FORMER GREGG'S BAKERY, BENSON ROW, PENRITH

CUMBRIA

Archaeological Excavation Report

Oxford Archaeology North

December 2013

CgMs Consulting Ltd, on behalf of McCarthy and Stone

Issue No: 2013–14/1460
OA North Job No: L10526
NGR: NY517302 (centred)

Document Title: **Former Gregg's Bakery, Benson Row, Penrith, Cumbria**

Document Type: **Archaeological Excavation Report**

Client Name: **CgMs Consulting Ltd**

Issue Number:	2013-14/1460
OA Job Number:	L10526
Site Code:	HHP12
National Grid Reference:	NY 517302 (centred)

Prepared by:	Jeremy Bradley	John Zant
Position:	Project Officer	Project Officer
Date:	December 2013	December 2013
Checked by:	Emily Mercer	Signed……
Position:	Senior Project Manager	
Date:	December 2013	
Approved by:	Rachel Newman	Signed ……
Position:	Senior Executive Officer: Research and Publication	
Date:	December 2013	

Oxford Archaeology North
Mill 3, Moor Lane Mills
Moor Lane
Lancaster
LA1 1QD
t: (0044) 01524 541000
f: (0044) 01524 848606

w: www.oxfordarch.co.uk
e: info@oxfordarch.co.uk

Janus House
Osney Mead
Oxford
OX2 0ES
t: (0044) 01865 263800
f: (0044) 01865 793496

Oxford Archaeology Limited is a Registered Charity No: 285627

CONTENTS

LIST OF PLATES **3**

LIST OF TABLES **4**

SUMMARY **5**

ACKNOWLEDGEMENTS **7**

1. INTRODUCTION **8**

1.1 Circumstances of the Project 8
1.2 Location, Topography and Geology 8
1.3 Archaeological and Historical Background 9

2. METHODOLOGY **16**

2.1 Project Design 16
2.2 Fieldwork Methodology 16
2.3 Report 16
2.4 Publication 17

3. RESULTS OF THE ARCHAEOLOGICAL INVESTIGATIONS **18**

3.1 Introduction 18
3.2 Area 1 18
3.3 Area 2 30

4. ARTEFACTUAL AND PALAEOENVIRONMENTAL RESULTS **31**

4.1 Introduction 31
4.2 The Medieval and Later Pottery 31
4.3 Other Finds 35
4.4 Charred Plant Remains 37
4.5 Wood Charcoal 40
4.6 Radiocarbon Dating 43

5. CURATION AND CONSERVATION **45**

5.1 Recipient Museum 45
5.2 Conservation 45
5.3 Storage 45

5.4 Packaging 45

6. ANALYSIS 47

6.1 Introduction 47

6.2 Discussion 47

BIBLIOGRAPHY 54

Cartographic Sources 54

Secondary Sources 54

APPENDIX 1: PROJECT DESIGN 63

APPENDIX 2: CONTEXT LIST 71

APPENDIX 3: FINDS DISTRIBUTION 76

APPENDIX 4: CHARRED PLANT REMAINS 78

LIST OF FIGURES 81

LIST OF PLATES

Plate 1: Phase 2a: feature ***112***, looking south-west (1m scale)..... 19

Plate 2: Phase 2b, Structure ***538***: postholes ***512*** and ***514*** at the southern end of the west wall 20

Plate 3: Phase 3b, Structure ***539***, looking south-east: postholes ***518***, ***521*** and ***523***, showing cobble packing (1m scale) 22

Plate 4: Phase 3c: hearth ***115***, looking north-east (0.5m scale) 23

Plate 5: Phase 4a: foundation ***165*** for the south wall of Structure ***540***, looking south-west (1m scale)..... 24

Plate 6: Phase 5/6 Structure ***537***, looking north-east, Phase 5 defined by walls ***106*** and ***174*** (right), with Phase 6 to the north-west (probable blocked entrance in the foreground) (1m scale) 26

Plate 7: Area 2: palaeochannel ***207***, looking north (1m scale) 30

LIST OF TABLES

Table 1: Phases of activity 18

Table 2: Medieval pottery fabric quantities 31

Table 3: Post-medieval pottery fabric quantities 34

Table 4: Charcoal from Phase 2-4 postholes 41

Table 5: Charcoal from Phase 5 and 6 features 41

Table 6: Radiocarbon assay for Area 1 43

SUMMARY

Planning permission has been granted for a residential development on the site of the former Gregg's Bakery, Hutton Hall, Benson Row, Penrith, Cumbria (NY 517 302). This has been designed particularly as apartments for the elderly, with associated landscaping and car parking. The potential for medieval and post-medieval below-ground remains to survive, positioned mainly within the central and southern parts of the development area, where there has been limited disturbance from previous building groundworks, was assessed as moderate in a desk-based assessment undertaken by CgMs Consulting in February 2011, to support the planning application on behalf of their client, McCarthy and Stone. This area was targeted by the first phase of trial trenching to inform the planning application, undertaken by Oxford Archaeology North (OA North) in November 2011, and the garden soils observed corroborated with cartographic evidence that this part of the site had never been developed. Most of the area of archaeological potential was identified in the desk-based assessment along the northern and eastern sides of the site, where the buildings of the former bakery had been situated, and could not, therefore, be investigated until the buildings had been removed. Therefore, the second phase of trenching to complete the evaluation of the site was carried out as a condition of the planning permission in March 2013.

During this latest phase, two of the three trenches excavated successfully demonstrated the survival of medieval and later deposits and features. These comprised, in Trench 1 on the Benson Street frontage, a medieval soil layer, dated by thirteenth- to fifteenth-century pottery, a cobble wall foundation and two hearths. Lying above these features was a structure, comprising two stone walls of differing construction techniques. A large ditch-like feature, over 4m wide, was revealed within Trench 2, to the rear of Hutton Hall, although it lacked dating evidence.

Consequently, Cumbria County Council's Historic Environment Service (CCCHES) requested that a programme of mitigation recording was required ahead of the development, in order to preserve the archaeological deposits by record. CgMs Consulting, on behalf of their client, therefore requested that OA North prepare a project design to undertake a programme of archaeological mitigation recording.

Two areas were investigated during May and June 2013; the first was centred on the medieval remains encountered in Trench 1 (Area 1), whilst the second area (Area 2) sought to investigate the apparent ditch revealed in Trench 2. The latter proved, on further investigation, to be a natural palaeochannel, so no additional archaeological work was undertaken within Area 2. In Area 1, the earliest evidence for activity (Phase 1) comprised an early medieval (*c* mid-eighth- to late ninth-century) radiocarbon determination, obtained from a sample of charred grain. However, whilst this date is significant in suggesting some form of activity on, or in the vicinity of, the site in the pre-Norman period, adding to the growing corpus of evidence for early medieval activity in the town, the charred grain itself was residual within a later posthole. Towards the north-east corner of Area 1, a possibly curvilinear, cobble-filled feature of uncertain significance (***112***; Phase 2a) was recorded, cutting a soil deposit that had accumulated over the natural clay. Although this is not closely dated, the soil beneath yielded a single potsherd which, if not intrusive, would indicate that ***112*** did not pre-date the later twelfth century.

Phase 2b was represented by what was probably the south-west corner of a rectilinear post-built timber building (Structure ***538***). This was located only a few metres south-west of ***112***, but had no direct stratigraphic relationship with that feature, though spatial considerations suggest the two may not have been directly contemporary. One of the postholes associated with this structure yielded the early medieval radiocarbon date, but the same feature also contained a sherd of twelfth- or early thirteenth-century pottery, and another posthole in the same structure yielded a radiocarbon determination spanning the mid-eleventh- to early thirteenth century.

Most of the Phase 2 features, including ***112*** and some of the postholes of Structure ***538***, were overlain by an accumulation of grey-brown silty soil (Phase 3a) that may represent a phase of abandonment or reduced activity on the site, though this is not certain. The small pottery assemblage recovered was almost entirely of twelfth- to fourteenth-century date, but a single fourteenth- to sixteenth-century sherd was also present. Because of later truncation, these soils had no stratigraphic link with a north-west/south-east-aligned posthole row (Phase 3b; Structure ***539***) further to the south. These features directly cut the natural clay but had a different alignment to the Phase 2 remains, whilst two of the postholes yielded radiocarbon determinations spanning the late thirteenth/early fourteenth- to late fourteenth/early fifteenth century.

A few metres north of the south-eastern end of Structure ***539***, the Phase 3a soil was cut by an L-shaped cobble wall foundation, seemingly marking the south-west corner of a probable building (Phase 4a; Structure ***540***), the greater part of which had been destroyed and/or lay east of the area investigated. This structure had no direct stratigraphic relationship with Phase 3b Structure ***539*** to the south, and is not closely dated. However, it pre-dated a possible demolition/levelling deposit that yielded only medieval pottery, the latest sherds being attributable to the mid-late fourteenth- to sixteenth century, so a late medieval date seems probable. Over most of the rest of Area 1, dark, silty soils accumulated (Phase 4b); these sealed most earlier features and deposits, but do not appear to have extended over the remains of Structure ***540***. One part of this build-up yielded two fragments of later post-medieval pottery, but the soils were otherwise devoid of artefacts, and it is possible that these sherds were intrusive. Phase 5 was marked by the construction of a rectilinear stone structure (Structure ***537***), probably a building, over the eastern part of the site. Only the south-west corner of this lay within the area of excavation, though there was some evidence for broadly contemporary activity to the west. Structure ***537*** is not closely dated; a late medieval origin cannot be ruled out (if the sherds in the Phase 4b soil are regarded as intrusive), but deposits post-dating the construction levels yielded mostly eighteenth-century pottery. The building was modified during the late eighteenth/nineteenth century (Phase 6).

ACKNOWLEDGEMENTS

OA North would like to thank Rob Bourn and Robert Smith of CgMs Consulting for commissioning the excavation and post-excavation analysis, and also Jeremy Parsons of Cumbria County Council's Historic Environment Service (CCCHES), for his assistance and advice. Thanks are also due to PTS Demolition for supplying the on-site accommodation.

The excavation was directed by Jeremy Bradley, with the assistance of Mike Birtles, Vickie Jamieson, David Maron, Jon Onraet and Becky Wegiel. The report was compiled by Jeremy Bradley and John Zant, with the illustrations being produced by Mark Tidmarsh. Christine Howard-Davis assessed most of the artefactual material, Jeremy Bradley assessing the pottery; Sandra Bonsall processed and sorted the charred plant remains, whilst the charred plant remains and charcoal were assessed by Denise Druce, and Elizabeth Huckerby commented on the text. Emily Mercer managed the project and edited the report, which was quality assured by Rachel Newman.

1. INTRODUCTION

1.1 CIRCUMSTANCES OF THE PROJECT

1.1.1 Planning permission has been granted for a residential development on the site of the former Gregg's Bakery, Hutton Hall, Benson Row, Penrith, Cumbria. This involves the construction of apartments for the elderly, with associated landscaping and car parking. The potential for medieval and post-medieval below-ground remains to survive, positioned mainly within the central and southern portions of the development area, where there had been limited disturbance from previous building groundworks, was assessed as moderate in a desk-based assessment undertaken by CgMs Consulting in February 2011 to support the planning application on behalf of their client, McCarthy and Stone. This area was targeted by the first phase of trial trenching to inform the planning application, undertaken by OA North in November 2011, and the garden soils observed corroborated cartographic evidence that this area of the site had never been developed. Most of the area of archaeological potential identified in the desk-based assessment was along the northern and eastern sides of the site, where the buildings of the former bakery had been situated, and could not, therefore, be investigated until these buildings had been removed. Therefore, the second phase of trenching to complete the evaluation of the site was carried out as a condition of the planning permission in March 2013.

1.1.2 During this latest phase of archaeological work, the survival of medieval and later deposits and features was demonstrated. Consequently, Cumbria County Council's Historic Environment Service (CCCHES) requested that a programme of mitigation recording be undertaken ahead of the development, in order to preserve the archaeological deposits by record. CgMs Consulting, on behalf of their client, therefore requested that OA North prepare a project design to undertake a programme of archaeological mitigation recording (*Appendix 1*). Two areas were investigated during May and June 2013; the first was centred on the medieval remains encountered in Trench 1 (mitigation excavation Area 1), whilst the second area (mitigation excavation Area 2) sought to investigate a ditch revealed in Trench 2.

1.2 LOCATION, TOPOGRAPHY AND GEOLOGY

1.2.1 The site is situated within an urban townscape at a height of approximately 14m aOD (above Ordnance Datum). It is situated to the north-east of Penrith town centre (Fig 1), within an area of primarily commercial usage (centred on NY 517 302). This site is bounded by Benson Row to the north-east, to the south-east by Friargate, and to the south-west by the grounds of the neighbouring Mansion House. The northern limit of the site borders onto the rear of residential and commercial properties that overlook Sandgate. The site lies within the 'bowl' that characterises the town centre, and is adjacent to several other historically significant sites, including the parish church of St Andrew's and the Mansion House. The area to the north-west and west of the site is characterised by long plots of buildings with narrow frontages divided by small yards and passageways.

1.2.2 The underlying geology of the Eden Valley is New Red Sandstone (Cumbria County Council 2002). The drift geology of the area is dominated by glacial deposits in the form of drumlins, formed by ice moving down what is now the Eden Valley (Moseley 1978).

1.3 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

1.3.1 The following section presents a summary of the historical and archaeological background of the general area, some of which is provided within the desk-based assessment (CgMs Consulting Ltd 2011). This has been compiled in order to provide a wider archaeological context to the site. For a more detailed understanding of the site, the desk-based assessment should be read in conjunction with this report.

1.3.2 ***Prehistoric period***: the Penrith area is a natural meeting point for several overland routes (Wilmott 2004, 2), which, in addition to its rich agricultural potential, has made it a favoured location for settlement since the prehistoric period. There is, as yet, no evidence for Palaeolithic or Mesolithic occupation in the vicinity of the town (Cumbria County Council 2002, 28), but several finds of Neolithic stone axes have been made (Fell 1972; James 2006, 29). The area also contains one of the highest concentrations of prehistoric monuments in Cumbria, including the Neolithic/early Bronze Age henges of Mayburgh, King Arthur's Round Table, and the Little Round Table (Burl 1979, 231; Hodgson and Brennand 2006, 39), all at Eamont Bridge, less than 2km south of Penrith's historic town centre. These monuments together form one of the most important groups of prehistoric ritual sites in the region.

1.3.3 Direct evidence for Iron Age settlement in the immediate area is sparse, but a complex of enclosures and trackways near Sceugh Farm, *c* 2.75km east of Penrith, on the north bank of the River Eamont, may represent a settlement or farmstead of Iron Age or Roman date (Lambert 1996, 17-19).

1.3.4 No prehistoric discoveries had been made either within the former Gregg's Bakery development site itself, or in the immediate vicinity, though a few poorly recorded discoveries of prehistoric artefacts are known from the wider parish. These include a stone knife and a perforated stone hammer, both presumably of Neolithic/early Bronze Age date (Spence 1940, 108), a middle Bronze Age palstave (flanged axe), a late Bronze Age spearhead and a late Bronze Age socketed axe (*ibid*; Fair 1945, 175, 177-8). 'Battle-axes' of uncertain prehistoric date were found in the early nineteenth century (Cumbria County Council 2002, 4), and a Bronze Age cup and ring-marked stone is also recorded (*ibid*; Frodsham 1989, 16-17).

1.3.5 ***Roman period***: the present A66 is believed to follow the line of an important Roman road across Stainmore (road 82; Margary 1973, 433-6), between Scotch Corner, on the east, and the fort at Brougham (*Brocavum*; Rivet and Smith 1981, 284), located 2km south-east of Penrith. Indeed, this has been demonstrated archaeologically at several locations along the route, including at Temple Sowerby, *c* 9km east of Penrith (Zant 2009), and to the east of Brough (Drury 1998). It seems highly probable that this route would have been used by the Romans during their initial penetration of the area in *c* AD 72 (Shotter 2004, 192). Within the network of forts and roads constructed by the Roman

army in the North West, Brougham occupied an important tactical and strategic location, controlling the crossing of the River Eamont at a junction of the east/west Stainmore road with the principal north/south land route west of the Pennines (road 7; Margary 1973), running north via the fort at Old Penrith to Carlisle and into Scotland. Another road (road 74; *op cit*, 387-9) also ran south-west from Brougham, crossing the Lakeland massif via High Street *en route* to Ambleside. It seems highly likely that the Stainmore road continued westwards from Brougham to the fort at Troutbeck, and beyond to Papcastle and the Cumbrian coast at Maryport (road 753, *op cit*, 398; Allen 1994; Shotter 2004, 53, fig 4.1). The road running north from Brougham to Old Penrith, and thence to Carlisle, passed *c* 700m to the north-east of Penrith's historic core but, with the exception of two 'stray' Roman coins from the town (Cumbria County Council 2002, 5), there is no evidence to suggest that the site was occupied during the Roman period.

1.3.6 ***Early medieval period***: evidence for medieval activity pre-dating the Norman Conquest is relatively rare in the North West (R M Newman 1996; 2006), with place-names and stone sculpture providing the main indicators of early settlement, though the area around Penrith has yielded rather better evidence for occupation at this time than many other parts of the region. At Brougham, south-east of the town, the likelihood that the modern name represents a survival of the Roman *Brocavum* (Birley 1932, 138; Rivet and Smith 1981, 284) is suggestive of continuity of occupation long into the post-Roman period, though there is currently no archaeological evidence for activity on the site at this time. Of particular significance is the probable seventh-eighth-century settlement at Fremington, *c* 800m south-east of Brougham and *c* 3km from Penrith (Oliver *et al* 1996). This site contained four sunken-featured buildings, a post-built structure, a pottery kiln, and several other features. Evidence for textile production, in the form of loomweights, spindle whorls, and possible wool-comb fragments, was also found (*op cit*, 151-7). The existence of an early Christian site at Ninekirks, *c* 4km east of Penrith, perhaps dating back to the time of St Ninian, at the beginning of the fifth century, has also been postulated (Bouch 1950; 1955; Simpson 1958), and a large enclosure has been identified there from aerial photographs (Oliver *et al* 1996, 169).

1.3.7 The proximity of these sites to the important Roman (and almost certainly pre-Roman) route from the Eden valley over the Stainmore Pass may indicate that this was still acting as a conduit for people, trade, and ideas in the period from the fifth to the eighth century. In the mid-tenth century, Eric, the Viking king of York (traditionally associated with the person known as Eric Bloodaxe), was reputedly killed and buried on Stainmore (Bailey 2001), probably whilst leading an army over the pass. By implication, therefore, the Roman road was still an important route at this time, as it clearly was in the twelfth century when castles were built along it (*Section 1.3.10*). The *Anglo-Saxon Chronicle* records that, in AD 927, a treaty was agreed between the English king, Athelstan, Constantine, king of the Scots, and others, *aet Aemotum* (Earle and Plummer 1892). This would appear to refer to a location on or near the River Eamont, of which the most plausible possibilities are the river crossing at Eamont Bridge, the early Christian site at Dacre, the Roman fort at Brougham, or a putative pre-Norman settlement at Penrith itself (Oliver *et al* 1996, 130).

1.3.8 Although there is no documentary evidence for settlement before the twelfth century (*Section 1.3.11*), that Penrith was a place of some importance during the pre-Norman period is suggested by its British name, probably meaning 'the chief ford' (Armstrong *et al* 1971, 230; Gelling 1984, 79-80) or 'the chief place by the ford' (Millward and Robinson 1974, 207). The name itself may have originated in the tenth century (rather than representing a far earlier survival), when northern Cumbria came under the control of the British kingdom of Strathclyde (Newman *et al* 2000, 108). The settlement's position astride a major communication route, close to an important crossing of the Eamont, mirrors that of the Roman fort (and the later medieval castle) at Brougham, to the south-east. However, whereas Brougham was located on the south bank of the river, looking north, Penrith occupied the northern bank, guarding against enemies from the south (Collingwood 1923, 127).

1.3.9 In addition to the place-name and topographical evidence, the significance of early medieval Penrith is illustrated by finds of pre-Norman sculpture from the town (Bailey and Cramp 1988). The stylistically earliest piece, a cross-shaft fragment dated to the late eighth/early ninth century, was found at Tynefield House (*op cit*, 134-5; Richardson 1998, 32), on the southern periphery of the modern town. However, the greatest concentration, of tenth-century date, is to be found in St Andrew's churchyard, in the centre of the town (*ibid*; Collingwood 1923), suggesting that this was an important ecclesiastical site before the establishment of the medieval parish church (*op cit*, 127-8; Winchester 1979, 5; Phythian-Adams 1996, 120). It has also been hypothesised that this site was the focus of a pre-Norman settlement within a defended enclosure (Winchester 1979, 5; Millward and Robinson 1974, 147, 207), the boundary of which may be fossilised in the modern street system (*Section 6.2.3*).

1.3.10 ***Later medieval period***: that the trans-Pennine Stainmore route on which Penrith is positioned retained its importance into the later medieval period is clear. In the twelfth century, castles were built at Bowes (Co Durham) and Church Brough (Drury 1998), almost certainly to police the route, and subsequently at Brougham, to the south-east of the town. King John used the Stainmore crossing in 1206, and Edward I is known to have used it twice, in 1280 and 1300, on his way into Scotland (Hindle 1977, 86-90). The road appears on the fourteenth-century Gough Map (*op cit*, fig 2), and there is evidence that it remained in use as an important drove road in the medieval and post-medieval periods (Drury 1998).

1.3.11 The town formed part of the Honour of Penrith, a grouping of five manors (the others being Langwathby, Salkeld, Castle Sowerby and Scotby), the ownership of which was retained by the Crown (Winchester 1979, 9). By the end of the medieval period, however, many individual tenements had been acquired by members of the local gentry, who held them thereafter by right of customary tenure (*ibid*). Penrith first appears in the documentary record in 1133, when St Andrew's church and an adjacent block of land were granted to Athelwold, the first bishop of Carlisle, by Henry I, upon the creation of the see of Carlisle (Graham 1922, 129). Penrith is also named in other documents of the twelfth- and early thirteenth centuries (*ibid*), and appears, on the evidence of tallages paid to the Crown, to have become the largest and most prosperous of the five manors by the late twelfth century (Jones *c* 1975, 1-2). However, the earliest

unequivocal documentary evidence for the existence of an urban community at Penrith dates to 1222, when Henry III granted to his manor at Penrith the right to hold a market and a fair (Jones *c* 1975, 2; Winchester 1987, 124), and in 1223 he ordered that timber should be supplied to those who wished to build new burgages in the town, and for the construction of shops and stalls (*ibid*; Winchester 1979, 3).

1.3.12 The town was granted to Alexander II of Scotland in 1242 following his relinquishing of Scotland's claim to the three northern English counties (Newman *et al* 2000, 108), but was taken under the control of the English Crown once more in 1295. It has been suggested that this was one reason why Penrith suffered particularly severely from Scottish raiding in the fourteenth century (*ibid*), following the onset of the Anglo-Scottish wars in 1296. In 1346, after a particularly devastating raid the previous year, when much of the town may have been destroyed, the citizens received a grant of murage from the king, permitting the raising of funds for the construction of a defensive wall (Winchester 1979, 6). A second grant was also made in 1391, but it is not clear to what extent these permissions were acted upon. In addition to the frequent Scottish raids, Penrith, in common with the rest of England, suffered high mortality rates during the Black Death of 1348-9, and further outbreaks of plague are recorded in the town in 1361-2, 1369 and 1375 (Jones *c* 1975, 6).

1.3.13 Despite these depredations, the town seems to have thrived in the later Middle Ages, and is said to have contained 'great numbers' of inhabitants by 1376 (Winchester 1987, 128). The high values recorded in 1308 and 1310 for the town's water mill (£27 10s and £28 respectively) attest to the fact that large amounts of grain were being ground into flour, either before or after sale (Winchester 1982; 1987, 127). References to a fulling mill in 1307 (Winchester 1987, 127), and to a dye works and weaving shops in a survey of 1310 (*ibid*; 1979, 3), hint that textile manufacture was economically significant, and an important tanning and leatherworking industry had also developed by this time (*ibid*; Jones *c* 1975, 7). This continued to be of considerable economic importance throughout the fifteenth century, as frequent references to the presence of tanners, barkers, saddlers, cobblers/shoemakers and glovers attest (*ibid*). That the town was, after Carlisle, the pre-eminent urban centre in Cumberland is suggested by the county's lay subsidy for 1332, which shows that Penrith had the second largest number of tax-paying households (138), with goods valued at £399 1s 6d (*op cit*, 4). This compares favourably with the county's other principal settlements, such as Wigton (75 households, with goods valued at £115 16s 7d), Kirkoswald (59 households, with a value of £154 11s 11d), Brampton (54 households, with a value of £99 3s) and Cockermouth (33 households, with a value of £42 16s 10d). However, it is possible that Cockermouth (in particular) was under-assessed, whilst the figures for Penrith may have been swollen by the inclusion of Sowerby (*ibid*). It has also been noted (White 1996, 129-30) that the use of lay subsidy information as an indicator of settlement size and prosperity is not without its problems, since a relatively prosperous urban centre could be 'reduced' in significance through inclusion with a relatively thinly-populated rural hinterland.

1.3.14 Another indication of the relative prosperity of Penrith in the later medieval period is the arrival of a community of Austin friars in the late thirteenth

century. Possibly founded in 1291, and certainly in existence by 1299, when Edward I gave alms to the friars (Haswell 1903, 350), the friary lay on the east side of modern Friargate, some 50m to the south of the site. Although the house was enlarged twice, in 1318 and 1333 (Jones *c* 1975, 5), it appears to have remained small and very poor, and was finally dissolved in 1542 (Haswell 1903, 352). However, the mere fact of its existence demonstrates that the town was reasonably prosperous, since the friars would have relied for their living largely on the generosity of the townsfolk (White 1996, 129), though, in view of Penrith's location, alms also provided by travellers may well have supplemented those generated in the town itself. In this respect, it is notable that the only three towns in medieval Lancashire where friaries were established (Warrington, Preston and Lancaster) were, like Penrith, positioned on the important north/south communication route running north to Carlisle and Scotland (*ibid*).

