

Whinfell Holme to Hackthorpe Pipeline, Penrith, Cumbria



Post-Excavation Assessment



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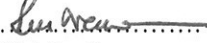
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CONTENTS

SUMMARY.....	4
ACKNOWLEDGEMENTS.....	6
1. INTRODUCTION	7
1.1 Project Background.....	7
1.2 Geology and Topography.....	7
1.3 Historical Background.....	7
1.4 Assessment Methodology.....	10
2. SUMMARY OF EXCAVATION RESULTS.....	11
2.1 Introduction	11
2.2 Phase 1: Prehistoric Activity.....	11
2.3 Phase 2: Romano-British Occupation	11
2.4 Phase 3: Early Medieval Activity	14
2.5 Phase 4: Later Medieval Activity	14
2.6 Phase 5: Post-medieval Activity.....	14
3. RESULTS OF THE ASSESSMENT.....	15
3.1 Assessment Aims and Objectives	15
3.2 Structural and Stratigraphical Data	15
3.3 Samian Ware	16
3.4 Roman Coarse Pottery	21
3.5 Post-Roman Pottery	24
3.6 Clay Tobacco Pipe	25
3.7 Ceramic Building Materials	25
3.8 Roman Coins.....	26
3.9 Copper Alloy.....	27
3.10 Iron.....	28
3.11 Lead.....	29
3.12 Industrial Residues	29
3.13 Roman and Post-Roman Glass.....	30
3.14 Ceramic Objects	31
3.15 Stone Objects.....	32
3.16 Prehistoric Flint.....	31
3.17 Jet Objects	32
3.18 Human Bone	32
3.19 Animal Bone	33
3.20 Charred and Waterlogged Plant Remains and Charcoal	34
3.21 Pollen.....	36
4. CURATION AND CONSERVATION.....	38
4.1 Recipient Museum.....	38
4.2 Conservation.....	38
4.3 Storage	38

4.4	Packaging	38
5.	STATEMENT OF POTENTIAL.....	39
5.1	Introduction	39
5.2	Principal Potential	39
5.3	National Research Priorities	46
5.4	Local and Regional Research Priorities.....	48
5.5	Publication Strategy	50
6.	UPDATED PROJECT DESIGN.....	51
6.1	Updated Research Aims and Objectives.....	51
7.	METHOD STATEMENT.....	55
7.1	Introduction	55
7.2	Set-Up and Monitoring	55
7.3	X-Ray, Cleaning and Conservation	55
7.4	Transport of Materials.....	55
7.5	Stratigraphic Analysis.....	56
7.6	Roman Pottery	58
7.7	Post-Roman Pottery	58
7.8	Roman Ceramic Building Materials	59
7.9	Roman Coins.....	58
7.10	Other Pre-Roman, Roman and Post-Roman Finds	58
7.11	Human Bone	59
7.12	Animal Bone	59
7.13	Charred Plant Remains	59
7.14	Charcoal.....	60
7.15	Pollen and Soil Micromorphology	60
7.16	Scientific Dating.....	60
7.17	Publication Text	60
7.18	Publication Illustrations	61
7.19	Publication Report Compilation and Editing	61
7.20	Archive Deposition.....	62
8.	PUBLICATION SYNOPSIS	63
8.1	Introduction	63
8.2	Report Structure	63
8.3	Outline Synopsis	63
9.	MANAGEMENT AND RESOURCES	66
9.1	Project Team.....	66
9.2	Management Structure	66
9.3	Task List	67
9.4	Timetable	71
	BIBLIOGRAPHY.....	72
	LIST OF FIGURES	79
	LIST OF PLATES.....	80

**APPENDIX 1: ASSESSMENT OF CHARRED AND WATERLOGGED PLANT REMAINS
AND CHARCOAL81**

APPENDIX 2: ASSESSMENT OF THE POLLEN85

SUMMARY

In 2007, United Utilities proposed the construction of a 7km-long pipeline south-east of Penrith, Cumbria, running from the sewerage works on Whinfell Holme (NY 5470 2950) to a point approximately 1km north of the village of Hackthorpe (NY 5376 2382). Following the completion of an archaeological desk-based assessment, walkover survey and field evaluation, a controlled excavation was undertaken by Oxford Archaeology North on a section of the pipeline easement situated within three modern fields immediately south and south-east of the Roman fort at Brougham (centred on NY 5396 2885). There, highly significant remains relating to the Romano-British extramural settlement associated with the fort were exposed and fully excavated prior to the pipeline construction.

The excavations determined that, south of the fort, the core area of the extramural settlement was focused on the road leading south to the fort at Low Borrowbridge, near Tebay. Three main occupation phases were recorded, commencing in the late second-early third century AD, and either continuing, without interruption, into the second half of the fourth century, or recommencing in the late fourth century after a period of abandonment or reduced activity. The remains of several rectilinear timber-framed buildings were found in association with minor roads, lanes, and cobbled surfaces. Activity seemingly became less intensive to the north-east, away from the main street frontage; immediately to the south-west was a probably broadly contemporary field system, represented by a system of ditches.

A second major Roman road was recorded north-east of the main settlement area. This lay beneath modern Moor Lane, seemingly sharing its north-west to south-east alignment, and would appear to have passed east of the fort on an alignment broadly parallel to the fort's eastern defences. Pottery from the excavated surface suggested a late third-fourth-century date, though there were indications that the road may have originated before this.

North-east of the road, another system of ditched field boundaries, associated with possible trackways, pits, and several large wells or waterholes, was recorded. Further east still, possible cremation burials and spreads of possible charcoal-rich pyre debris were recorded. Since these remains were located immediately south of the third-century cremation cemetery found in the 1960s, it seems likely they formed part of the same burial ground.

Evidence for post-Roman activity was extremely limited. The presence of two handmade pottery sherds provided tantalising evidence for activity on or near the site in the early medieval period. With the exception of modern field drains, later medieval and post-medieval activity was represented only by a few potsherds that may well have reached the site in refuse used to manure the fields.

Comparatively little archaeological excavation has been undertaken on Romano-British extramural settlements in northern England, and the Brougham site is therefore of considerable national and regional significance in this respect. Additionally, few cemeteries associated with such settlements have been investigated, so the putative

cremation burials and possible spreads of pyre debris from the north-eastern part of the site represent a potentially significant addition to the existing corpus of data, as well as providing an important comparator for the data recovered from the Brougham cemetery in the 1960s. The presence of three potentially early medieval potsherds is also significant, in view of the extreme paucity of information about this period in the North West. The need for detailed analysis and publication of the results of the 2007-8 excavations is therefore clear.

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Denise Druce advised the fieldwork staff on the environmental sampling strategy. The bulk samples were processed at OA North by Sandra Bonsall and at OA East in Cambridge by Rachel Fosberry and Ross Lilley. Sandra Bonsall also assessed the bulk samples and prepared the pollen sub-samples, and the pollen was assessed by both Sandra Bonsall and Elizabeth Huckerby. OA North would like to thank the Geography Department of the University of Lancaster for the use of their laboratories for the palaeobotanical assessment.

1. INTRODUCTION

1.1 PROJECT BACKGROUND

1.1.1 In 2007, United Utilities proposed the construction of a 7km-long pipeline to the south-east of Penrith, Cumbria, running from the sewerage works on Whinfell Holme (NY 5470 2950) to a point approximately 1km north of the village of Hackthorpe (NY 5376 2382, Fig 1). In view of the possible archaeological implications of the proposed works, a brief was produced by Cumbria County Council's Historic Environment Service (CCCHES) for an archaeological desk-based assessment and walkover survey, which were subsequently carried out by Oxford Archaeology North (OA North 2007a). As a result of these initial investigations, two areas were subjected to field evaluation, which was again undertaken by OA North (2007b). The discovery of highly significant Romano-British remains in one of the two areas, immediately south of the Roman fort at Brougham (centred on NY 5396 2885), resulted in the controlled excavation of all archaeological deposits located within the pipeline easement in three modern fields (Fields 1, 2, and 3; Fig 2). A watching brief was also maintained in two other fields, one at either end of the main area of excavation, in order to determine if any archaeological remains extended into these areas, but none were observed.

1.2 GEOLOGY AND TOPOGRAPHY

1.2.1 The geology of the northern part of the pipeline route, including the area around Brougham, comprises pink Permo-Triassic sandstones sealed by glacial till (Countryside Commission 1998). The overlying soils are typical brown calcareous earths (Ordnance Survey 1986). The landscape of the study area as a whole is generally undulating, comprising mixed farmland and woodland, with rough pasture on the higher ground and rich agricultural land, utilised both for improved pasture and arable farming, in the Eden Valley and other river valleys (Countryside Commission 1998).

