10244	***1377***	18	Transfer-printed ware (early Wedgewood black, Broseley, in chinoiserie and botanical patterns) (13 sugar, fruit bowl, platter, chamber pot), one creamware bowl, dark-glazed red earthenware (one pancheon), two annular ware (blue and black)	Eighteenth-nineteenth
10367	***1433***	1	Glazed white earthenware, with black botanical transfer	Eighteenth-nineteenth
10176	***1437***	1	Dark-glazed red earthenware, black-glazed	Eighteenth-nineteenth
10184	***1443***	1	Dark-glazed red earthenware; very hard fabric similar to stoneware, light brown glaze	Seventeenth-eighteenth
10021	unstrat	6	Mottled ware (two coarse-gritted plate, two fine) blackware in buff fabric, dark-glazed red earthenware, coarse fabric 4	Seventeenth-eighteenth
10206	unstrat	8	Two brown-glazed redware, three mottled-ware jug, dark-glazed red earthenware, coarse (fabric 2, fabric 3, fabric 4)	Eighteenth-nineteenth

APPENDIX 6: CATALOGUE OF CLAY TOBACCO PIPES

Object	Context	Phase	Quantity	Description	Date	Comment
10284	***1001***	7	4	Stems	Eighteenth-nineteenth	Medium and large bored
10351	***1001***	7	2	Stems	Eighteenth-nineteenth	Medium bored, tapered
10062	***1001***	7	30	Stems (26), bowls (4)	1820-40	Stems; narrow and medium-bored (decorated stem with the name BERCH around the body). Bowls include; two undecorated spurred type (early nineteenth), an almost complete, early nineteenth-century type with leaf decoration along seam, and an almost complete fluted decorated
10329	***1001***	7	5	Stems (4), small bowl	Seventeenth-nineteenth century	Stems; narrow, medium bored and glazed. Bowl; small undecorated, moulded (nineteenth)
10316	***1001***	7	1	Stem	Nineteenth century	Medium bored
10301	***1001***	7	13	Stems (12) and bowl	Seventeenth-eighteenth century	Bowl fragment, Rainford type. Stems; medium bored
10235	***1001***	7	4	Stems	Eighteenth century	Medium bored
10250	***1001***	7	2	Bowl and stem	Eighteenth-nineteenth century	Bowl; moulded type with fluted decoration (early nineteenth century). Stem; medium bored
10063	***1013***	6/7	5	Stems	Eighteenth-nineteenth century	Medium bored
10064	***1016***	5/6	77	Bowls (5), stems (72)	Early-mid-nineteenth century	Bowls include leaf-seamed moulded (two), and Masonic decoration with G lettering (probably of Merseyside manufacture). Stems, narrow, medium and tapered
10065	***1029***	6/7	4	Stems	Eighteenth-nineteenth century	Narrow and medium bored
10066	***1030***	7	5	Stems	Nineteenth century	Medium bored
10067	***1031***	7	11	Bowl (1) and stems (10)	Nineteenth century	Decorated pipe comprising a leaf pattern with trail of flowers, with a row of pellets along the upper and lower part of the bowl. Stems; narrow and medium bored
10068	***1036***	6	1	Stem	Eighteenth-nineteenth century	Medium bored
10069	***1078***	6	4	Stems	Seventeenth-nineteenth century	Narrow and medium bored
10070	***1079***	6	1	Stems	Eighteenth-nineteenth century	Medium bored; spurred

10071	***1093***	5	2	Stems	Eighteenth-nineteenth century	Medium bored
10072	***1122***	5	2	Stems	Eighteenth-nineteenth century	Medium and narrow bored
10073	***1143***	5/6	2	Stems	Eighteenth-nineteenth century	Medium bored
10074	***1151***	6/7	3	Bowl and stems (2)	Late seventeenth-early eighteenth century	Pronounced small rilled decorated stamped heeled type, with maker's mark IG (possible Rainford maker; Grounds, Grundy, Gorall, or Gerrall; Davey *et al* 1982)
10344	***1185***	6/7	30	Stems (25) and bowls (3)	Early Eighteenth-mid-nineteenth century	Stems; narrow and medium bored with spurs. Bowls; spurred types (early nineteenth), spurless bowl (up to mid-nineteenth century), heeled stamped type with traces of the maker's mark S stamped (early eighteenth century?)
10075	***1188***	6/7	5	Bowl and stems (4)	Late seventeenth-early eighteenth century	Undecorated heeled bowl with rilled decoration. Stems; heeled, spurred medium bored
10180	***1188***	6/7	41	Stems (29) and bowls (9)	Late seventeenth-early eighteenth century	Zigzag decorated stems (two), mouth piece, narrow and medium bored. Rainford-type bowls, all rilled decoration. Single heel stamped IB (probable Rainford maker such as Birch, Berchall or Bispham; Davey *et al* 1982)
10183	***1196***	7	1	Stem	Nineteenth century	Medium bored
10308	***1196***	7	2	Bowl and stem	Early/mid-nineteenth century	Undecorated spurred type
10297	***1196***	7	4	Bowl and stems (3)	Eighteenth century	Bowl; undecorated spurred (Eighteenth type). Stems; medium and narrow bored, including spurred and tapered
10240	***1214***	6	5	Stems	Seventeenth-nineteenth centuries	Medium and narrow bored
10276	***1221***	5/6	1	Stem	Eighteenth-nineteenth century	Medium bored
10396	***1225***	5/6	2	Stems	Seventeenth-eighteenth century	Narrow bored
10170	***1231***	6	1	Stem	Eighteenth century	Medium bored
10268	***1234***	7	2	Stems	Seventeenth-nineteenth century	Narrow and medium bored
10160	***1235***		1	Stem	Eighteenth-nineteenth century	Medium bored
10220	***1261***	7	1	Bowl	Nineteenth	Undecorated fragment

					century	
10263	***1272***	6	2	Stems	Eighteenth-nineteenth century	Medium bored
10285	***1300***	4	2	Bowl and stem	Late Seventeenth/ eighteenth century	Rilled decorated (Rainford type). Medium-bored stem (Eighteenth century)
10158	***1342***	6	1	Bowl	Eighteenth century	Small stamped heel type, with maker's mark IB (probable Rainford maker, such as Birch, Berchall or Bispham; Davey *et al* 1982)
10408	***1356***	7	1	Bowl	Eighteenth century	Small undecorated fragment
10245	***1377***	6	1	Stem	Eighteenth/ nineteenth century	Tapered stem with circular mouth piece
10363	unstrat	-	4	Stems (3) and bowl	Seventeenth-nineteenth centuries	Narrow and medium bored stems. Bowl; small heeled type resembling Rainford manufacture

APPENDIX 7: CATALOGUE OF CERAMIC BUILDING MATERIAL

Object no	Context	Quantity	Description	Date
10002	***1198***	3	Fragments	Roman
10008	***1112***	2	Fragments	Roman
10031	***1124***	1	Floor tile	Roman
10034	***1070***	4	Burnt brick fragments (two partially reduced, two white slipped)	Roman
10036	***1078***	1	Roof tile	Roman
10041	***1042***	1	Glazed wall tile	Roman
10052	***1097***	1	Tile	Roman?
10086	***1151***	8	Two fragments brick (light red), roof tile (two fragments imbrex) daub, two undiagnostic fragments	Roman
10088	***1122***	5	Brick, tile (roof - tegula), fired clay and undiagnostic fragment	Roman/Medieval
10099	***1151***	7	Peg tile, roof tile (two tegulae) daub	Roman
10162	***1437***	7	Roof tile (tegula), floor tile and five unidentifiable fragments	Roman
10225	***1279***	1	Roof tile (tegula)	Roman
10227	***1371***	1	Fragment	Not closely dated
10248	***1001***	2	Floor tile fragments, white slipped	Nineteenth/twentieth century
10249	***1001***	1	Glazed wall tile	Nineteenth/twentieth century
10267	***1234***	2	Glazed wall tile	Nineteenth/twentieth century
10270	***1234***	2	Burnt brick (partially reduced)	Not closely dated
10277	***1221***	1	Baked clay-furnace wall?	Not closely dated
10290	***1166***	2	Roof tile (imbrex)	Roman
10303	***1271***	1	Floor tile	Roman
10310	***1264***	1	Fragment	Not closely dated
10315	***1001***	2	Glazed wall tile	Nineteenth/twentieth century
10336	***1221***	4	Brick (mid-red), floor tile, two undiagnostic fragments	Not closely dated
10372	***1183***	1	Fragment	Not closely dated
10387	***1191***	1	Glazed wall tile	Nineteenth/twentieth
10388	***1191***	1	Fragment	Nineteenth/twentieth
10398	***1395***	1	Brick (red)	Not closely dated