1.3.15 During the late fourteenth century, substantial holdings within the town, including 23 acres of 'waste', perhaps resulting from the devastation inflicted by decades of Scottish raiding and visitations of plague, were acquired by William Strickland (Winchester 1979, 3), later bishop of Carlisle (1400-19; Weston 2000, 142). It is not clear, though, to what extent the reconstruction of the town at this time altered the pre-existing layout. Strickland has traditionally been credited with the construction, in the late 1390s, of a pele tower, from which Penrith Castle subsequently developed (Curwen 1918, 175-6; Hudleston 1930, 15). However, subsequent research (Perriam and Robinson 1998, 208, 212; Perriam 2008) suggests that the documentary evidence for Strickland's work may in fact relate to the fourteenth/fifteenth-century pele tower at Hutton Hall (Fig 1), on the eastern side of the development site, which is also on the north-eastern periphery of the historic town, at the junction of present-day Friargate and Benson Row (Perriam and Robinson 1998, 208; Winchester 1987, 125, fig 29). The pele at Penrith Castle may instead have been constructed by a member of the Neville family, following the grant of the manor of Penrith to Ralph Neville, Earl of Westmorland and warden of the West March, by Richard II in 1396 (Perriam and Robinson 1998, 212; Perriam 2008). With the exception of the pele, the castle was built during the fifteenth century (Curwen 1918; Hudleston 1930; Jackson 1990, 90-1). The supposed site of a castle at 'Maiden Hill, near Penrith' (Parker 1906, 162), recorded (as 'Maiden Castle') in an Inquisition of 1268 (*ibid*), cannot be located (Perriam and Robinson 1998, 210), but there is no evidence that it lay within, or even in close proximity to, the town itself.

1.3.16 By the late fourteenth/fifteenth century, most of the major streets depicted on the earliest known map of Penrith, published by James Clarke in 1787 (Clarke 1787; see *Section 1.3.18*), were in existence, since they are named in documents of the period (Winchester 1979, 4). It therefore seems likely that the layout of the town as shown on the map is largely that of the late medieval settlement. The visible remains of medieval Penrith consist entirely of prominent and high-status buildings. These include St Andrew's Church, the earliest parts of which date to the thirteenth century (Pevsner 1967, 173-4), Penrith Castle and Hutton Hall (*Section 1.3.15*), and the late fifteenth-century Gloucester Arms Hotel, formerly Dockray Hall (Pevsner 1967, 177). Other significant medieval monuments, now completely vanished above ground,

include the Augustinian Friary (*Section 1.3.14*), whilst in the Market Square, possibly towards the southern end, lay the Moot Hall or Town Hall, which burnt down *c* 1780 (Jefferson 1840, 35-6). The Square also held the Market Cross and the old shambles (Winchester 1979, 7); both of these structures are shown on the map of 1787, but were removed sometime after that date. The Old Grammar School, founded in the fourteenth century (Nicolson and Burn 1777, 410), was situated near St Andrew's Church. In addition, many of the most prominent local families, including the Huttons, the Lowthers and the Musgraves, had dwellings in the town by the late medieval period (Winchester 1987, 128). One of these dwellings, located on the southern side of Great Dockray, and now known as the Two Lions Inn, was purchased by Gerard Lowther in 1584 (Watson 1901, 96), at which time it was known as Newhall (*op cit*, 97). The date at which the building acquired by Lowther (and which substantially survives today) was constructed is unknown, but recent research (OA North 2005; 2006) suggests that it was a fairly sophisticated and relatively high-status house, possibly of late medieval date (OA North 2006, 37-9). Furthermore, the name Newhall suggests that it had replaced an even earlier house, of which no record survives (*ibid*).

1.3.17 As well as the main market square, Penrith had (and still has) several other market places, each used for a specific purpose (*Section 1.3.18*). At least some of these must have originated in the medieval period, and attest to the volume of trade that the town attracted (Millward and Robinson 1974, 207). Great Dockray ('Dokwra'), is located to the south, on what would have formed the southern periphery of the medieval town, which is recorded in deeds of 1378-9 (Jones *c* 1975, 7), and in the grant of 23 acres of 'waste' land in the town, acquired by William Strickland in 1379 (Winchester 1979, 3).

1.3.18 ***Post-medieval period***: there is relatively little evidence for the development of Penrith during the sixteenth/seventeenth century (Winchester 1979, 4). The castle was in a state of decay by the mid-sixteenth century, and was further dismantled following a brief period of use during the English Civil Wars (Curwen 1918, 180-1; Jackson 1990, 90-1). However, by and large, the town appears to have remained prosperous throughout this period. The number of households in the parish almost doubled between 1563 and 1688 (Newman *et al* 2000, 11), despite a series of setbacks, including a high mortality in the winter of 1587-8, a severe outbreak of plague in 1597-8, and famine in 1623 (Appleby 1978). Certainly, by the late seventeenth century, records suggest that the town was a thriving market centre (Winchester 1979, 4; Cumbria County Council 2002, 10), which it has continued to be ever since. Hearth tax returns for 1673-4 record a large proportion of households with multiple hearths (Newman *et al* 2000, 110), suggestive of modest prosperity and, indeed, numerous stone houses of this period still survive (Pevsner 1967, 175-7). The number of market places, all situated either on, or adjacent to, the main north/south road through the town, attests to the level of commercial activity at this time (Millward and Robinson 1974, 207-8). Great Dockray, one of the largest, is shown as the site of the 'beast market' on Clarke's map (Clarke 1787) and the 'cheese and pork market' on the First Edition Ordnance Survey map (Ordnance Survey 1865). Other markets in the town centre, depicted on Clarke's map, are the oat market (later Cornmarket), to the north of Great Dockray, the wheat market in Netherend (now King Street), the barley market

at the south end of Middlegate, and the horse market in Borough Gate (now Burrowgate) and Sandgate. The importance of Penrith's markets in the late seventeenth century is also recorded in several contemporary descriptions of the town, dating from the 1670s to the 1690s (Winchester 1979, 4).

1.3.19 During the late eighteenth/early nineteenth century, the fact that Penrith was not positioned directly on a river or other major watercourse meant that the town was unable to develop large-scale industries, such as the cotton industry, that depended upon water power (Millward and Robinson 1974, 222-3). However, the town remained relatively prosperous, by virtue of its status as an important market centre, as the many surviving eighteenth-century buildings attest. St Andrew's Church was rebuilt in the early 1720s (Pevsner 1967, 173), which resulted in the demolition of all the medieval fabric apart from the tower. During the late eighteenth century, Penrith developed a reputation for cloth manufacture (Cumbria County Council 2002, 11), and became an important focus for stagecoach traffic. By the end of the nineteenth century, the town was second only to Carlisle in the region's railway network (Millward and Robinson 1974, 222-3), and the arrival of the railway led directly to significant urban expansion, both on the west, adjacent to the new railway station, and elsewhere (*ibid*).

2. METHODOLOGY

2.1 PROJECT DESIGN

2.1.1 The CCCHES-approved project design for a programme of archaeological mitigation recording (*Appendix 1*) was adhered to in full throughout the fieldwork. All works were consistent with the relevant standards and procedures of the IfA (IfA 2008; 2012), and generally accepted best practice, and in line with the *National Planning Policy Framework* produced by the Department for Communities and Local Government (DCLG 2012).

2.2 FIELDWORK METHODOLOGY

2.2.1 Following excavation of the evaluation trenches (OA North 2013), two areas were targeted for a programme of archaeological mitigation recording, Areas 1 and 2, which were situated, respectively, on the Benson Row street frontage and to the west of Hutton Hall. Following the initial stripping and hand-cleaning of Area 1, it was agreed, after further consultation with Jeremy Parsons (CCCHES), that this area should be further extended to the south-east, in order to encompass a number of archaeological features (Fig 1).

2.2.2 The modern overburden and topsoil were removed by a 13-ton tracked 360° excavator (fitted with a toothless ditching bucket) under archaeological supervision. The exposed deposits were then cleaned by hand, and inspected for archaeological features. Excavation was in a stratigraphical manner, whether by machine or by hand, and was located by the use of GPS equipment, which is accurate to ± 0.25m. Altitude information was established with respect to Ordnance Survey Datum.

2.2.3 All information identified during the course of the site works was recorded stratigraphically, using a system, adapted from that used by the former Centre for Archaeology of English Heritage, with sufficient pictorial record (plans, sections, and digital images) to identify and illustrate individual features. Primary records were available for inspection at all times.

2.2.4 Results of all field investigations were recorded on *pro forma* context sheets. The site archive comprised photographic records and accurate large-scale plans and sections at an appropriate scale (1:50, 1:20 and 1:10). All artefacts and ecofacts were recorded using the same system, and handled and stored according to standard practice (IfA 2006; 2008) in order to minimise deterioration.

2.3 REPORT

2.3.1 Due to the limited size of the area of excavation, it was discussed and agreed on site, with both CCCHES and the client, that a separate, two stage, formal programme of post-excavation assessment and subsequent analysis was not warranted, and that a combined report detailing the results of the excavations, environmental assessment, radiocarbon assay and artefactual findings,

combined with an analytical section, would be more appropriate. This report is to be submitted to the client and CCCHES.

2.4 PUBLICATION

2.4.1 The results of the archaeological work carried out at the former Gregg's Bakery site have indicated that the project would be worthy of publication. The eventual place of publication is envisaged as a volume in the continuing *Cumbria Archaeological Research Report* series. The present site will form part of the volume, alongside the results of work at New Squares and the Two Lions Inn (Taylor in prep). An appropriate text will be compiled, supported by a number of illustrations, comprising drawings (prepared in Adobe Illustrator) and photographs, tables to summarise data and, where appropriate, interpretative phase drawings. The complete, illustrated, text will be edited by the project manager and quality-assured (QA) by the project executive to check and ensure that it is complete, appropriate for the purpose intended, and academically legitimate. Any corrections arising from the QA will be addressed by the project manager before the document is signed-off by the project executive. Following sign-off, the project manager will submit all components of the draft for publication.

3. RESULTS OF THE ARCHAEOLOGICAL INVESTIGATIONS

3.1 INTRODUCTION

3.1.1 Two areas (Areas 1 and 2) were excavated within the eastern part of the development site in order to investigate further the archaeological features and deposits revealed during the preceding evaluation trenching. Area 1 was situated along the Benson Row Street frontage, to the north-west and rear of Hutton Hall, measured 200m^2 and was excavated to a maximum depth of 1.3m; Area 2 was situated to the north-west of the Masonic Hall and south-west of Hutton Hall, and measured 100m^2 (Fig 1). *Appendix 2* provides a catalogue of the deposits recorded.

3.1.2 The data recovered from Area 1 suggest six distinct phases of activity (Table 1), with some phases being further sub-divided. Excavation demonstrated, however, that the eastern part of the area had been subject to animal burrowing, which had caused some localised contamination of the archaeological features. The single feature revealed in Area 2 was considered to be entirely natural.

Phase	Approximate date
1	*c* mid-eighth-late ninth century
2a	late twelfth century +
2b	late twelfth-early thirteenth century
3a	thirteenth-fourteenth century
3b	fourteenth century
3c	late thirteenth-fourteenth century
4a	fourteenth-sixteenth century
4b	late medieval?
5	eighteenth-nineteenth century?
6	nineteenth century

Table 1: Phases of activity

3.2 AREA 1

3.2.1 ***Natural subsoil***: the natural underlying geology, a pale-mid-orange sandy clay (***116***; Fig 2) formed a distinct slope, falling some 1.41m from the north-eastern limits of the excavation towards the south-west.

3.2.2 ***Phase 1***: the earliest evidence for activity on, or in the vicinity of, the site was provided by a radiocarbon determination of cal AD 766-899 (1194±34 BP; SUERC 48327), obtained from a sample of charred cereal grain (*Section 4.6*). However, the sample in question came from a posthole that was almost certainly associated with a later phase (Phase 2b, posthole ***530***; *Section 3.2.7*), so it must be concluded that the charred grain was residual within this feature. No other evidence of early medieval occupation was found, but the date is,

nevertheless, of considerable interest in its own right, since it is the first pre-Norman determination obtained from an archaeological site in Penrith, and adds to the growing corpus of evidence for early medieval activity within the area of the town (*Section 6.2.2-3*).

3.2.3 ***Phase 2a***: at the north-east corner of Area 1, a layer of mid-brown sandy silt, up to 0.4m thick (***145***; Fig 3) was recorded in section only, directly overlying the natural clay. Cutting this was a curvilinear feature (***112***), up to 0.9m wide and 0.45m deep, with near-vertical sides and a flattish base, filled largely with sub-rounded cobbles, together with a single, much larger (*c* 1 x 0.7m), sub-rounded boulder (Pl 1). This extended into the area investigated from the north on a north-east/south-west alignment, and continued for *c* 4m before turning through approximately 90^{o} to run south-east (Fig 2). In this direction it was traced for less than 1m before it was destroyed by a later wall foundation (Phase 4a, ***165***; *Section 3.2.16*).

Plate 1: Phase 2a; feature **112***, looking south-west (1m scale)*

3.2.4 *Dating*: a single, intrusive sherd of unglazed, post-medieval slipware was the only artefact recovered from feature ***112*** itself, the result, no doubt, of the heavy disturbance caused to this part of the site by burrowing animals. However, that ***112*** may not pre-date the late twelfth century was suggested by a sherd of Partially Reduced Grey ware from underlying soil ***145***, although the possibility that this sherd too was intrusive cannot be completely discounted.

3.2.5 ***Phase 2b***: a few metres south-west of feature ***112*** were the fragmentary remains of a probable post-built timber structure (Structure ***538***). Although ***112*** and ***538*** had no stratigraphic relationship (the postholes in the latter directly cut the natural clay, soil ***145*** being absent in this area), they were both

sealed by soils attributed to Phase 3a (*Section 3.2.9*). Whilst they are, therefore, likely to have been broadly contemporary, spatial considerations (Fig 2) suggest that they were not directly associated.

3.2.6 The west wall of Structure ***538*** was marked by a roughly north/south-aligned row of three sub-circular or oval postholes (north to south: ***536***, ***532***, ***512***), set 1-1.5m apart (Fig 2), whilst the north wall was represented by a double posthole (***188***/***190***, both roughly circular) located *c* 1.8m north-east of ***536*** and another posthole (***182***) further to the north still, which had been partly destroyed by a later wall. These features varied in size, from *c* 0.7 x 0.45m and 0.29m deep (***512***), to *c* 0.3m in diameter and 0.17m deep (***188***), with most being *c* 0.4-0.5 x 0.3-0.4m and *c* 0.2-0.25m deep. All had steeply sloping or near-vertical sides and flat bases, and were filled with uniform mid-brown sandy silts. Together, they appear to have defined the north-west corner of a timber structure measuring in excess of 3.75m, north-west to south-east, by over 3.5m. No trace of the putative south and east walls were recorded, perhaps as a result of later disturbances, so the full extent of the building is not known. Spatially, it seems unlikely to have been associated with feature ***112***, which lay little more than 1.5m east of posthole ***188***/***190***, but whether it was earlier or later than the putative wall/foundation was impossible to determine.

Plate 2: Phase 2b, Structure **538***: postholes* **512** *and* **514** *at the southern end of the west wall*

3.2.7 The likely existence of an entrance at the north-west corner of Structure ***538*** was indicated by two postholes (***530***, ***534***) located immediately inside, and seemingly paired with, corner post ***536*** and adjacent post ***532*** in the west wall (Fig 2). These sub-circular features, each *c* 0.38-0.43 x *c* 0.25m and up to 0.19m deep, were set approximately 1m apart (measured centre to centre), and may have marked the position of a small internal porch or lobby, little more than 0.75m deep. The only other internal feature recorded that may have been related to the use of the structure was a small, oval posthole (***514***) located

immediately adjacent to the northern edge of posthole ***512*** (Pl 2). No evidence of floors, occupation deposits or other internal features was recorded in association with the building.

3.2.8 *Dating*: the best dating evidence for Structure ***538*** was provided by two radiocarbon determinations obtained from charred cereal grains (*Section 4.6*). The earliest, with a date range of cal AD 766-899 (1194±34 BP; SUERC 48327), came from posthole ***530***, the southernmost of the two postholes in the putative 'entrance lobby' at the south-west corner of the building (*Section 3.2.7*). However, posthole ***190*** in the north wall yielded a determination of cal AD 1039-1220 (884±34 BP; SUERC 48328), suggesting that the dated cereal grain from ***530*** may have been residual within that feature. A date no earlier than the twelfth century was also indicated by a fragment of twelfth/thirteenth-century Red Gritty ware, which came from posthole ***530***, and a fragment of Partially Reduced Grey ware, dating to the late twelfth-fourteenth century, came from the fill (***513***) of posthole ***512***. However, this feature also yielded two intrusive fragments of early post-medieval window glass, so the potsherd might also represent contamination of this feature with later material.

3.2.9 ***Phase 3a***: feature ***112*** of Phase 2a, together with double posthole ***188/190*** in the north wall of Phase 2b Structure ***538***, was overlain by a build-up of mid-brown/grey-brown sandy silt, 0.2-0.3m thick (***111***=***175***; not illustrated), containing frequent small, medium and some large, sub-rounded pebbles and cobbles. This survived only in the north-eastern part of Area 1, over an area measuring approximately 6 x 5m, though even there it had been severely fragmented by later features; to the south and west, it had seemingly been completely removed. The way in which this deposit accumulated is not clear, but it contained very little artefactual material and was generally homogeneous across the site. It may, therefore, represent a gradual build-up of earth over an area that was not, at the time, intensively occupied, though it is equally possible that it formed, in part at least, as a result of horticultural activity.

3.2.10 *Dating*: the Phase 3a soil yielded 11 medieval potsherds, with no later material present. More than half the assemblage comprises twelfth-thirteenth-century Gritty wares, together with two similarly dated sherds from a non-local vessel. However, there are also two sherds of late twelfth-fourteenth-century Partially Reduced Grey ware, and a single Northern Reduced Grey ware fragment, broadly datable to the mid/late fourteenth-late sixteenth century.

3.2.11 ***Phase 3b***: towards the southern edge of Area 1 was a north-west/south-east-aligned row of five postholes (north-west to south-east: ***527***, ***525***, ***518***, ***523***, ***521***), 3.75m long, in total (though it may have extended further to the south-east, beyond the area investigated), making up Structure ***539*** (Fig 2). These features were sub-circular or oval in plan, *c* 0.35m in diameter, in the case of the roughly circular examples, with the oval features measuring *c* 0.4-0.45 x 0.2m. They were 0.2-0.27m deep (except for ***527***, which was only 0.1m), with near-vertical sides and flat, or slightly rounded, bases, and were filled with dark grey or brown clay-silts. With the exception of ***525*** and ***527***, they also contained cobbles that had been packed around the vanished posts (Pl 3).

*Plate 3: Phase 3b, Structure **539**, looking south-east: postholes **518**, **521** and **523**, showing cobble packing (1m scale)*

3.2.12 Structure ***539*** had no stratigraphic relationship with the Phase 3a soil to the north and east, which appears to have been completely removed over the southern part of the site (*Section 3.2.9*). The posthole row was not obviously associated, spatially or stratigraphically with any other surviving features or deposits, so it may represent the remains of a fence, rather than a timber building. However, in view of the generally poor preservation of medieval deposits on the site, the possibility that it formed part of a building that had otherwise been destroyed cannot be completely discounted.

3.2.13 *Dating*: charred seeds recovered from the fills of postholes ***518*** and ***525*** yielded radiocarbon determinations of cal AD 1277-1395 (655±34 BP; SUERC-48329) and cal AD 1302-1427 (568±34 BP; SUERC-48333) respectively (*Section 4.6*), indicating a probable fourteenth-century date for Structure ***539***. A few sherds of late twelfth-fourteenth-century pottery were also recovered from ***518*** and ***521***, and a small amount of intrusive post-medieval material was present, in the form of a nineteenth-century potsherd from posthole ***525***, and another of late eighteenth-nineteenth-century date from ***527***.

3.2.14 ***Phase 3c***: Phase 3c consists of a stratigraphically isolated possible hearth (***115***), located close to the north-west corner of Area 1 (Fig 2). This feature was truncated by modern intrusions, and had no recorded stratigraphic relationships either with Phases 3a and 3b to the south-east, nor with any other archaeological remains on the site (though spatial evidence (Fig 2) suggests it probably pre-dated Phase 6 wall ***110*** (*Section 3.2.26*). However, it has been tentatively attributed to Phase 3 on the evidence of a radiocarbon

determination obtained from its fill (*Section 4.6*), which suggests that it was in use sometime in the late thirteenth-fourteenth century. As it survived, ***115*** was roughly oval, in excess of 0.55m long (its north-western end had been destroyed) and 0.45m wide, consisting of a deposit of burnt, red-brown sandy clay and charcoal, possibly defined or edged with small-medium cobbles (Pl 4).

Plate 4: Phase 3c: hearth **115**, *looking north-east (0.5m scale)*

3.2.15 *Dating*: the phasing of hearth ***115*** rests on a radiocarbon determination of cal AD 1290-1400 (624±34 BP; SUERC-48326), obtained from a charred cereal grain recovered from its fill (*Section 4.6*). This is statistically identical to the two dates associated with Phase 3b Structure ***539*** (*Section 3.2.13*), suggesting that the hearth is at least broadly contemporary with that structure, and (presumably) with the Phase 3a soil accumulation also.

3.2.16 ***Phase 4a***: on the extreme eastern edge of Area 1, the Phase 3a soil (*Section 3.2.9*) was cut by the construction trench for an L-shaped wall foundation (***165***; Fig 2) that may have marked the south-west corner of a building or structure (Structure ***540***) that had otherwise been completely destroyed. The southern arm of the foundation had been completely removed to the north by later disturbances, and had been largely destroyed on the south by a modern drain, so only a short segment, 2.m in length, was available for investigation. Of the western arm, only a short stub, *c* 0.3m in length, remained, at the junction with the southern arm, but a probable robber trench (***197***), 0.15m deep and in excess of 0.5m wide, was traced west for a further 0.6m before it too was destroyed by later features. The southern arm of foundation ***165*** also seems to have been partly robbed (creating robber trench ***157***; not illustrated) but, where best preserved, it was 0.75m wide and was composed of large, sub-rounded cobbles and a few angular sandstone fragments (Pl 5), set in a shallow foundation trench, up to 0.17m deep. There was no evidence that the

foundation had ever supported a stone wall, but the nature of the superstructure is not clear. It might possibly have been wholly of timber, but another possibility is that it was clay-walled (*Section 6.2.11*).

Plate 5: Phase 4a: foundation **165** *for the south wall and south-west corner of Structure* **540***, looking south-west (1m scale)*

3.2.17 The only deposit found in association with foundation ***165*** was a layer of compact, red-brown silty clay (***158***; not illustrated), up to 0.1m thick, containing a few small sandstone fragments and some charcoal and possible mortar flecking. This layer covered an area of *c* 3 x 1m and partly overlay the foundation itself. Its precise significance is uncertain, but the character of the material would be consistent with its interpretation as debris derived from a clay wall.

3.2.18 *Dating*: foundation ***165*** itself yielded no dating evidence; that part of the Phase 3a soil through which it had been dug (***111***; *Section 3.2.9*) contained no pottery later than the late twelfth-fourteenth century, though elsewhere, this soil horizon yielded a single mid-late fourteenth-sixteenth-century sherd. This broad date range for Structure ***540*** was supported by the recovery of a similarly-dated Northern Reduced Grey ware fragment from ***158***, the putative demolition deposit that partly overlay ***165***. However, this layer also yielded 11 sherds of late twelfth-fourteenth-century Partially Reduced Grey ware and several twelfth-thirteenth-century Gritty ware fragments. That the structure may not have been demolished until the eighteenth/early nineteenth century was suggested by pottery of this period in the fill (***126***) of robber trench ***157***.

3.2.19 ***Phase 4b***: Phase 3b Structure ***539***, on the southern edge of Area 1 (*Section 3.2.11-12*), had no stratigraphic relationship either with the Phase 3a soils to the north (*Section 3.2.9*), nor Phase 4a Structure ***540*** (*Section 3.2.16*). Instead,

the postholes making up this structure were overlain by a layer of mid-dark grey-brown silty soil (***186***=***195***=***199***=***517***; Fig 3), 0.15-0.25m thick. As it survived, this was confined to a limited area on the eastern part of the site, though it could have been removed elsewhere by later disturbances. However, it does not seem to have extended into/over the area of Phase 4a Structure ***540***, suggesting that it may have been accumulating at the time this building/structure was in use.

3.2.20 *Dating*: the Phase 4b soils yielded only two pottery sherds, both from deposit ***186*** and both attributable to the late eighteenth-nineteenth century. However, whilst a post-medieval date for this accumulation cannot be ruled out, the absence of any more post-medieval pottery, which occurs much more frequently in the overlying post-medieval phases, suggests that the sherds from ***186*** may have been intrusive. If this was the case, a late medieval (*c* fifteenth-mid-sixteenth century) or early post-medieval (*c* late sixteenth-seventeenth-century) date is possible, and would be broadly consistent with the suggested dating of Phase 4a Structure ***540*** (*Section 3.2.18*). That said, ceramic evidence suggests that Structure ***540***, though perhaps late medieval in origin, may not have been demolished until the eighteenth-early nineteenth century (*Section 3.2.18*), so the sherds in ***186*** might have been deposited towards the end of the period when this soil was accumulating.

3.2.21 ***Phase 5***: directly overlying the Phase 4b soils were the remains of a substantial stone building (Structure ***537***; Fig 2), of which only the north-west corner seems to have lain within the area investigated. The north and west walls were represented by an L-shaped wall (***106*** and ***174*** respectively (Pl 6)), 0.65m wide, composed of a sandstone rubble core faced on both sides with roughly dressed, rectangular sandstone blocks, varying in size from approximately 0.25 x 0.25 x 0.15m to 0.5 x 0.3 x 0.2m, the whole being bonded with a pale pink sandy mortar (though the basal course of ***106*** was seemingly unbonded). The west wall survived up to three courses (*c* 0.5m) high; for the most part, the north wall had been levelled to its basal course along its entire excavated length, though at the extreme north-eastern edge of the site, a fragment survived four courses (0.6m) in height (Fig 3).