1.3 HISTORICAL BACKGROUND

1.3.1 **Prehistoric period:** the area contains one of the highest concentrations of prehistoric monuments in Cumbria, with important neolithic sites, such as Mayburgh Henge and King Arthur's Round Table at Eamont Bridge, just to the north-west of the pipeline route (Hodgson and Brennand 2006, 39). Iron Age and Romano-British settlements are also known in the area, including the large hillfort at Castlesteads (Collingwood 1947). The route across Stainmore, utilised today by the modern A66, has served as one of the principal Trans-Pennine routes since at least Roman times, and probably well before (Drury 1998; Edwards and Shotter 2005, 74).

1.3.2 **Romano-British period:** at the time of the Roman invasion, much of what is now northern England lay within the territory of the Brigantes, a large tribe, or possibly tribal confederation, whose queen, Cartimandua, seems to have entered into a treaty with Rome within a few years of the invasion (Hanson and

Campbell 1986, 73). North-east Cumbria, and in particular the lower Eden valley (Edwards 2006, 225), may have been the territory of the Carvetii, a people who, whilst generally regarded as a sept or sub-group of the Brigantes (Higham and Jones 1985, 9), could have been an autonomous tribe. By the early third century AD, Carlisle was the tribal capital (*civitas Carvetiorum*), and the naming of the *civitas* on two Roman milestones found near Brougham (Edwards and Shotter 2005) suggests that the area may have lain within Carvetian territory. Indeed, it has been suggested that the tribe may have exercised administrative control as far south as Upper Lonsdale, c 50km south of Brougham (*op cit*, 70), although the circumstances and chronology of such an arrangement are open to debate (Birley 1953). It has also been postulated that a possible defended enclosure of presumed Iron Age/Romano-British date at Clifton Dykes, south of the Roman fort at Brougham, may have been the centre of the *civitas Carvetiorum* (Higham and Jones 1985, 10-11).

- 1.3.3 The present A66 is held to follow the line of an important Roman road across Stainmore (Road 82; Margary 1973), between Scotch Corner and the fort at Brougham. It seems highly probable that this route would have been utilised by the Roman army during their initial penetration of the area in the late first century AD (Shotter 2000, 192).
- 1.3.4 In view of its strategically important location, the fort at Brougham (*Brocavum*; Rivet and Smith 1981, 283-4) is presumed to have been an early foundation, perhaps established during the Roman army's campaign to subjugate the Brigantes during the early AD 70s (Shotter 2004, 62). The presence of a temporary camp, c 375m north-east of the fort (Welfare and Swan 1995) might also suggest an early military presence in the area, though the camp has not been dated. Very little is known about the fort itself, though; whatever the precise date of its establishment, the installation continued to be occupied into the late fourth century at least (Birley 1932, 138).
- 1.3.5 Prior to the recent work, the existence of a 'considerable settlement' east of the fort was deduced from several antiquarian discoveries and observations (Birley 1932, 135-6), but virtually nothing of its character and extent was known. Of particular significance to Brougham is the concept of the 'extended *vicus*', where extramural settlement appears to have been dispersed over a wide area (Higham and Jones 1975). The existence of such a settlement has also been postulated at Old Carlisle (Higham and Jones 1985, 60), where several settlement nucleii, including 'native' farmsteads, were seemingly connected by a road grid, or linked to the main axial road. In the case of Brougham, evidence for Romano-British settlement has been recovered by excavation at Frenchfield, c 300m north of the fort (Martin and Reeves 2001), and at Fremington, c 800m south-east of fort (Oliver *et al* 1996), in addition to that revealed by the recent work beyond the fort's south gate. Aerial photographic evidence also suggests the possible existence of rectilinear buildings of Romano-British type elsewhere in the vicinity of the fort (*op cit*, 165). Taken together, the results of these investigations tend to support the idea that Romano-British settlement at Brougham was widely dispersed, with occupation focused, perhaps, on several nucleii, and less intensive activity occurring in the areas between.

- 1.3.6 At Frenchfield, the settlement was seemingly characterised by ribbon development along the main Roman road leading north-west from the fort (Martin *et al* 1999; Martin and Reeves 2001). Evidence for occupation comprised the remains of several timber-framed buildings, probable cobbled lanes and yards, pits, and other features. Additionally, there was some evidence for limited activity away from the main street frontage on the north (Martin and Reeves 2001). The bulk of the pottery recovered from the site was third-century in date, with little pre-dating the mid-late second century (*op cit*, 17-18). However, as only the very latest archaeological deposits were exposed, it is possible that earlier levels went uninvestigated. The site at Fremington lay approximately 160m south of the main road (Oliver *et al* 1996, 127). There, the earliest phase of activity proved elusive and difficult to characterise (*op cit*, 165), though a Romano-British date was postulated. Evidence for a large rectangular structure was found, associated with cord rigg cultivation and pits (*op cit*, 131-4). The rural character of the site suggested that it may have lain on the periphery of the wider settlement at Brougham, as its location, some 800m from the fort, might also indicate.
- 1.3.7 No settlement remains were known south of the fort prior to the investigations of 2007-8, though Birley (1932, 136) thought it reasonable to suppose that the settlement extended south along the road to Low Borrow Bridge, and possible ditched enclosures or field systems were visible as cropmarks, *c* 150m south-east of the fort (Welfare and Swan 1995, fig 21).
- 1.3.8 Antiquarian discoveries of tombstones indicated the existence of a Romano-British burial ground on a low hill *c* 400m east of the fort (Birley 1932). Salvage excavations undertaken in 1966-7 during road improvements demonstrated that this was a cremation cemetery of third-century date (Cool 2004).
- 1.3.9 **Early medieval period:** evidence for pre-Conquest activity is rare in the North West, with place-names providing the main indication of early settlement. However, a probable seventh-eighth-century settlement was excavated some 300m south of the pipeline in 1991 (Oliver *et al* 1996). This site (within the easement of a pipeline to bring ethylene from Grangemouth to Stanlow) contained four sunken-floored buildings, a post-built structure, a possible pottery kiln and a number of other features. Post-built structures found during excavations south of the Whinfell sewerage works in 1997 (Heawood and Howard-Davis 2002) remain undated, although the similarity of these to the Fremington structure suggests that they are likely to be of broadly similar date.
- 1.3.10 **Later medieval period:** the great medieval castle at Brougham, situated at the north-west corner of the Roman fort, was seemingly established by Robert de Veteripont in the early thirteenth century (Summerson *et al* 1998), though the architecture of the keep might suggest a late twelfth-century date for its construction (Williams 1992, 106). Thereafter, the castle was occupied throughout the Middle Ages, with major periods of building occurring under the lordship of the Cliffords during the late thirteenth-early fourteenth centuries and the late fourteenth century (*ibid*). The castle is believed to have been

destroyed in 1403 by a Scottish raid (Rollinson 1978), and was not fully restored until the mid-seventeenth century, when Lady Anne Clifford, the last of the Clifford line, restored the castle as the ancestral seat (*op cit*, 107; Clare 1981).

- 1.3.11 South-west of the castle lie the remains of the medieval village of Brougham. This seems to have been established in the early thirteenth century, when the original village was relocated to allow the expansion of Robert de Veteripont's hunting grounds (CCCHER 2846), but was demolished in the 1670s-80s to make way for a Park attached to Brougham Hall (Clare 1981). The hall, which also lies south-west of the castle, was established in the fourteenth century, but was rebuilt in 1829 (Collingwood 1947).
- 1.3.12 **Post-medieval period:** although Brougham Castle was still in use during the seventeenth century (James I stayed there in 1617, for example), it appears to have become dilapidated (Nicolson and Burns 1777), and it suffered further damage during the English Civil Wars. It was restored by Lady Anne Clifford from 1651-2, but passed to the earls of Thanet on her death and was allowed to fall into ruin, being partly demolished in 1691 (Williams 1992, 107).

1.4 ASSESSMENT METHODOLOGY

- 1.4.1 The entire paper and material archive was examined for the purposes of this assessment. The methodologies varied, depending upon the class of material that was under examination. The Romano-British pottery assemblages, which formed by far the largest artefactual assemblages from the site, were scanned, and brief information (including spot-dating) for each context yielding pottery was added to spreadsheets. All other classes of finds were examined in full, with observations supplemented by the finds records generated during the course of the excavation. Selected iron objects were subjected to x-radiography in order to facilitate confident identification.

2. SUMMARY OF EXCAVATION RESULTS

2.1 INTRODUCTION

2.1.1 This section provides a summary of the results obtained from the archaeological fieldwork undertaken in advance of the pipeline construction. In the following narrative, a broad phasing has been compiled, based on the occupational evidence identified and recorded in the field. Each phase represents a major event in the evolution of the site. Five broad phases (1-5) were identified over the site as a whole, representing activity from the prehistoric period to the present day. However, in the core area of the Romano-British civil settlement in Field 2, where a comparatively complex sequence of activity was recorded, it proved possible to sub-divide the Romano-British occupation sequence (Phase 2) into three sub-phases (Phases 2A, 2B, 2C), though these must be regarded as provisional.