APPENDIX 8: CATALOGUE OF METALWORKING DEBRIS

Context	Slag type	Mass (g)	Comments	Period
350	vitrified hearth lining	96		-
353	cinder	25		-
353	cinder	27		-
353	iron object/fragment	14		-
353	undiagnostic ironworking slag	175		-
353	undiagnostic ironworking slag	510		-
384	burned stone	10		-
384	cinder	160		-
384	iron-rich cinder	68		-
384	undiagnostic ironworking slag	1922		-
384	vitrified hearth lining	54		-
385	burned stone	58		-
385	cinder	256		-
385	cinder	930		-
385	dense slag	124		-
385	fired clay	25		-
385	flake hammerscale			-
385	iron object/fragment	473		-
385	iron-rich cinder	1113		-
385	smithing hearth bottom	161	90 x 75 x 30mm	-
385	smithing hearth bottom	531	120 x 100 x 40mm	-
385	smithing hearth bottom	204	110 x 60 x 30mm	-
385	smithing hearth bottom	120	70 x 55 x 40mm	-
385	smithing hearth bottom	133	80 x 60 x 30mm	-
385	smithing hearth bottom	242	90 x 70 x 35mm	-
385	undiagnostic ironworking slag	1035		-
385	undiagnostic ironworking slag	9967		-
385	vitrified hearth lining	35		-
385	vitrified hearth lining	1287		-
400	cinder	61		-
414	cinder	62		-
414	iron-rich cinder	57		-
414	smithing hearth bottom	802	160 x 120 x 70mm	-
414	smithing hearth bottom	313	110 x 80 x 60mm	-
414	smithing hearth bottom	277	90 x 80 x 40mm	-
414	undiagnostic ironworking slag	894		-
414	vitrified hearth lining	155		-
421	cinder	76		-
421	iron-rich cinder	487		-
421	undiagnostic ironworking slag	1183		-
421	undiagnostic ironworking slag	257		-
421	vitrified hearth lining	301		-
422	iron-rich cinder	14		-
422	vitrified hearth lining	17		-
444	undiagnostic ironworking slag	291		-
461	vitrified hearth lining	11		-
507	fired clay	18		-
513	vitrified hearth lining	15		-
514	coal	8		-
514	fired clay	26		-
514	iron object/fragment	21		-
514	Undiagnostic ironworking slag	72		-

Context	Slag type	Mass (g)	Comments	Period
515	smithing hearth bottom	347	100 x 70 x 40mm	-
515	stone	13		-
515	undiagnostic ironworking slag	43		-
520	cinder	15		-
520	vitrified hearth lining	9		-
521	cinder	194		-
521	cinder	259		-
521	flake hammerscale			-
521	iron object/fragment	58		-
521	smithing hearth bottom	268	120 x 90 x 50mm	-
521	smithing hearth bottom	428	110 x 100 x 40mm	-
521	undiagnostic ironworking slag	116		-
521	undiagnostic ironworking slag	1482		-
521	vitrified hearth lining	243		-
521	vitrified hearth lining	77		-
549	undiagnostic ironworking slag	209		-
568	cinder	62		-
568	flake hammerscale			-
568	smithing hearth bottom	230	100 x 80 x 30mm	-
568	undiagnostic ironworking slag	364		-
568	vitrified hearth lining	48		-
601	cinder	11		-
1001	coke	6		Twentieth century
1001	iron-rich cinder	12		Twentieth century
1001	vitrified hearth lining	90		Twentieth century
1038	no metalworking debris	14		Eighteenth / nineteenth century
1042	Blast-furnace slag	78	Recent	Nineteenth century
1042	cinder	7	Recent	Nineteenth century
1042	clinker	27	Recent	Nineteenth century
1042	undiagnostic ironworking slag	4	Recent	Nineteenth century
1042	vitrified hearth lining	11	slag attacked refractory	
1058	undiagnostic ironworking slag	171		Eighteenth / nineteenth century
1070	coal	7		Eighteenth / Nineteenth century
1070	undiagnostic ironworking slag	48	smooth upper surface? Tap? Probably not	Eighteenth / nineteenth century
1070	undiagnostic ironworking slag	20		Eighteenth / nineteenth century
1085	cinder	190	70 x 50 x 20mm	Eighteenth / nineteenth century

Context	Slag type	Mass (g)	Comments	Period
1085	flake hammerscale			Eighteenth / nineteenth century
1085	smithing hearth bottom	84	very clinkery	Eighteenth / nineteenth century
1085	undiagnostic ironworking slag	1032	all very clinkery	Eighteenth / nineteenth century
1093	ferruginous concretion	80		Eighteenth century
1151	coke	9		Nineteenth / twentieth century
1151	ferruginous concretion	1132	coal, Hf and Hs attached, proper slag inside concretions	Nineteenth / twentieth century
1151	fired clay	5		Nineteenth / twentieth century
1151	flake hammerscale	9		Nineteenth / twentieth century
1151	iron-rich cinder	32		Nineteenth / twentieth century
1151	spheroidal hammerscale			Nineteenth / twentieth century
1176	vitrified hearth lining	12		Medieval
1195	flake hammerscale			Roman
1195	iron-rich cinder	48		Roman
1195	undiagnostic ironworking slag	139		Roman
1195	vitrified hearth lining	21		Roman
1198	cinder	45		Medieval
1198	flake hammerscale			Medieval
1198	smithing hearth bottom	1016	150 x 110 x 40mm	Medieval
1198	smithing hearth bottom	438	115 x 80 x 50mm	Medieval
1198	undiagnostic ironworking slag	528		Medieval
1199	cinder	59		Medieval
1199	cinder	59		Medieval
1199	fired clay	29		Medieval
1199	flake hammerscale			Medieval
1199	iron-rich cinder	13		Medieval
1199	smithing hearth bottom	1055	Double 170 x 140 x 90mm	Medieval
1199	smithing hearth bottom	488	120 x 100 x 50mm	Medieval
1199	smithing hearth bottom	254	120 x 80 x 35mm	Medieval
1199	undiagnostic ironworking slag	529		Medieval
1199	undiagnostic ironworking slag	432		Medieval
1199	vitrified hearth lining	10		Medieval
1201	cinder	27		Medieval
1201	undiagnostic ironworking slag	65		Medieval
1201	vitrified hearth lining	53		Medieval
1211	cinder	54		Roman
1211	fired clay	12		Roman
1211	smithing hearth bottom	235	110 x 60 x 40mm	Roman

Context	Slag type	Mass (g)	Comments	Period
1211	undiagnostic ironworking slag	326		Roman
1214	undiagnostic ironworking slag	21		Nineteenth century?
1235	undiagnostic ironworking slag	7		Not closely datable
1244	coal	55		Medieval
1244	undiagnostic ironworking slag	14		Medieval
1257	cinder	10		Medieval
1257	coal	2		Medieval
1257	undiagnostic ironworking slag	106		Medieval
1269	undiagnostic ironworking slag	68		Not closely datable
1303	charcoal	100		Medieval
1303	coal	39		Medieval
1308	cinder	32		Medieval
1308	fired clay	4		Roman
1308	undiagnostic ironworking slag	266		Roman
1311	vitrified hearth lining	401		Roman
1321	cinder	118		Roman
1321	undiagnostic ironworking slag	139		Roman
1321	vitrified hearth lining	40		Roman
1360	iron-rich cinder	64		Roman
1364	cinder	200		Roman
1364	cinder	150		Roman
1364	ferruginous concretion	30		Roman
1364	flake hammerscale			Roman
1364	flake hammerscale			Roman
1364	smithing hearth bottom	258	90 x 80 x 45mm	Roman
1364	spheroidal hammerscale			Roman
1364	stone	30		Roman
1364	stone	150		Roman
1364	undiagnostic ironworking slag	2100		Roman
1364	undiagnostic ironworking slag	1050		Roman
1364	vitrified hearth lining	120		Roman
1367	cinder	76		Roman
1367	flake hammerscale			Roman
1367	iron-rich cinder	143		Roman
1367	undiagnostic ironworking slag	263		Roman
1368	flake hammerscale			Roman
1368	smithing hearth bottom	172	90 x 80 x 40mm	Roman
1368	smithing hearth bottom	170	80 x 65 x 45mm	Roman
1368	undiagnostic ironworking slag	1643		Roman
1368	vitrified hearth lining	50		Roman
1375	cinder	11		Roman?
1403	vitrified hearth lining	13		Medieval
1412	iron object/fragment	247		Nineteenth / twentieth century
1426	fired clay	16		Roman?
1426	undiagnostic ironworking slag	399		Roman?
1426	vitrified hearth lining	348		Roman?
1433	charcoal	1		Roman
1433	coal	2		Roman
1443	smithing hearth bottom	179	100 x 70 x 40mm	Roman
U/S	iron-rich cinder	18		Not closely datable

Context	Slag type	Mass (g)	Comments	Period
U/S	undiagnostic ironworking slag	245		Not closely datable
U/S	vitrified hearth lining	12		Not closely datable
U/S	undiagnostic ironworking slag	45		Not closely datable