3.2.22 The area of Structure ***537*** available for excavation measured *c* 11m, north-east to south-west, by 3.5m, but it extended north-east and south-west of Area 1, so its full dimensions are not known. Few other features or deposits could be associated with any confidence with its construction/occupation phases. Approximately 0.85m north-west of the corner was a short (*c* 2m) segment of similar sandstone walling (***173***; Fig 2), which effectively extended the line of the south wall of the building westwards. This appears to have been stratigraphically contemporary with walls ***106*** and ***174***, and may, therefore, represent the remains of either a western room/extension of Structure ***537*** or, perhaps more probably (in view of the total lack of evidence for contemporary structural features and deposits in this area), a boundary wall for an external area adjacent to the building. That this may have been the case was suggested by the recording (albeit in a very limited area, and seen in section only) of a probable cobbled surface (***144***; Fig 3), up to 0.15m thick and with a least two phases of surfacing, that abutted the north-west face of wall ***106*** at the point where it extended beyond the north-eastern limit of the excavated area. However, wall ***173*** clearly had a spatial relationship with two later walls in

this area (Phase 6; ***122***, ***172***: *Section 3.2.26-7*), so it is possible that it was, in fact, a later feature. The gap between ***173*** and the north-west corner of Structure ***537*** may have marked the position of a gate or entrance (Pl 6), rather than being the result of later disturbance, since it appears to have been blocked later (*Section 3.2.26*). It seems likely that an unusually large, squared sandstone slab at the south-eastern end of ***173*** had served as a footing for the north-western side of the putative gateway.

Plate 6: Phase 5/6 Structure **537**, *looking north-east Phase 5 defined by walls* **106** *and* **174** *(right), with Phase 6 to the north-west (probable blocked entrance in the foreground, 1m scale)*

3.2.23 Few features and deposits were recorded that could be even tentatively associated with the use of Structure ***537*** in its original form. One such was a roughly oval hearth (***167***), located immediately inside wall ***106*** (Fig 2). Although this feature yielded five sherds of medieval pottery, none later in date than the late twelfth-fourteenth century, it had been cut into Phase 4a deposit ***158***, which in turn was stratigraphically later than foundation ***165*** of Phase 4a Structure ***540*** (*Section 3.2.16-17*). Consequently, it cannot have been associated with this possibly late medieval building, and it must therefore be presumed that the pottery from ***167*** was residual, probably deriving from underlying deposit ***158***, which itself contained what was, for this site, a relatively large assemblage of medieval pottery (*Sections 4.2.5; 4.2.8*).

3.2.24 Hearth ***167*** (Fig 2) measured *c* 1.1 x 0.8m, and was seemingly set in a shallow cut, up to 0.17m deep. It was composed of compacted, reddish-brown clay interleaved with deposits of charcoal and cobbles. The feature also yielded abundant charred cereal grains and chaff fragments (*Sections 4.4.5-6*). The whole had clearly been heat-affected, but there was no evidence to suggest what purpose the feature might have served, and a domestic function is

therefore presumed. The hearth was sealed by a possible red-brown sandy clay floor (***113***=***128***; not illustrated), up to 70mm thick, which was in turn overlain by what may have been the remains of another hearth (***105***; Fig 2), consisting of a sub-rectangular setting of fire-blackened, red sandstone slabs and fragments, *c* 0.8 x 0.5m at its greatest extent.

3.2.25 *Dating*: there is virtually no datable material from the remains of Structure ***537*** itself; wall ***106*** yielded a sherd of late twelfth-thirteenth-century Gritty ware, whilst a fragment of late twelfth-fourteenth-century Partially Reduced Grey ware came from hearth ***167*** (*Section 4.2.5*). On the evidence of the two sherds of late eighteenth/nineteenth-century pottery recovered from Phase 4b soil ***186***, the building must be post-medieval, and the post-medieval pottery from the robbing (***157***) of wall ***165*** in Phase 4a Structure ***540*** (*Section 3.2.18*) would support this interpretation, though none of the features and deposits attributed to Phase 5 had any direct stratigraphic relationship with the robber trench.

3.2.26 ***Phase 6***: whatever the precise date of Structure ***537*** may be, it was extensively remodelled during the post-medieval period. The main modification comprised the addition of a new range of rooms on the north-western side of the building (Pl 6), over what may have previously been an external area (*Section 3.2.22*). This was achieved through the construction of a new north wall (***110***/***122***; Fig 2), aligned parallel to the original (***106***) but located *c* 2.5m further to the north-west. The western end of this respected the position of wall ***173***, which seemingly formed the west wall of the new range in this phase. Whilst tentatively assigned to Phase 5 (*Section 3.2.22*), it is possible that ***173*** was in fact constructed at this time, rather than earlier. At some stage, the putative gateway/entrance between ***173*** and the north-west corner of the original (Phase 5) part of Structure ***537*** seems to have been blocked, the evidence for this being a linear setting of red sandstone and mortar fragments (***520***; Fig 2), up to 0.35m wide, which may have been the footing for a crude wall or barrier closing the gap.

3.2.27 Internally, the new range was sub-divided, within the area available for excavation, into two rooms (Fig 2), by a stone wall (***150***) that had been largely robbed out (creating robber trench ***152*** (*Section 3.2.32*)). That the range may have been built in two phases was suggested by the fact that the eastern part of the new north wall (***110***) appeared to abut the western part (***122***) at its junction with wall ***150***. The south-western room was rectangular, *c* 4.6 x 2.5m, internally, with its long axis aligned north-east to south-west, whilst the north-eastern room was also 2.5m wide and in excess of 4m long (it extended north-east beyond the site). Extending west from the north-west corner of the new range was another stone wall (***172***; Fig 2), the alignment of which was offset slightly to the north of the range's north wall (***110***/***122***), indicating that it was not part of the same build. Indeed, the fact that the upper surviving part of this wall was capped with concrete would suggest either that it was a considerably later feature, or that it had been rebuilt at a later date. Whether it formed the north wall of another room extending west, or the boundary wall of an external area, is not known, but there was no evidence for further sub-division of this area, which measured in excess of 6.5 x 4m within the site.

3.2.28 Following the construction of the new range, a sequence of layers, probably associated with make-up/construction activities relating to the new building

phase, accumulated. The earliest of these was a dark grey/black layer, *c* 0.1-0.2m thick (***186***=***194***=***198***=***516***; Fig 3), composed largely of crushed cinders mixed with some charcoal and small sandstone fragments. This was not confined to the new range itself, but was also recorded to the south-east, within the original part of Structure ***537***, though it did not extend outside the building to the north-west. It was overlain by a similar depth of dark silty soil containing many mortar fragments and flecks (***168***=***192***; Fig 3), which again extended south-east into the original part of the structure, but was not recorded externally. Two other deposits of earth and sandstone debris (***163***, ***164***; not illustrated), both of very limited extent, were also recorded in the southern room of the new range. Above these levels, no trace of floors or other 'occupation' deposits was found; instead, they were overlain, within the area of the new range, by a spread of stony, grey-brown sandy silt, up to 0.15m thick (***161***=***184***), and, within the primary structure, by 0.25m of dark grey-brown sandy silt (***142***).

3.2.29 Within the original part of Structure ***537***, a new room was created at the north-west corner by the construction of an L-shaped wall (***123***/***143***; Fig 2). However, this certainly occurred sometime after the construction of the new north-western range, since wall ***143*** stratigraphically post-dated soil deposit ***142***. Access into the room was by a doorway, 0.85m wide, at the north-east corner.

3.2.30 All the newly-built walls were 0.55-0.6m wide, and were constructed of coursed sandstone rubble faced with roughly squared sandstone blocks and bonded with a pale pink, sandy mortar. In places, the north wall (***110***/***122***) survived to three courses (0.55-0.6m) in height, and ***122*** also overlay a foundation course, which was offset by up to 0.2m from the north face of the wall proper, but for the most part the walls were no more than two courses high, whilst ***123*** survived only as a footing of sandstone slabs. At least some of the Phase 6 walls had been set in construction trenches, though this was demonstrated archaeologically only in the main north wall (***110***/***122***) and in ***143***, one of the later partition walls within the original part of the building.

3.2.31 North-west of Structure ***537***, few features or deposits had survived extensive modern disturbances. The few features that did survive (Fig 2) included a north-west/south-east-aligned wall (***134***) and a fragment of another to the north-east (***135***), aligned north-east/south-west. Limited dating evidence (*Section 3.2.34*) suggests that these walls may have been broadly contemporary with the Phase 6 remodelling of the building, but whether they represent part of another structure to the north-west of ***537***, or were essentially external features, is not clear. Both cut a build-up of medium-dark brown silty soils (***132***, ***133***, ***140***, ***141***; not illustrated), up to 0.5m thick, that was recorded in section only. These in turn overlay two short segments of stone-lined channels or drains (***155***, cut by ***134***; ***159***, cut by ***135***; Fig 2) that in turn directly cut the natural clay. Feature ***155*** was 0.5m wide and 0.17m deep, and was traced, on a roughly north/south alignment, for approximately 1m, whilst ***159*** was north-west/south-east-aligned, 0.7m wide and 0.14m deep. Both were lined with small-medium sized cobbles and sandstone fragments, creating channels, *c* 0.25-0.35m wide, that had ultimately filled with silt. Since only small fragments of these features survived, their significance is unclear; neither they, nor any of the other features and deposits within the western part

of Area 1, had any stratigraphic links with Structure ***537*** to the east, but pottery suggests that the entire stratigraphic sequence on this part of the site was of post-medieval date (*Section 3.2.34*).

3.2.32 Ultimately, Structure ***537*** was demolished; in the room that had been created in the north-west corner of the original (Phase 5) part of the structure, a demolition deposit (***187***; not illustrated), up to 0.3m thick, composed of red sandstone and mortar rubble mixed with grey-brown sandy silt, accumulated between walls ***106*** and ***143***. Elsewhere, the levelled remains of ***106*** were sealed beneath up to 0.7m of similar debris (***179***; Fig 3, ***125/151***; not illustrated) that also extended into the interior of the original structure, and north-westwards, over areas of the later, north-western, range. A quite extensive spread of sandstone and mortar rubble (***107***; not illustrated), up to 0.5m thick, was also recorded over the north-western part of Area 1, where it overlay the remains of walls ***134*** and ***135*** (*Section 3.2.31*). Following the demolition of wall ***106***, layers of dark grey-brown silty soil (***121***, ***138***: Fig 3) and some patchy deposits of mixed clay and rubble accumulated before walls ***150*** and ***122*** in the north-west range were themselves robbed (by robber trenches ***152*** and ***511*** respectively; Figs 2, 3). Most of the latest archaeological deposits were directly cut by drains and other modern intrusions, and/or sealed by make-up layers associated with modern surfaces (*eg* ***101***, ***102***; Fig 3).

3.2.33 *Dating*: with the exception of a few residual medieval sherds, all the pottery associated with Phase 6 is of eighteenth/nineteenth-century date. Relatively little pottery was recovered from construction levels, though a late eighteenth/nineteenth-century sherd came from the backfill of the construction trench for ***122***, the main north wall of the new north-western range, and mid-late eighteenth-century pottery came from the cinder make-up layer (***516***) in the original part of the building. Eighteenth/nineteenth-century material was also recovered from probable make-up layer ***168=192***, which overlay the cinder deposit. Small amounts of pottery recovered from stratigraphically earlier phases (*Section 3.2.18; 3.2.20*) also suggest that this phase did not commence before the later eighteenth century at the earliest.

3.2.34 Deposits broadly contemporary with the use of Structure ***537*** in Phase 6 (*eg* ***142***, ***161=184***) yielded small amounts of diagnostically nineteenth-century pottery, in addition to more broadly dated eighteenth/nineteenth-century wares; ***142*** also contained a fragment of bottle glass dating to the first quarter of the nineteenth-century (*Section 4.3.2*). Chronologically similar assemblages also came from some of the later soils and demolition deposits (*eg* ***121***, ***179***, ***187***, fill ***124*** of robber trench ***152***) associated with the building. In the north-western part of Area 1, the fill (***137***) of one of the stratigraphically early stone-lined channels (***155***; *Section 3.2.31*) contained a small eighteenth/nineteenth-century sherd. Whilst this could conceivably have been intrusive, one of the overlying soils (***132***), which stratigraphically pre-dated Phase 6 walls ***134*** and ***135***, yielded several eighteenth/nineteenth-century sherds, including a late eighteenth-mid-nineteenth-century fragment. That the sequence of activity recorded in Area 1 may have terminated before the second half of the nineteenth century is suggested by the almost complete absence of transfer-printed wares from the site, since these achieved widespread popularity in the region following the arrival of the railways from the 1840s (Brears 1971, 78).

3.2.35 ***Unphased features***: because of the degree of modern disturbance that had occurred in some parts of Area 1, particularly to the west and north-west, several features were recorded that could not be phased (*eg* ***502***, ***505***, ***508***; Fig 2), due to a lack of useful stratigraphic relationships and an absence of associated dating evidence. For the most part, these features seem to have been of no great significance, but one (***508***) yielded some fragments of worked stone (*Section 4.3.5*), and was associated with a layer of charcoal-rich, mid-dark brown sandy silt (***509***; not illustrated) that contained a rich assemblage of charred plant remains, including several types of cereal grains and weed seeds (*Sections 4.4.5-8*). As it survived, this feature was sub-rectangular in plan (Fig 2), in excess of 0.5m long, 0.4m wide and 0.2m deep. The stone fragments, which appear to have derived from a single worked object of uncertain purpose, had probably been reused as found. Whilst the nature of the associated silt deposit, which was *c* 50mm thick and covered and area of *c* 0.75 x 0.6m, suggests that ***508*** may have served as a hearth, the stones were not obviously heat-affected, so the significance of this feature remains obscure.

3.3 AREA 2

3.3.1 Area 2 was situated to the west of Hutton Hall (Fig 1) and was intended to examine ditch ***204*** further; this had been revealed during the evaluation trenching (OA North 2013), and was thought to be medieval in date and defensive in nature. However, when this ditch was further investigated, it was revealed to be an approximately north/south-aligned linear feature, with irregular edges (***207***), which tapered off to the north (Fig 4; Pl 7). The profile exhibited one gradually sloping edge and the other more pronounced, which contained very sterile fills (***208*** and ***209***), and was considered to be part of a palaeochannel.

Plate 7: Area 2: palaeochannel **207**, *looking north (1m scale)*

4. ARTEFACTUAL AND PALAEOENVIRONMENTAL RESULTS

4.1 INTRODUCTION

4.1.1 Some 235 artefacts fragments were recovered during the investigations, with medieval and later pottery forming *c* 70% of the assemblage. Their distribution between stratigraphic units is listed in *Appendix 3*.

4.2 THE MEDIEVAL AND LATER POTTERY

4.2.1 Some 150 sherds of pottery, weighing 2056g were recovered during the evaluation and open-area excavations (Areas 1 and 2). Of these, 68 sherds, weighing some 1231g (45.33% by sherd count or 59.87% by weight) are medieval in date (Table 2), the remaining 82 sherds (54.67% by sherd count, 40.13% by weight) being post-medieval. All of the medieval pottery was recovered from Area 1, with the large majority being retrieved from well-stratified contexts, including posthole ***530*** (Phase 2b; Structure ***538***), soil horizon ***111=175*** (Phase 3a), postholes ***518*** and ***521*** (Phase 3b; Structure ***539***), possible demolition deposit ***158*** (Phase 4a; Structure ***540***), and hearth ***167*** (Phase 5; Structure ***537***). The fragments are mostly small, but generally unabraded, with an overall average sherd weight of 13.8g. Some 25% (17 by sherd count) of the medieval sherds are broadly chronologically diagnostic, although only four are rim sherds. Consequently, it has not been possible to estimate the total number of vessels represented by the collection.

Fabric	Quantity
Red Gritty ware	8
Lightly Gritted ware	14
Partially Reduced Grey ware	33
Imports	5
Northern Reduced Grey ware	8
Total	**68**

Table 2: Quantities of medieval fabrics

4.2.2 ***Methodology***: the pottery was analysed in accordance with guidance provided by English Heritage (English Heritage 1991) and the Medieval Pottery Research Group (2001). Identification of broad fabric groupings was undertaken with reference to the published assemblage of medieval pottery from the Penrith Market Hall site (Newman *et al* 2000), the collection from New Squares, Penrith, which is being prepared for publication (Bradley in prep), assemblages from several excavations in Carlisle (McCarthy and Taylor 1990; Brooks 2010; Bradley and Miller 2009; Miller 2011), and the Carlisle pottery reference collection. The Penrith Market Hall and New Squares sites (see Figure 5 for location) are the only substantive archaeological investigations carried out in the town prior to this excavation that have been either published, or are currently being prepared for publication.

4.2.3 ***The medieval pottery fabrics:*** fabric descriptions and identifications follow those for the medieval pottery recovered from the Penrith Market Hall site (Newman *et al* 2000), which, in terms of appearance and date, was similar to those defined previously in Carlisle (*op cit*, 119). However, because of the generally small sherd size, and the lack of diagnostic fragments, the fabric groups have been left deliberately broad. Dating of the Penrith fabrics remains approximate, but is based upon the fabric series for Carlisle, where a broad chronological framework has been established (McCarthy and Brooks 1992). Unlike the New Squares and Market Hall assemblages, where it was assumed that the material did not derive directly from the same sources as Carlisle's pottery, but reflected the attributes of a wider regional tradition, there was evidence that at least some of the pottery was more closely related to that of Carlisle.

4.2.4 *Gritty ware (Fabric 1)*: this is a hard, coarse, red to reddish-yellow gritty fabric, with mostly quartz inclusions. The glaze, where apparent, was brownish-orange in colour. No vessel forms could be determined.

4.2.5 *Partially Reduced Grey ware (Fabric 2)*: these are hard-fired grey fabrics, which usually exhibit a slightly paler margin below the glaze. The glaze is pale olive green, with no evidence of decoration. Partially Reduced Grey ware represents the largest fabric group by sherd count. At both the Market Hall site (Newman *et al* 2000), and at New Squares (Bradley in prep), two distinct fabric-types could be distinguished, but, given the small sherd size, no attempt to sub-divide this group has been made there. A number of sherds, however, displayed characteristics similar to those of Carlisle Fabric 17 (McCarthy and Brooks 1992; Bradley and Miller 2009, 662). Those from certain or probable medieval deposits came from soil ***111*** (Phase 3a) and possible demolition deposit ***158*** (Phase 4a: Structure ***540***), with a residual sherd also present in hearth ***167*** (Phase 5: Structure ***537***) and three fragments in Phase 6 deposit ***125*** (Structure ***537***). A jug and cooking pots were the only forms represented.

4.2.6 *Lightly Gritted wares (Fabric 3)*: this is a fabric that is usually completely oxidised, appearing as a buff to reddish-buff sandy fabric. This was the dominant fabric type recovered at the Market Hall site (Newman *et al* 2000), and it was still common at the New Squares development site, forming some 25% of the medieval assemblage there (Bradley in prep). The similarity to Fabric 13 at New Squares, and Fabric 4 from the Market Hall site, has led to the suggestion that it originated in this area (Newman *et al* 2000, 103). Only a single jug and cooking pot were recovered.

4.2.7 *Northern Reduced Grey ware (Fabric 4)*: this is a smooth, fine, pale to dark grey fabric, with up to 10% fine sand inclusions. The glazes are smooth, pale olive, through light yellow-brown, to dark brown in colour, which can sometimes be flaking. The fabric belongs to the same tradition as Fabric 9 at Penrith Market Hall (Newman *et al* 2000, 123). Only body sherds were recovered during the present excavations, although jugs were present at New Squares (Bradley in prep). Based upon the similarity of the Penrith material to the Northern Reduced Grey ware tradition in Carlisle, a broad date range from the fourteenth to the early seventeenth century can be suggested. However, it should be noted that later medieval reduced grey ware from both the present site and from New Squares was only found in association with other medieval

fabrics, and the general dearth of early post-medieval ceramics from Penrith and elsewhere in the region makes attempts to establish an end-date for its use somewhat difficult.

4.2.8 The assemblage also contains several possible imports, each represented by no more than two sherds. One, an unstratified oxidised sherd from Area 1, was part of a pipkin and was possibly Humberware, and thus eastern in origin. Another, from Phase 4b deposit ***158*** (Structure ***540***), was in the Lightly Gritted ware tradition, but with a thick orange glaze, and resembles neither Penrith nor Carlisle fabrics. A third sherd, residual in Phase 6 soil layer ***121*** (Structure ***537***), was oxidised to an orange colour, with a reduced core and olive green glaze. It, too, is probably a regional import, as are two joining sherds from medieval (Phase 3a) soil horizon ***111***, in an orange sandy fabric with olive brown glaze.

4.2.9 The relative paucity of diagnostic sherds is a particular feature of this and the New Squares medieval pottery assemblage (Bradley in prep), there being only four rims, 11 bases, two handles or handle attachments, and no spouts. Inevitably, this has limited the potential to associate vessel types with particular fabrics. Seven externally sooted sherds (five in Lightly gritted ware and two in Partially Reduced Grey ware), indicative of the use of these vessels as cooking pots, were recovered.

4.2.10 The lack of diagnostic sherds, coupled with the scarcity of cross-context joins, reinforces the impression of a very high degree of fragmentation, gained initially from the small size of the sherds. This would suggest that, for the most part, the pottery was part of a general background deposition, rather than reflecting the systematic disposal of rubbish.

4.2.11 ***The post-medieval pottery***: unusually, post-medieval wares (Table 3) represent only a slightly larger component of the assemblage than the medieval pottery (*see Section 5.2.1*). As a whole, they were dominated by coarsewares, for instance, glazed red earthenwares, Blackwares, stonewares, and slipwares, all of which are likely to be eighteenth century in date. The few finewares recovered are all stonewares, and comprised white salt-glazed stoneware and a fragment of teapot lid in Black basalt, as well as occasional sherds of rarer fabric types, such as Ralph Shaw's patent, a type of stoneware with a 'chocolate'-coloured exterior, Scratch Blue, and red stoneware (Barker 2008; Draper 1984, 35, 39). These are typical of the range of finewares available from before the later eighteenth century, when increasingly industrialised production made other finewares more widely available.

Fabric	Quantity
'Ralph Shaw's Patent'	1
Brown-glazed earthenware	12
Black Basalt	1
Brown salt-glazed Stoneware	1
Brown slipware	1
Brown Stoneware	1
Buff-bodied earthenware	3
Blackware	14
Cream ware	13
Glazed red earthenware	2
Mottled ware	1
Orange-glazed earthenware	2
Pearl ware	2
Porcelain	1
Refined White earthenware	1
Scratch Blue	1
Slip-coated ware	1
Slipware	3
Sponge ware	1
Stoneware	1
Trailed slipware	2
Unglazed slipware	1
Unglazed red earthenware	5
Unidentified	1
White salt-glazed stoneware	5
Yellow ware	1
Yellow-glazed red earthenware	4
Total	**82**

Table 3: Quantities of post-medieval fabrics

4.2.12 ***Dating the activity on the site***: the small amount of Red Gritty ware present suggests activity in the vicinity of the site from as early as the twelfth/early thirteenth century, which is consistent with the radiocarbon determination obtained from Phase 2b Structure ***538*** (*Section 3.2.5-7*). However, the pottery assemblage from the medieval phases generally is dominated by Partially Reduced Grey wares and Lightly Gritted wares, both attributable to the late twelfth-fourteenth century. The small amount of Northern Reduced Grey ware provides an indication that activity continued into the mid-late fourteenth

century-sixteenth century, which would again be broadly consistent with two radiocarbon determinations obtained from Phase 3b Structure ***539*** (*Sections 3.2.11-12*) and another from Phase 3c hearth ***115*** (*Section 3.2.14*), the date ranges for which span the period from the late thirteenth/early fourteenth century to the late fourteenth/early fifteenth century (*Section 4.6*).

4.2.13 The earliest post-medieval pottery does not date much before the late seventeenth century, with occasional fragments of Yellow ware and Mottled ware, whilst trailed slipware and a Blackware globular mug would probably be consistent with a date at the beginning of the eighteenth century (Gooder 1984; Barker 1993, 18). Several of the deposits containing pottery of this date were soil horizons, which, since they also yielded later eighteenth-nineteenth-century material, had probably accumulated over a prolonged period. Thus, there were no deposits that yielded exclusively eighteenth-century pottery. Similarly, deposits producing readily identifiable mid-nineteenth-century types were rare, with only a late Phase 6 soil horizon in Structure ***537*** (***121***) producing brown slip-decorated stoneware, which may have been a local Wetheriggs product (Blenkinship 1998, 3). That there were no identifiable pottery types from the sixteenth- to mid-seventeenth century is not unusual, and was also the case at the New Squares development site (Bradley in prep), as well as at Cockermouth, which also lacks the early post-medieval fabrics (Miller 2012, 45). This apparent absence is not, however, unique in the North West; in Merseyside, for instance, it has been noted that, with the exception of high-status sites, the early post-medieval period was effectively aceramic (Lewis 2002, 72).

4.2.14 The composition of the later assemblage is unusual in that there was no transfer-printed pottery and only single sherds of pearlware and refined white earthenware. Although transfer-printed pottery was available from the late eighteenth century, it was costly initially, and the relative price did not fall until the middle of the nineteenth century, when it became much more widely available (Samford 1997). This suggests that the post-medieval assemblage as a whole is earlier than *c* 1850. The presence of Cream ware (13 sherds), including some decorated material (slip-decorated or over-glaze painting; Barker 2008), is likely to suggest a deposition no later than the first or second decade of the nineteenth century. The nature of the pottery assemblage from Phase 6 in general suggests that it was not derived from a high-status building, or that the patterns of disposal were favouring kitchen wares.

4.3 OTHER FINDS

4.3.1 Apart from the pottery (*Section 4.2*), the remainder of the finds contributed very little to any understanding of activity on the site throughout its life. The only other material group recovered in any quantity was glass (*Appendix 3*), comprising *c* 21% of the finds assemblage, with both vessel glass and flat, or window, glass represented.

4.3.2 The vessel-glass fragments are all relatively small, and thus not particularly chronologically diagnostic. A single rim fragment from a pharmaceutical bottle of later eighteenth-century date (see, for instance, Noel Hume 1969, fig 17, no 14) came from the fill of modern (Phase 6) drain ***171***, and is the only recognisable vessel form other than the typically dark green 'English' bottles

represented by the remainder of the vessel fragments from the site. Only three of the 24 fragments of 'English' bottle are from rims, and are thus, to some extent, chronologically diagnostic. All three came from Phase 6 deposits (fill ***124*** of robber trench ***152***, soil ***142*** and demolition layer ***187***, all associated with Structure ***537***), and are late forms, probably dating to the first quarter of the nineteenth century (*op cit*, fig 13). However, a neck fragment from ***102***, a make-up deposit beneath a modern surface, could be as much as 50 years earlier, although it is too small for certainty. A fragment of 'Bristol Blue' glass was unstratified. Again, it points to a later eighteenth- or early nineteenth-century date range, as the production of cobalt blue glass did not begin until the later eighteenth century (Shurtleff and Aoyagi 2012, 1279).