2.2 PHASE 1: PREHISTORIC ACTIVITY

2.2.1 No features of certain or possible pre-Roman date were recorded. However, the site yielded 23 prehistoric flints, ten from Field 1 and 13 from Field 2 (*Section 3.16*). The assemblage dates to the late neolithic/early Bronze Age, and, although it was entirely residual, it suggests some activity in the general area.

2.3 PHASE 2: ROMANO-BRITISH OCCUPATION

2.3.1 Most of the dated archaeological features and deposits recorded proved to be of Romano-British date. This was not surprising, given the site's proximity to the prominent earthwork remains of Brougham Roman fort (Birley 1932; Plate 1), and to the known Romano-British cemetery east of the fort (Cool 2004). The nature of the investigation, following the long (but narrow) easement of the pipeline, resulted in the exposure of features and deposits relating to several quite distinct elements of the Romano-British landscape, including part of the extramural settlement immediately south of the fort, together with adjacent field systems and features possibly associated with the known cremation cemetery east of the fort.

2.3.2 **Phasing:** within the extramural settlement in Field 2, a fairly complex stratigraphical sequence survived. There, three principal phases of Romano-British occupation, designated Phases 2A, 2B and 2C, were identifiable. Ceramic evidence (*Sections 3.3-4*) indicates that the settlement in this area was established no earlier than the late second/early third century AD (Phase 2A), with its *floruit* occurring in the third century (Phase 2B). Limited evidence for occupation in the late third-fourth century (Phase 2C), including some activity in the second half of the fourth century, was also recovered, though it is not yet clear if the later material represents continuity of occupation, or marks a renewed phase of activity following a break.

2.3.3 Over the rest of the site, the bulk of the excavated features yielded little or no dating evidence, and have therefore been tentatively assigned to Phase 2,

meaning that, whilst they are considered to be certainly or possibly of Roman date, they cannot yet be more precisely phased. Those (comparatively few) features that contained late third-fourth-century pottery have been attributed to Phase 2C on that basis.

- 2.3.4 ***The extramural settlement:*** in terms of excavated remains, the core area of the extramural settlement occupied a strip of the pipeline easement within Field 2, directly opposite the southern defences of the fort (Fig 3; Plate 2). Three main stratigraphical sub-phases were recognised, though the basic layout does not appear to have changed much throughout the Roman period.
- 2.3.5 The key feature, relative to which all other (excavated) elements of the settlement appear to have been laid out, was a north-west to south-east road (**6531**), aligned on the fort's south gate. Another road or lane (**6532**) ran north-east, at right-angles from **6531**, and multiple phases of timber-framed buildings were erected on either side of this. West of road **6531**, though, no buildings were erected until later in the sequence of occupation (during Phase 2C; *Section 2.3.8*).
- 2.3.6 ***Phase 2A:*** the earliest occupation comprised the primary phase of the main road (**6531**), and a possible minor lane (**6532**) that ran east from it (Fig 3). Two rectilinear timber buildings (**6435**; **6520** (Plate 3)) lay east of road **6531** and south of lane **6532**; the lane possibly terminated at the south-west corner of structure **6435** (Fig 3), though this is not yet entirely certain. Both the buildings and the roads/lanes themselves had been constructed directly over a buried soil horizon, representing the old ground surface at the beginning of the Romano-British period. The buildings in this phase were seemingly of sill-beam construction, with sills set in narrow construction trenches.
- 2.3.7 ***Phase 2B:*** this phase saw the resurfacing of road **6531** and the replacement of lane **6532** on the east with a much more substantial road (**5218**) aligned perpendicular to **6531** (Fig 3; Plate 4). In the angles of the road junction, new buildings (Structure **5625** on the north, Structure **6036** on the south) were erected. Though undoubtedly of timber-framed construction, these buildings had been provided with quite substantial foundations, of compacted cobbles and broken sandstone fragments set in construction trenches.
- 2.3.8 ***Phase 2C:*** during the final phase of occupation, main north/south road **6531** was resurfaced; to the east, road **5218** was also resurfaced on two occasions. North of this, Phase 2B Structure **5625** continued in use, but Structure **6036**, to the south, was replaced by a new timber building (Structure **5473**) (Fig 3; Plate 5). For the first time, buildings were also erected west of road **6531**, encroaching onto the edge of a pre-existing field system (*Section 2.3.9*). The principal excavated structure (**5541**) was separated from another building to the south (Structure **6548**) by a narrow lane (**5174**) (Fig 3; Plate 6), and a second lane (**5796**) lay to the north; both lanes ran south-west from road **6531**, and were aligned perpendicular to it. The buildings of this phase, though undoubtedly all timber-framed, exhibited a variety of construction techniques. The south wall of Structure **5541** was built on a low stone sill of large, unbonded sandstone

blocks, but the rest of its external walls appear to have been laid directly on the ground surface, perhaps on vanished wooden sill beams. Structure **5473**, on the other hand, was provided with cobble and sandstone foundations, similar to those of the Phase 2B buildings (*Section 2.3.7*).

- 2.3.9 *The field system south-west of the settlement*: the area investigated to the south-west of the extramural settlement contained an extensive complex of ditches (Fig 4), most of which are interpreted as field boundaries. Several pits and other features were also noted. Most of the ditches appear to have broadly shared the alignment of the roads and buildings in the extramural settlement. Very few features of certain late third-fourth-century date were recorded in this area, and consequently, the great majority are assigned more broadly to Phase 2.
- 2.3.10 *Activity immediately north-east of the settlement*: activity in this area, at the north-east end of Field 2, appeared far less intensive than was the case only a few metres to the south-west (Fig 5), suggesting that the area may always have lain on the periphery of the settlement. Potentially the most significant feature was a Roman road (**5560/1049**; Figs 5 and 6), lying on or close to the line of modern Moor Lane. Ceramic evidence suggests that the excavated surface was of late third-fourth-century date, contemporary with Phase 2C, but it is possible that the road originated before this. The rest of the area was occupied by a palimpsest of small timber structures, probable field boundary ditches, pits and other features (Fig 5). Most were attributable broadly to Phase 2, with few yielding later pottery. It would appear that many of the ditches were perhaps amongst the earliest recorded features, perhaps representing part of a field system that was later absorbed into a peripheral area of the settlement.
- 2.3.11 *The field system north-east of the settlement*: over much of Field 1, a comparatively sparse collection of archaeological features was recorded (Figs 6 and 7). For the most part, these comprised probable field boundary ditches and a scatter of pits, postholes, possible waterholes and other features that directly cut the natural subsoil and were sealed by post-medieval agricultural soils. One of the putative waterholes (**688**, Fig 6; Plate 7) had the remains of a square shaft or setting of drystone construction at its base, suggesting that it may have served as a shallow well. Two probable trackways (**1224**, **1225**), defined by pairs of parallel ditches, were also located (Fig 6). However, these, together with most of the ditches in Field 1, were on a markedly different alignment from those in Field 2 and, indeed, to the buildings and roads in the extramural settlement. This could indicate that the fields and tracks in Field 1 were not directly contemporary with the remains in Field 2, or even with the fort itself, though this remains uncertain. As elsewhere, the bulk of the features were only broadly attributable to Phase 2, since few contained pottery of later Roman date.
- 2.3.12 *The putative cemetery area*: at the north-eastern end of Field 1, a mass of intercutting features, principally ditches, gullies, and pits of various shapes and sizes, was recorded (Fig 7), probably representing more than a single phase of occupation. A few spreads of charcoal-rich material in this area could

conceivably represent spread pyre debris from the adjacent third-century cremation cemetery, which lay immediately to the north (Cool 2004), though the precise significance of these deposits is not yet clear. In Field 3 to the east, two small features (**10037**, **10096** (Fig 8; Plates 8 and 9)) have been interpreted as likely cremation burials, presumably also associated with the nearby cemetery.

- 2.3.13 One of the most enigmatic features in this area was a shallow, sub-rectangular pit or hollow (**612**), 4.02 x 2.25m and 0.36m deep (Fig 7; Plate 10), that appears, either by accident or design, to have been situated within a small ditched enclosure (Fig 7). Although initially interpreted as a possible early medieval sunken-floored building, this is currently thought to be of probable Roman date, though its precise significance remains unclear.