FIGURES

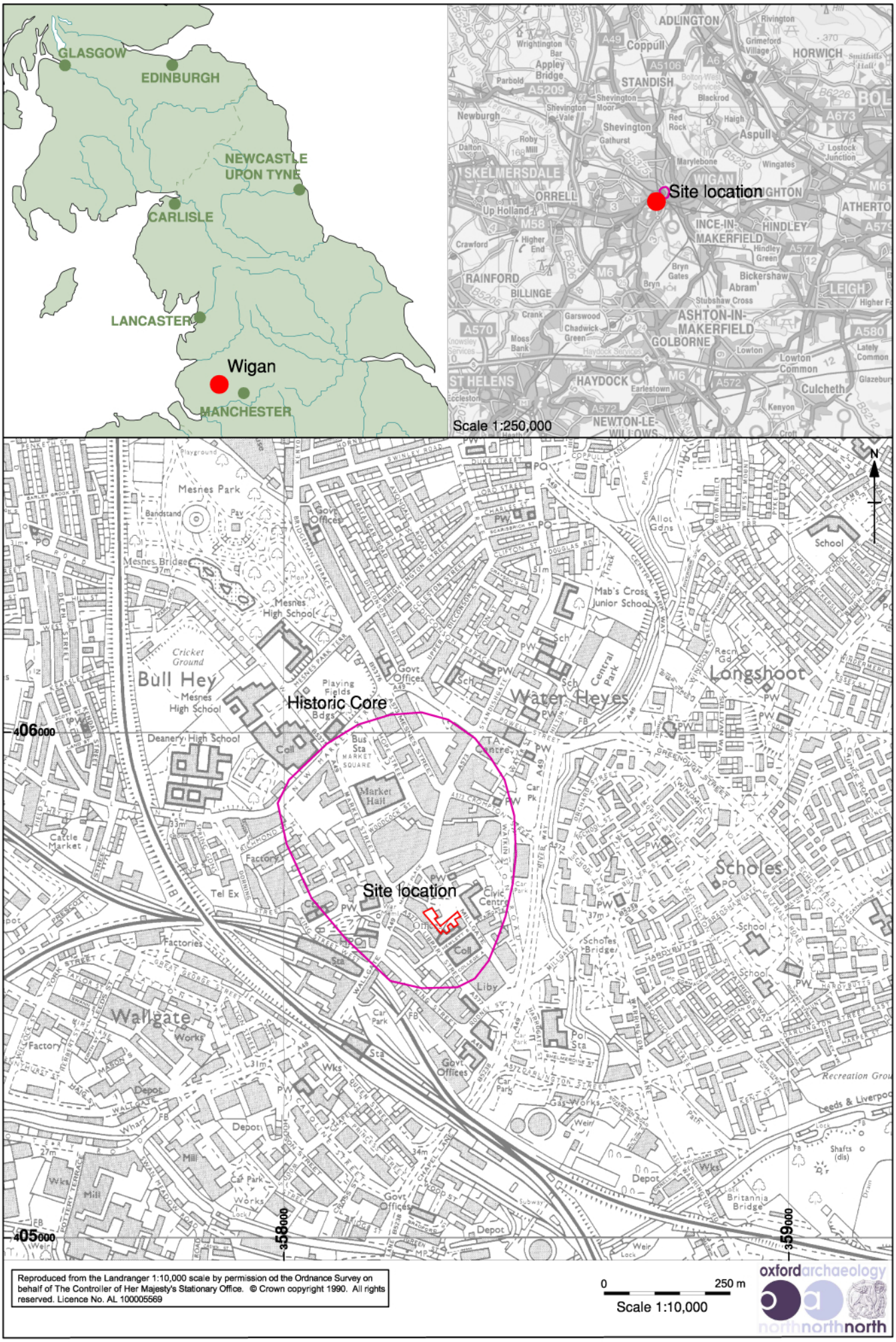


Figure 1: Site Location

Figure 2: Areas of Excavation

Fig 3: Period 1 (Flavian/Trajanic) remains

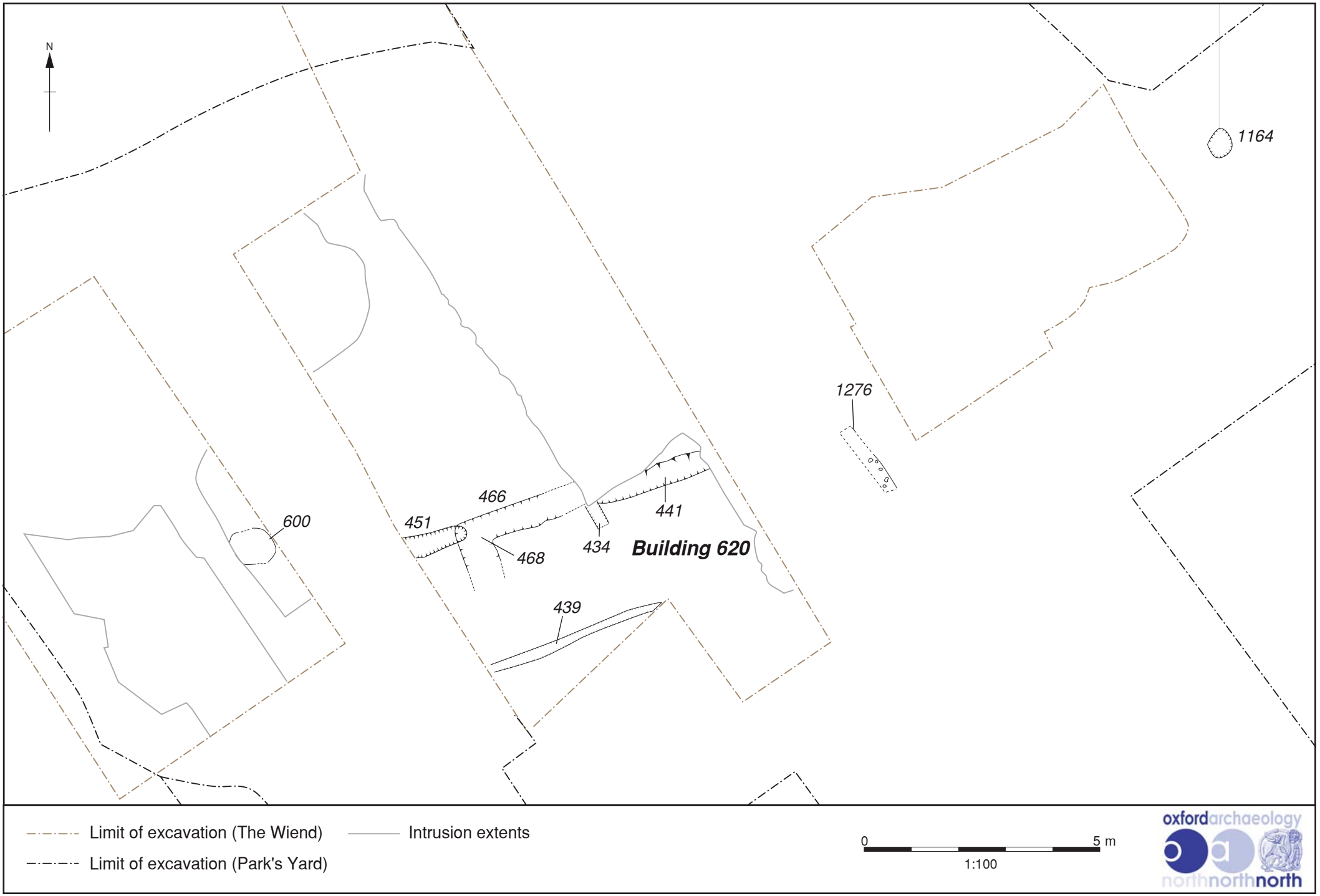


Figure 4: Plan of Phase 1A Building ***620*** and associated features

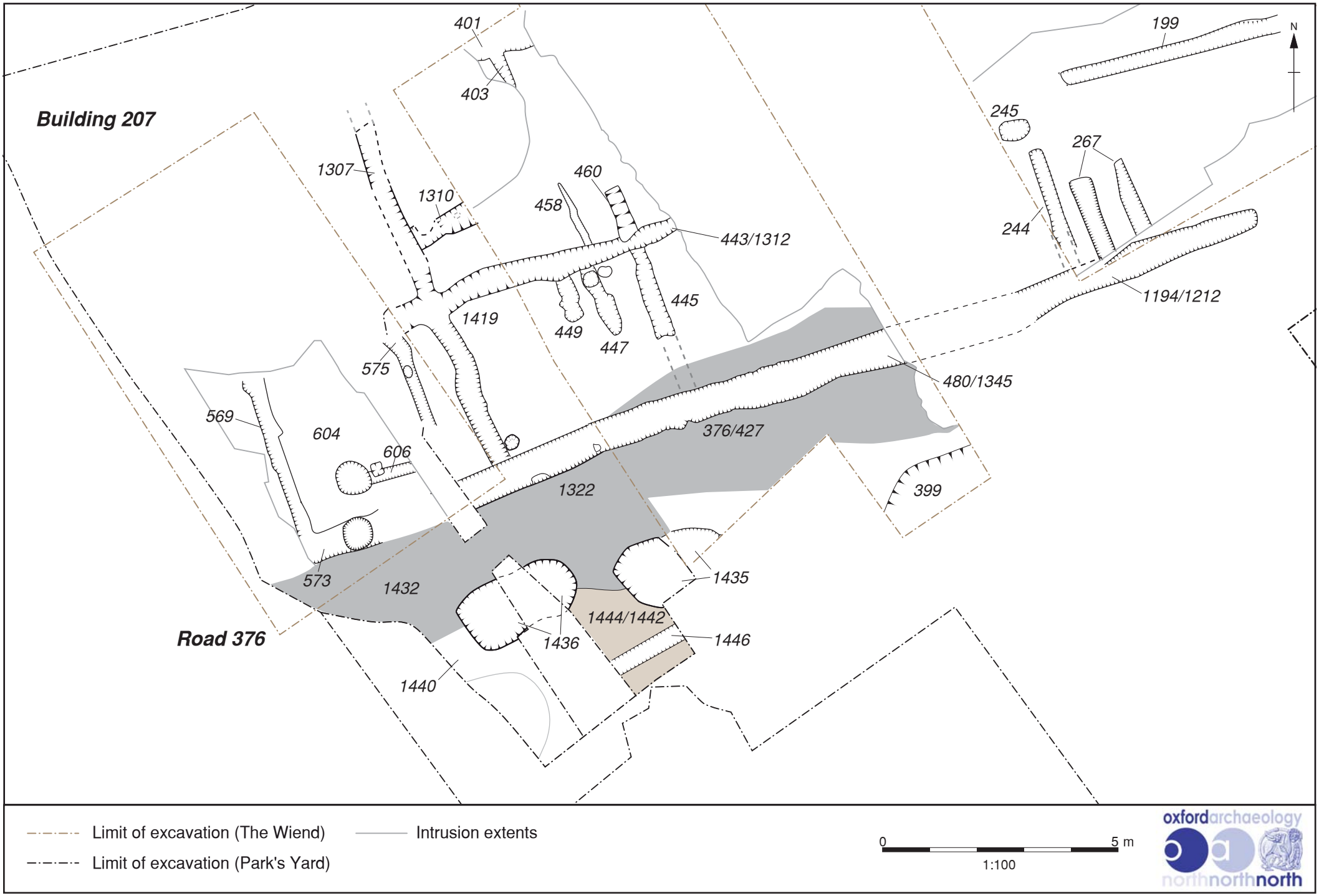


Figure 5: Plan of Phase 1B Building ***207***, Road ***376***, and associated features