4.3.3 There were, in all, 24 fragments of sheet glass (from fill ***126*** of Phase 4b robber trench ***157*** (Structure ***540***); Phase 6 soil ***142*** (Structure ***537***); and intrusive in fill ***513*** of Phase 2a posthole ***512*** (Structure ***538***)), all of which is likely to have served as window glass. The majority of the fragments are lightly weathered, several having a flaking iridescent surface, but it is clear that most of the glass has either a pale natural green tint, suggesting it to be so-called 'Forest glass', or is effectively colourless, and its thinness, and the fire-rounded edges seen on some of the pane-edge fragments, suggests cylinder-blown sheet of a later sixteenth- to eighteenth-century date (Hurst Vose 1980, 109). The possible use of a diamond cutter seen on some of the fragments from Phase 4b robber trench fill ***126*** (Structure ***540***) also places the material no earlier than the sixteenth century, when the use of diamonds in glass cutting was first introduced (Cooper 1835).

4.3.4 None of the four fragments of clay tobacco-pipe stem can be dated with any precision, beyond indicating or reinforcing a post-medieval date for the feature in which each was found. Similarly, ceramic building material was extremely sparse, and almost completely undiagnostic, with only three fragments of possible yellow-glazed ridge tile, which were amongst the unstratified material from the site. A single stone roofing slab came from Phase 6 layer ***163*** (Structure ***537***). Its distinctive shape identifies it as a traditional Lakeland 'wrestler' slate (S Bonsall *pers comm*), used at the roof ridge to give stability in high winds, and render it watertight (LDNPA 2013).

4.3.5 Three fragments of coarse sandstone clearly join, but do not form anything comprehensible. These formed a feature (***508***) that could not be closely phased. The original object was clearly deep-sided, with an even thickness, reminiscent of the base stone of a large hand-mill, but there is no evidence for a central perforation, or any indication that the original object was, as might be expected if it was a millstone, round. There is some indication that the upper surface was pecked/dressed to make it flat, but equally this might reflect a natural phenomenon. The fact that only one side is dressed probably rules out the likelihood of it being a mechanical millstone, as it would have been dressed on both sides, as well as the edges. Identification as a saddle quern cannot, however, be ruled out, but might seem unlikely.

4.3.6 The few fragments of metalwork, two of copper alloy and seven of iron/steel are all in very poor condition and have not been identified, except to raise the possibility that the object from possible rubble footing ***520*** (Phase 6 Structure ***537***) could be part of a simple door latch.

4.4 CHARRED PLANT REMAINS

4.4.1 Following the assessment of 21 environmental bulk samples taken during the excavation of the site, two contexts, namely Phase 5 hearth ***167*** (*Section 3.2.24*), associated with Structure ***537***, and a deposit that could not be closely phased (***509***, associated with stones ***508***; *Section 3.2.35*), were selected for analysis of their charred plant remains (CPR). Given the similarity of the samples, a very rapid analysis was carried out on approximately half of the content in order to provide a more complete taxa list and to establish the relative components of each. The purpose of the palaeoenvironmental study was to provide any information on the agricultural practices of Penrith, more specifically to explore the types of cereal/food-related activities taking place at the site and how the data compare with the rest of the region.

4.4.2 ***Methodology***: up to 40 litres of each sample was hand-floated. The resulting flots were collected onto a 250µm mesh, air-dried, and examined with a Leica MZ6 binocular microscope. Any charred material was quantified and identified where possible, and other material, such as charcoal, bone fragments, and metal waste, was noted. Identification was aided by comparison with the modern reference collection held at OA North and with reference to the *Digital Seed Atlas of the Netherlands* (Cappers *et al* 2006). Nomenclature follows Stace (2010).

4.4.3 In the case of cereal grains, cereal chaff and weed seeds, the results of the CPR analysis (*Appendix 4*) are shown as actual counts. Other charred plant remains, such as nut fragments, stems and leaves, plus other types of material, such as bone, silicified chaff, and metal waste, are quantified on a scale of 1 to 4, where 1 is less than five items and 4 is more than 100 items.

4.4.4 The weed seed taxa (*Appendix 4*) are grouped according to habitat types that broadly correspond to ecological groups (after Huntley 2000; Huckerby and Graham 2009). It is acknowledged, however, that many taxa may grow in more than one habitat:

1. Ruderals and weeds of arable and cultivated land; includes ruderal plant communities found growing on waste or fallow ground and annuals found in arable fields and cultivated ground. Ruderal plants are usually perennials or biennials and inhibit the growth of annuals;
2. Grassland plants are to be found growing in open grassland or meadows;
3. Damp/wet ground plants are to be found growing on wet marshy ground, on river, ditch and pond banks, and in water meadows;
4. Heath/bog: plants that grow on areas of heath or bog, often in acidic conditions;
5. Woodland/scrub plants comprise trees and shrubs, and the ground flora common in woodland clearances and hedgerows;
6. Plants belonging to broad ecological groupings are not characteristic of any one community, but are found in several.

4.4.5 ***Cereal remains***: the two samples both contained abundant cereal grains and chaff fragments. The cereal grains from both deposits consisted primarily of oat (*Avena* sp) grains, including positively identified common (cultivated) oat

(*Avena sativa*) grains, which still retained their diagnostic floret bases. Both samples also contained a lesser component of hulled six-row barley (*Hordeum vulgare*), and small amounts of rye (*Secale cereale*) and wheat (*Triticum* sp), including a probable free-threshing variety. Both samples also contained common to abundant indeterminate cereal grains and cereal-grain fragments, heavily distorted and broken, probably as a result of charring.

4.4.6 Small amounts of diagnostic cereal chaff were present, including rare oat-awn fragments and cultivated oat floret bases, frequent barley and rye rachis, and a single bread wheat (*Triticum aestivum*) rachis node in deposit ***509***. Both samples also contained abundant undiagnostic cereal chaff, including ear bases, culm nodes and straw fragments, plus abundant lemma/palaea fragments of probable oat. Other edible/cultivated remains included few hazelnut fragments and three cultivated peas (*Pisum sativum*), again in ***509***.

4.4.7 ***Weed seeds***: both assemblages contained abundant charred weed seeds, including those typically associated with crops, such as fat-hen (*Chenopodium album*), corn marigold (*Glebionis segetum*), common chickweed (*Stellaria media*), pale persicaria (*Persicaria lapathifolia*), and corn spurry (*Spergula arvensis*). Corn spurry will not tolerate alkaline soils, and like fat-hen and scentless mayweed (*Tripleurospermum inodorum*), which was recorded in hearth ***167***, prefers sandy, well-drained soils. Fat hen and mayweed also thrive on fertile ground (van der Veen 1992), and are therefore often associated with evidence for manuring (Carruthers 2010a). Conversely, the abundant small seeds of the pea family (Fabaceae) are also of note, as these leguminous weeds are often a sign of decreasing soil fertility (Cappers and Neef 2012).

4.4.8 As well as crop weeds, both samples also contained seeds from grassland taxa, such as sheep's sorrel (*Rumex acetosella*), which were particularly abundant in deposit ***509***. Typical of poor acid soils, sheep's sorrel was found alongside plants of damp/wet ground, such as sedges (*Carex* sp) and heath-grass (*Danthonia decumbens*), which were also recorded and are often interpreted as being indicative of acid heathland environments (Stace 2010). Such environments are also indicated by the presence of rare heath (*Erica* sp) leaves in hearth deposit ***167***.

4.4.9 As well as wood charcoal (*Section 4.5*), both samples also contained frequent coal fragments and common to abundant heat-affected vesicular material (havm). The latter is indicative of burning, but not diagnostic of any particular type of activity or fuel. Deposit ***509*** also contained rare calcined mammal bone fragments and metalworking waste.

4.4.10 ***Discussion***: the evidence is consistent with other medieval and post-medieval sites in the region (Hall and Huntley 2007), where oats appear to have been the dominant crop. Oats are particularly well-suited to the wetter conditions and the shorter growing season of northern Britain (Moffett 2006), and are also useful in areas of poor, acidic soils (Carruthers 2010a). High concentrations are often found in medieval and post-medieval contexts in northern England, Wales, and Scotland (Greig 1991; Huntley and Stallibrass 1995; Carruthers 2010a); for instance, the most dominant cereal type in both medieval and post-medieval levels at Mitchell's Brewery, Lancaster, and in medieval deposits at Audlem, Cheshire, was oats (Huntley and Huckerby in prep; Huckerby 2003). Similarly, a medieval kiln/oven assemblage from Wigan (OA North 2011),

and medieval burgage plots at Stricklandgate, Kendal (Huntley 1989), and Hornby, Lancashire (OA North 2007), also produced cereal assemblages dominated by oat grains. The latter two examples perhaps represent the remains of domestic debris rather than crop-processing waste.

4.4.11 Barley also appears to be a favoured crop in northern Britain (Carruthers 2010b; Campbell 1994), and was commonly grown together with oats to form drage or dredge (Jones and Halstead 1994; Hammond 2005), which provided a failsafe crop, especially in areas marginal for cultivation (Carruthers 2010a). A combination of both oats and barley dominated the medieval corn-drying assemblages at the New Squares development site (Fig 5), also in Penrith (Druce in prep). Although barley is a less demanding crop than wheat, it tends to prefer better-drained soils (Carruthers 2010a; 2010b), therefore its presence at Penrith suggests that some areas under cultivation were relatively free-draining. This is also corroborated by the presence of a number of crop weeds that prefer sandy, well-drained soil, such as corn-spurry, fat-hen, and scentless mayweed (*Section 4.4.7*).

4.4.12 It is possible that, like at New Squares, the relatively small amount of rye and wheat in the assemblages represent the remains of casual invaders of the main oat (and barley) crop. Although free-threshing wheat such as bread wheat is quite a demanding crop, and not ideally suited to the weather and nutrient-poor soil conditions often found in northern Britain (Carruthers 2010a), there is no reason why both wheat and rye could not have been cultivated locally, but perhaps on a smaller scale. Rye, for example, is a useful crop, since it tolerates a wide range of soil conditions (*ibid*).

4.4.13 The presence of abundant cereal chaff, including ear bases, culm nodes and straw fragments, plus the presence of abundant crop weeds, is notable in both of the samples. A similar oat-rich assemblage from a medieval kiln/oven at Wigan, which also contained extremely abundant crops weeds and oat chaff, was, given its context, interpreted as representing the remains of a very weedy crop of oats being dried in their sheaves (OA North 2011; J Huntley *pers comm*). A similar interpretation could be advanced for these assemblages, but, since feature ***167*** was interpreted as a hearth rather than a kiln/oven, whilst the precise significance of deposit ***509*** remains unclear, this is not certain. An alternative explanation is that a handful of harvested crop was being used as kindling to light the fire on hearth ***167***. If this is the case, then it is noteworthy that both assemblages contain almost equal proportions of cereal grains, cereal chaff and charred weed seeds (*Appendix 4*). Prior to modern methods of farming and the advent of herbicides, medieval and post-medieval fields were likely to have supported a considerable array of arable weeds. Some, such as fat-hen, however, may have been tolerated by farmers, especially following a poor harvest, as they are considered to have similar calorific values to cereals (Hillman 1981; Stokes and Rowley-Conwy 2002; Moffett 2006). Campbell (1994) suggests that some weeds, such as black bindweed, common chickweed and knotgrasses, which were all recorded at this site, are indicative of spring-sown crops.

4.4.14 Although the remains of certain taxa indicative of heath/bog communities were rare in the analysed samples, their presence, alongside sheep's sorrel and sedges, may suggest the exploitation of acid grassland/heathland resources,

which were likely to have been found nearby. This is also corroborated by the presence of heather (*Calluna vulgaris*) in many of the charcoal assemblages from the site (see *Section 4.5*). A common theme of many medieval sites in northern Britain (Hall 2003; Hall and Huntley 2007), the material possibly represents the remains of spent flooring, bedding, thatch, or the remains of peaty turves, which were imported onto the site for construction or fuel (Hall 2003).

4.4.15 ***Conclusion***: like many medieval and post-medieval sites in northern England, Wales and Scotland, the evidence from the former Gregg's Bakery site suggests that oat was the dominant crop (Hall and Huntely 2007), which, in this instance, may have been used as kindling whilst still in its sheaves (*Section 4.4.13*). Similarly, as with other cereal assemblages of this period, it would appear that this particular harvest was fairly weedy. Barley was also recorded, as were rye and free-threshing wheat, and although these did not form a major component of the samples, these crops were also probably being cultivated locally.

4.5 WOOD CHARCOAL

4.5.1 Initial assessment of the charcoal from 21 bulk samples (the same samples as were assessed for CPR; *Section 4.4.1*) indicated that oak (*Quercus* sp) dominated the samples from all phases of occupation of the site, which, in most cases, was accompanied by a smaller component of short-lived taxa, such as alder (*Alnus glutinosa*) or hazel (*Corylus avellana*), and heather (*Calluna vulgaris*). Analysis of the charcoal would provide evidence for the selection of wood fuel and the possible nature of contemporary woodland environments.

4.5.2 ***Methodology***: assessment of the flots indicated that the charcoal was broadly similar from all phases of occupation. Subsequently, 11 of the samples were scanned in order to determine the type and relative abundance of taxa present. The fragments were initially observed in transverse section using a Leica MZ6 binocular microscope at up to x40 magnification, during which taxa were broadly quantified. A representative amount of each type was then fractured to reveal both radial and tangential sections, which were examined under a Meiji incident-light microscope at up to x400 magnification. Identifications were made with reference to Schweingruber (1990), Hather (2000), and modern reference material.

4.5.3 ***Results***: the results of the charcoal study are shown in Tables 4 and 5, in which taxa are quantified on a scale of + to ++++, where + is rare (less than five fragments), ++ is frequent (6-25 fragments), +++ is common (26-100 fragments), and ++++ is abundant (>100 fragments). Six taxa were positively identified, including two to species level. The taxonomic level of identification varied according to the observed genera/family and/or the state of preservation. In many cases, the fragments could only be taken to an approximate level of identification due to the similarities of species within a genus or sub-group, for example oak (*Quercus* sp), which could be pedunculate oak (*Q robur*) or sessile oak (*Q petraea*) in Britain, Maloideae (referred to as hawthorn-type in text), which could be hawthorn, apple, pear or one of the whitebeams, or *Prunus* sp (referred to as blackthorn-type in text),

which could be blackthorn or wild/bird cherry. Alder (*Alnus glutinosa*) and hazel (*Corylus avellana*) are also often grouped together, as the characteristics needed to distinguish them are often obscured. In general, the preservation was good, although fragments smaller than 4mm in size tended to be quite heavily encrusted with iron and/or sediment.

Feature/deposit type		Posthole	Posthole	Posthole	Posthole	Posthole
Phase		2b	2b	2b	3b	3b
Sample number		120	114	115	116	117
Context number		***529***	***513***	***515***	***519***	***522***
Feature/cut number		***530***	***512***	***514***	***518***	***521***
Structure number		***538***	***538***	***538***	***539***	***539***
Flot size (ml)		20	50	15	100	100
Alnus glutinosa	alder				++	
Alnus/Corylus	alder/hazel	+	+	+		++
Calluna vulgaris	heather	+	+	+	++	++
Prunus sp	blackthorn, wild cherry					++
Quercus sp	oak	+++	++++	++++	++++	++++
Coal/havm		+	++++	+++	++++	++++
CPR		++	++	++	++	++

Quantifications are based on a scale of abundance where + = present (<5 items), ++ = frequent (5-25 items), +++ = common (26-100 items), ++++ = abundant (>100 items)

Table 4: Charcoal from Phase 2b and Phase 3b postholes (Structures **538**, **539**)

Feature/deposit type		Hearth	Demolition layer?	Hearth	Hearth	Soil layer	Soil layer
Phase		3c	4a	5	6	6	Not closely phased
Sample number		100	105	104	101	107	113
Context number		***115***	***158***	***167***	***105***	***168***	***509***
Feature/cut number		-	-	-	-	-	-
Structure number		-	***540***	***537***	***537***	***537***	-
Flot size (ml)		200	60	210	20	50	60
Alnus	alder	+++	+		++		++
Alnus/Corylu	alder/hazel					+	
Calluna	heather		+		++++		
Fraxinus	ash					+	++
Maloideae	hawthorn-type				+++		
Quercus sp	oak	++++	++++	++++	+++	++	++++
Coal/havm		+	+++		+++	++++	+++
CPR			+++	++++	+	+	++++
Other		Silicified	Metal waste +			Metal	Metal

Quantifications are based on a scale of abundance where + = present (<5 items), ++ = frequent (5-25 items), +++ = common (26-100 items), ++++ = abundant (>100 items)

Table 5: Charcoal from Phases 3c-6 features and deposits

4.5.4 Ten out of the 11 samples were dominated by oak charcoal, including mature oak heartwood over 50 years in age. Other wood taxa was generally low in abundance, although alder (or alder/hazel) and heather (*Calluna vulgaris*) were consistently recorded. Other taxa included blackthorn-type in posthole ***521***, part of Phase 3b Structure ***539***, hawthorn-type in Period 6 hearth ***105*** (Structure ***537***), and ash (*Fraxinus excelsior*) in a deposit (***509***), which was not closely phased, and in Phase 6 layer ***168*** (Structure ***537***). The only assemblage showing any real difference in content was hearth ***105***, which was dominated by heather. Many of the samples also contained abundant coal and undiagnostic heat-affected vesicular material (havm).

4.5.5 ***Discussion***: the rapid charcoal study suggests that mature oak was the preferred wood for most of the activities taking place at the site, and during all phases of occupation. This was a good choice, given that seasoned oak is regarded as a superior fuel, often associated with other industries, such as pottery production or smithying (Edlin 1949; Gale 2007; Druce forthcoming). Although a little metal-working waste was recorded in a few of the occupation layers from the site, there was no other surviving evidence to suggest metalworking was being carried out on any scale, and although the charcoal from the hearths can be reasonably assumed to represent *in situ* wood fuel, much of the charcoal and CPR from the postholes and layers is likely to represent general floor debris and cannot be attributed to any specific activity. There is very little comparative data from the North West, though oak also appears to have been the favoured fuel wood to heat medieval ovens/kilns or corn dryers at New Squares, in Penrith, Wigan, and Audlem, Cheshire (Zant in prep; Huckerby 2003; OA North 2011). In addition, oak and alder appear to be the dominant wood types used to fuel a medieval oven/kiln at Mitchell's Brewery, Lancaster (Huntley and Huckerby in prep).

4.5.6 The extent of existing woodland cover around Penrith during the medieval period is unclear, though the town lay on the southern edge of Inglewood Forest, an extensive tract of royal forest, bounded on east and west by the Rivers Eden and Caldew, which extended north as far as Carlisle (Parker 1905, and accompanying fig). Medieval documents record several royal grants of timber from Inglewood for use in construction works at Penrith and other local settlements during the thirteenth-fourteenth centuries (*Section 6.2.7*), suggesting that mature oak woodland represented a significant element of Inglewood Forest at that time. However, it is likely that such an important resource, both within the bounds of Inglewood and elsewhere in the area, would have been highly valued as wood-pasture, for timber, and 'industrial'-level fuel use (Huntley 2010). As such, most woodland was likely to have been carefully managed through pasture rotations, pollarding and/or coppicing (Hooke 2003; Rackham 2003). Like the results from New Squares (Druce in prep), much of the oak fuel came from a mature tree or trees over 50 years in age (characterised by the presence of heartwood), and although it is possible that mature oaks were felled/lopped purely for domestic fuel wood, it is also possible that the remains represent the offcuts from other industries, such as timber manufacturing. A similar interpretation is also suggested for the oak wood associated with pottery kilns at Clacket Lane, Surrey (Robinson 1997, cited in Smith 2002), and Staffordshire (Druce forthcoming). Another possibility, of course, is that ready-prepared charcoal was used, especially

where a more-or-less smokeless and easy to control fuel would have been preferable (Edlin 1949).

4.5.7 ***Conclusion***: the charcoal evidence suggests that mature oak wood was the preferred fuel for the activities at the site. Mature woodland would have been highly valued during this period; it is plausible, therefore, that the wood was collected from woodland floors or represents a by-product from some other form of manufacturing. It is also possible, and indeed highly probable, that charcoal was used, especially during activities where a smoke-reduced fire was preferable. The abundant coal fragments in many of the samples also suggests that coal was being utilised for some activities. In keeping with other assemblages of this period from northern England, the material also contained a heathland component, possibly representing spent domestic waste or peat turfs being utilised as fuel (Hall 2003).

4.6 RADIOCARBON DATING

4.6.1 ***Quantification***: during the course of the post-excavation analysis, several of the samples of organic remains from the site, specifically from Phase 2b postholes ***190*** and ***530*** (Structure ***538***), Phase 3b postholes ***518*** and ***523*** (Structure ***539***) and Phase 3c hearth ***115***, were submitted to the Scottish Universities Environmental Research Centre (SUERC) laboratories for radiocarbon assay. This was intended to provide a chronology for features found on the site, to help assess the significance of the archaeological remains, and help to determine their potential for further research. To this end, five samples in total, from five features (Table 6), were subject to initial radiocarbon assay.

Context	Feature	Structure	Phase	Material	Lab code	Date BP	Calibrated date AD (2σ)	$\delta^{13}C$
529	Posthole ***520***	***538***	2b	Charred cereal grain	SUERC-48327	1194± 34	766-899	-19.7 ‰
191	Posthole ***190***	***538***	2b	Charred cereal grain	SUERC-48328	884± 34	1039-1220	-20.6 ‰
519	Posthole ***518***	***539***	3b	Charred seed	SUERC-48329	655± 34	1277-1395	-23.3 ‰
524	Posthole ***523***	***539***	3b	Charred seed	SUERC-48333	568± 34	1302-1427	-22.5 ‰
115	Hearth ***115***	-	3c	Charred cereal grain	SUERC-48326	624± 34	1290-1400	-22.4 ‰

NB – $\delta^{13}C$ ‰ relative to Vienna Pee Dee Belemnite

Table 6: Results of the programme of radiocarbon assay for Area 1

4.6.2 ***Methodology*:** the calibrated results were produced using the Reimer *et al* (2004) curve and the computer program Oxcal (v4.1; build 44; Bronk Ramsey 1995; 1998; 2001; 2009a; 2009b). Ranges have been obtained using the maximum intercept method (Stuiver and Reimer 1986) and are quoted in accordance with Stuiver and Polach (1977), but adapted for the increased precision available in later datasets (A Millard *pers comm*), rounded out by ten years, when the error term is greater or equal to 25 years, and by five years when the error term is less than 25 years. When more than one result was produced on material from a single interpretative phase of a site, the statistical

consistency of results can be used to determine whether it is possible that they are of the same actual age (Ward and Wilson 1978).

4.6.3 The samples have been variously dated to the early and later medieval periods. Significantly, the sample from Phase 2b posthole ***530*** in Structure ***538*** has highlighted the existence of pre-Conquest activity on the site. However, the charred cereal grain from which the determination was obtained was clearly residual within the feature, since this posthole also yielded a twelfth-thirteenth-century potsherd (*Section 3.2.8*), whilst posthole ***190*** in the same structure contained another charred cereal grain that was dated to cal AD 1039-1220 (Table 6). It should be noted that, for postholes ***518*** and ***523***, which formed part of Phase 3b Structure ***539***, the 68.2% probability calibration curves have a less broad date range. The date range of cal AD 1286-1387 can be attributed to posthole ***518***, whilst the sample from posthole ***523*** gave a date range of cal AD 1319-1413.

5. CURATION AND CONSERVATION

5.1 RECIPIENT MUSEUM

5.1.1 The Penrith and Eden Museum, Penrith, has been nominated as the ultimate repository for the finds:

Penrith and Eden Museum,
Robinson's School, Middlegate,
Penrith,
Cumbria,
CA11 7PT
Telephone: 01768 865105.

5.1.2 Arrangements will be made with the Cumbria Archive Centre, Carlisle, for the deposition of the complete site archive:

Cumbria Archive Centre, Carlisle
Lady Gillford`s House
Petteril Bank Road
Carlisle
CA1 3AJ
Tel:01228 227285 or 227284.

5.2 CONSERVATION

5.2.1 The assemblage is well-preserved and in good condition, and thus the conservation requirement is low.

5.3 STORAGE

5.3.1 The complete project archive, which will include written records, plans, monochrome photographs, electronic media, artefacts, ecofacts and sieved residues, will be 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).

5.3.2 All finds will be 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.

5.4 PACKAGING AND DISCARD

5.4.1 The assemblage is currently well-packed and will require no further packaging. Subject to consultation with the receiving museum (see *Section 5.1.1*, above), the discard of unstratified material is recommended; objects that are good examples of their fabric or type should, however, be retained. A discard policy relating to the environmental samples should also be agreed

with the Penrith and Eden Museum. A record will be kept of all discarded material.

6. ANALYSIS

6.1 INTRODUCTION

6.1.1 The excavation has identified the presence of significant archaeological remains, dating from the early medieval period (dated by radiocarbon assay; see *Section 4.6*), through to the medieval and post-medieval periods. The following section seeks to synthesise the current results of the fieldwork, and of the environmental and artefactual data.

6.1.2 The fieldwork involved controlled soil stripping within two areas on the north-eastern side and central parts of the site. The areas focused on remains identified during an earlier programme of evaluation trenching in March 2013 (OA North 2013), wherein medieval and later deposits were successfully demonstrated to exist. The majority of the cut features and deposits were encountered within Area 1 (Fig 2), which also produced the majority of the 232 artefacts. A ditch that was originally identified during the evaluation, upon further investigation in Area 2, was revealed as a palaeochannel (Fig 4).

6.1.3 The excavation has afforded a rare opportunity to examine the immediate hinterland of a medieval pele tower (Perriam and Robinson 1998, 208; Taylor 1892, 252-4). The results have demonstrated that the tower was not built on 'virgin' ground and that the site had been occupied, at least intermittently, since the early medieval period (Phase 1). Activity during the twelfth-thirteenth century, evidenced by a cobble-filled curvilinear feature (Phase 2a; ***112***) of uncertain significance and a post-built timber building (Phase 2b; Structure ***538***), was followed, over the central and northern part of Area 1, by the accumulation of dark soils (Phase 3a), though evidence for a realigning of the site came from another post-built structure (Phase 3b; Structure ***539***) on the southern part of Area 1. This was erected sometime during the late thirteenth to early fifteenth century, most probably in the fourteenth century. A further build-up of soils (Phase 4a) occurred during the late medieval/early post-medieval period; these seem to have been broadly contemporary with a building or structure (Phase 4b; Structure ***540***) located towards the north-eastern corner of the site. Structure ***540*** may not have been demolished until the eighteenth century, after which a stone building (Phase 5; Structure ***537***) was constructed; this was extended and remodelled sometime later (Phase 6), perhaps in the early nineteenth century.