2.4 PHASE 3: EARLY MEDIEVAL ACTIVITY

- 2.4.1 Evidence for possible early medieval (*c* late fifth-eleventh-century) activity on or in the vicinity of the site was suggested by two handmade potsherds (*Section 3.5.2*) that resemble material excavated in 1991 from a seventh-eighth-century settlement (Fremington; Oliver *et al* 1996), little more than 300m south-east of the eastern end of Field 2. Unfortunately, both sherds were effectively unstratified. A wheel-thrown rimsherd from a cleaning level might also be early medieval, though a Romano-British or later medieval date is also possible. None of the features or deposits excavated on the site could be assigned to the early medieval period, though many yielded no datable artefacts.

2.5 PHASE 4: LATER MEDIEVAL ACTIVITY

- 2.5.1 The only evidence for later medieval (twelfth-sixteenth-century) activity on the site was provided by an assemblage of 26 potsherds (*Section 3.5.3*). However, all this material came either from modern topsoils or from cleaning levels, with the exception of a few sherds that were clearly intrusive in Roman deposits. No certain or probable medieval features were recorded anywhere, and it therefore seems likely that the pottery reached the site in domestic refuse, brought from habitations nearby, which was used to manure the fields.

2.6 PHASE 5: POST-MEDIEVAL ACTIVITY

- 2.6.1 With the exception of a few field drains and the sealing layers of modern agricultural soil, no post-medieval features or deposits were recorded. The assemblage of 32 post-medieval pottery sherds recovered (*Section 3.5.4*) ranges in date from the late sixteenth/seventeenth century to the nineteenth century. Like the later medieval material, this may well have been brought onto the site in domestic refuse used to manure the fields.

3. RESULTS OF THE ASSESSMENT

3.1 ASSESSMENT AIMS AND OBJECTIVES

3.1.1 The principal aim of the assessment is to evaluate all classes of archaeological data generated by the archaeological works undertaken at Brougham in 2007-8, in order to formulate a programme of appropriate further analysis. A statement of the significance of the results from each element of the project archive is given below.

3.1.2 The objectives of the assessment correspond to, and are prescribed by, *Appendix 4 of Management of Archaeological Projects (MAP 2)* (English Heritage 1991a). They are:

- to assess the quantity, provenance and condition of all classes of stratigraphic, artefactual and environmental data;
- to comment on the range and variety of the material;
- to assess the potential of the material to address new research questions raised by the assessment;
- to formulate any further questions arising from the assessment of the excavated data.

3.1.3 This assessment presents:

- a factual summary, characterising the quantity and perceived quality of the data contained within the site archive;
- a statement of the academic potential of the data;
- recommendations on the storage and curation of the data.

3.2 STRUCTURAL AND STRATIGRAPHICAL DATA

3.2.1 The entire paper and material archive was examined for this assessment. The three principal excavated areas (Fields 1, 2 and 3) all contained features and deposits of archaeological importance, the recording of which generated written descriptions, drawings, photographs and other primary field records. Broad phasing has been ascribed to most contexts, but it will not be possible to refine the phasing further until a close study of the dating evidence has been undertaken during the analytical stage of the post-excavation programme.

3.2.2 **Quantification:** detailed quantifications of the stratigraphic records are available in the project archive. In summary, the archive contains, approximately, the following number of records:

Context records:	2500
Multiple context plans:	200
Single context plans:	150
Section drawings:	450
Monochrome prints:	2500
Colour slides:	2700
Digital photographs:	2700

- 3.2.3 **Assessment:** an historical over-emphasis on the excavation of fort interiors, to the detriment of research on the associated extramural settlements (*Section 5.2.4*), means that the stratigraphical data recovered in 2007-8, which were obtained under controlled conditions using modern excavation techniques, are of considerable academic significance. A quite complex stratigraphical sequence was recorded in Field 2, representing multiple phases of activity within a core area of the settlement, adjacent to a road leading south from the fort's south gate. The well-preserved remains of multiple phases of timber-framed buildings, roads, and other activity areas, provide extremely good potential for further analysis.
- 3.2.4 In Fields 1 and 3, features and deposits that may have been related to the known cremation cemetery east of the fort are also of considerable academic importance. These comprise several likely burials, and spreads of possible pyre debris. Some of the ditches in these areas could conceivably represent the remains of funerary enclosures, but much additional analytical work is required to resolve this, and to illuminate the spatial and temporal development of this area in the Romano-British period.
- 3.2.5 Farming would, in all probability, have underpinned the economy of the settlement at Brougham, and would also have been the source of much of the food and other materials supplied to the military garrison. For this reason, the system of field boundary ditches, trackways, waterholes and other elements of the wider agricultural landscape associated with the fort and settlement form an important topic for further analysis.
- 3.2.6 **Potential:** the greatest potential for further stratigraphical analysis clearly lies with the settlement remains recorded in Field 2, immediately south of the fort, although the features in both Fields 1 and 3 are little-understood elements at the fringes of the settlement, and their analysis will be important. The stratigraphical and structural data will also provide the framework within which all other analyses will take place. Further detailed analysis to refine both the stratigraphical sequence, and the often tentative interpretations generated by the assessment, are therefore key to, and underpin, all other analyses undertaken on the Brougham material. Detailed work on the stratigraphic records will enable the physical development of the settlement to be charted, from its origins to the end of the Romano-British period. Changes in the layout of roads, lanes, and buildings will be recorded, and the development of the excavated buildings themselves will be investigated, through examination of changes in construction techniques and the establishment of detailed sub-phasing of the (often subtle) internal alterations that occurred within each of the structures during their lifetimes.
- 3.3 SAMIAN WARE**
- 3.3.1 **Quantification:** in total, 1369 sherds of samian ware, weighing 16.755kg, were recorded from the excavations (Table 1). Of these, only 79 (5.77%) were completely unstratified, though 31 (2.26%) came from stratified deposits that are presently unphased. A further 355 sherds (25.93%) came from post-Roman levels, leaving a balance of 904 sherds (66.04%) from phased Roman contexts.

Of the 1290 stratified sherds, 723 (56.04%) were recovered from Field 2, with 553 (42.87%) coming from Field 1, and only 14 (1.09%) from Field 3.

Phase	No sherds	% of total	Maximum No vessels	% of total	Weight (g)	% of total
Roman						
2A	5	0.37	5	0.40	140	0.84
2B	115	8.40	103	8.21	1419	8.47
2C	339	24.76	292	23.27	3951	23.58
2	445	32.51	420	33.46	5241	31.28
<i>Sub-total</i>	<i>904</i>	<i>66.04</i>	<i>820</i>	<i>65.34</i>	<i>10,751</i>	<i>64.17</i>
Post-Roman						
5	355	25.93	335	26.69	5204	31.06
<i>Sub-total</i>	<i>355</i>	<i>25.93</i>	<i>335</i>	<i>26.69</i>	<i>5204</i>	<i>31.06</i>
Unphased	31	2.26	29	2.31	275	1.64
Unstratified	79	5.77	71	5.66	525	3.13
Total	1369	100	1255	100	16,755	100

Table 1: Breakdown of the samian assemblage by stratigraphic phase

3.3.2 The assemblage represents a maximum of 1255 individual vessels (Table 1), though only three contexts yielded more than 15 sherds. The average sherd weight is 12.2g; most sherds are small/medium-sized, with only six weighing more than 100g. Only one vessel presented a complete or even near-complete profile; this was an unstamped cup of form 33 that had seen considerable use before its deposition.

3.3.3 **Assessment:** the most striking feature of the assemblage is the unusually large proportion of East Gaulish products, from the later second-third-century AD workshops at Rheinzabern and Trier in particular, representing 28.92% of the estimated maximum vessel count (Table 2). The very small proportion (0.4% at most) of Flavian-Trajanic South Gaulish vessels is also notable. There appear to be, at most, only five possible South Gaulish products, each represented by a single small sherd; three of these were unstratified, and two (mere fragments) came from Phase 2B (*ie* third-century) contexts in Field 2. The bulk of the assemblage (70.68%) comprises Central Gaulish wares, almost exclusively from Lezoux.