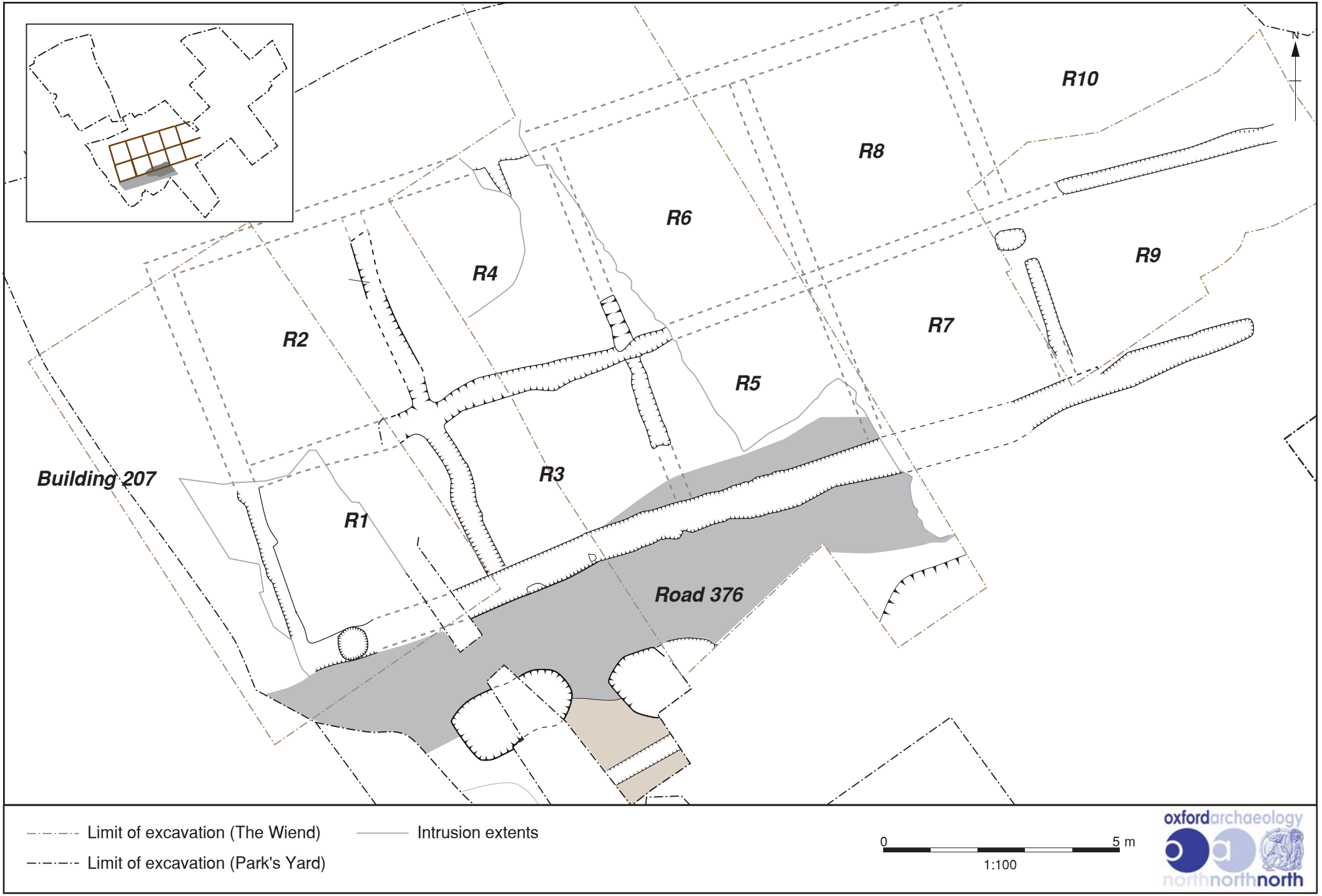


Figure 6: Plan of Phase 1B Building ***207*** and Road ***376***

Fig 7: Plan of Period 1D features

Fig 8: Detail of Period 1D Roman hearths

Fig 9: Plan of Period 3 (medieval) remains

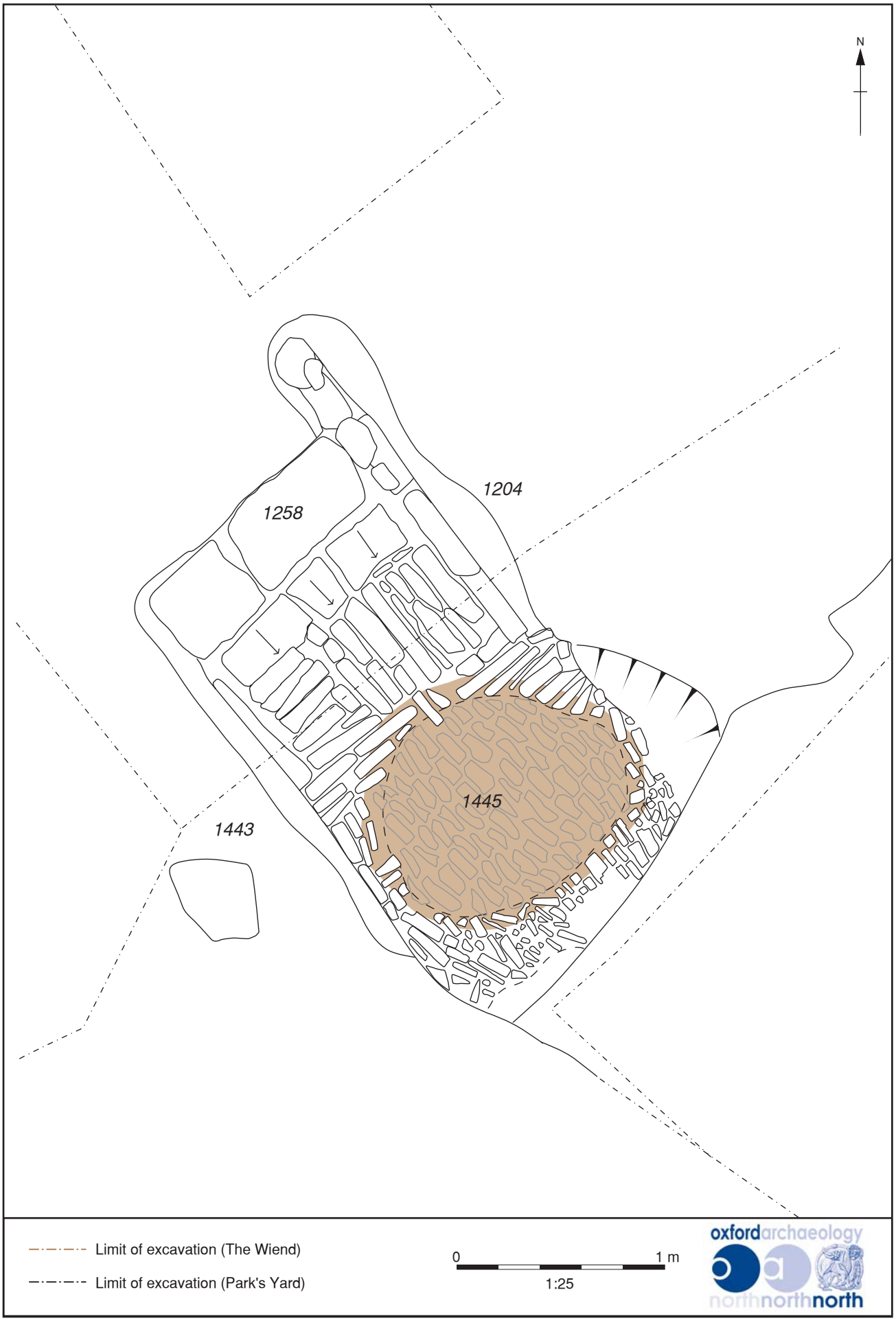
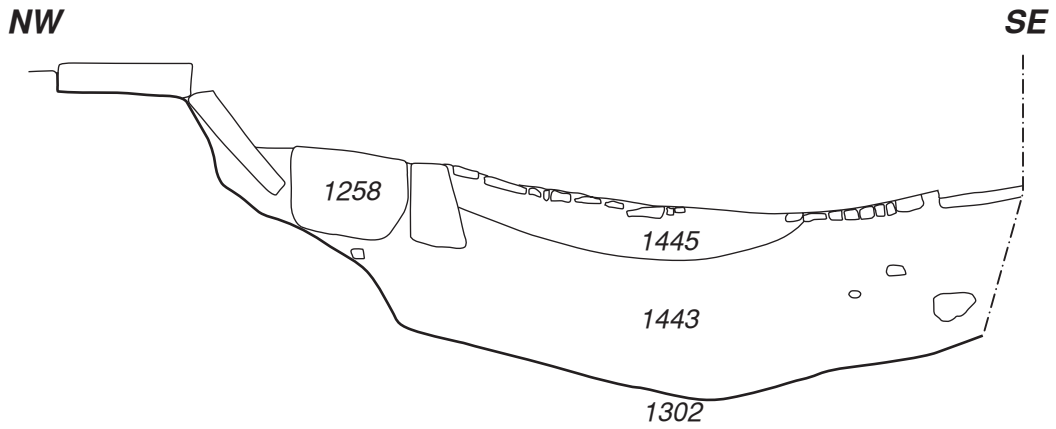