6.2 DISCUSSION

6.2.1 Whilst there is no documentary evidence pertaining to Penrith before the twelfth century (*Section 1.3.11*), the settlement's British name (Armstrong *et al* 1971, 230; Gelling 1984, 79-80 (*Section 1.3.8*)), together with the important assemblage of pre-Norman sculpture from the town (*Section 6.2.2*), put an early medieval origin for the settlement beyond doubt. However, no direct archaeological evidence for activity during this period had previously been found in Penrith, so the mid-eighth-late ninth century AD radiocarbon date from the Gregg's Bakery site (*Section 4.6*) is significant, despite the fact that the charred grain from which it was obtained was residual in a later context

(*Section 3.2.2*). Since no features or deposits attributable to the early medieval period were recorded on the site, it seems likely that the grain derived from activity somewhere in the near vicinity (attributed to Phase 1 at Gregg's Bakery), though in view of the extent of later disturbances, it is conceivable that contemporary archaeological remains within the area investigated had been completely destroyed.

6.2.2 In addition to the radiocarbon date, the only other evidence for an eighth/ninth-century presence at Penrith is a cross-shaft fragment found on the southern periphery of the modern town, several hundred metres south-east of the site, which can be dated stylistically to the eighth-early ninth century (Bailey and Cramp 1988, 134-5; Richardson 1998, 32). However, the greatest concentration of early medieval sculpture is located within St Andrew's churchyard, little more than 150m south-west of Area 1. The group consists of the early tenth-century cross known as the Giant's Thumb (Collingwood 1923, 126) and the Giant's Grave. The latter incorporates four pieces of mid-late tenth-century sculpture, consisting of two cross shafts and four hogback stones (*op cit*, 117-26). Whilst most of these are thought to have been moved from their original locations (*op cit*, 115), their presence within the churchyard suggests that this was a site of some antiquity and importance, probably the location of a royal chapel or church during the tenth century (*op cit*, 127-8; Winchester 1979, 5; Phythian-Adams 1996, 120).

6.2.3 The potential significance of St Andrew's is further enhanced by the suggestion that the low eminence on which the present church stands was the focus of a pre-Norman settlement within a defended enclosure (Winchester 1979, 5; Millward and Robinson 1974, 147, 207), the boundary of which may be fossilised in the modern street system (Fig 5). An oval or sub-rectangular enclosure measuring *c* 140m north/south, by *c* 130m east/west, is defined in the modern street system by the curving lines of Burrowgate (possibly from Old English *burh* - 'fortified place') and St Andrew's Place, to the north and south, and on the west and east by Devonshire Street and De Whelpdale Lane (*ibid*). Winchester (*ibid*) also postulates a possible southern extension to the settlement, bounded by Friargate on the east and south, and by King Street on the west, extending approximately 170m further south of the putative enclosure around the church (Fig 5). Since Area 1 at the Gregg's Bakery site was located only 80m north-east of the suggested enclosure around St Andrew's Church, the activity implied by the dated cereal grain may have occurred on the periphery of this putative 'proto-urban' core.

6.2.4 The earliest structural remains identified on the Gregg's Bakery site comprised a curvilinear feature (Phase 2a; ***112***) and an adjacent post-built timber building (Phase 2b; Structure ***538***). Dating evidence for these was sparse (*Sections 3.2.4; 3.2.8*), but, on the evidence of a radiocarbon determination and a few sherds of pottery from the postholes of the latter, a construction date no later than the early thirteenth century seems likely. There is no reason why ***112*** could not have been broadly contemporary, though spatial considerations suggest the two were probably not in use at exactly the same time.

6.2.5 The north-east/south-west arm of feature ***112*** was aligned roughly perpendicular to Benson Row, on the north-east, suggesting, perhaps, the existence of a medieval precursor to this modern street, or of some form of

boundary that was subsequently followed by the road. In form, ***112*** had the appearance of a shallow ditch or a wide gully, so it might have been part of a medieval boundary marker, though its precise purpose is obscure. The origins of Benson Row itself are not known; it appears on the earliest surviving map of Penrith (Fig 6), published in 1787 (Clarke 1787), but was clearly already well established by that date. It could conceivably be medieval in origin, since the basic layout of the town had already taken shape by the late fourteenth century (Winchester 1979, 4), and the 1787 plan depicts tenement plots on the north-east side of the road that would not be out of place in a medieval context (Fig 6). Similar plots also extend back from Sandgate, on the north-west, but these terminate well short of the excavation area, which lies wholly within the curtilage of Hutton Hall. Unlike ***112***, Structure ***538*** seems to have been aligned obliquely to Benson Row, but the significance of this (if, indeed, there is any) is unclear; certainly, it cannot be taken as evidence that the building pre-dates the establishment of the road. Since only the postholes in its north and west walls had survived, and no associated floors or occupation deposits were found, the size and function of this structure could not be determined.

6.2.6 Limited documentary evidence suggests that the settlement at Penrith was well established by the late twelfth century. The earliest twelfth-century record dates to 1133, when St Andrew's, together with an adjacent block of land, was granted to Carlisle Cathedral by Henry I upon the creation of the see of Carlisle (Graham 1922, 129). Subsequently, the royal manor or vill of Penrith appears in several documents of the mid-late twelfth century and the early thirteenth century (*ibid*), and Penrith was also used as a territorial name during this period (Winchester 1979, 3). For the most part, the extant documents provide very little indication of the character and extent of the twelfth-century settlement, and it is not possible to know whether the Gregg's Bakery site was located within the settled area at this time. However, the proximity of the site to St Andrew's Church suggests that it is likely to have lain close to, if not actually within, the core area of the settlement.

6.2.7 Whilst it is possible that Phase 2 relates to this early period of medieval settlement, two sherds of Partially Reduced Grey ware (*Sections 3.2.4; 3.2.8*), if not intrusive, make it more likely that this activity dates no earlier than the late twelfth/early thirteenth century. On the other hand, the radiocarbon determination of cal AD 1039-1220, obtained from a charred cereal grain in one of Structure ***538***'s postholes (*Section 4.6*), would suggest (again, if the grain was not intrusive) that this building was in existence by 1220. It is of interest that this date is broadly consistent with the earliest unequivocal documentary evidence for the existence, at Penrith, of a community with urban characteristics. In 1222, the king, Henry III, granted to his manor the right to hold a market and a fair (Jones *c* 1975, 2; Winchester 1987, 124), and in 1223 he ordered that timber should be supplied to those who wished to build new burgages in the town, and for the construction of shops and stalls (*ibid*; Winchester 1979, 3). The Pipe Roll for 1223-4 also records the building of a common bakehouse (Jones *c* 1975, 3), and in 1225, timber from nearby Inglewood Forest was granted to the men of Penrith and Langwathby for house building '*as they were accustomed to have in the time of King John*' (1199-1216) (Winchester 1982). These grants suggest that the settlement was expanding, both in size and importance, during the early thirteenth century,

and was developing an urban character. Such developments, which were also taking place in other towns in the region, for example at Kendal (Munby 1985) and Cockermouth (Winchester 1986; 2012), provide a possible context for the construction of Structure ***538***, though the associated radiocarbon determination would suggest that it was probably erected sometime before the 1220s, perhaps in the early stages of this process.

6.2.8 Whether Structure ***538*** formed part of a medieval tenement or burgage plot is not known, though the use of earthfast posts set in individual postholes is paralleled in twelfth/thirteenth-century buildings in tenements on Main Street, Cockermouth (Leech and Gregory 2012, 10-12, fig 1, 26, fig 15). The earliest maps of Penrith (*eg* Clarke 1787) show the site to have lain wholly within the grounds of Hutton Hall, which was not built until the very end of the fourteenth century (Perriam 2008; *Section 6.2.9*). It is possible that ***538*** occupied a plot that was later subsumed within the larger landholding, or that it was associated with an earlier 'high-status' establishment from which Hutton Hall subsequently developed, but there is currently no evidence to support or refute either of these hypotheses. Indeed, very little is known of the origins and development of Penrith's medieval burgages in general, though the layout of existing properties, or of those depicted on late eighteenth-nineteenth-century maps, suggest a medieval origin for many, at least in or near the modern town centre (Cumbria County Council 2002, 14-15). Limited archaeological evidence for the existence, from at least the late thirteenth/fourteenth century, of burgages on the south side of Southend Road was recovered during the New Squares excavations (Fig 5), on the south-west periphery of the historic town centre (Zant in prep), and the fragmentary remains of medieval timber buildings were recorded at the Market Hall site, north of St Andrew's Church (Fig 5; Newman *et al* 2000, 111-13), though there it was not possible to identify discrete tenements or plots.

6.2.9 At the Gregg's Bakery site, it was found that the disuse of Structure ***538*** was followed by a build-up of dark soils (Phase 3a), which the (admittedly limited) ceramic evidence suggests were accumulating during the thirteenth/fourteenth century (*Section 3.2.10*). At the Market Hall site too, soils accumulated over the earliest medieval features, perhaps during the fourteenth/fifteenth century (Newman *et al* 2000). There, it was suggested that these deposits may have marked an hiatus in intensive activity, perhaps linked to the frequent Scottish raiding of the fourteenth century, when Penrith suffered severely, and/or to the severe economic depression that affected much of the region at this time (*op cit*, 128; Winchester 1987, 45-7). However, that the Gregg's site was not completely abandoned at this time was evidenced by radiocarbon determinations obtained from two feature: a posthole row (Phase 3b; Structure ***539***) located south of Structure ***538*** and the overlying dark soils; and an isolated hearth (Phase 3c; ***115***) to the north. The three determinations from these features, two from ***539*** and one from ***115*** (*Section 4.6*), are statistically identical, with date ranges (at 2σ) spanning the period from the late thirteenth/early fourteenth century to the late fourteenth-early fifteenth century. For most of this period, the history of the site is entirely obscure, but documentary evidence suggests that work on the stone pele tower of Hutton Hall (Fig 1) began in the late 1390s, when William Strickland, who became bishop of Carlisle in 1400 (Weston 2000, 142), was granted a licence to

crenellate (Perriam and Robinson 1998, 208; Perriam 2008). Whilst it is impossible to know whether the dated features of Phases 3b and 3c were contemporary with this development (they could well have been considerably earlier), the fact that Structure ***539*** was on a different alignment to Structure ***538*** of Phase 2b suggests that there may have been a significant change in the spatial organisation of the site. However, although it would be tempting to relate this to a significant event such as the construction of the Hutton Hall pele, other explanations are possible. It is conceivable, for example, that some parts of the town were replanned earlier in the fourteenth century, a period when Penrith suffered severely as a result of Scottish raids, being, in the words of one contemporary chronicler, '*completely burnt, destroyed and wasted*' on more than one occasion (Winchester 1979, 3). Indeed, during the 1370s, William Strickland himself acquired substantial holdings within the town, including 23 acres of 'waste' (*ibid*). Although it is not clear to what extent the reconstruction of the town at this time altered the pre-existing layout, such events clearly provide another possible context for the putative change in layout at the Gregg's Bakery site.

6.2.10 Little evidence for subsequent medieval activity was found at the site, though this may have been partly due to the severity of later disturbances. Only a small fragment of a putative building (Phase 4a; Structure ***540***) on the eastern edge of the site, together with a broadly contemporary soil build-up (Phase 4b) to the west, were recorded, and these are not well dated (*Section 3.2.20*). However, on the evidence of the radiocarbon determinations from the preceding phase (Phase 3), they must be of fourteenth-century or later date.

6.2.11 Only a short segment of a single wall survived (***165***; *Section 3.2.16*), but that had been built upon a cobble foundation set in a shallow foundation trench. Whilst there was no indication that the wall had been stone-built, the character of its superstructure was unclear; however, the presence, partly overlying the foundation, of a compact layer of red-brown silty clay (***158***; *Section 3.2.17*) suggests the possibility of clay-walling. In Penrith itself, there is very little archaeological evidence for the architectural development of medieval vernacular buildings. At New Squares, two small, rectangular buildings of probable late medieval/early post-medieval (*c* later sixteenth-seventeenth-century) date had been provided with cobbled footings similar to that of Structure ***540*** (Zant in prep). There, it was suggested that these may have supported either a wholly timber superstructure, or one of clay (*ibid*), though no direct evidence of either technique had survived. However, it is clear that the tradition of clay-walling was widespread in the late medieval and early post-medieval periods across the region (Leech and Gregory 2012, 67-8). Though known mainly from rural contexts (Jennings 2003), clay-walled buildings of this date are attested at local urban centres such as Cockermouth (Leech and Gregory 2012) and Kendal (Newman *et al* in prep), and probable clay-walled structures have been recorded in fifteenth/sixteenth-century tenements on Scotch Street, in Carlisle (Zant and Howard-Davis in prep).

6.2.12 What remains unclear is whether the change from post-built construction in earlier periods to the use of cobble footings and possible clay walling in Structure ***540*** points to an association with the medieval pele at Hutton Hall, built in the last years of the fourteenth century (*Section 6.2.9*). The only evidence that the structure may have been related in some way to Hutton Hall

is provided by its location, *c* 12m west of the site of the medieval pele (Fig 7). According to the earliest post-medieval mapping (*eg* Clarke 1787; Wood *c* 1820), this lay well within the grounds of the hall; however, the curtilage of the medieval pele is not known, so it is conceivable (though perhaps unlikely, given its proximity to the pele) that Structure ***540*** lay beyond its western boundary. Another possibility is that the archaeological evidence from the Gregg's Bakery site simply reflects wider chronological developments in building construction, which saw an increased use of clay walling in the late medieval and early post-medieval periods. In Cockermouth, for example, clay-walled buildings of this period set within burgages on Main Street succeeded one or more phases of wholly timber structures broadly datable to the twelfth/thirteenth-fourteenth century (Leech and Gregory 2012), and a similar structural progression has been recorded in Kendal (Newman *et al* in prep). In Carlisle, the fifteenth/sixteenth-century clay-walled buildings excavated on Scotch Street (*Section 6.2.11*) also invariably replaced a succession of earlier, timber-framed structures (Zant and Howard-Davis in prep), as did that at Kendal (Newman *et al* in prep).

6.2.13 The date at which the first stone-built structure on the site (Phase 5; Structure ***537***) was erected remains problematic (*Section 3.2.25*). If medieval in origin, its stone construction would imply high-status, which would accord with its (presumed) location within the curtilage of medieval Hutton Hall. What its function may have been in a medieval context is also unclear. The remains largely comprised an L-shaped wall (***106***/***174***; *Section 3.2.21*) that could conceivably have defined the north-west corner of the medieval curtilage, though this would have lain less than 15m north-west of the pele. Alternatively, it might possibly have been the wall of a barmkin, a defensive enclosure typical of peles, tower houses and bastle houses in northern England and southern Scotland (Tabraham 1993, 12). At only 0.9m wide, however, the wall was quite narrow in comparison to other examples, for instance, that at Smailholm, in Roxburghshire, which was up to 1.5m thick (Good and Tabraham 1988).

6.2.14 Whilst such an interpretation cannot be ruled out, the presence of hearth ***167*** (*Section 3.2.24*) within the walls suggests that the excavated remains may have been that of a building, though no other contemporary internal features or deposits were recorded. Elsewhere in the region, halls and other structures attached to peles are attested, for example at Smailholm, which had an attached hall and service quarter (Good and Tabraham 1988). If the Phase 5 remains were those of a building, too little remained to determine its function, though the suite of charred plant remains from hearth ***167***, which included abundant cereal grains, predominantly oats but also barley, wheat and rye, together with cereal chaff, might suggest that cereal processing was taking place (*Sections 4.4.5-6*); however, it is also possible that this material was used for kindling.

6.2.15 Although a late medieval date for Phase 5 cannot be completely discounted, what dating evidence there is (*Section 3.2.25*) suggests that Structure ***537*** is more likely to have originated in the post-medieval period (?eighteenth-century), rather than earlier. A further argument against Structure ***537*** being medieval in origin is the absence of any buildings or other structures on the site as depicted on the earliest surviving maps of Penrith, for example on

James Clarke's plan of 1787 (Clarke 1787) or John Wood's map, produced around 1820 (Wood *c* 1820). It could, it is true, be argued that Structure ***537*** had been demolished by the time these maps were surveyed, but this seems at odds with the spatial relationship evident between the Phase 5 walls and those constructed as part of the Phase 6 (eighteenth/nineteenth century) remodelling (*Sections 3.2.26-7*), which reference closely the position of the earlier remains. The obvious inference to be drawn from this is that the earlier walls were still standing at the beginning of Phase 6; otherwise, it would be necessary to argue that the demolished Phase 5 walls were rebuilt at this time, for which there is no good evidence.

6.2.16 On balance, therefore, it seems likely that Structure ***537*** was associated with the later development of Hutton Hall, and this is borne out by the cartographic evidence. The earliest source (Clarke 1787; Fig 6) depicts the hall as having a simple, L-shaped plan, the north-eastern range fronting onto Benson Row, with the main range, incorporating the medieval pele, extending north-east/south-west. At this time, the area investigated clearly lay in an open area north-west of the hall. Wood's map (Wood *c* 1820) shows no range adjacent to Benson Row, but the main range is fronted (on the south-east) by a formal garden onto Friargate, whilst to the rear (north-west), are additional rooms or structures that are not apparent on the earlier plan. Their position at the rear of the hall suggests that these may have comprised service areas, though they do not seem to have extended far enough to the north-west to be associated with Structure ***537***. A similar layout is evident on the Tithe map of 1849 (Anon 1849), which also depicts a narrow range or structure on Benson Row; this is also shown on the Ordnance Survey First Edition map (OS 1867; Fig 7), where various extensions on the back of the building are also visible. The most substantial of these extended *c* 17m north-west from the main part of the hall, and appears to have had additional small rooms appended to its north-western end. Whilst concordance between the mapping and the walls of Structure ***537*** is not exact (Fig 7), it is close in many respects, especially between wall ***174*** (the west wall of Structure ***537*** in Phase 5) and the west wall of the extension, which align precisely. Furthermore, the north-western wall of Structure ***537*** in Phase 6 (***110/122***) appears to align exactly with what seems, on the map, to have been a boundary wall. On this evidence, it seems likely that at least some of the walls excavated in Area 1 were still standing in the second half of the nineteenth century, and may well have been constructed in the earlier part of that century, rather than before.

BIBLIOGRAPHY

CARTOGRAPHIC SOURCES

Anon, 1849 *Map of the parish of Penrith in the county of Cumberland drawn for the commutation of tithes. In two parts: Part I, and plan of Penrith, Part 2,* CRO(C) DRC/8/150

Clarke, J, 1787 A map of the town of Penrith in the county of Cumberland, in J Clarke, *A survey of the Lakes of Cumberland, Westmorland and Lancashire*, London

Ordnance Survey, 1867 1:2500 map, Cumberland sheet LVIII.4, 1st edn

Wood, J, *c* 1820 *Plan of Cumberland*, London

SECONDARY SOURCES

Allen, M, 1994 *The Roman route across the northern Lake District: Brougham to Moresby*, Lancaster

Appleby, AB, 1978 *Famine in Tudor and Stuart England*, Liverpool

Armstrong, AM, Mawer, A, Stenton, FM, and Dickens, B, 1971 *The place-names of Cumberland*, Engl Place-name Soc, **21**/**2**, 2nd edn, Cambridge

Bailey, RN, and Cramp, RJ, 1988 *The British Academy Corpus of Anglo-Saxon stone sculpture: volume 2, Cumberland, Westmorland and Lancashire North-of-the-Sands*, Oxford

Bailey, RN, 2001 The Rey Cross background, in BE Vyner, *Stainmore: the archaeology of a North Pennine pass*, Tees Archaeol Monog Ser, **1**, Hartlepool, 118-20

Barker, D, 1993 *Slipware*, Oxford

Barker, D, 2008 *Medieval Pottery Research Group and English Heritage continued professional training for ceramic archaeologists: course notes*, unpubl doc

Birley, E, 1932 Materials for the history of Roman Brougham, *Trans Cumberland Westmorland Antiq Archaeol Soc*, n ser, **32**, 124-39

Blenkinship, B, 1998 *Wetheriggs Pottery*, Kendal

Bouch, CML, 1950 Ninekirks, Brougham, *Trans Cumberland Westmorland Antiq Archaeol Soc*, n ser, **50**, 80-90

Bouch, CML, 1955 A Dark Age coin hoard from Ninekirks, Brougham, *Trans Cumberland Westmorland Antiq Archaeol Soc*, n ser, **55**, 108-11

Bradley, J, in preparation Medieval and post-medieval pottery, in Zant in preparation

Bradley, J, and Miller, I, 2009 The medieval and post-medieval pottery, in C Howard-Davis (ed), *The Carlisle Millennium Project: excavations in Carlisle, 1998-2001, Volume 2: Finds*, Lancaster Imprints, **15**, Lancaster, 660-77

Brears, PCD, 1971 *The English country pottery*, Newton Abbot

Bronk Ramsey, C, 1995 Radiocarbon calibration and analysis of stratigraphy: the OxCal program, *Radiocarbon*, **37**, 425-30

Bronk Ramsey, C, 1998 Probability and dating, *Radiocarbon*, **40**, 461–74

Bronk Ramsey, C, 2001 Development of the radiocarbon calibration program, *Radiocarbon*, **43**, 355-63

Bronk Ramsey, C, 2009a Bayesian analysis of radiocarbon dates, *Radiocarbon*, **51**, 37–60

Bronk Ramsey, C, 2009b *OxCal 4.1b3 release note*, http://www.rlaha.ox.ac.uk/

Brooks, CM, 2010 The medieval pottery, in ML Hird, and CM Brooks (eds), *Roman and medieval Carlisle: the Lanes Volume 1: excavations at Old Grapes, Crown and Anchor and Lewthwaite's Lanes 1981-2. Fascicule 3: the Roman and medieval pottery*, http//archaeologydataservice.ac.uk/archives/view/southlanes_eh_2010, 85-107

Burl, A, 1979 *The Stone Circles of the British Isles*, New Haven

Campbell, G, 1994 The preliminary archaeobotanical results from Anglo-Saxon West Cotton and Raunds, in J Rackham (ed), *Environment and economy in Anglo-Saxon England*, CBA Res Rep, **89**, York, 65-82

Cappers, RTJ, Bekker, RM, and Jans, JEA, 2006 *Digitalezadenatlas van Nederland*, *Digital seed atlas of the Netherlands*, Groningen

Cappers, RTJ, and Neef, R, 2012 *Handbook of plant palaeoecology*, Groningen

Carruthers, W, 2010a Charred plant remains, in P Crane and K Murphy, Early medieval settlement, iron smelting and crop processing at South Hook, Herbranston, Pembrokeshire, 2004-05, *Archaeol Cambrensis*, **159**, 163-81

Carruthers, W, 2010b The plant remains, in C Harding, E Marlow-Mann, and S Wrathmell, *Wharram: a study of settlement on the Yorkshire Wolds*, *XII. The post-medieval farm and vicarage sites*, Univ York Archaeol Rep, **14**, York, 287-313

CgMs Consulting Ltd, 2011 *Archaeological desk-based assessment, Hutton Hall bakery, Benson Row, Penrith, Cumbria*, unpubl rep

Collingwood, WG, 1923 The Giant's Grave, Penrith, *Trans Cumberland Westmorland Antiq Archaeol Soc*, n ser, **23**, 115-28

Cooper, W, 1835 *The crown glass cutter and glazier's manual*, London

Cumbria County Council, 2002 *Extensive Urban Survey: archaeological assessment report,* unpubl rep

Curwen, JF, 1918 Penrith Castle, some suggestions and notes from the Patent Rolls as an addition to Dr Haswell's description contained in these Transactions, ns, vii, *Trans Cumberland Westmorland Antiq Archaeol Soc*, n ser, **18**, 174-88

Department of Communities and Local Government (DCLG), 2012 *National Planning Policy Framework*, London

Draper, J, 1984 *Post-medieval pottery 1650-1800*, Princes Risborough

Druce, D, forthcoming *The wood charcoal from Tipping Street, Stafford*

Druce, D, in preparation Charred plant remains and charcoal, in Zant in preparation

Drury, D, 1998 Stainmore, Cumbria: archaeological investigation on the A66 Stainmore to Banks Gate road improvement scheme, *Trans Cumberland Westmorland Antiq Archaeol Soc*, n ser, **98**, 119-32

Earle, J, and Plummer, C, 1892 *Two of the Saxon chronicles*, Oxford

Edlin, HL, 1949 *Woodland crafts in Britain*, London

English Heritage, 1991 *Management of archaeological projects*, 2nd edn, London

Fair, MC, 1945 An interim review of types of bronze spearheads and axes of Cumberland, Westmorland and Lancashire North-of-the-Sands, *Trans Cumberland Westmorland Antiq Archaeol Soc*, n ser, **45**, 172-8

Fell, C, 1972 Neolithic finds from Brougham, *Trans Cumberland Westmorland Antiq Archaeol Soc*, n ser, **72**, 36-43

Frodsham, PNK, 1989 Two newly discovered cup and ring-marked stones from Penrith and Hallbankgate, with a gazetteer of all known megalithic carvings in Cumbria, *Trans Cumberland Westmorland Antiq Archaeol Soc*, n ser, **89**, 1-19

Gale, R, 2007 The charcoal, in F Brown, C Howard-Davis, M Brennand, A Boyle, T Evans, S O'Connor, A Spence, R Heawood, and A Lupton, *The archaeology of the A1 (M) Darrington to Dishforth DBFO Road Scheme*, Lancaster Imprints, **12**, Lancaster, 354-8

Gelling, M, 1984 *Place-names in the landscape*, London

Giecco, F O, 2004 *Assessment report on an archaeological excavation at 42-48 Scotch Street, Carlisle, Cumbria*, North Pennines Archaeol, unpubl rep

Good, GL, and Tabraham, CJ, 1988 Excavations at Smailhom Tower, Roxburghshire, *Proc Society Antiq Scot*, **118**, 231-66