Fabric	Maximum No vessels	% of total
South Gaulish	5	0.40
Central Gaulish	887	70.68
East Gaulish	363	28.92
Total	1255	100

Table 2: Breakdown of the samian assemblage by fabric

- 3.3.4 **Chronology:** no vessels can be dated to the first century AD, and there is almost nothing earlier than the mid-second century. One of the South Gaulish vessels may have originated at Montans in the period *c* AD 110-40/50, and there is also, perhaps, a single Central Gaulish vessel from Les Martres-de-Veyre, datable to *c* AD 100-25. The rest of the Central Gaulish collection all appears to be from Lezoux, with the bulk dating to the period *c* AD 160/70-200. Revealingly, there are very few (perhaps no more than five vessels) of the relatively popular Hadrianic-Antonine products from the Argonne region, and there are no more than two or three possible examples from the early (mostly Hadrianic-early Antonine) East Gaulish centres, such as La Madeleine and Heiligenberg. A few possible Hadrianic or early-Antonine products are present, but these are mostly only broadly attributable to the period *c* AD 120/40-200, though three bowls are datable to *c* AD 130/5-60/70. Of some chronological significance, too, is the fact that almost all the East Gaulish products are from the late second-third-century workshops at Trier or (predominantly) Rheinzabern. There the samian industry continued, though declining in output and quality, as late as *c* AD 250/60.
- 3.3.5 It is clear, therefore, that there is very little in the assemblage that can be assigned a date before *c* AD 150, and that the great bulk of the material was certainly produced after (perhaps well after) *c* AD 160. Furthermore, the latest 'plain' forms include a very large proportion (14% of the estimated maximum number of vessels) of samian mortaria. In Britain, this vessel type is not thought to appear before *c* AD 170 (Ward 2009, 547), though continental scholars would place its appearance in the third century. Late second-century Central Gaulish samian is usually abundant on sites under steady occupation in the years around and after the turn of the third century AD, whilst the presence of significant quantities of later East Gaulish products from Rheinzabern and Trier is usually indicative of considerable third-century activity.
- 3.3.6 **Forms:** it seems that there are relatively few cup forms in the assemblage, and that those which are present are almost exclusively of form 33. There are only two possible examples of form 27, a cup form which had been supplanted in popularity (by form 33) by *c* AD 160 (Ward 2009, 552). Dish forms appear preponderant, overwhelmingly in the late, rouletted deep-dish form 31R and its East Gaulish versions. Its ubiquity in all phases reflects a high level of activity on the site after *c* AD 160. There is a high proportion of moulded bowls (*c* 230, representing 18.33% of the maximum number of vessels in the assemblage), of which 155 (67%) retain some element of the decoration, though most were represented by mere fragments. The proportion of decorated vessels may prove to be particularly high when it is considered that plain forms were more frequent products of the later East Gaulish industry than was the case in earlier periods.
- 3.3.7 **Stamps:** 28 potters' stamps or fragments of stamps are present in the assemblage, both on plain ware vessels and on moulded bowls. Approximately 21 stamps are on vessels of Central Gaulish origin and seven on East Gaulish products, the latter from Rheinzabern and Trier.

- 3.3.8 **Condition, use and reuse:** the material in general is in a relatively good state of preservation, with little or none of the erosion of fabrics that results from specific environmental or climactic effects (eg water-worn material), although many sherds are heavily abraded. Only 5% of the assemblage shows any sign of burning, most of it very slight, and often comprising only faint, ‘smoked’ spots. A large proportion of the assemblage has seen heavy use. Over 130 vessels (over 10% of the total) show very considerable, or extreme, wear, 14 having been repaired, and in seven cases the vessel walls had been reduced (filed?) down, in order to extend the vessel’s life, presumably after breakage; seven sherds display fragments of graffiti. As is normal, evidence of extreme wear from primary use is mostly evident on footrings, but also (unusually) on many rims and (more unusually still) on some basal interiors. Evidence for reuse of samian is provided by the recovery of numerous gaming counters or roundels and five spindle whorls fashioned from samian sherds (*Section 3.14*).
- 3.3.9 **Comparative material:** the most important comparators for the assemblage are the collections of samian recovered from earlier excavations at Brougham, most notably the material from the cemetery excavations of the 1960s (Dickinson *et al* 2004, 345-50; Evans 2004, 351-2) and, potentially, the unpublished (and, indeed, entirely unresearched) assemblage of 93 sherds from Carlisle Archaeology Ltd’s investigations in the extramural settlement at Frenchfield, north of the fort, in 1999-2000 (Martin *et al* 1999, 6; Martin and Reeves 2001, 16-17). Elsewhere in the region, Carlisle provides one of the largest and most significant comparative groups (eg Dickinson 1990, 1991; 2000a; Ward 2009), especially since the fort there underwent a major phase of reconstruction in the early third century AD (Zant 2009, 267-303), the period around which the bulk of the samian from the 2007-8 excavations at Brougham appears to belong. Other important collections in the North West include those from Birdoswald, on Hadrian’s Wall (Dickinson and Mills 1997), and Ribchester, in Lancashire (Dickinson 2000b). In the North East, the samian from Piercebridge, Co Durham (Ward 2008a), is likely to provide crucial comparative data, since the fort there was not founded until the third century.
- 3.3.10 **Potential:** the precision with which samian ware can be dated, and its ubiquity on most Romano-British sites, makes it one of the primary sources of dating evidence for the Roman period. Further work on the identification of individual forms, fabrics and potters’ stamps in the Brougham assemblage would greatly refine the dating of this material, which would in turn contribute significantly to establishing a closely-dated sequence of Roman occupation on the site. Analysis of this kind also has the potential to shed light upon the possible status and/or function of specific parts of the site during the Roman period, and to indicate changes through time. For example, assessment suggests that the incidence of decorated bowls (possibly over 18% of the total assemblage; *Section 3.3.6*), whilst considerably higher than the suggested average of c 10% for Romano-British sites generally (Dickinson 2000b, 204), is broadly consistent with collections from other extramural settlements in the region, such as Middlewich (Ward 2008b), though detailed analysis of the assemblage is required to confirm this.

3.3.11 Detailed analysis of the provenance of the samian may also shed light on changing patterns of trade and supply in the region. Consideration of spatial patterning across the site also has considerable potential to advance understanding of possible functional differences between different parts of the extramural settlement, and to aid the identification of particular areas of activity.

3.3.12 From the point of view of samian studies, the assemblage is potentially of great significance for advancing understanding of the dating of some of the latest samian forms found in Britain, for instance, a reappraisal of the initial appearance of the gritted mortarium form 45.

3.3.13 The assemblage exhibits a high incidence of reuse. Detailed recording of this evidence is still uncommon, though it has clear potential to provide particularly revealing insights into the continued use of samian ware during the late Roman period, and, perhaps, its reuse in post-Roman times.

3.4 ROMAN COARSE POTTERY

3.4.1 **Quantification:** in total, 7457 sherds of Romano-British coarse pottery, weighing 108.715kg, were recovered. The quantities recovered from the different investigated areas (Fields 1-3) are shown in Table 3. By sherd count and weight, c 44% of the material was recovered from Roman deposits, with c 56% coming from post-Roman contexts, cleaning levels, or unstratified.

Field	No sherds	% of total	Weight (g)	% of total	Rim equivalent
1	2406	32.27	37,225	34.24	3326
2	4511	60.49	62,697	57.67	5953
3	540	7.24	8793	8.09	967
Total	7457	100	108,715	100	10,246

Table 3: Quantification of Romano-British coarse pottery by area of investigation

3.4.2 A full listing of all the Romano-British coarseware fabrics recovered from the site, together with quantifications for each fabric type, and the assessment methodologies employed, are available in the project archive.

3.4.3 **Assessment: Forms:** the coarseware assemblage includes a variety of different pottery forms. These include serving vessels, drinking vessels, and those intended primarily for storage and food preparation. Several more unusual forms were also noted.

3.4.4 **Serving vessels:** platters are uncommon, but include a fragment of African-type Ebor ware made at York in the third century (Monaghan 1997, form PA1); a Corder type 10 Crambeck parchment ware platter dates to after c AD 380 (Bidwell 2005). Dishes are more numerous, but mostly comprise Black-burnished ware Fabric 1 (BB1) and grey ware plain-rim forms, with smaller numbers of grooved-rim dishes and a single flat-rim dish. Bowls largely comprise grooved, flat-rim forms and bead- and flange-rim bowls. The relative number of wide-mouthed jars, an extremely common form in the repertoire of Romano-British kilns, particularly in the north and west, is very low when compared with typical northern 'native' sites (eg Leary 2008, fig 30). However, the assemblage compares better with some military or military-controlled sites in the region, for example in the extramural settlement at Manchester (Leary 2007, table 3.5).

3.4.5 **Drinking vessels:** most of the beakers are either Nene Valley colour-coated wares or Continental black slip wares (Richardson 1986, 115-9; Symonds 1992).

Flagons and flasks are less common than on many sites where intensive second-century activity occurred, which tends to support a late second-third-century date for the commencement of occupation.