Figure 10: Detailed plan of kiln ***1258***



N

Limit of excavation (The Wiend)

Limit of excavation (Park's Yard)

0 1 m

1:20

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Figure 11: Section across kiln ***1258***

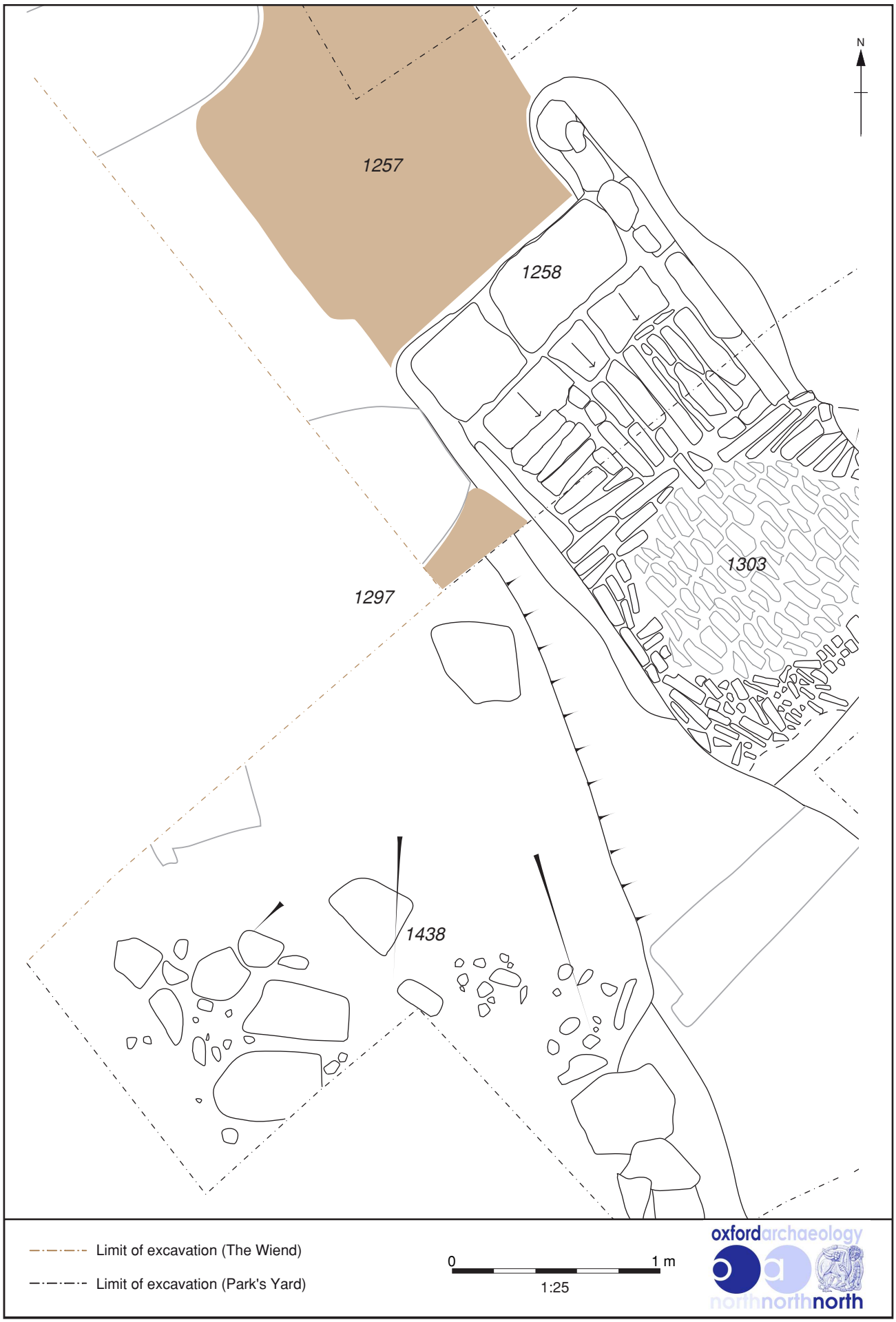

Figure 12: Deposits associated with kiln ***1258***