Gooder, E, 1984 The finds from the cellar of the Old Hall, Temple Balsall, Warwickshire, *Post-medieval Archaeol*, **18**, 149-249

Graham, THB, 1922 Langwathby and Penrith, *Trans Cumberland Westmorland Antiq Archaeol Soc*, n ser, **22**, 122-33

Greig, J, 1991 The British Isles, in W Van Zeist, K Wasylikowa, and KE Behre (eds), *Progress in Old World palaeoethnobotany*, Rotterdam, 299-332

Hall, AR, 2003 *Recognition and characterisation of turves in archaeological occupation deposits by means of macrofossil plant remains*, Centre Archaeol Rep, **16/2003**, unpubl rep

Hall, AR, and Huntley, JP, 2007 *A review of the evidence for macrofossil plant remains from archaeological deposits in northern England*, Engl Heritage Res Depart Rep Ser, **87-2007**, London

Hammond, P, 2005 *Food and feast in medieval England*, Gloucester

Haswell, F, 1903 Notes on the friary at Penrith, *Trans Cumberland Westmorland Antiq Archaeol Soc*, n ser, **3**, 350-2

Haswell, F, 1907 The castle of Penrith, *Trans Cumberland Westmorland Antiq Archaeol Soc*, n ser, **7**, 281-91

Hather, JG, 2000 *The identification of the northern European woods*, London

Hillman, G, 1981 Reconstructing crop husbandry practices from charred remains of crops, in R Mercer (ed), *Farming practice in British prehistory*, Edinburgh, 123-62

Hindle, BP, 1977 Medieval roads in the Diocese of Carlisle, *Trans Cumberland Westmorland Antiq Archaeol Soc*, n ser, **77**, 83-95

Hodgson, J, and Brennand, M, 2006 Prehistoric period resource assessment, in M Brennand (ed), *The archaeology of north-west England: an archaeological research framework for the north-west region. Volume 1: resource assessment*, Archaeol North-West, **8**, Manchester, 23-58

Hooke, D, 2003 Trees in the Anglo-Saxon landscape: the charter evidence, in CP Biggam (ed), *From earth to art: the many aspects of the plant-world in Anglo-Saxon England,* Proc First ASPNS Symposium, Univ Glasgow, 5-7th April 2000, Amsterdam, 17-40

Huckerby, E, 2003 An assessment of the grain from context (20), in LJ Dodd, *Residential development on land at 'The Lamb Inn', Cheshire Street, Audlem, Cheshire: a programme of archaeological excavation*, unpubl rep, 55-6

Huckerby, E, and Graham, F, 2009 Waterlogged and charred plant remains, in C Howard-Davis (ed), *The Carlisle Millennium Project: excavations in Carlisle, 1998-2001, Volume 2: Finds*, Lancaster Imprints, **15**, Lancaster, 926-36

Hudleston, F, 1930 Penrith Castle, *Trans Cumberland Westmorland Antiq Archaeol Soc*, n ser, **30**, 13-26

Huntley, JP, 1989 *Plant remains from Stricklandgate, Kendal, Cumbria*, AML rep, **65/89**, unpubl rep

Huntley, JP, 2000 The plant and wood remains, in MR McCarthy, *Roman and medieval Carlisle: the southern Lanes, excavations 1981–2*, Univ Bradford Res Rep, **1**, Carlisle, 71-81

Huntley, JP, 2010 *Northern England; a review of wood and charcoal recovered from archaeological excavations in northern England*, Engl Heritage Res Dept Rep Ser, **68/2010**, London

Huntley, JP, and Huckerby, E, in preparation The plant remains, in C Howard-Davis, I Miller, RM Newman, and N Hair, *Excavations at the Mitchell's Brewery site, Church Street, Lancaster*

Huntley, JP, and Stallibrass, S, 1995 *Plant and vertebrate remains from archaeological sites in northern England*, Durham

Hurst Vose, R, 1980 *Glass*, London

Institute for Archaeologists, 2006 *Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives*, Reading

Institute for Archaeologists, 2008 *Standard and guidance for archaeological excavation*, Reading

Institute for Archaeologists, 2012 *Code of conduct*, Reading

Jackson, MJ, 1990 *Castles of Cumbria*, Carlisle

James, R, 2006 A Bronze Age enclosure and cremation cemetery on Leacet Hill, Brougham, *Trans Cumberland Westmorland Antiq Archaeol Soc*, 3 ser, **6**, 27-43

Jefferson, S, 1840 *The history and antiquities of Leath Ward, in the County of Cumberland*, Carlisle

Jennings, N, 2003 *Clay dabbins: vernacular buildings of the Solway Plain*, Cumberland Westmorland Antiq Archaeol Soc, Extra Ser, **30**, Kendal

Jones, B, *c* 1975 *Notes on the history of Penrith*, CRO(C) unpubl doc

Jones, G, and Halstead, P, 1995 Maslins, mixtures and monocrops: on the interpretation of archaeobotanical crop samples of heterogeneous composition, *J Archaeol Sci*, **22(1)**, 103-14

Lambert, J (ed), 1996 *Transect through time: the archaeological landscape of the Shell North-Western ethylene pipeline*, Lancaster Imprints, **1**, Lancaster

LDNPA, 2013 *Troutbeck Conservation Area: Conservation Area appraisal and management plan*, Draft 2, May 2013, unpubl rep

Leech, RH, and Gregory, RA, 2012 *Cockermouth, Cumbria: archaeological investigation of three burgage plots in Main Street*, Cumbria Archaeol Res Rep, **3**, Bowness-on-Windermere

Lewis, J, 2002 Sefton rural fringes, in J Lewis and R Cowell (eds), The archaeology of a changing landscape: the last thousand years in Merseyside, *J Merseyside Archaeol Soc*, **11**, 5-88

McCarthy, MR, and Brooks, CM, 1992 The establishment of a medieval pottery sequence in Cumbria, England, in D Gaimster and M Redknap (eds), *Everyday and exotic pottery from Europe* c *650-1900*, Oxford, 21-37

McCarthy, MR, and Taylor, J, 1990 Pottery of the Anglo-Saxon to post-medieval periods, in MR McCarthy, *A Roman, Anglian, and medieval site at Blackfriars Street, Carlisle*, Cumberland Westmorland Antiq Archaeol Soc, Res Ser, **4**, Kendal, 301-11

Margary, ID, 1973 *Roman roads in Britain*, 3rd edn, London

Medieval Pottery Research Group, 2001 *Minimum standards for the processing, recording, analysis, and publication of post-Roman ceramics*, Medieval Pottery Res Group Occ Pap, **2**, London

Miller, I, 2011 The post-Roman pottery from the medieval defensive ditches, in J Zant, I Miller, Q Mould, and C Howard-Davis, The northern defences of medieval Carlisle: excavations at Rickergate 1998-9, in RM Newman (ed), *Carlisle: excavations at Rickergate, 1998-9 and 53-55 Botchergate, 2001*, Cumbria Archaeol Res Rep, **2**, Bowness-on-Windermere, 30-8

Miller, I, 2012 Post-Roman pottery, in Leech and Gregory 2012, 37-46

Millward, R, and Robinson, A, 1974 *The Lake District*, 2nd edn, London

Moffett, L, 2006 The archaeology of medieval plant foods, in CM Woolgar, D Serjeantson, and T Waldron (eds), *Food in medieval England, diet and nutrition*, Oxford, 41-55

Moseley, F, 1978 *The geology of the Lake District*, Leeds

Munby, J, 1985 Medieval Kendal: the first borough charter and its connexions, *Trans Cumberland Westmorland Antiq Archaeol Soc*, n ser, **85**, 95-114

Newman, RM, 1996 The Dark Ages, in R Newman (ed), *The archaeology of Lancashire: present state and future priorities*, Lancaster, 93-107

Newman, RM, 2006 The early medieval period resource assessment, in M Brennand (ed), *The archaeology of north-west England: an archaeological research framework for the north-west region. Volume 1: resource assessment*, Archaeol North-West, **8**, Manchester, 91-114

Newman, RM, Hair, NJ, Howard-Davis, C, Brooks, C, and White, AJ, 2000 Excavations at Penrith Market, 1990, *Trans Cumberland Westmorland Antiq Archaeol Soc*, n ser, **100**, 105-30

Newman, RM, Hair, NJ, and Heawood, RGL, in preparation *Excavations in Kendal 1988–2002*

Nicolson, J, and Burn, R, 1777 *The history and antiquities of the Counties of Westmorland and Cumberland*, **2**, London

Noel Hume, I, 1969 *A guide to the artifacts of colonial America*, Philadelphia

OA North, 2005 *Two Lions Inn, Great Dockray, Penrith, Cumbria: archaeological building assessment,* unpubl rep

OA North, 2006 *Two Lions public house, Great Dockray, Penrith, Cumbria: archaeological desk-based assessment and building investigation,* unpubl rep

OA North, 2007 *Hornby Village Institute, Hornby, Lancashire: palaeoenvironmental report*, unpubl rep

OA North, 2011 *Joint Service Centre, Millgate, Wigan, Greater Manchester: archaeological excavation report*, unpubl rep

OA North, 2013 *Former Gregg's Bakery, Hutton Hall, Benson Row, Penrith, Cumbria: interim report*, unpubl rep

Oliver, T, Howard-Davis, C, and Newman, RM, 1996 A post-Roman settlement at Fremington, near Brougham, in Lambert 1996, 127-69

Parker, FHM, 1905 Inglewood Forest, *Trans Cumberland Westmorland Antiq Archaeol Soc*, n ser, **5**, 35-61

Parker, FHM, 1906 Inglewood Forest: part II, *Trans Cumberland Westmorland Antiq Archaeol Soc*, n ser, **6**, 159-70

Perriam, DR, 2008 William Strickland's tower in Penrith: Penrith Castle or Hutton Hall?, *Engl Heritage Hist Rev*, **3**, 36-45

Perriam, DR, and Robinson, J, 1998 *The medieval fortified buildings of Cumbria: an illustrated gazetteer and research guide*, Cumberland Westmorland Antiq Archaeol Soc, Extra Ser, **29**, Kendal

Pevsner, N, 1967 *The buildings of England: Cumberland and Westmorland*, Harmondsworth

Phythian-Adams, C, 1996 *Land of the Cumbrians: a study in British provincial origins AD 400-1120*, Aldershot

Rackham, O, 2003 *Ancient woodland, its history, vegetation and uses in England*, Colvend

Reimer, PJ, Baillie, MGL, Bard, E, Bayliss, A, Beck, JW, Blackwell, PG, Bronk Ramsey, C, Buck, CE, Burr, GS, Edwards, RL, Friedrich, M, Grootes, PM, Guilderson, TP, Hajdas, I, Heaton, TJ, Hogg, AG, Hughen, KA, Kaiser, KF, Kromer, B, McCormac, FG, Manning, SW, Reimer, RW, Richards, DA, Southon, JR, Talamo,

S, Turney, CSM, van der Plicht, J, and Weyhenmeyer, CE, 2009 IntCal09 and Marine09 radiocarbon age calibration curves, 0-50,000 years cal BP, *Radiocarbon*, **51**(**4**), 1111-50

Richardson, C, 1998 A catalogue of recent acquisitions to Tullie House Museum and reported finds from the Cumbrian area 1990-1996. Part I: Tullie House accessions, *Trans Cumberland Westmorland Antiq Archaeol Soc*, n ser, **98**, 1-60

Rivet, ALF, and Smith, C, 1981 *The place-names of Roman Britain*, 2nd edn, London

Robinson, M, 1997 Charred plant remains from a medieval pottery kiln, in G Hayman, The excavation of two medieval pottery kiln sites and two sections through the London-Lewes Roman road at Clacket Lane, near Titsey, 1992, *Surrey Archaeol Collect*, **84**, 1-87

Samford, PM, 1997 Response to a market: dating English under-glazed transfer-printed wares, *Hist Archaeol*, **31** (2), 1-30

Schweingruber, FH, 1990 *Microscopic wood anatomy*, 3rd edn, Swiss Federal Institute for Forest, Snow and Landscape Research, Birmensdorf

Shotter, DCA, 2004 *Romans and Britons in North-West England*, 3rd edn, Lancaster

Shurtleff, W, and Aoyagi, A, 2012 *The history of soy sauce 160CE to 2012*, Lafayette

Simpson, WD, 1958 *Brocavum*, Ninekirks and Brougham: a study in continuity, *Trans Cumberland Westmorland Antiq Archaeol Soc*, n ser, **58**, 68-87

Smith, W, 2002 *A review of archaeological wood analyses in southern England*, Centre for Archaeol Rep, **75/2002**, unpubl rep

Spence, JE, 1940 Report of the Committee for Prehistoric Studies, 1937-1939, *Trans Cumberland Westmorland Antiq Archaeol Soc*, n ser, **40**, 99-117

Stace, C, 2010 *New flora of the British Isles*, 3rd edn, Cambridge

Stokes, P, and Rowley-Conwy, P, 2002 Iron Age cultigen? Experimental return rates for fat hen (*Chenopodium album* L.), *Environmental Archaeol*, **7**, 95-99

Stuiver, M, and Polach, HA, 1977 Reporting of 14C data, *Radiocarbon*, **19**, 355-63

Stuiver, M, and Reimer, PJ, 1986 A computer program for radiocarbon age calculation, *Radiocarbon*, **28**, 1022-30

Tabraham, CJ (ed), 1993 *Smailholm Tower*, Edinburgh

Taylor, K, in prep *Building investigation at the former Two Lions Inn, Penrith*

Taylor, MW, 1892 *Old manorial halls of Westmorland and Cumberland*, Trans Cumberland Westmorland Antiq Archaeol Soc, Extra Ser, **8**, Kendal

United Kingdom Institute for Conservation (UKIC), 1984 *Environmental standards for the permanent storage of excavated material from archaeological sites*, UKIC Conservation Guidelines, **3**, London

van der Veen, M, 1992 *Crop husbandry regimes*, Sheffield Archaeol Monog, **3**, Sheffield

Walker, K, 1990 *Guidelines for the preparation of excavation archives for long-term storage*, UKIC, London

Ward, GK, and Wilson, SR, 1978 Procedures for comparing and combining radiocarbon age determinations: a critique, *Archaeometry*, **20**, 19-31

Watson, G, 1901 Gerard Lowther's house, Penrith (Two Lions Inn): its purchase by him, descent, and social life associated with its subsequent owners, *Trans Cumberland Westmorland Antiq Archaeol Soc*, n ser, **1**, 94-103

Weston, D, 2000 *Carlisle Cathedral history*, Carlisle

White, A, 1996 Medieval towns, in R Newman (ed), *The archaeology of Lancashire: present state and future priorities*, Lancaster, 125-38

Wilmott, T, 2004 Roman Brougham in its regional setting, in HEM Cool, *The Roman cemetery at Brougham, Cumbria*, Britannia Monog Ser, **21**, London, 2-8

Winchester, AJL, 1979 *Four historic Cumbrian towns*, unpubl rep for Cumbria County Council

Winchester, AJL, 1982 *Reconstructing medieval landscapes*, unpubl doc

Winchester, AJL, 1986 Medieval Cockermouth, *Trans Cumberland Westmorland Antiq Archaeol Soc*, n ser, **86**, 109-28

Winchester, AJL, 1987 *Landscape and society in medieval Cumbria*, Edinburgh

Winchester, AJL, 2012 Historical background, in Leech and Gregory 2012, 1-5

Zant, J, 2009 Archaeological investigations on the A66 at Temple Sowerby, *Trans Cumberland Westmorland Antiq Archaeol Soc*, 3 ser, **9**, 29-46

Zant, J, in preparation *Excavations at New Squares, Penrith, 2008*

Zant, J, and Howard-Davis, C, in preparation *Roman and medieval Carlisle: the northern Lanes. Volume 2: the post-Roman period*

APPENDIX 1: PROJECT DESIGN

1. INTRODUCTION

1.1 PROJECT BACKGROUND

1.1.1 CgMs Consulting, on behalf of their client McCarthy and Stone, has requested that Oxford Archaeology North (OA North) prepare a project design to undertake a programme of archaeological mitigation recording at the former site of Gregg's Bakery, Hutton Hall, Benson Row, Penrith, Cumbria (centred NGR NY 517). This follows a programme of evaluation trenching equating to 140m² in March 2013, wherein medieval and later deposits were successfully demonstrated to exist.

1.1.2 Planning permission has been granted for residential development on the site, specifically the construction of apartments for the elderly, with associated landscaping and car parking.

1.1.3 A desk-based assessment was undertaken by CgMs in February 2011 to support the planning application, from which the potential for medieval and post-medieval below ground remains to survive was assessed as moderate, positioned mainly within the central and southern portions of the development area, where there had been limited disturbance from previous building groundworks. This area was targeted by the first phase of trial trenching to inform the planning application, undertaken by OA North in November 2011, and the garden soils observed corroborated with cartographic evidence that this area of the site had never been developed. Most of the area of archaeological potential was identified in the desk-based assessment along the northern and eastern sides of the site, where the buildings of the former bakery were situated, and could not, therefore, be investigated until the buildings have been removed. Therefore, the second phase of trenching to complete the evaluation of the site was carried out as a condition to the planning permission in March 2013.

1.1.4 During this latest phase, two of the three trenches excavated successfully demonstrated the survival of medieval and later deposits and features. These comprised, in Trench 1 on the Benson Street frontage, a medieval occupation layer, dated by thirteenth to fifteenth century pottery, which contained a boulder wall and two hearths. Lying above these features was a structure comprising two stone walls of differing construction techniques, with laminated floor surfaces lying between them. The south-eastern wall may have also had its origins within the medieval period. A large ditch over 4m wide was revealed within Trench 2, to the rear of Hutton Hall, although it lacked dating evidence.

1.1.5 Consequently, Cumbria County Council's Historic Environment Service (CCCHES) has requested that a programme of mitigation recording is required ahead of the development, in order to preserve the archaeological deposits by record.

1.2 OXFORD ARCHAEOLOGY NORTH

1.2.1 OA North has considerable experience of the excavation of sites of all periods, having undertaken a great number of small and large-scale projects throughout Northern England during the past 30 years. Evaluations, desk-based assessments, watching briefs and excavations have taken place within the planning process, to fulfil the requirements of clients and planning authorities, to very rigorous timetables. OA North has the professional expertise and resources to undertake the project detailed below to a high level of quality and efficiency. OA North is an Institute for Archaeologists (IfA) registered organisation, registration number 17, and all its members of staff operate subject to the IfA Code of Conduct (2012).

2. AIMS AND OBJECTIVES

2.1 ACADEMIC AIMS

2.1.1 The main research aim of the investigation, given the commercial nature of the development, will be to establish the presence or absence of buried archaeological remains on the site and, if

present, compile a detailed record to mitigate their destruction during the course of the development. This is in accordance with the National Planning Policy Framework (NPPF), which sets out the Government's planning policies on the conservation of the historic environment (Section 12.26-141, DCLG 2012).

2.2 OBJECTIVES

2.2.1 The following programme or work has been designed in accordance with CCCHES' request to excavate 150m² around Trench 1 (indicative area shown on Fig 1 but may be subject to alteration depending on the findings), and extend the area north- and southwards around ditch ***204*** by 5m in Trench 2 (Fig 1). The objectives of the project may be summarised as follows:

- the main objective is to determine the presence or absence of any additional, as yet unknown, buried remains of archaeological interest within the proposed development area, associated with the medieval deposits recorded during the evaluation;
- to investigate the nature, extent and significance of the medieval and post-medieval remains;
- to fully reveal the stone structure identified within Trench 1;
- to determine the nature and purpose of the ditch ***204*** and investigate the potential for any dating evidence;
- to establish the significance of the ditch ***204*** to historic Penrith;
- to contribute to the corpus of remains for the town of Penrith, which has relatively few archaeological interventions, and is little understood;
- to compile an archival record of any archaeological remains within the development area.

2.2.2 To these ends, the following programme of archaeological work has been designed, in accordance with normal CCCHES requirements, and in line with English Heritage (2006) and the Institute for Archaeologists (IfA) (2008a, b and 2012) standards and guidelines.

- ***Archaeological recording:*** to undertake a programme of excavation and recording, to determine the presence, depth, quality, extent and importance of any archaeological remains on the site to mitigate their removal.
- ***Report and Archive:*** a report, detailing the results of both the second phase of trenching and the follow-up mitigation recording, will be produced for the client within six weeks of completion of the fieldwork, unless it becomes evident during the fieldwork that a more formal process of post-excavation assessment and analysis will be required. If so, this will be discussed with the client and CCCHES and a schedule agreed. A site archive will be produced to English Heritage (2006) and UKIC (1990) guidelines.

3. HEALTH AND SAFETY

3.1 ***Risk Assessment:*** OA North provides a Health and Safety Statement for all projects and maintains a Company Safety policy. All site procedures are in accordance with the guidance set out in the Health and Safety Manual compiled by the Standing Conference of Archaeological Unit Managers (1997). A written risk assessment will be undertaken in advance of project commencement and copies will be made available on request to all interested parties.

3.2 ***Services and other constraints:*** full regard will, of course, be given to all constraints (services etc) during the investigation, as well as to all Health and Safety considerations. As a matter of

course the field team will use a Cable Avoidance Tool (CAT) and Signal Generator prior to any excavation to test for services. However, this is only an approximate location tool, and will be used in conjunction with drawings or knowledge of live cables or services within the area received from the client.

3.3 ***Contamination:*** any known contamination issues or any specific health and safety requirements on site should be made known to OA North by the client to ensure all procedures can be met, and that the risk is dealt with appropriately. Should any presently unknown contamination be discovered during excavation, it may be necessary to halt the works and reassess the risk assessment. Should it be necessary to supply additional PPE or other contamination avoidance equipment this will be costed as a variation.

3.4 ***Staff issues:*** all project staff will be CSCS qualified, proof of which can be provided in the form of CSCS cards. All project staff will wear full basic PPE whilst on site, to include safety helmets, safety boots and high-visibility jackets. Noise defenders and eye protectors will be made available to staff as necessary.

3.5 A toilet and hand washing facilities is required and can be provided and positioned on or adjacent to the site, unless the client would prefer to arrange alternative facilities. Therefore, the cost has been provided as a contingency item.

3.6 ***Fencing requirements:*** the archaeological groundworks area will be protected with barrier tape whilst open as it is assumed that the site is currently still closed off to any public access. Any other requirements for fencing at the client's request may be charged as a variation.

3.7 ***Insurance:*** OA North has professional indemnity to a value of £2,000,000, employer's liability cover to a value of £10,000,000 and public liability to a value of £15,000,000. Written details of insurance cover can be provided if required.

4. METHOD STATEMENT

4.1 EXCAVATION AND RECORDING

4.1.1 ***Methodology:*** the modern overburden and subsoils will be removed with a mechanical excavator, using a toothless bucket in the identified areas (Fig 1) down to the first significant archaeological layer, and any further excavation will continue by hand in an archaeological manner by OA North staff. This will accurately record the location, extent, and character of any surviving archaeological features and/or deposits within the identified mitigation areas. Any features identified will then be manually excavated through to natural deposits. The mechanical excavator is likely to be used to excavate a section through ditch ***204***, however, to remove the recorded fill and subsequently hand-excavate one of the sections.

4.1.2 Should any discrete significant archaeological features (e.g. structures or hearths) be found to extend beyond the identified mitigation areas it may be required to similarly extend the excavation area for purposes of investigation, although this will be agreed with the County Historic Environment Service and CGMS in advance. Should this affect the scheduled timetable on site, a variation to the costs may also need to be agreed.

4.1.3 Pits will initially be subject to a 50% by volume controlled stratigraphic excavation, with the remainder of the feature to be removed in entirety if further information can be gained. The sampling percentage will not be limited to resource availability. Postholes and postpits will be fully excavated.

4.1.4 Linear cut features, such as ditches and gullies, will initially be subject to a 20% by volume controlled stratigraphic excavation, with the excavation concentrating on any terminals and intersections with other features which would provide important stratigraphic information. As with pits and postholes, should it prove necessary to remove the remainder of the feature to expose underlying features and/or deposits, it will be excavated rapidly keeping only that dating evidence which is securely derived from the feature in question.

4.1.5 If features/deposits are revealed which need to be removed and which are suitable for machine excavation, such as large scale dump deposits or substantial linear cut features, then they would be sample excavated to confirm their homogeneity before being removed by machine.

4.1.6 Structural remains will be excavated manually to define their extent, nature, form and, where possible, date. Any hearths and/or internal features will be 100% sample excavated to provide information on their date and function, and the extent of any associated floor surfaces will be determined.

4.1.7 All information identified in the course of the site works will be recorded stratigraphically, using a system adapted from that used by the Centre for Archaeology Service of English Heritage and in accordance with IfA guidelines. From this a complete stratigraphic sequence and Harris Matrix can be compiled during the process of the site work. This information will be made available for inspection during monitoring visits.

4.1.8 A complete pictorial record, including plans and sections (at an appropriate scale of 1:20 and 1:10), will be maintained. The results will be recorded on *pro forma* context sheets. Primary records will be available for inspection at all times. A photographic record in monochrome film and colour digital images will be undertaken simultaneously.

4.1.9 If feasible, the area will be planned digitally by experienced surveyors utilising GPS to record the site according to OS co-ordinates. In this case, a Leica differential GPS will be employed that uses real-time (RTK) corrections using mobile SmartNet technology to achieve an accuracy of ± 0.01m. The accuracy of the OA North GPS system provides for a quick and effective means of recording the position and extent of sites. The digital survey data will be transferred, via Leica Geo Office (V.4), as shp files into a CAD system (AutoCAD Map 2004), and superimposed onto the embedded digital OS data. Should coverage prevent the use of GPS, a EDM Total Station will be used, based on a site grid related to the national grid obtained from client base mapping. However, this is obviously a much slower process. The mapping will include height information across the stripped natural to allow contour modelling of the site should it be required during the post-excavation process.

4.1.10 A plan will be produced of the areas of groundworks showing the location and extent of the ground disturbance and one or more dimensioned sections will be produced.

4.2 GENERAL PROCEDURES

4.2.1 ***Environmental Sampling:*** environmental samples (bulk samples of 40 litres volume, to be sub-sampled at a later stage) will be collected from suitable deposits (i.e. the deposits are reasonably well dated and are from contexts the derivation of which can be understood with a degree of confidence). Where such deposits are encountered, an appropriate sampling strategy in accordance with English Heritage Guidelines for Environmental Archaeology (2002) will be employed.