- 3.4.6 *Serving and storage*: the narrow-necked jar range is overwhelmingly made up of vessels with hooked rims in Severn Valley-type forms and fabrics. Some of these appear very similar to Severn Valley wares, whilst others may be third-century products from kilns in the North West. Amphorae are relatively uncommon, though Spanish olive oil and Gallic wine vessels are present.
- 3.4.7 *Food preparation*: the most common form of vessel associated with food preparation is the cooking pot with a medium-sized mouth. At Brougham, the most common type is the BB1 jar with splayed everted rims. Using EVES values (Estimated Vessel Equivalents), around 32% of the BB1 jars from the site date to the mid-third century, whilst *c* 40% are of mid-late third-century date. Only *c* 3% are second-century, and *c* 13% are of early third-century type; the remainder are all third-century, but cannot be more closely dated. The group is augmented by a variety of jars in other wares, mostly third-fourth-century types. Several East Yorkshire calcite-gritted jars are also present, including Huntcliff-types dating to after *c* AD 360.
- 3.4.8 Of the mortaria, 72% were supplied by the Mancetter-Hartshill industry. Small amounts of other material, generally amounting to no more than 1-2% for each fabric, are also present, including products of the Nene Valley kilns, and the Crambeck and calcite-gritted industries of East Yorkshire.
- 3.4.9 *Unusual forms*: several unusual or one-off vessel types were also recovered. These include an oxidised sherd, possibly from a costrel, nine fragments from one or more Nene Valley colour-coated boxes, one facepot sherd and three from headpots, four tazze fragments and three sherds from plain lids. Additionally, large numbers of sherds fashioned into counters and roundels were recovered (*Section 3.14*).
- 3.4.10 *Chronology*: the assemblage dates predominantly to the third century AD. Negligible quantities of second-century material are present, but there is slightly more of fourth-century date, including some mid-late fourth-century forms, representing *c* 1% of the entire assemblage. The almost complete absence of second-century material is striking, and strongly suggests that intensive Romano-British activity did not commence within the areas investigated before the late second-early third century at the earliest.
- 3.4.11 *Function and site status*: the Romano-British pottery from Brougham is largely typical of the range of material that might be expected from an extramural site in northern England, though the paucity of second-century material is notable. Comparison with the pottery from the adjacent cemetery (Evans 2004) discloses fairly obvious functional differences. In the settlement, bowls and dishes, which served predominantly as kitchen to tablewares, are more numerous, as are mortaria, reflecting the domestic character of the site. Beakers and flagons, in contrast, are less common than in the cemetery, as are medium-necked jars, due mainly to their use as cremation urns. The greater

numbers of mortaria in Field 2, as opposed to elsewhere, may result from a genuine functional difference, reflecting, perhaps, a greater emphasis on food preparation in the core investigated area within the extramural settlement.

- 3.4.12 In Fields 1 and 3, several vessels were recovered that are likely to have been associated with burials. For example, a near-complete miniature folded beaker of third-century type, from deposit **6316** (the fill of Phase 2 pit **6318**) was burnt on the base, as though it had been placed on a pyre. Other vessels, such as a tazze and several fragments of face and headpots, may also have been related to rites associated with the burial and commemoration of the dead.
- 3.4.13 *Comparative material*: the most important published comparators for the Brougham assemblage are that from the 1960s excavations of the cemetery (Evans 2004) and the late group recovered from the fort ditches in the 1930s (Birley 1932). However, potentially the most significant comparative collection of all is the group of nearly 1100 sherds recovered from the limited investigations undertaken in 1999-2000 at Frenchfield, within the extramural settlement north of the fort (Martin *et al* 1999; Martin and Reeves 2001). This assemblage is unpublished, but was rapidly scanned by a Romano-British pottery specialist shortly after excavation, and is thought to comprise mostly mid-second-third-century material, though perhaps with rather more diagnostically second-century forms than the present group (Martin and Reaves 2001).
- 3.4.14 *Potential*: the coarse pottery is key to understanding the development of the site throughout the Roman period, by aiding the establishment of a closely dated occupation sequence. Furthermore, since the origins and development of extramural settlements in Britain were inextricably linked to the occupational histories of the forts to which they were attached (Sommer 1984), the chronology of the site may shed important new light on the history of the fort, the origins and development of which are very poorly understood. Further detailed analysis, in conjunction with additional work on refining the stratigraphic sequence, can therefore be regarded as being of the first importance.
- 3.4.15 Further work on the spatial and chronological distribution of the various pottery types could also provide important information on the use (and, perhaps, changes in use through time) of specific buildings and activity areas, together with the relative status of the structures. The assessment has already demonstrated the potential of such a study, through the identification, for example, of broad differences between the types of vessels present in the area of the extramural settlement and those associated with likely or possible cemetery deposits to the north-east.
- 3.4.16 There is also clear potential within the assemblage to address issues relating to the kinds of trade and exchange networks to which Brougham was linked. Diagnostic pieces may reflect the presence of certain ethnic groups within the settlement at certain times, whilst single vessels from regionally remote areas may indicate the presence of an individual from that region, or of a particular delicacy from that area which the vessel once contained. Swan (2008) has used

chronological changes in the pottery within the fort at Carlisle to plot potential changes in the garrison, and such an approach may be possible at Brougham.

- 3.4.17 In terms of Romano-British pottery studies, the Brougham assemblage represents an important, and fairly substantial, group of predominantly third-century pottery, the bulk of which appears to date to a very restricted period, *c* AD 220-80. Since several stratified phases of activity were identified on the site, further analysis of the pottery, in conjunction with additional detailed work on the stratigraphic sequence, has the potential to refine the chronology and typology of third-century pottery in the region, which is currently poorly understood (Willis 1997, 5.1), thus making a significant contribution to Romano-British pottery studies.
- 3.4.18 Whilst some aspects of the assemblage are fairly well documented on Roman sites in the North, two areas in particular are worthy of further detailed study. A large proportion of the assemblage is made up of Severn Valley-type ware in at least 13 sub-fabrics. Some of these compare well with Severn Valley fabrics from known production centres, but the provenance of others is unclear. It will be important to determine, by means of scientific analysis of the fabrics, the source(s) of the entire group, particularly since the presence of some burnt or overfired sherds hints at the possibility of local production. The evidence this should yield regarding the trade in Severn Valley-type wares in the third century has significant potential to advance understanding of the way the Roman military organised pottery supplies, and may, perhaps, also elucidate the role of the military market in the development of Severn Valley-type industries in the North West (Willis 1997, 3.9-3.10).
- 3.4.19 The grey ware group from Brougham would also benefit from similar analysis. In particular, two ware groups within the grey ware category, namely grey gritty wares and Norton-type wares, compare with fabrics known from West Yorkshire. Samples of these should also be analysed further to verify this tentative identification. A small group of mortaria in oxidised wares, probably local or Northern fabrics, may also require further fabric analysis.

3.5 POST-ROMAN POTTERY

- 3.5.1 **Quantification:** in total, 29 sherds of medieval pottery were recovered, mostly from topsoil and cleaning levels, although a few from stratified Roman deposits were presumably intrusive. In addition, 32 fragments of post-medieval pottery, ranging in date from the late sixteenth century to the nineteenth/twentieth century, were recovered.
- 3.5.2 **Assessment:** the most significant material is a group of three sherds that are potentially of early medieval date, though all were unstratified. A simple everted rim in a dark grey fabric, with a smoothed surface and irregular grass/chaff voids, resembles the seventh/eighth-century material excavated at Fremington (Howard-Davis 1996), *c* 300m south-east of Field 3, although the rim form is somewhat different. A second sherd in a similar fabric has spherical voids left by small inclusions, either oolite or limestone, that were present in the

clay prior to firing. In this, the sherd exhibits broad parallels with fabric 3 from Fremington (*ibid*), except that the limestone inclusions in fabric 3 had survived the firing process. The third sherd comprises an everted rim from a wheel-thrown vessel in a fully reduced sandy fabric. This has proved difficult to identify; it could conceivably be Romano-British, or part of a later medieval vessel that had been accidentally reduced in the kiln, but an early medieval date cannot be ruled out.

- 3.5.3 The remainder of the late medieval assemblage dates to the later medieval period, from the twelfth century to the sixteenth century. Broadly speaking, the material can be compared with the pottery excavated at Penrith Market (Brooks 2000a), and with the much larger assemblages from Carlisle (*eg* McCarthy and Taylor 1990; Brooks 2000b; Bradley and Miller 2009).
- 3.5.4 The post-medieval material mostly derived from topsoil and cleaning levels, and were thus effectively unstratified. This, together with the small size of the assemblage, means that the material has little bearing on the interpretation of features on the site.
- 3.5.5 **Potential:** the bulk of the assemblage has no potential to inform the interpretation of the site further. However, the three putative early medieval sherds are worthy of further analysis and full publication, since they potentially provide extremely rare evidence for activity in the vicinity of the site during the early medieval period, and may provide a useful comparator for the Fremington material.

3.6 CLAY TOBACCO PIPE

- 3.6.1 **Quantification:** 11 small fragments of eighteenth-nineteenth-century clay tobacco pipe, all stems, were recovered from modern topsoil and a cleaning level in Field 2.
- 3.6.2 **Assessment:** the assemblage has no relevance to the significant elements of the site.