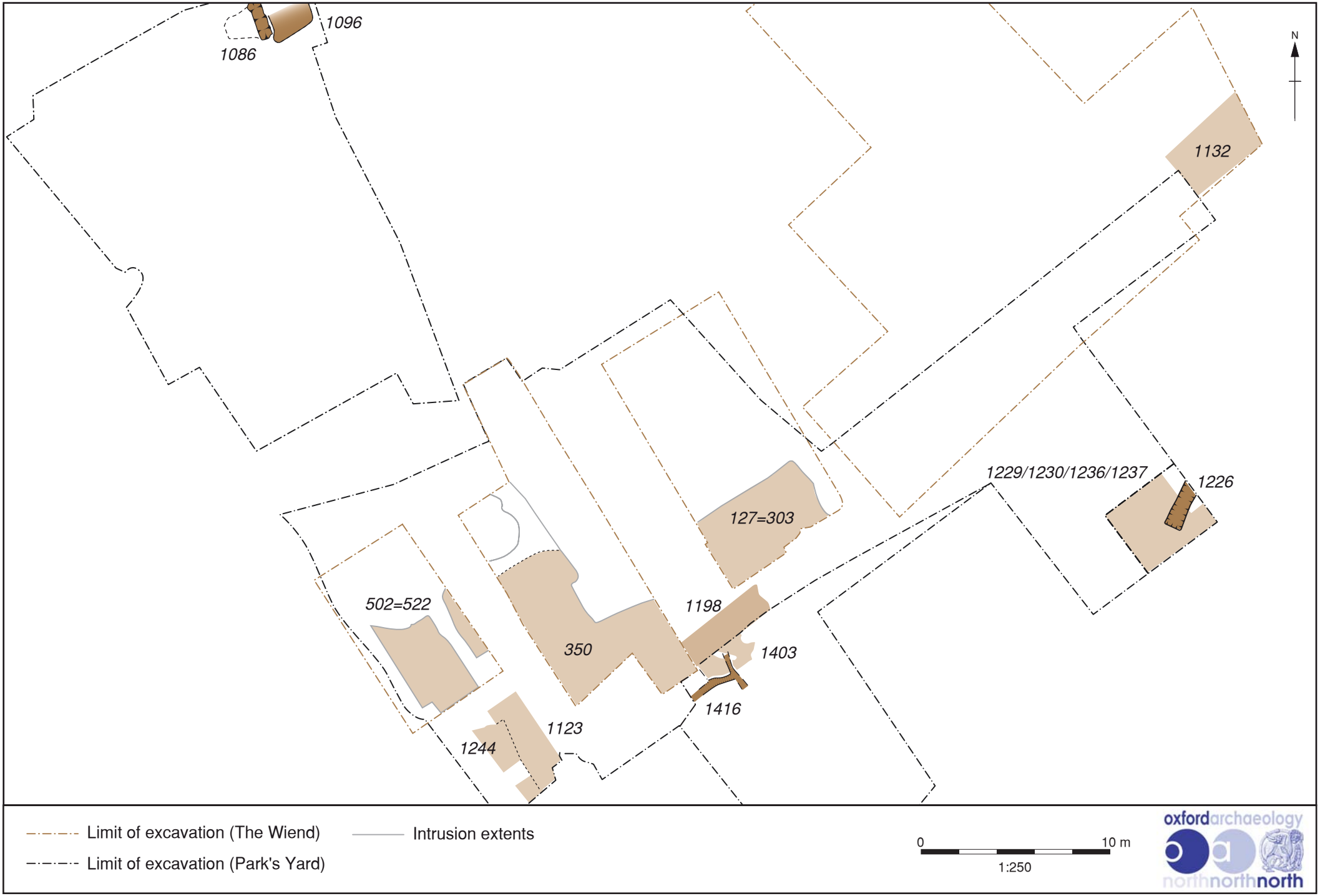

Figure 13: Plan of Phase 3B cultivated soils

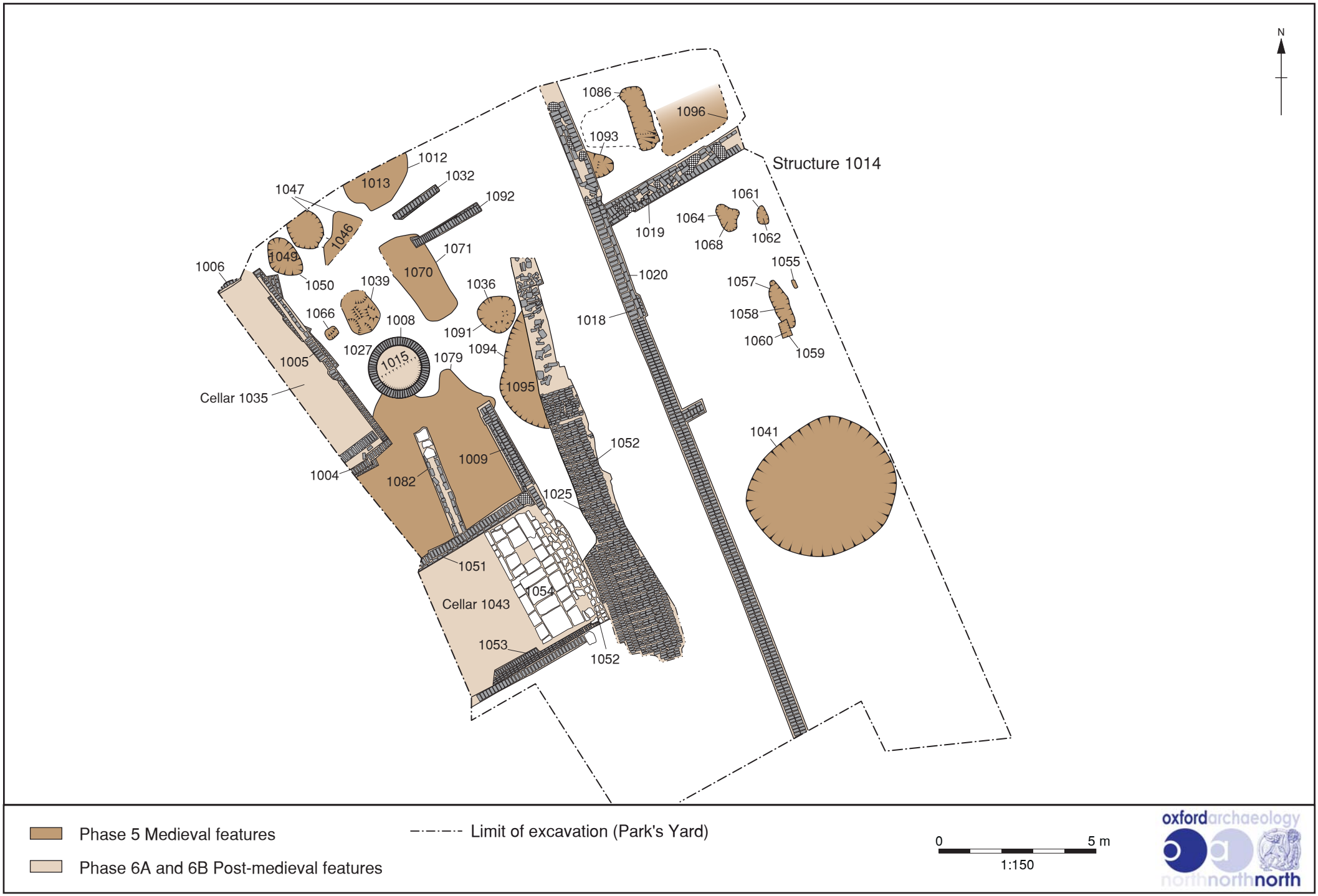

Figure 14: Plan of Phase 5 features in the northern part of the site

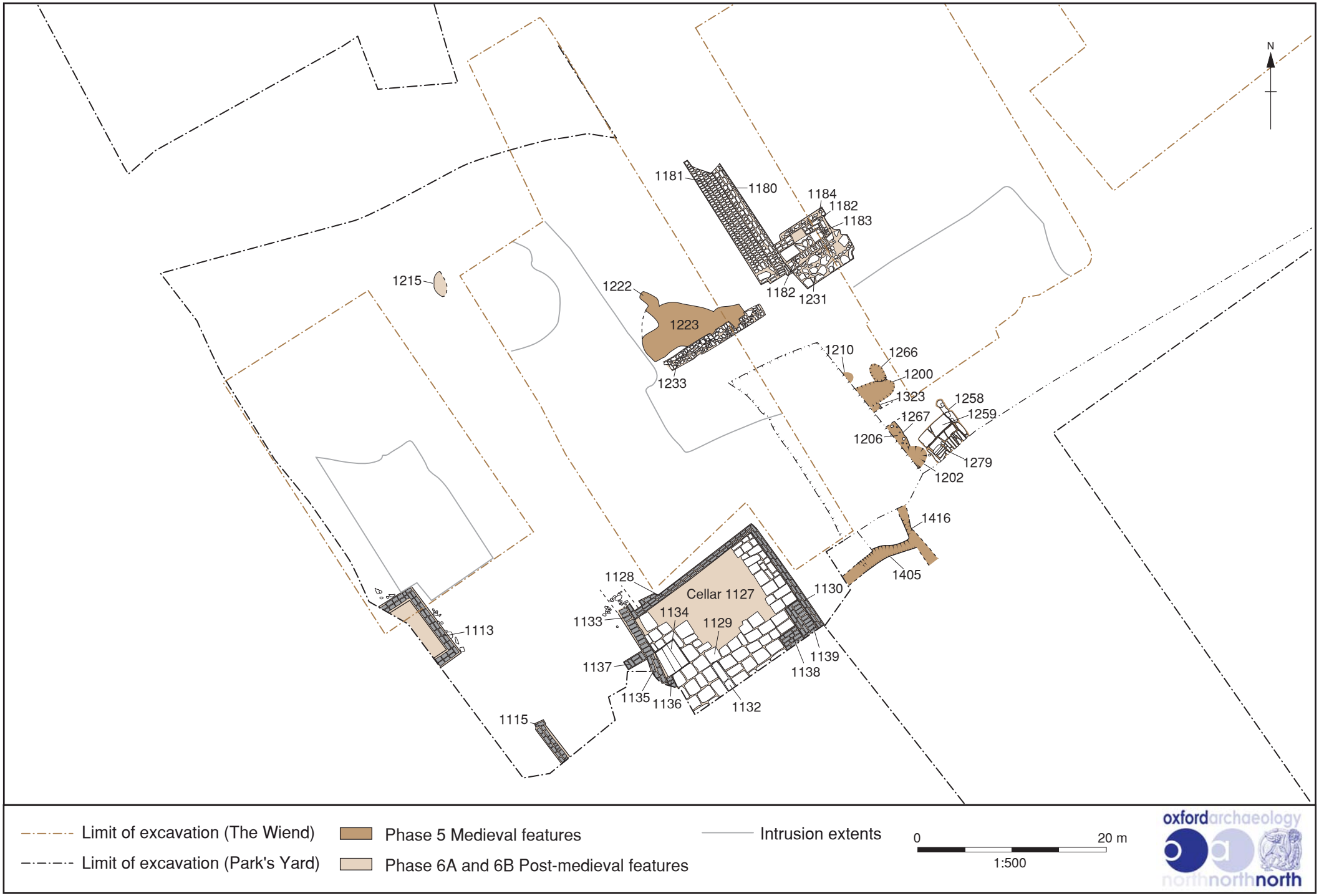