4.2.2 Samples will also be collected for technological, pedological and chronological analysis as appropriate. If necessary, access to conservation advice and facilities can be made available. OA North maintains close relationships with Ancient Monuments Laboratory staff at the Universities of Durham and York and, in addition, employs artefact and palaeoecology specialists with considerable expertise in the investigation, excavation and finds management of sites of all periods and types, who are readily available for consultation.

4.2.3 ***Finds:*** all finds recovered during the investigation will be exposed, lifted, cleaned, conserved, marked, bagged and boxed in accordance with the United Kingdom Institute for Conservation (UKIC) *First Aid For Finds*, 1998 (new edition) and the recipient museum's guidelines.

4.2.4 Finds recovery and sampling programmes will be in accordance with best practice (current IfA guidelines) and subject to expert advice. OA has close contact with Ancient Monuments Laboratory staff at the Universities of Durham and York and, in addition, employs in-house artefact and palaeoecology specialists, with considerable expertise in the investigation, excavation, and finds management of sites of all periods and types, who are readily available

for consultation. Finds storage during fieldwork and any site archive preparation will follow professional guidelines (UKIC). Emergency access to conservation facilities is maintained by OA North with the Department of Archaeology, the University of Durham.

4.2.5 Neither artefacts nor ecofacts will be collected systematically during the mechanical excavation of the topsoil unless significant deposits, for example clay pipe waster dumps, are encountered. In such an eventuality, material will be sampled in such a manner as to provide data to enhance present knowledge of the production and dating of such artefacts, although any ensuing studies will not be regarded as a major element in any post-excavation analysis of the site. Other finds recovered during the removal of overburden will be retained only if of significance to the dating and/or interpretation of the site. It is not anticipated that ecofacts (e.g. unmodified animal bone) will be collected during this procedure.

4.2.6 All material will be collected and identified by stratigraphic unit during the excavation process. Hand collection by stratigraphic unit will be the principal method of collection, but targeted on-site sieving could serve as a check on recovery levels. Objects deemed to be of potential significance to the understanding, interpretation and dating of individual features, or of the site as a whole, will be recorded as individual items, and their location plotted in 3-D. This may include, for instance, material recovered from datable medieval pit groups.

4.2.7 Finds will be administered at regular intervals and removed from the site in order that they can be processed as the excavation proceeds back at OA North offices. All finds will be treated in accordance with OA standard practice, which is cognisant of IfA and UKIC Guidelines. In general this will mean that (where appropriate or safe to do so) finds are washed, dried, marked, bagged and packed in stable conditions; no attempt at conservation will be made unless special circumstances require prompt action. In such case guidance will be sought from OA North's consultant conservator.

4.2.8 Where possible, spot dates will be obtained on pottery and other finds recovered from the site. Artefacts will be examined and commented upon by OA North in-house specialists. Initial artefact dating shall be integrated into the site matrix.

4.2.9 Any gold and silver artefacts recovered during the course of the excavation will be removed to a safe place and reported to the local Coroner according to the procedures relating to the Treasure Act, 1996. Where removal cannot take place on the same working day as discovery, suitable security will be employed to protect the finds from theft.

4.2.10 ***Radiocarbon Assay:*** should deposits, or material within deposits, suitable for radiocarbon assay be encountered, samples will be taken wherever possible. Such material may also be collected from material sampled for environmental analysis.

4.3 REPORT AND ARCHIVE

4.3.1 ***Report:*** information obtained during the evaluation phase suggests that the potential for obtaining palaeoenvironmental samples and retrieving many artefacts is relatively low. Therefore, it is proposed that the results from the post-excavation phase be combined with those yet to be reported on for the second phase of evaluation trenching into a standard OA North client report. Should it become apparent during the mitigation recording, however, that the more formal process of undertaking a post-excavation assessment of the archive and subsequent analysis, with reporting at the end of each phase, be required this will be discussed with the client and CCCHES and a separate appropriate proposal and costs for undertaking such a process agreed.

4.3.2 A draft report will be submitted to the client for approval or any amendments required. Thereafter, a digital copy of the finalised report will be submitted to the client and copies to CCCHES and the HER. The report will include:

- a front cover to include the planning application number and the NGR;
- a site location plan, related to the national grid;

- the dates on which the fieldwork was undertaken;
- a concise, non-technical summary of the results;
- a description of the methodology employed, work undertaken and results obtained;
- plans and sections at an appropriate scale, showing the location of features;
- other illustrations and photographic plates showing, as appropriate, features of interest or to demonstrate the absence of archaeological features;
- the report will also include a complete bibliography of sources from which data has been derived;
- a copy of this project design as an appendix, and indications of any agreed departure from that design.
- costed recommendations for appropriate post-excavation assessment works (if required), the results of which will be incorporated into a revised version of the report. Such a programme of assessment might make recommendations for further analysis and publication.

4.3.3 ***Archive:*** the results of all archaeological work carried out will form the basis for a full archive to professional standards, in accordance with current English Heritage guidelines (*MAP 2*, second edition, 1991). The project archive represents the collation and indexing of all the data and material gathered during the course of the project. It will include summary processing and analysis of all features, finds, or palaeo-environmental data recovered during fieldwork, which will be catalogued by context. All artefacts will be processed to MAP2 standards and will be assessed by our in-house finds specialists.

4.3.4 The deposition of a properly ordered and indexed project archive in an appropriate repository is considered an essential and integral element of all archaeological projects by the IfA in that organisation's code of conduct. OA North conforms to best practice in the preparation of project archives for long-term storage. This archive will be provided in the English Heritage Centre for Archaeology format and a synthesis will be submitted to the Cumbria HER (the index to the archive and a copy of the report). OA North practice is to deposit the original record archive of projects from Cumbria with the County Record Office, Kendal. The material archive (artefacts and ecofacts) will be offered initially for deposition with Penrith Museum, and then with Tullie House Museum following agreement with the client.

4.3.5 ***Collation of data:*** the data generated will be collated and analysed in order to provide an assessment of the nature and significance of the archaeological remains identified.

4.3.6 The Arts and Humanities Data Service (AHDS) online database project Online Access to index of Archaeological Investigations (OASIS) will be completed as part of the archiving phase of the project.

4.3.7 ***Confidentiality:*** all internal reports to the Client are designed as documents for the specific use of the Client, for the particular purpose as defined in the project brief and project design, and should be treated as such. They are not suitable for publication as academic documents or otherwise without amendment or revision. Any requirement to revise or reorder the material for submission or presentation to third parties beyond the project brief and project design, or for any other explicit purpose, can be fulfilled, but will require separate discussion and funding.

4.4 PUBLICATION

4.4.1 It is anticipated that the results of the excavation will be worthy of publication. Although the precise format of any such publication will necessarily await completion of the fieldwork

stage, it is anticipated that at the very minimum a note with the *Transactions of the Cumberland and Westmorland Antiquarian and Archaeological Society*.

5. OTHER MATTERS

5.1 WORK TIMETABLE

5.1.1 ***Archaeological Excavation and Recording:*** the duration of this element is anticipated to be between 2-3 weeks on site.

5.1.2 ***Report and Archive:*** a report will be submitted within six weeks of the completion of the fieldwork, and the archive will be completed within six months.

5.2 PROJECT MONITORING

5.2.1 Whilst the work is undertaken for the client, CCCHES will be kept fully informed of the work and its results, and will be notified a week in advance of the commencement of the fieldwork. Any proposed changes to the project design will be agreed with CCCHES in consultation with the client.

5.3 SPOIL AND REINSTATEMENT

5.3.1 Due to the site being currently between the demolition phase and construction works commencing in the near future, it is not proposed to reinstate the excavated areas or redistribute the spoil, unless specifically instructed by the client.

5.4 STAFFING PROPOSALS

5.4.1 The project will be under the direct management of **Emily Mercer** (OA North Senior Project Manager) to whom all correspondence should be addressed.

5.4.2 The excavation will be supervised in the field by **Jeremy Bradley** (OA North project officer). Jeremy has worked on the two previous evaluation phases of this project in November 2011 and March 2013. He will be assisted in the field initially by two archaeologists.

5.4.3 Assessment of the finds from the evaluation will be undertaken under the auspices of OA North's in-house finds specialist **Christine Howard-Davis** (OA North finds manager). Christine has extensive knowledge of all finds of all periods from archaeological sites in northern England. However, she has specialist knowledge regarding glass, metalwork, and leather of all periods, the recording and management of waterlogged wood. She also has published reports from numerous major excavations (eg Buxton and Howard-Davis 200; Howard-Davis 2009).

5.4.4 Assessment of any palaeoenvironmental samples that may be taken will be undertaken under the auspices of **Elizabeth Huckerby** (OA North environmental manager). Elizabeth has extensive knowledge of the palaeoecology of the North West through her work on the English Heritage-funded North West Wetlands Survey and worked on many Roman sites subsequently. Assessment of any faunal material will be undertaken by **Andrew Bates** (OA North project officer).

BIBLIOGRAPHY

Department of Communities and Local Government (DCLG), 2012 *NPPF: National Planning Policy Framework*

English Heritage, 2002 *Guidelines for Environmental Archaeology,* 2nd edn, London

English Heritage, 2006 *Management of Research Projects in the Historic Environment (MoRPHE),* 2nd edition, London

Institute for Archaeologists, 2008a *Standard and Guidance for Excavation*, Reading

Institute for Archaeologists, 2008b *Standard and Guidance for the Creation, Preparation, Transfer and Deposition of Archaeological Archives*, Reading

Institute for Archaeologists, 2012 *Code of Conduct*, Reading

SCAUM (Standing Conference of Archaeological Unit Managers), 1997 *Health and Safety Manual*, Poole

United Kingdom Institute for Conservation (UKIC), 1990 *Guidelines for the preparation of archives for long-term storage*, London

United Kingdom Institute for Conservation (UKIC), 1998 *First Aid for Finds* London

APPENDIX 2: CONTEXT LIST

CONTEXT NUMBER	INTERPRETATION	DESCRIPTION
101	Cobbled surface	Post-medieval cobbled surface comprising water-rounded cobbles
102	Sand deposit	Sand bedding layer for cobbled surface
103	Floor	Floor between walls ***206*** and ***210***
104	Layer	Post-medieval layer
105	Stone hearth	Hearth made of fire-blackened red sandstone
106	Wall	Post-medieval stone wall, north-east/south-west, partially disturbed
107	Overburden	Spread of overburden containing demolition debris
108	Layer	Post-medieval layer (upper)
109	Layer	Post-medieval layer (lower)
110	Wall	Wall
111	Soil Horizon	Medieval soil horizon, partially truncated by modern layers ***171*** and ***192***
112	Ditch/gully?	Shallow ditch or wide gully
113	Floor	Clay floor
114	Wall	Remains of a possible wall
115	Hearth	Stone hearth
116	Natural	Naturally deposited geology
117	Fill	Fill of pit
118	Cut	Cut of pit
119	Hearth	Hearth
120	Deposit	Post-medieval layer between walls ***106*** and ***110***
121	Soil horizon	Soil horizon comprising garden soil located above demolition rubble
122	Wall	Post-medieval red sandstone wall aligned north-east/south-west
123	Wall footing	Wall foundation comprising of a single course of red sandstone flagstones
124	Layer of mortar	Layer of brownish-pink sandy mortar
125	Rubble layer	Demolition deposit containing fragments of red sandstone associated with wall ***106***
126	Layer of mortar	Layer of mortar used as a levelling layer
127	Rubble layer	Levelling layer made of sandstone and mortar rubble
128	Floor	Firm brownish-red clay floor
129	Floor	Firm reddish-brown clay floor
130	Backfilled deposit	Backfill of wall cut comprising dark grey-brown friable sandy-silt
131	Wall foundation cut	Cut created as part of the construction of wall ***122***

CONTEXT NUMBER	INTERPRETATION	DESCRIPTION
132	Soil horizon	Dark brownish-black buried soil horizon containing modern pot and animal bones
133	Levelling layer	Levelling layer to the south of wall ***134***
134	Wall	Red sandstone wall
135	Wall	Post-medieval wall constructed from handcut red sandstone with pink sandy mortar
136	Drain	Stone-lined drain aligned south-east/north-west
137	Drain	Remains of a stone-lined drain
138	Deposit	Post-medieval layer of dark brown sandy silt
139	Rubble deposit	Red sandstone rubble deposit possibly used as a levelling layer
140	Deposit	Post-medieval mid-brown sandy silt deposit
141	Deposit	Dark reddish-brown construction deposit abutting wall ***134***
142	Soil horizon	Post-medieval soil horizon
143	Wall	Red sandstone wall with pink sandy mortar
144	Surface	Cobbled surface constructed from river-rounded cobbles
145	Deposit	Mid-brown medieval layer containing charcoal flecks and well-rounded stone inclusions
146	Cut	Modern flat-based cut visible only in section
147	Mortar deposit	Discrete mortar layer above rubble layer
148	Soil horizon	Same as ***158***
149	Layer	Levelling layer comprising dark sandy silt
150	Wall	Roughly-hewn stone wall with pink sandy mortar
151	Rubble layer	Demolition rubble deposit, possibly from wall ***106***
152	Cut	Cut created by the removal of wall ***150***
153	Fill	Backfill deposit in cut ***154***
154	Cut	Cut created by the removal of wall ***150***
155	Cut	Cut of stone-lined drain.
156	Fill	Mid-brown sandy silt deposit within stone-lined drain ***137***
157	Cut	Cut created by the removal of material from area
158	Layer	Possible demolition debris to the north-west of wall ***165***
159	Cut	Cut for stone-lined drain ***136***
160	Fill	Fill of drain ***136***
161	Deposit	Friable mid-grey-brown silty sand deposit above ***162***
162	Layer	Clay levelling layer abutting wall ***106***
163	Layer	Layer of degraded lime mortar and red sandstone fragments
164	Layer	Post-medieval layer made up of mottled reddish-brown clayey silt
165	Wall footing	Wall footing constructed from water-rounded cobbles
166	Cut	Foundation cut for wall ***180***

CONTEXT NUMBER	INTERPRETATION	DESCRIPTION
167	Hearth	Hearth containing heat-affected clay
168	Layer	Layer of topsoil containing a large amount of crushed mortar
169	Deposit	Layer of dark greenish-brown clay associated with construction
170	Deposit	Demolition debris associated with demolition deposits ***151*** and ***179***
171	Drain	Modern salt-glazed service pipe
172	Wall	Modern concrete-capped wall
173	Wall	Red sandstone wall
174	Wall	Red sandstone wall
175	Layer	Medieval soil horizon containing river-rounded cobbles
176	Cut	Cut of an animal burrow
177	Fill	Fill of animal burrow ***176***
178	Cut	Cut for hearth ***167***
179	Layer	Demolition rubble comprising sandstone and rounded cobbles. Contemporary with ***151***
180	Wall	Wall constructed from sandstone and river-rounded cobbles, bonded with friable sandy mortar
181	Structure	Group context for ***126***, ***165***, ***166***, ***180***
182	Cut	Cut of posthole located below medieval layer ***175***
183	Fill	Mid-brown silty sand fill of ***182***
184	Layer	Same as ***161***
185	Layer	Layer of dark grey cinder/clinker
186	Soil horizon	Buried soil horizon, possibly medieval in date
187	Layer	Demolition layer from wall ***106***
188	Cut	Cut of posthole, possibly medieval
189	Fill	Mid-brown fill of posthole
190	Cut	Cut of posthole truncating ***188***
191	Fill	Mid-brown sandy-silt fill of ***190***
192	Layer	Layer of mortar, possibly created during demolition
193	Surface	Red sandstone slab surface
194	Layer	Layer of cinder and charcoal fragments
195	Soil horizon	Sandy greyish-brown silt buried soil horizon
196	Cut	Construction cut for wall ***165***
197	Cut	Cut created by removal of wall ***165***
198	Layer	Layer of cinder and charcoal fragments
199	Layer	Sandy greyish-brown silt, buried soil horizon
200-499	Not used	-
500	Fill	Fill of construction cut for wall ***501***

CONTEXT NUMBER	INTERPRETATION	DESCRIPTION
501	Cut	Construction cut for wall ***143***
502	Cut	Flat-based pit with two phases of infilling possibly disturbed by animal burrowing
503	Fill	Mid-brown-grey deposit in ***502***
504	Fill	Mid-brown sandy-silt upper fill of ***502***
505	Cut	Cut of posthole through ***502***
506	Fill	Friable mid-brown fill of posthole ***505***
507	Layer	Brown soil deposit only visible in section
508	Stone setting	Setting of three worked stone fragments
509	Layer	Mid-brown sandy silt deposit surrounding stone setting ***508***
510	Fill	Greyish-pink sandy mortar fill of ***511***
511	Cut	Cut created by removal of wall ***122***
512	Cut	Cut of large posthole with flat sloping base
513	Fill	Mid-brown friable sandy silt fill of posthole ***512***
514	Cut	Cut of flat-based posthole
515	Fill	Mid-brown sandy silt deposit within posthole ***514***
516	Layer	Layer of cinder and charcoal fragments
517	Layer	Sandy greyish-brown silt
518	Cut	Cut of flat-based posthole
519	Fill	Dark brown clayey silt deposited within posthole ***518***
520	Deposit	Rubble deposit containing mortar and red sandstone fragments.
521	Cut	Cut of flat-bottomed posthole
522	Fill	Dark grey clayey silt deposit within posthole ***521***
523	Cut	Cut of flat-bottomed posthole
524	Fill	Dark brown clayey silt deposit within posthole ***523***
525	Cut	Cut of flat-bottomed posthole
526	Fill	Dark brown clayey silt deposit within posthole ***525***
527	Cut	Cut of flat-based posthole
528	Fill	Dark grey-brown fill of posthole ***527***
529	Fill	Brown clayey silt deposit containing charcoal fragments within posthole ***530***
530	Cut	Steep-sided posthole with undulating base
531	Fill	Brown clayey silt deposit within ***532***
532	Cut	Irregular-shaped posthole heavily disturbed by animal activity
533	Fill	Loose reddish-brown sandy silt deposit within ***534***
534	Cut	Steep-sided posthole with concave base
535	Fill	Loose reddish-brown sandy silt deposit within ***536***

CONTEXT NUMBER	INTERPRETATION	DESCRIPTION
536	Cut	Flat-based posthole
537	Group	Stone structure, post-medieval
538	Group	Post-built timber structure, comprising postholes ***182***, ***188***, ***190***, ***512***, ***514***, ***530***, ***532***, ***534***, ***536***, medieval
539	Group	Post-built timber structure, comprising postholes ***518***, ***521***, ***523***, ***525***, ***527***, medieval
540	Group	Possible clay-walled structure, comprising cobble footing ***165***, robber trench ***197*** and possible demolition debris ***158***, probably medieval

APPENDIX 3: FINDS DISTRIBUTION

CONTEXT	POTTERY	GLASS	METALWORK	CLAY TOBACCO PIPE	STONE	CERAMIC BUILDING MATERIAL	TOTALS
102		1					1
106	1						1
107	1						1
111	8		1				9
112	1						1
121	8			1			9
122		1					1
124	2	1					3
125	5					1	6
126	17	22					39
127	2						2
129	2					1	3
130	3	4					7
132	10	1		1			12
133					1		1
138	1						1
140	2	1					3
141	1						1
142	6	4					10
145	1						1
149		1		1			2
151	3	1					4
153	2	1					3
156	1		2				3
158	17						17
161	6	1					7
163			1		1		2
167	5		1				6
168	6		1				7
171	4	1					5
175	2						2
177	1					1	2
179	1						1
184	2						2
185	3	1					4

186	2	1	1				4
187	4	2					6
192	1	1					2
303	1						1
513	1	2					3
516	7			1			8
519	1						1
520			1				1
522	3		1				4
526	1	1					2
528	1						1
529	1						1
Unstratified	15	1				3	19
Totals	*162*	*49*	*9*	*4*	*2*	*6*	*232*

APPENDIX 4: CHARRED PLANT REMAINS

All figures are actual counts except those in brackets, and other remains*, which are scored on a scale of 1 to 4 where 1 = <5, 2 = 6-25, 3 = 26-100 and 4 = >100 items

		CONTEXT NO	***167***	***509***
		SAMPLE NO	104	113
		FEATURE TYPE	Hearth	Soil layer
		PHASE	5	Not closely phased
		SAMPLE SIZE (LITRES)	30	20
		% OF FLOT ANALYSED	100%	100%
Cereal grains				
Avena sp	common/wild oat		161	246
Avena sativa	common oat (with floret base)		3	
Hordeum vulgare	hulled barley		36	5
Hordeum sp	barley		6	
Secale cereale	rye		6	9
Triticum sp	*cf* free-threshing wheat		7	4
Indeterminate			141	53
Total cereal grains			**360**	**317**
Indeterminate cereal fragments			(4)	(3)
Identifiable cereal chaff				
Avena sativa floret base	common oat		2	4
Triticum aestivum-type rachis node	bread wheat-type			1
Hordeum vulgare rachis nodes	many-rowed barley			2
Hordeum sp rachis nodes	barley		7	4
Secale cereale rachis nodes	rye		9	11
Indeterminate rachis nodes			2	2
Total identifiable cereal chaff			**20**	**24**
Other cereal remains				
Ear bases			3	

Culm nodes			22	16
Detached coleoptiles			2	3
Straw fragments			(3)	(2)
Avena sp awn fragments			(1)	(1)
Lemma/palaea fragments			(2)	(3)
Edibles/cultivated				
cf *Pisum sativum*	cultivated pea			3
Weed seeds				
Ruderals and arable/cultivated land				
Agrostemma githago	corncockle		3	
Brassica sp	mustards/cabbages		6	2
Centaurea cyanus	cornflower			1
Centaurea sp	knapweeds			1
Chenopodium album	fat hen		18	13
Fallopia convolvulus	black-bindweed		2	
Glebionis segetum	corn marigold		9	36
Persicaria lapathifolia	pale persicaria		1	2
Stellaria media	common chickweed		2	2
Spergula arvensis	corn spurry	calcifuge	8	19
Tripleurospermum inodorum	scentless mayweed	fertile, well-drained soils	5	
Grassland				
Poaceae seeds 2-4mm	grass family		2	4
Poaceae seeds <2mm	grass family			6
Rumex acetosa	common sorrel			
Rumex acetosella	sheep's sorrel	poor, well-drained acid soils	8	30
Damp/wet places				
Carex lenticular	sedges - two-sided seeds		1	1
Carex trigonous	sedges - three-sided seeds		6	3
Heaths/bogs				
Danthonia decumbens	heath-grass	poor, acid soils		1
Broad				
Bromus sp	bromes		1	
Fabaceae seeds >4mm	pea family			1
Fabaceae seeds <4mm	pea family		81	26

Galeopsis sp	hemp-nettles		2	2
Lapsana communis ssp *communis*	nipplewort			4
Polygonum aviculare	knotgrass		6	1
Rosa sp	roses		1	
Rumex obtusifolius	broad-leaved dock		12	
Viola sp	violets		1	
Indeterminate seeds			15	12
Total weed seeds			**190**	**170**
Other charred plant remains				
Corylus nut fragments	hazelnut fragments			2
Erica sp leaves	heath		1	
Raphanus pod	radishes			1
Brassica sp seed pod	mustards/cabbages		1	
Other remains*				
Charcoal			4	4
Calcined mammal bone				1
Heat-affected vesicular material			4	3
Metal waste				1
Coal			2	2

FIGURES

Figure 1: Site location

Figure 2: Phased plan of Area 1

Figure 3: Sections in Area 1

Figure 4: Area 2: plan of palaeochannel ***207***

Figure 5: Conjectural plan of pre-Norman Penrith, showing principal topographic features

Figure 6: Detail from James Clarke's map of Penrith (1787), showing the location of Areas 1 and 2 relative to Hutton Hall

Figure 7: Detail from the Ordnance Survey First Edition map of Penrith (1867), with the Phase 5/6 walls of Structure ***537*** superimposed