3.7 CERAMIC BUILDING MATERIALS

- 3.7.1 **Quantification:** the assemblage comprises 267 fragments, of which 162 are pieces of brick or tile, the remaining 105 fragments being daub or other incidentally fired clay. The material is in very poor condition, with few fragments exceeding 50mm in their greatest dimension, and many being smaller than 20mm. Most are also extremely abraded or physically crumbling.
- 3.7.2 **Assessment:** few diagnostic features remain to permit dating or subdivision of the group by form and function; indeed, many fragments are so small that nothing remains of their original surfaces. In total, 15 obvious fragments of nineteenth-century or later ceramic field drains are present, although the remainder, whilst undatable, may potentially be earlier. Where original surfaces survive, it is clear that many thinner fragments, presumably tiles, were sand-cast, but this is not chronologically diagnostic. Several fragments appear to be

from small, thin, flat tiles of a type recorded elsewhere in late medieval and post-medieval contexts (eg Dawson and McPhillips 2008), whilst a few curved fragments of similar type, though small, might point to the presence of similarly dated pantiles. Nothing can be identified with certainty as being of Roman date, but since the excavations exposed quite extensive remains relating to the civil settlement, it seems possible that some of the poorly preserved, undiagnostic fragments are Roman. Indeed, in the case of the material recovered from well-sealed Roman deposits, a Romano-British provenance can be presumed.

- 3.7.3 Few of the small and abraded fragments of fired clay retain any clue as to the nature of the structures from which they derived. Only in one case has the impression of structural wood survived, but the fragment in question is so small that it adds little or nothing to the interpretation of the site.
- 3.7.4 **Potential:** the assemblage has no potential for further analysis, though the presence or absence of ceramic building materials in specific deposits should be noted in the publication.

3.8 ROMAN COINS

- 3.8.1 **Quantification:** in total, 17 Roman coins were recovered. The assemblage has been provisionally assigned dates (Table 4), with LW = little worn, MW = moderately worn, and VW = very worn.

Context	Phase	OR no	Coin type	Wear	Date (AD)
5106	5	1250	Trajan, <i>Æ sestertius</i> , reverse illegible	VW	103-17
5454	2B	1377	Lucius Aelius, AR <i>denarius</i> , RIC 2 (Hadrian), 432	MW	137
1126	2	213	Septimius Severus, AR <i>denarius</i> (fragmentary), RIC 4 (Severus), 127	LW	198-200
3031	2	435	Septimius Severus, AR <i>denarius</i> , RIC 4 (Severus), 144b	LW	199
5106	5	1077	Julia Domna, AR <i>denarius</i> , RIC 4 (Severus), 560	MW	196-211
5219	2C	1278	Julia Domna, AR <i>denarius</i> , RIC 4 (Severus), 561	LW	196-211
5106	5	1093	AR <i>denarius</i> , illegible, but possibly Severan	-	196-211?
5106	5	1338	AR <i>denarius</i> , illegible, but possibly Severan	-	196-211?
5106	5	1105	Gordian III (1), <i>Æ as</i> , RIC 4 (Gordian III), 309	LW	240
5061	2C	1043	Claudius II, <i>Æ radiate</i> (fragmentary), RIC 5 (Claudius II), 71	MW	268-70
5106	5	1136	<i>Æ</i> , radiate copy (fragmentary)	VW	c 270-90
5401	2C	1267	<i>Æ</i> , radiate copy, probably as RIC 5 (Tetricus I), 100	LW	c 270-90
5106	5	1101	<i>Æ</i> , radiate copy, probably as RIC 5 (Tetricus II), 267	MW	c 270-90
5106	5	1117	<i>Æ</i> , radiate copy (very poor)	-	c 270-90
5106	5	1231	<i>Æ</i> , radiate copy (very poor)	-	c 270-90

5106	5	1396	Æ, radiate copy (very poor)	-	c 270-90
5047	5	1002	Magnentius, Æ nummus, LRBC II, 66	LW	351-3

Table 4: Provisional Roman coin identifications

RIC: Mattingly *et al* 1923-84

LRBC II: Carson *et al* 1960, part II

3.8.2 **Assessment:** it is not realistic to expect to be able to draw significant conclusions from so small a sample, although a few points may usefully be made. First, the near-complete absence of coins of the first and second centuries is noteworthy. It should also be said that the two coins of the second century – a *sestertius* of Trajan and a *denarius* of Lucius Aelius – were so worn as to suggest that they are unlikely to have been lost before the late second century or the early third century.

3.8.3 The majority of the coins are issues of the third century; the four certain *denarii* of the reign of Septimius Severus on the whole exhibit little wear, and were probably lost not later than the first quarter of the century. Although only a single coin – that of Gordian III – derives from the middle years of the third century, the presence of a radiate of Claudius II and six radiate copies – albeit of very poor quality – demonstrates activity through the later years of the century, a point emphasised by the presence in the area of at least two hoards of third-century coins (Shotter 1990, 181f). The single coin of Magnentius offers decisive evidence of continuing activity in the middle and probably the later years of the fourth century. It is, however, surprising that no coins of the normally prolific late-Constantinian period were found.

3.8.4 **Potential:** the coins have the potential to provide comparatively close dating for the deposits from which they were retrieved (though most derived from post-Roman levels), and also to add to present knowledge of the use and circulation of Roman coinage in the region.

3.9 COPPER ALLOY

3.9.1 **Quantification:** in total, 58 copper-alloy objects and fragments, representing a minimum of 41 individual artefacts (not including the Roman coins; see *Section 3.8*), were recovered. Of these, 20 came from stratified deposits of Roman date, with the rest deriving from cleaning levels or modern topsoil, with one item unstratified. The majority are certainly or probably Roman, though a single buckle of probable post-Roman date was also found. The condition of the assemblage is variable, but 13 objects are unidentifiable due to the presence of dense corrosion products. However, all were examined for the purpose of this assessment. A summary listing, by context and phase, is available in the project archive.

3.9.2 **Assessment:** the group includes a range of personal objects, including brooches, belt fittings, a bangle, a buckle, pins, and part of the copper-alloy bezel of a finger ring. Of these, only the two brooches can be dated with any precision, being repoussé disc and P-shaped types, which date to the second

century and third centuries AD (Hattatt 2000). Other, more domestic, items include a knife guard, a needle, drop handles and studs.

- 3.9.3 One object is of particular interest, being a flat-cast fitting in the form of a stylised deer (Plate 11), from Field 2. As yet, no parallels have been recognised, although the use of deer as a decorative motif is not uncommon during the Roman period (Henig 1995, 97). In addition, a small tool blade, from Field 1, has been tentatively identified as part of a votive axe. These are relatively common, especially in the south of Britain, although little is known of the use or significance of these items, and their dating is unclear (Green 1975, 60).
- 3.9.4 **Potential:** elements of the group (especially the brooches) will contribute to dating evidence, and add to an understanding of activities undertaken in and around the site during the Roman period. In addition, a consideration should be made of the distribution of finds across the site, perhaps leading to a better understanding of zones of activity.

3.10 IRON

- 3.10.1 **Quantification:** in total, 896 items of iron were recovered, mostly from Romano-British deposits or cleaning levels above the Roman horizons. The material is in poor condition, and all was subject to x-radiography in order to facilitate identification.
- 3.10.2 **Assessment:** as might be expected, the assemblage is dominated by nails (529) and other structural items, such as looped and split pins, which collectively represent 62% of the group. The remainder of the objects include a range of fragmentary domestic items, such as blades (12 fragments), keys and latch lifters (six fragments), a *stylus*, and a flesh hook. In addition, there are obvious agricultural objects, such as a plough share, a sickle, and a spade shoe, whilst horse equipment is represented by parts of two snaffle bits. The remaining objects include a selection of socketed tools, a possible chisel, and various straps, bars, discs, chain links, hobnails, strips and wire. There are, in addition, 56 small fragments of sheet, all clearly deriving from a single object, possibly a bowl with suspension loops. Although less securely identified, there is a small group of military items, including possible plate armour (eight fragments), two spearheads, and part of a shield reinforcement.
- 3.10.3 As is often the case with ironwork, which changes little in appearance through time, many items cannot be dated with precision, although a complete sickle similar to the Brougham example, has recently been recovered from a second-century deposit within the Roman fort at Carlisle (Howard-Davis 2009, 759).
- 3.10.4 **Potential:** with the exception of the nails and any unidentifiable fragments, the assemblage has good potential to inform a wide range of research topics, including the kinds of activities undertaken on the site, the presence or absence of military elements, building construction techniques, and the form and character of fixtures and fittings within the excavated structures. In addition, a

consideration should be made of the spatial distribution of finds across the site, perhaps leading to a better understanding of zones of activity.