Figure 15: Plan of Phase 5 remains in the southern part of the site

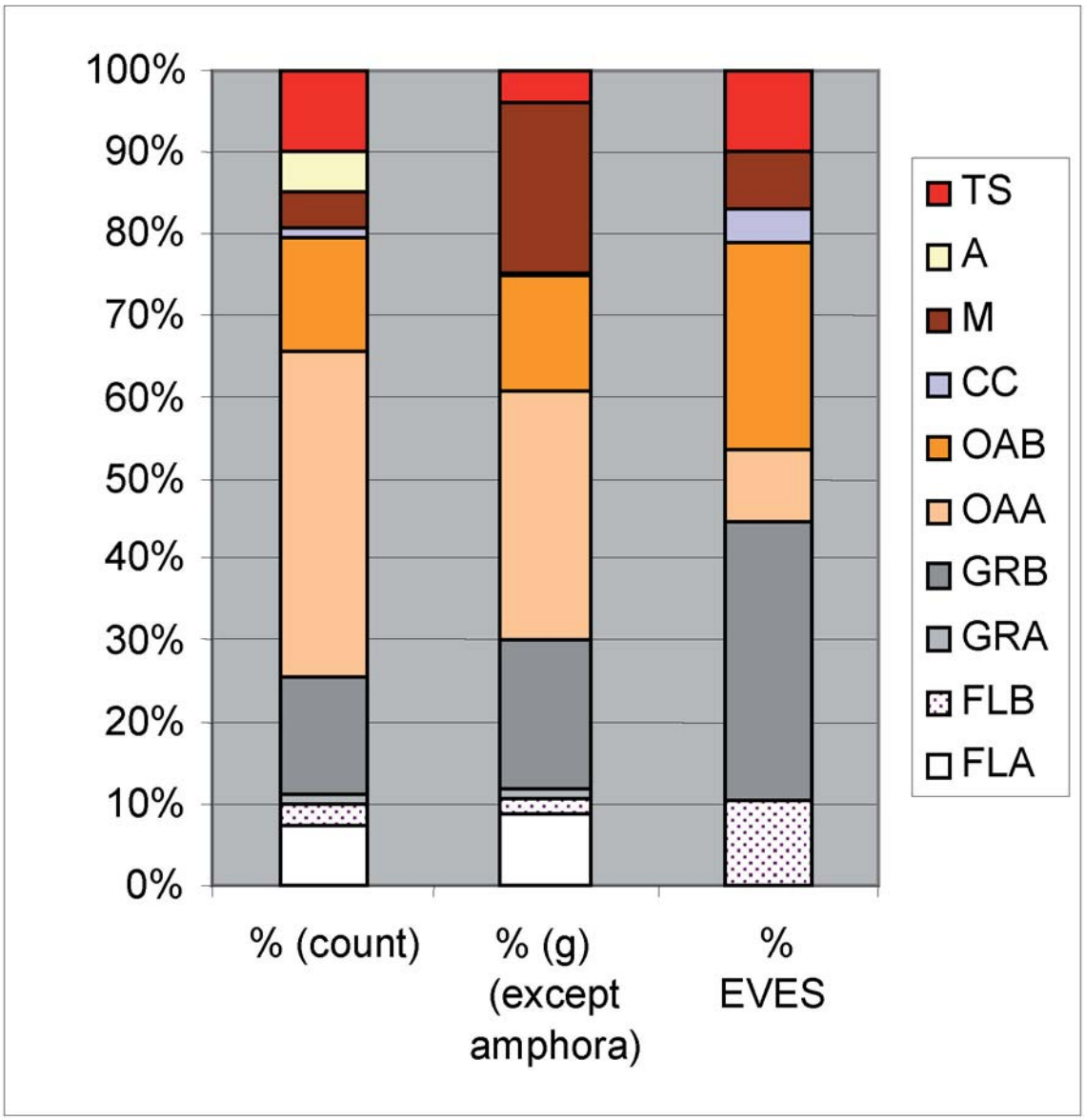

Figure 16: Graph of relative proportions of pottery fabrics

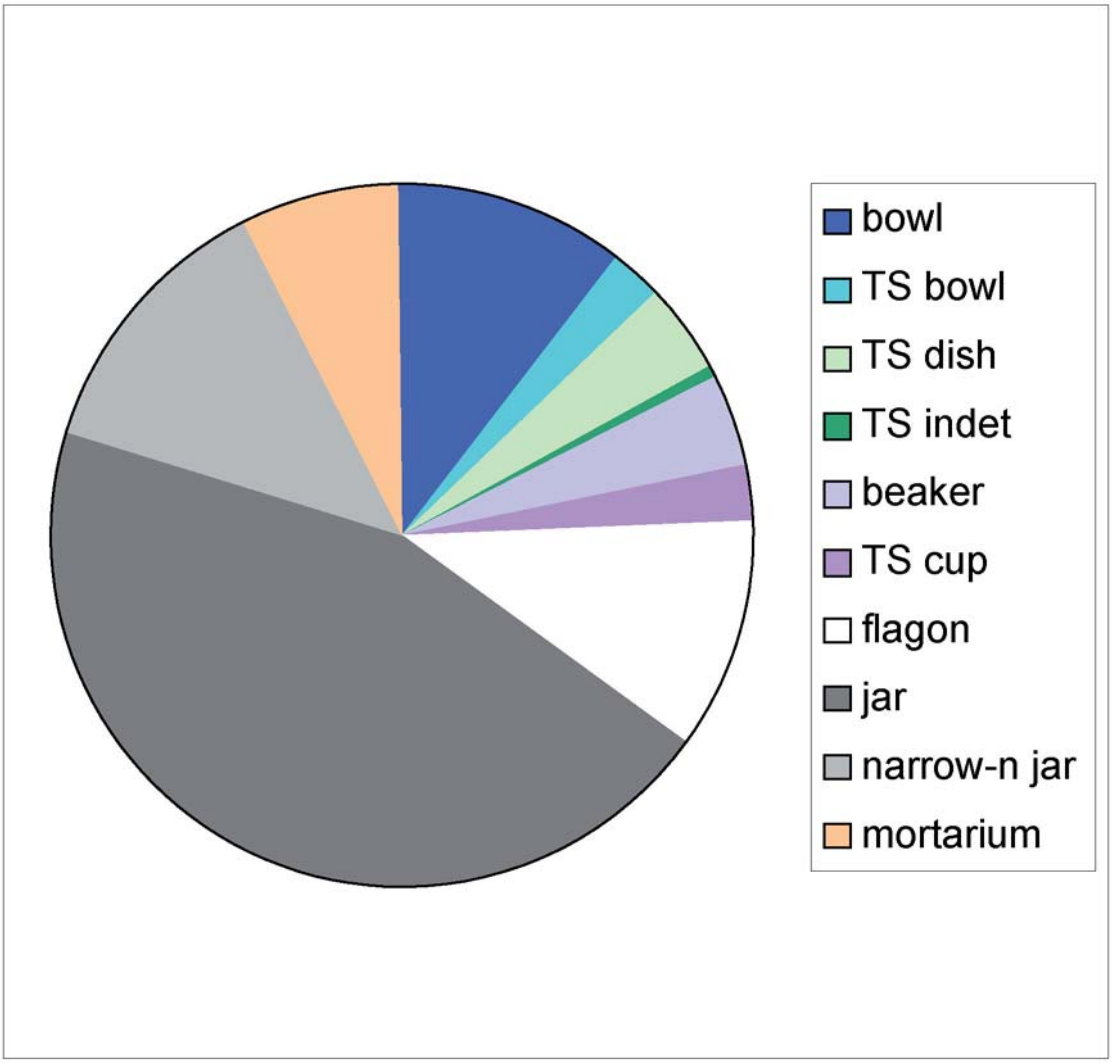

Figure 17: Pie chart of relative proportions of pottery fabrics

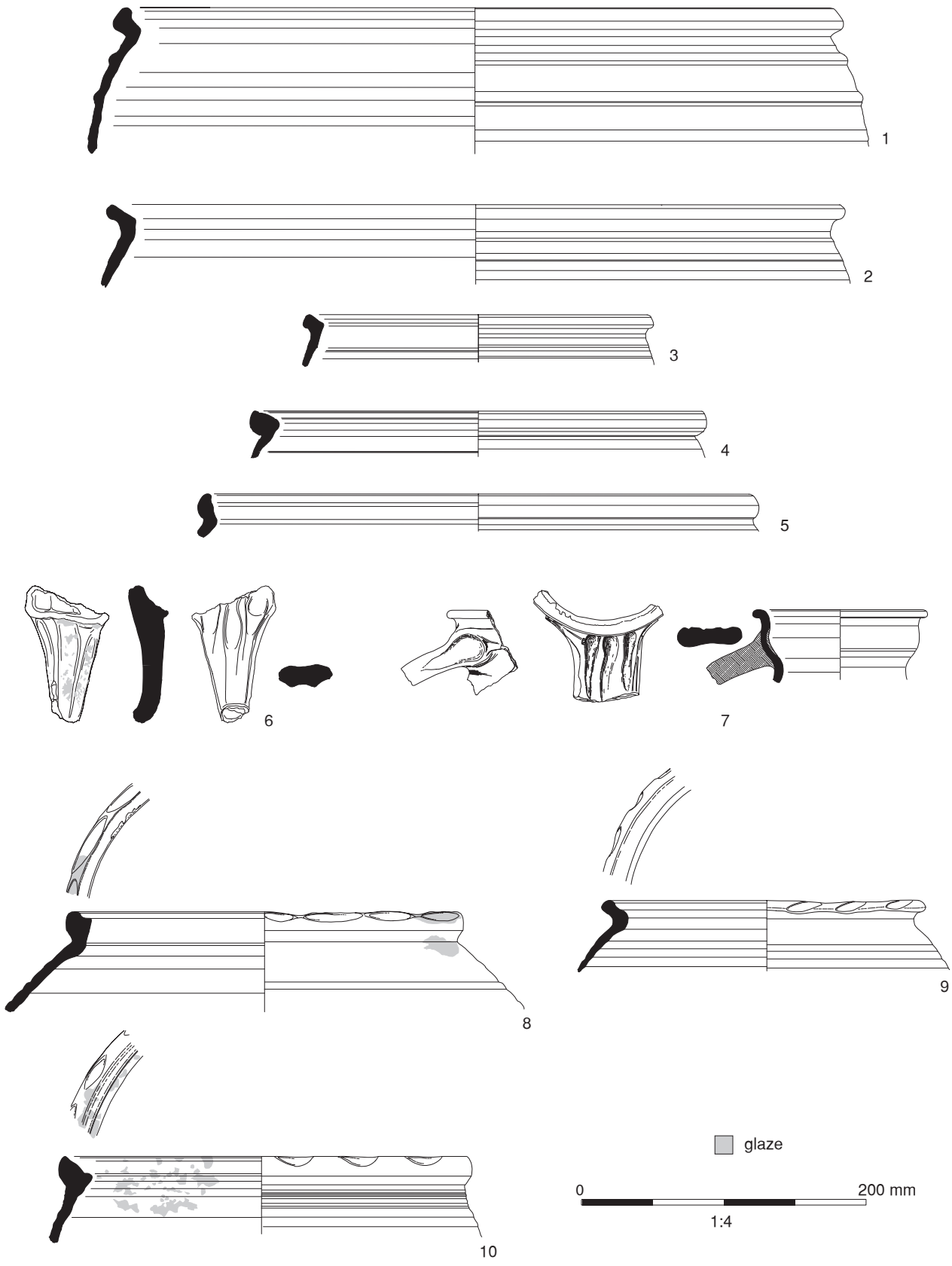