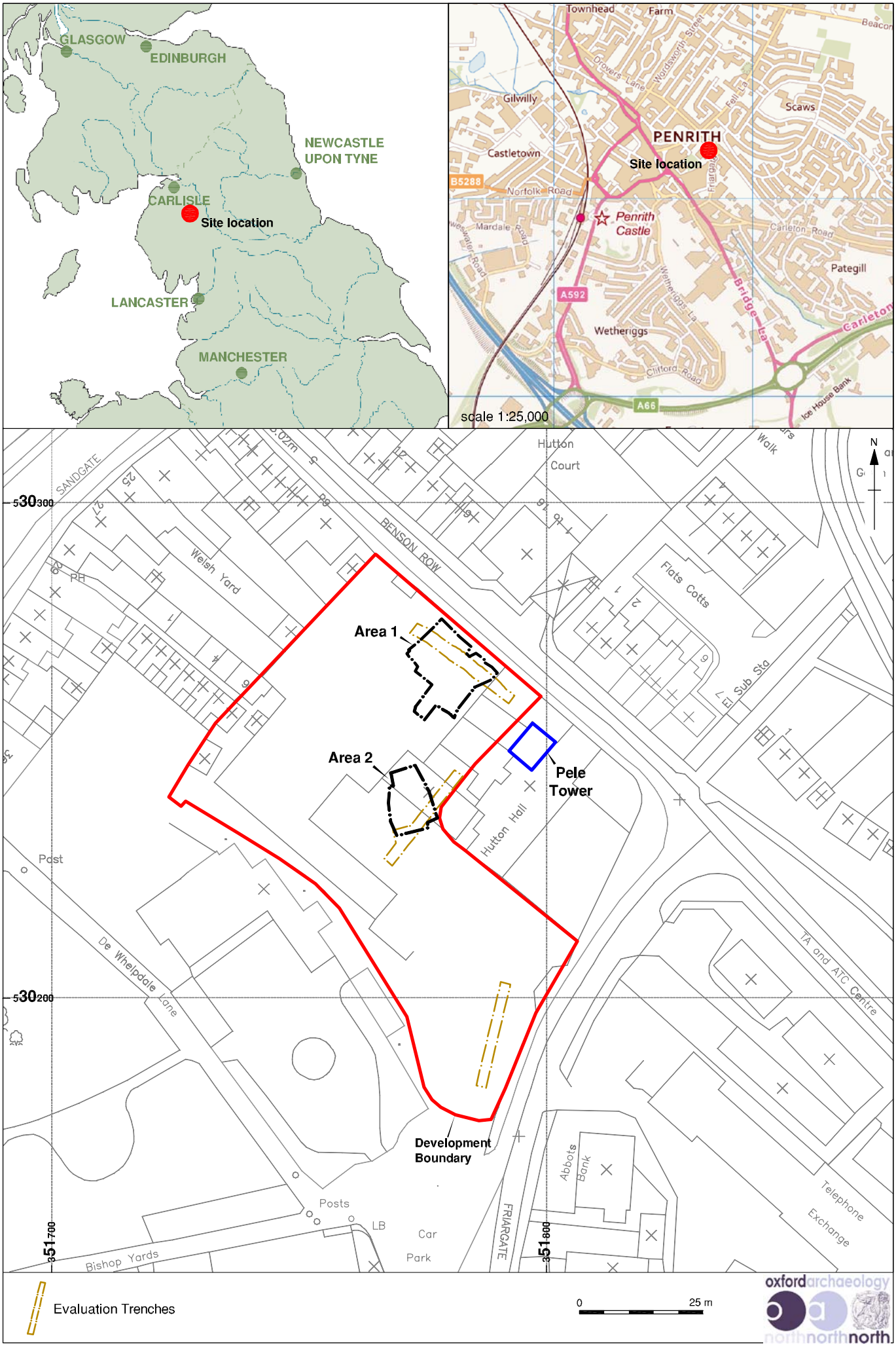


Figure 1: Site location

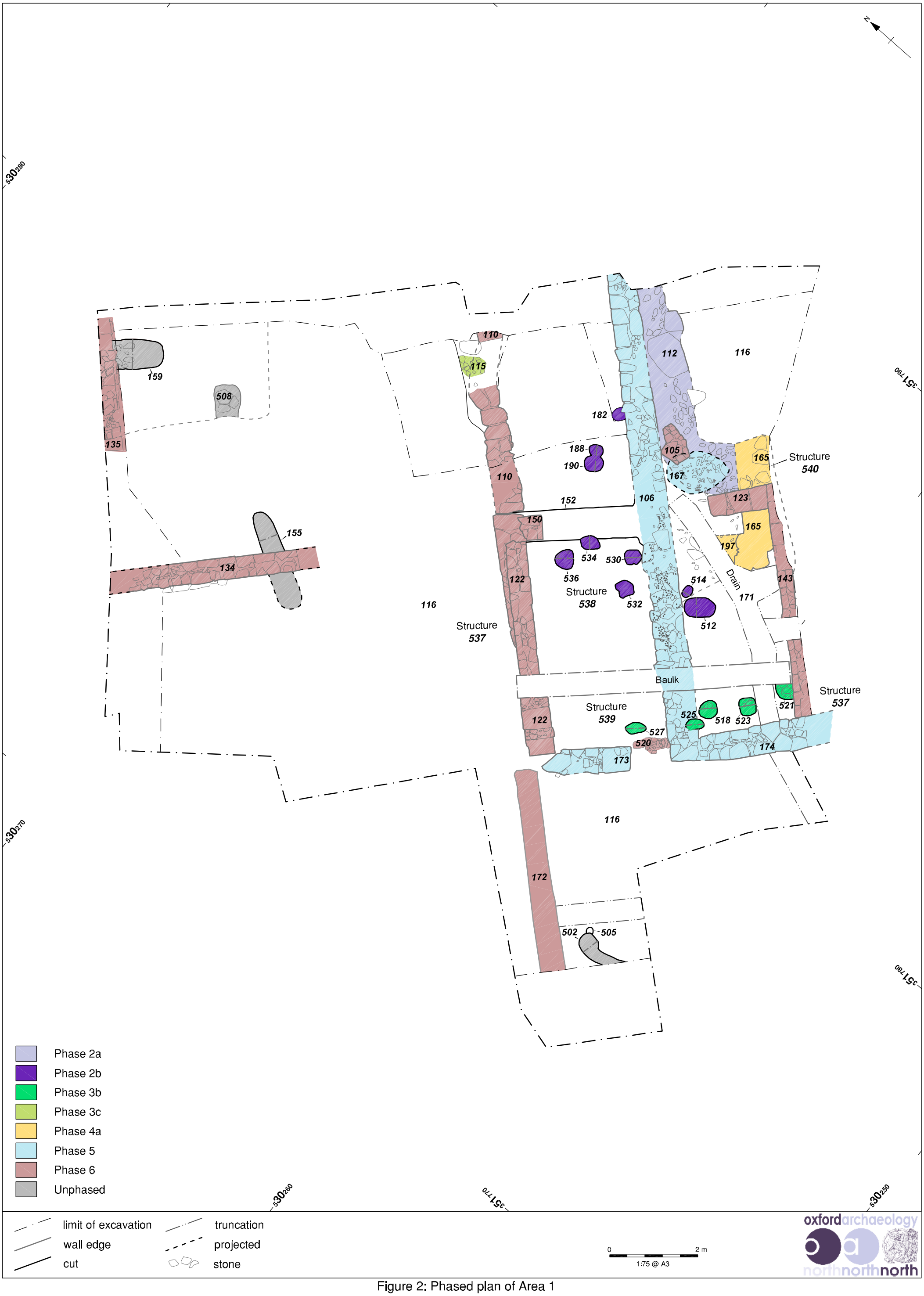
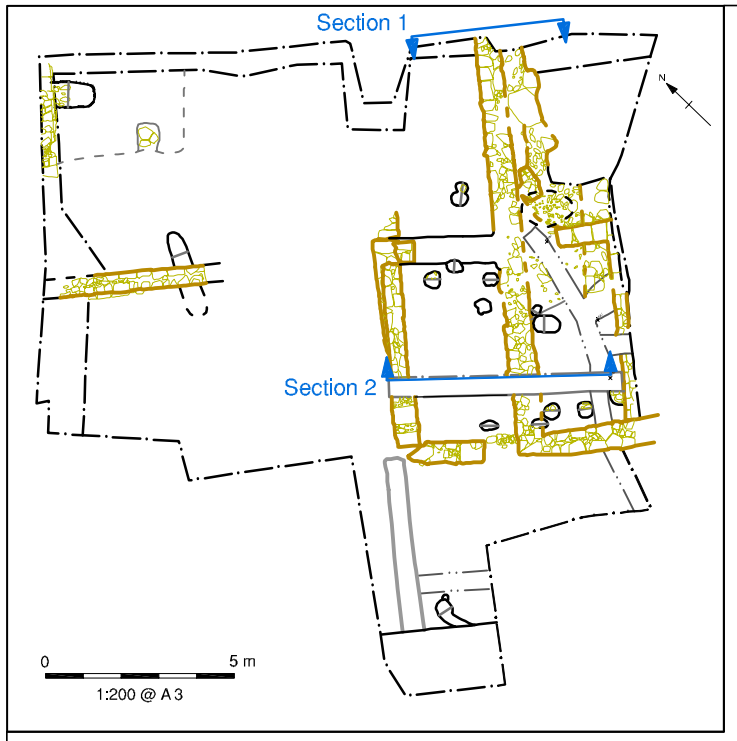
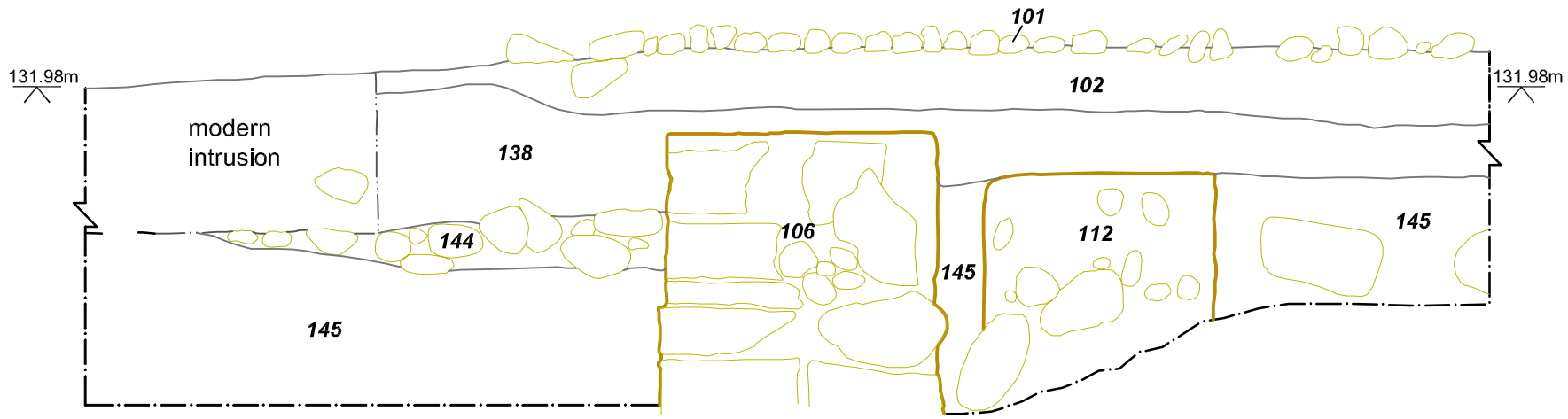
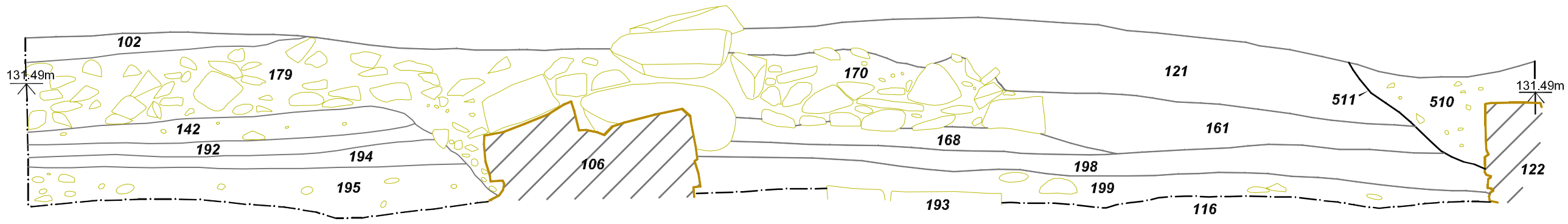


Figure 2: Phased plan of Area 1





Section 1, south-west-facing



Section 2, north-east-facing

limit of excavation
wall edge
cut
brick
drain
animal bone

0 1 m
1:50 @ A 3

oxfordarchaeology
northnorthnorth

EM*L10526*MAT*June 2013

Figure 3: Area 1 sections

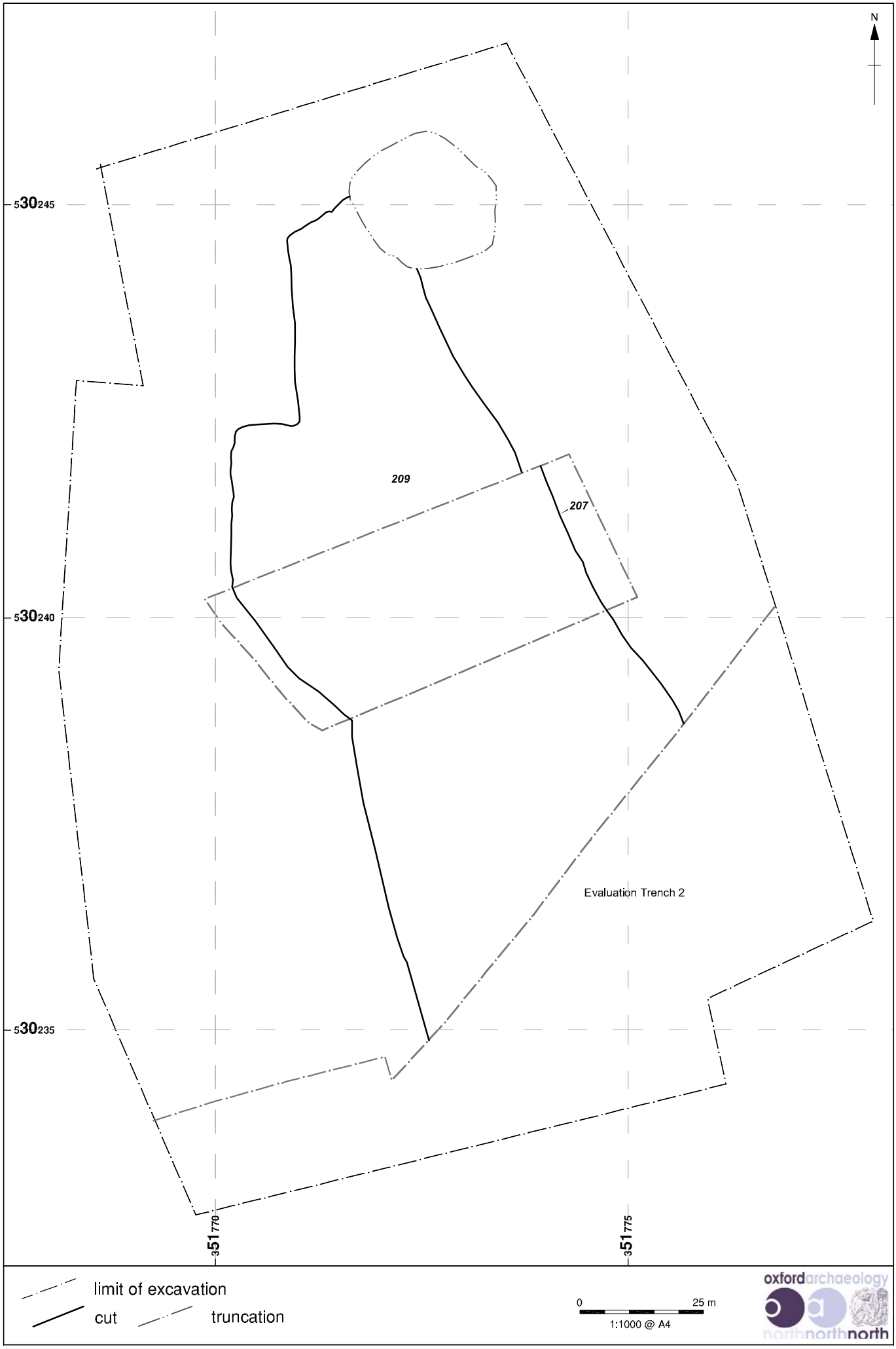
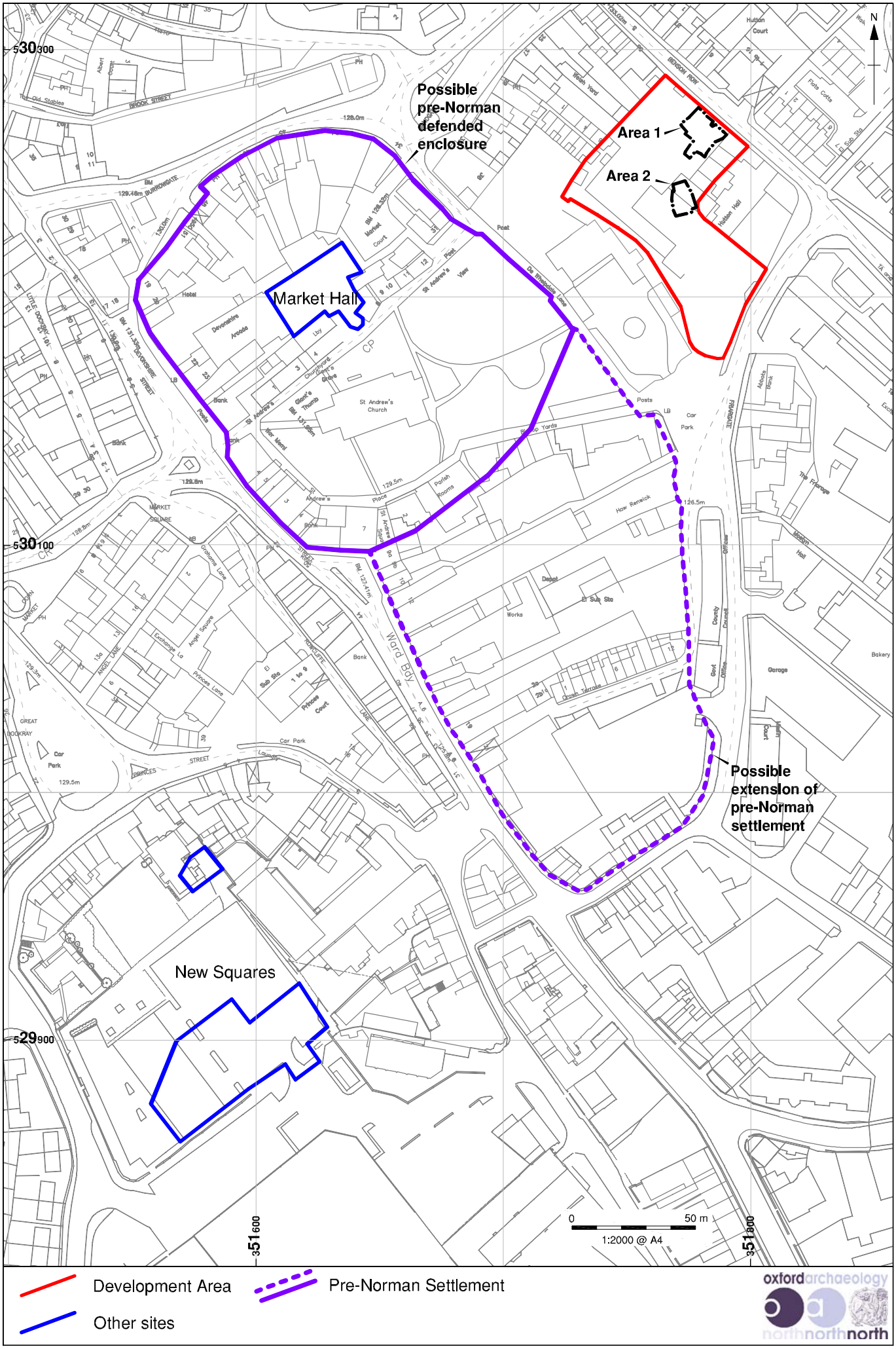
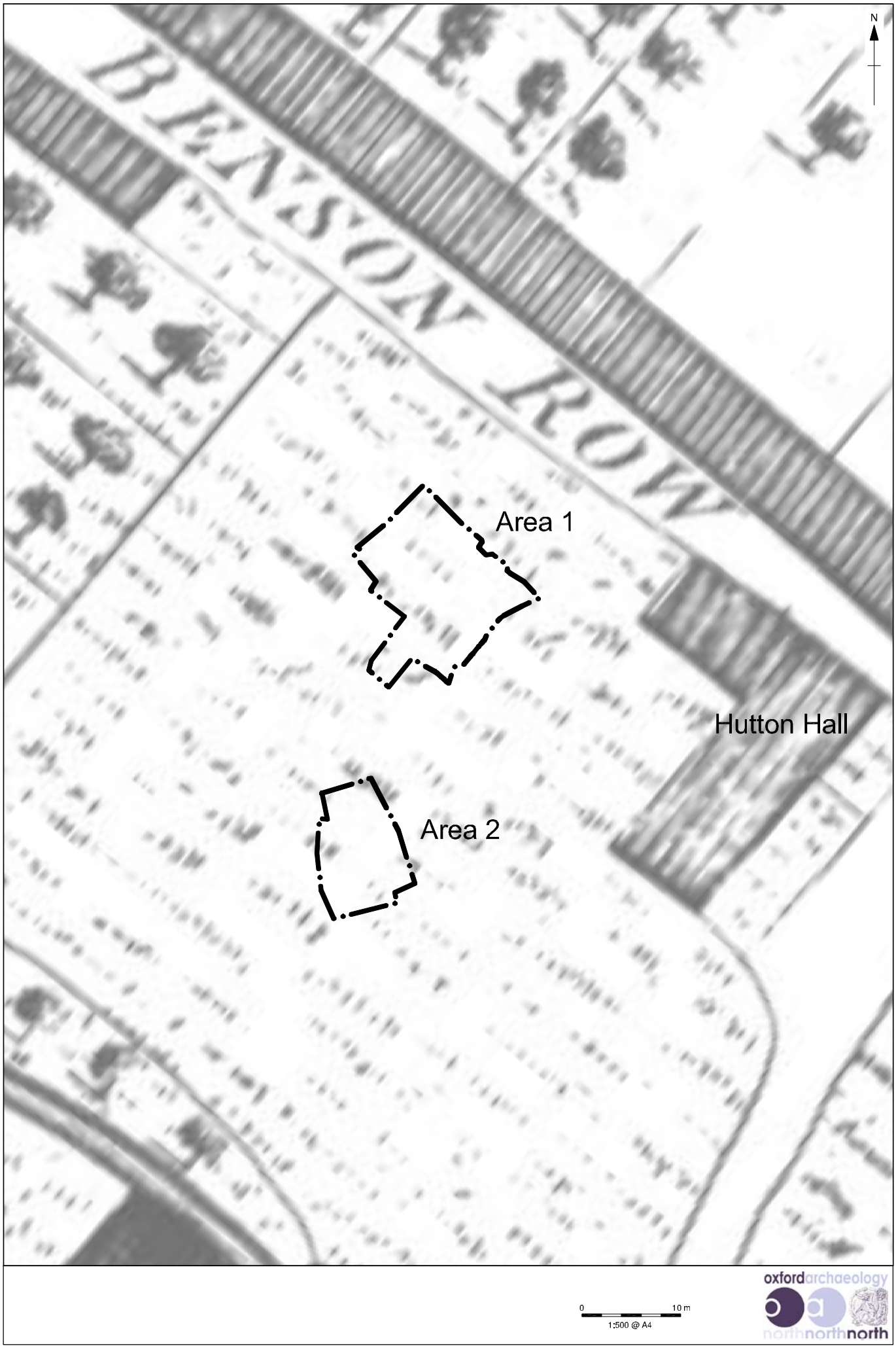


Figure 4: Area 2: plan of palaeochannel ***207***



EM*L10526*MAT*Oct2013

Figure 5: Conjectured plan of pre-Norman Penrith, showing major sites mentioned in text



EM*L10526*MAT*Oct 2013

Figure 6: Detail from James Clarke's Map of Penrith (1787), showing the location of Areas 1 and 2 relative to Hutton Hall

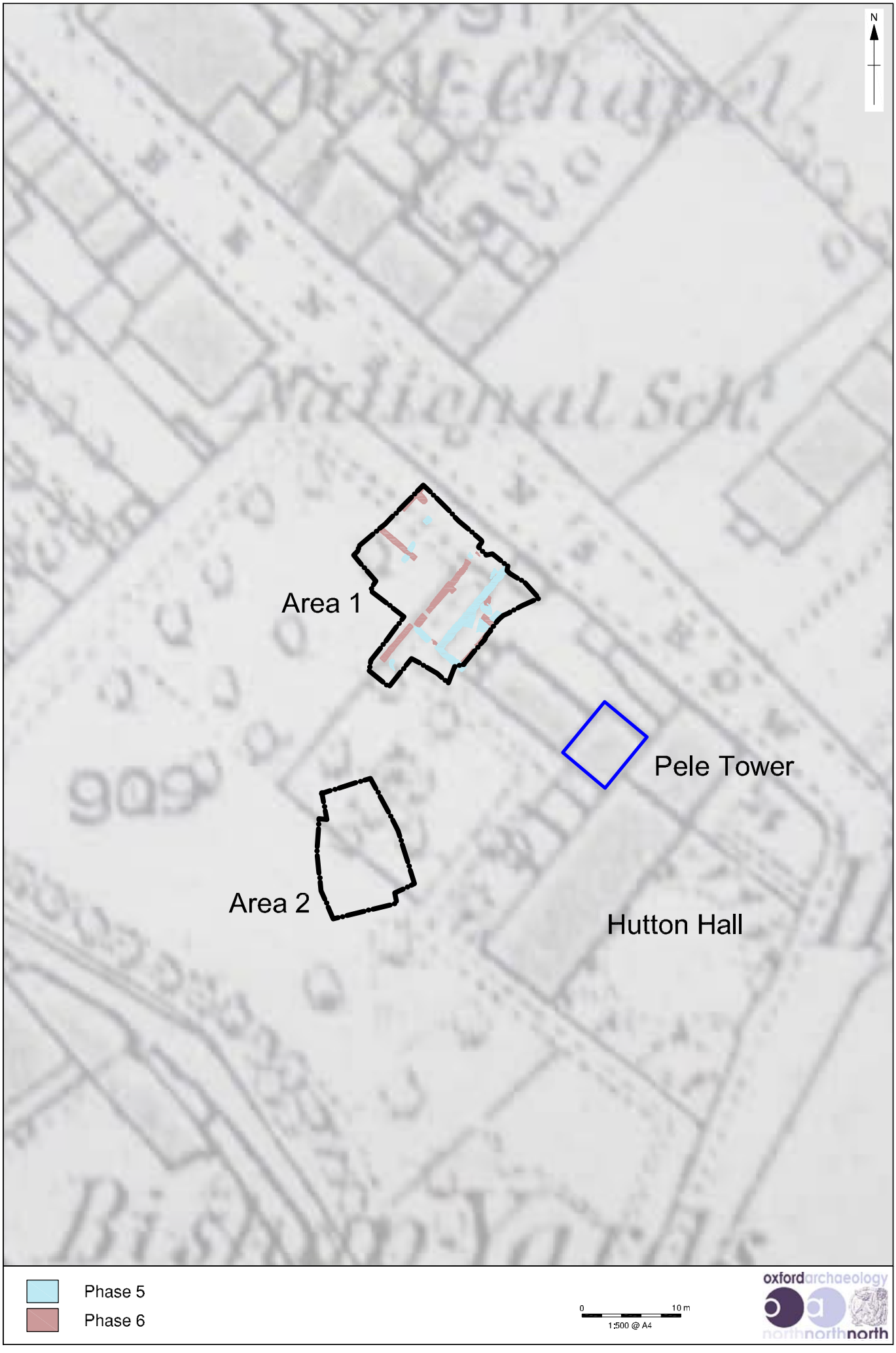


Figure 7: Detail of the First Edition Ordnance Survey map of Penrith (1867),with Phase 5/6 walls of Structure ***537***

Oxford Archaeology North
Mill 3
Moor Lane Mills
Moor Lane
Lancaster
LA1 1QD
t: (01524 541000
f: (01524) 848606
e: oanorth@oxfordarch.co.uk
w: www.oxfordarch.co.uk

Director and Chief Executive:
Gill Hey BA PhD MIfA FSA

Private Limited Company Number: 1618597

Registered Charity Number: 285627

Registered Office: Oxford Archaeology Ltd.
Janus House, Osney Mead, Oxford, OX2 0ES