Figure 18: Medieval pottery, Fabric 1, Sheet 1

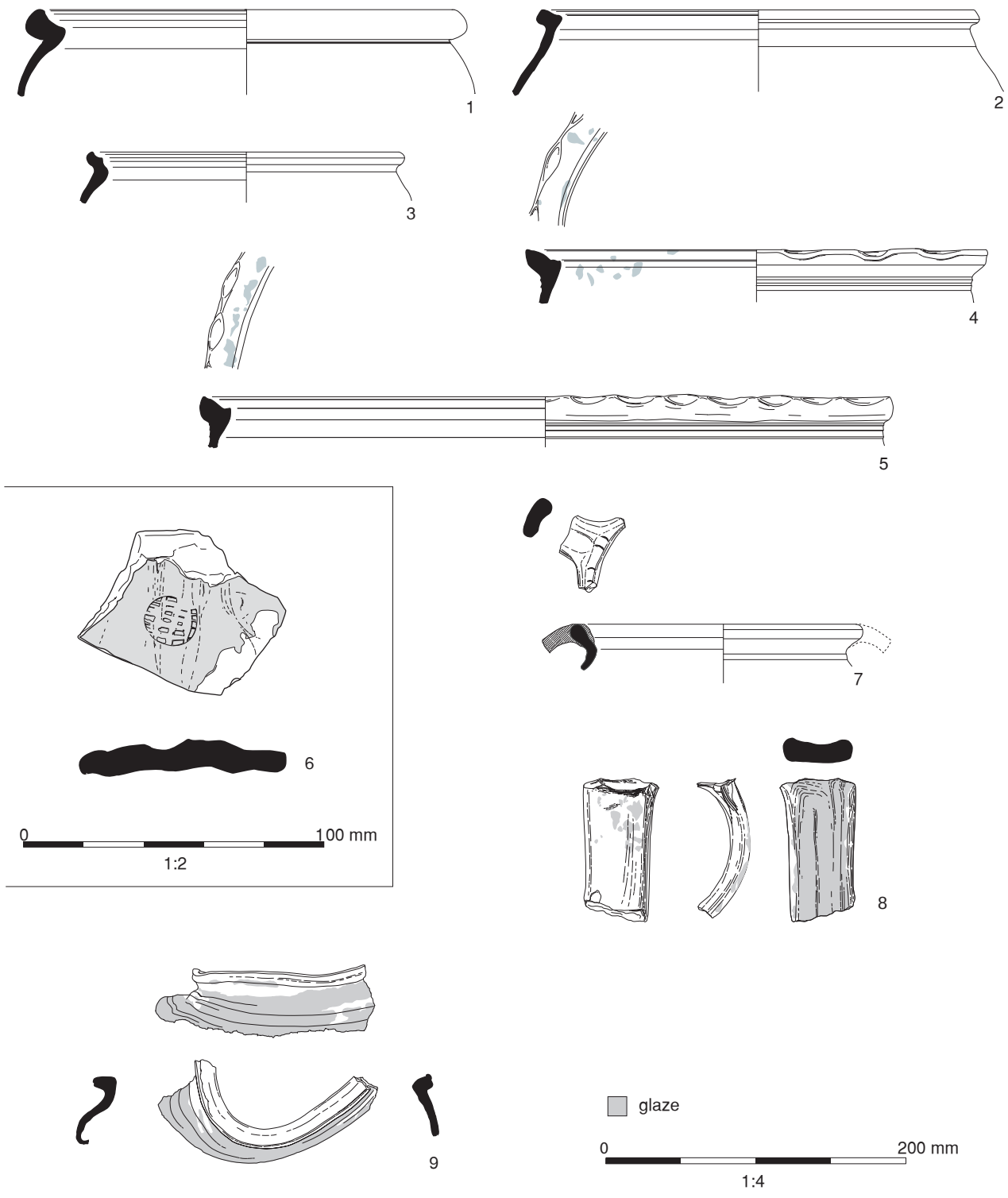

Figure 19: Medieval pottery, Fabric 1, Sheet 2

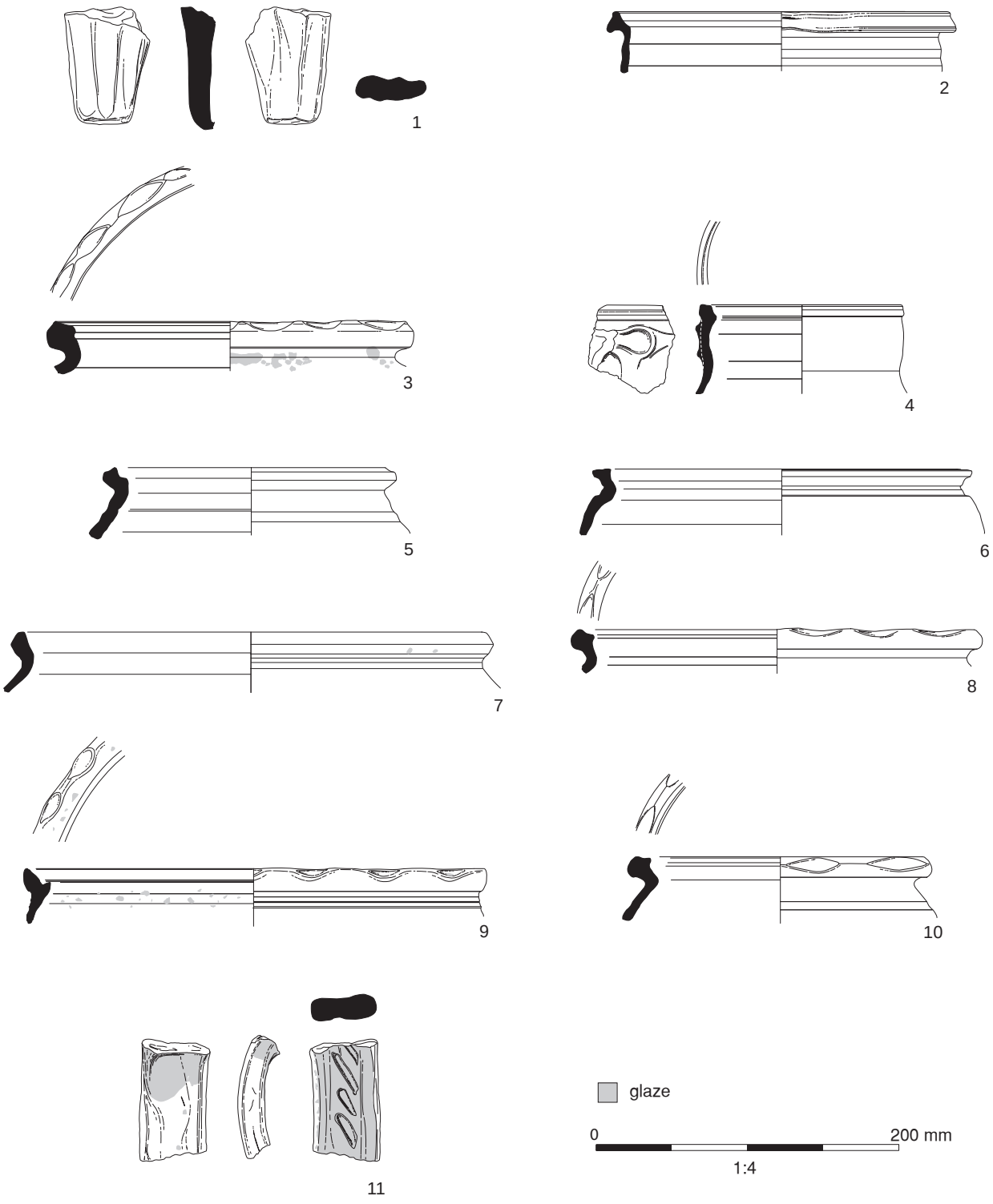

Figure 20: Medieval pottery, Fabric 2

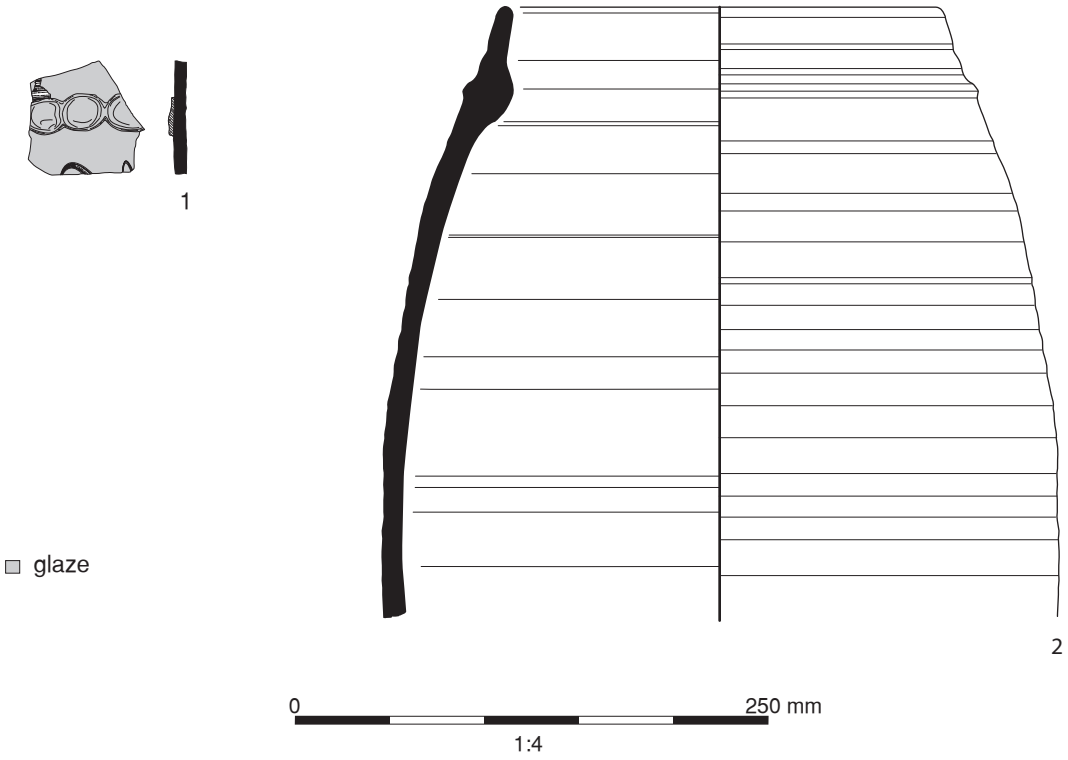

Figure 21: Medieval pottery, Fabric 3