3.11 LEAD

- 3.11.1 **Quantification:** in total, 15 items of lead were recovered. The material is, for the most part, in fair condition, with most items covered by a thin layer of pale corrosion products.
- 3.11.2 **Assessment:** the fragments comprised mainly waste products, such as spillage and off-cuts, but there are also several other objects, including a spindle whorl, the plug for a cistern, both from the Roman civil settlement in Field 2, and a folded sheet fragment, also from Field 2. None of the waste fragments and off-cuts is larger than 30mm in length. Similar small collections of lead objects, including spills and off-cuts generated by lead working, have been recovered from many Roman sites in north-west England, including Botchergate, Carlisle (Zant *et al* forthcoming), and at Ribchester, in Lancashire (Buxton and Howard-Davis 2000). Very small quantities of lead slag were recovered from the Brougham site (*Section 3.12*), but the scarcity of this material, and the presence of a few off-cuts and other waste scraps, is suggestive of small-scale repair work, rather than lead smelting or other industrial processes.
- 3.11.3 **Potential:** the lead artefacts have very little potential to inform analysis of activity on the site further.

3.12 INDUSTRIAL RESIDUES

- 3.12.1 **Quantification:** in total, 47 small fragments of industrial residues, weighing 663g, were recovered from 15 deposits on the site, or as unstratified material. The assemblage includes ferrous smithing slags, non-ferrous slags (copper and lead), undiagnostic slag, clinker, fuel waste (including coal), and a piece of vitrified clay. In addition, spherical hammerscale, indicative of iron smithing, was noted in several deposits, mainly the fills of pits and possible waterholes in Field 1, during the course of the palaeobotanical assessment (*Section 3.20*).
- 3.12.2 **Assessment:** fragments of smithing waste, occasional fragments of non-ferrous slag, and the hammerscale noted in several soil samples, clearly demonstrate that secondary metalworking was undertaken in the vicinity of the site, although the lack of furnace and smelting slags suggest that primary iron production was not carried out nearby. In addition, some of the smaller fragments contained occasional evidence of metallic iron, and whilst not entirely diagnostic, they are similar to smithing slags, and are most likely to be part of the smithing assemblage.
- 3.12.3 A single fragment of non-ferrous slag came from Phase 2C Structure **5541**, and a piece of recycled copper alloy was also recovered from the area of the extramural settlement in Field 2. Several unstratified fragments of heavily vitrified stone may possibly be heat-affected building material. A number of incidentally fired lumps of charcoal and fuel ash/waste slag present in a few Romano-British contexts may, in some cases at least, have derived from domestic hearths.

3.12.4 **Potential:** the small assemblage has little potential to advance understanding of activity on the site. The few fragments recorded perhaps derived from the raking-out of small, discrete features, whilst the hammerscale may have been incorporated into rubbish or other material brought onto the site (presumably from no great distance) to fill disused pits and other large features.

3.13 ROMAN AND POST-ROMAN GLASS

3.13.1 **Quantification:** in all, 194 fragments of glass were recovered, comprising 173 fragments of blown or mould-blown vessel glass, six of window glass, 13 bead fragments, one bangle, and one gaming counter. Of these, 24 fragments, all vessel glass, were unstratified.

3.13.2 **Assessment:** with the exception of five late post-medieval fragments, the assemblage is entirely Romano-British, with dating probably centred on the late second-third century AD. As is usual for Romano-British glass in the North West, the material is in excellent condition, completely unweathered, and with little abrasion. Fragments are seldom more than 30mm in maximum dimension, although the more robust vessel forms, mainly the square storage bottles, survive in larger fragments, up to *c* 50mm in maximum dimension. Only one context (cleaning level **5106** in the core area of the Romano-British extramural settlement in Field 2) showed a particular concentration of glass finds, with 33 fragments, including a bead and a fragment of Roman window glass. No other context contained more than three fragments, with most yielding only single pieces.

3.13.3 The vessel glass can be divided into two clearly defined groups: thin-walled, free-blown vessels in blue-green or colourless metal, and rather sturdier blue-green storage vessels. Amongst the former there are few diagnostic sherds, with only six small base fragments and three rims, all of which appear to come from cylindrical cups, ten small joining fragments from a colourless ribbed hemispherical cup (Cool and Price 1995, 86-7), and seven extremely thin-walled fragments from colourless indented vessels, their size suggesting beakers (Price and Cottam 1998, 93). All of these are forms represented in the nearby cemetery, where the rarity of indented beakers was noted (Cool 2004, 368).

3.13.4 The remainder (42 fragments, representing *c* 24% of the total assemblage) derives from mould-blown storage vessels. A single base fragment shows the horizontal ribbing typical of the so-called 'Frontinus bottle' (Isings 1957, forms 89 and 128), although this is an unusually small example. Although known in the first and second centuries AD, these were most common in the third and fourth centuries (*ibid*). The rest are all in a deep blue-green glass, and all probably derive from square bottles of Isings form 50 (*op cit*). Generally speaking, it can be suggested that the assemblage is broadly contemporary with the material from the nearby cemetery (Cool 2004).

3.13.5 There are nine beads (one fragmentary), in types typical of the late second to fourth centuries. The one exception is a frit melon bead, a type more common

in the late first-second century (Price and Cottam 2000, 291). Most are similar to those from the adjacent cemetery (Cool 2004), although many of the latter were melted and fused, having been deposited as pyre goods. Of interest is a single gold-in-glass bead, a late second- and third-century type which has been linked, with varying degrees of confidence, to the presence of Sarmatian troops (*op cit*, 387), brought to Britain in the late second century by Marcus Aurelius. Several beads of this type were seen in necklaces accompanying cremation burials in the cemetery (*ibid*).

- 3.13.6 There is, in addition, part of a glass bangle from a Phase 2B deposit associated with road **5218** in Field 2. This is of Kilbride-Jones (1938) type 2, a type seen commonly on sites of this date, as, for example, at Vindolanda, where a complete example was recovered (Birley 2006, fig 4.11). An unusually large, opaque white gaming counter was also recovered from a Phase 2C demolition deposit associated with Structure **5541**. These are not uncommon finds, though Cool (2004, 396) notes their, perhaps unusual, absence from funerary deposits in the cemetery.
- 3.13.7 Five fragments of window glass are small mid-pane shards of the matt-glossy cast glass typical of the first to third centuries AD (Price and Cottam 2000). A sixth fragment is probably of seventeenth- to eighteenth-century date, of a type known to have been used within Brougham Castle (Howard-Davis 1992) and presumably also at nearby Brougham Hall. The other fragments of post-Roman glass are of little significance, and include dark olive green bottle glass, of eighteenth- to nineteenth-century date, and a modern milk bottle.
- 3.13.8 **Potential:** the Romano-British group has some potential to contribute to the understanding and interpretation of the site. Stratified diagnostic material will add to, and possibly refine, dating supplied by other material classes. The range of vessels present, albeit restricted, gives some indication of activity, and echoes the grave goods deposited within the adjacent cemetery, allowing some tentative links between the settlement and the physical remains of those who lived within it. The presence of unusual bead types will allow some exploration of links with surrounding settlements, perhaps allowing the strong patterns of ethnicity suggested for some of the material groups from the cemetery (Cool 2004) to be explored further. The small size and lack of specific concentrations of window glass can add little to the interpretation of the site, except to note that there were possibly glazed buildings somewhere in the vicinity, but whether in the settlement, or within the fort, cannot be determined, as glass recycling was routine at this period. The post-medieval glass has no potential for further analysis.

3.14 CERAMIC OBJECTS

- 3.14.1 **Quantification:** in total, 52 Romano-British samian and coarseware sherds from a wide variety of vessels had been fashioned into roughly circular counters. Additionally, a further 14 sherds had been made into larger counters or roundels, and six were worked into spindle whorls.
- 3.14.2 **Assessment:** the number of counters from the site is remarkably high, compared to many other comparable sites, though an unusually high proportion of samian counters was recorded at Old Penrith, Cumbria (Dickinson 1991, 135). The small counters are comparable in size to Romano-British glass and bone counters and were probably used primarily for gaming, but some might possibly also have served as weights (Crummy 1983, 93). In the cemetery at Brougham, counters were rare, only two samian examples being recovered, though counters are not uncommon in late second-third-century burials elsewhere in Britain (Cool 2004, 396).
- 3.14.3 **Potential:** further analysis (particularly spatial analysis) of the assemblage has some potential to contribute to an understanding of the kinds of activities that were taking place on the site in the Romano-British period. Further study of the ceramic fabrics may also shed light on the criteria employed when selecting pottery sherds for conversion to counters and other objects.

3.15 STONE OBJECTS

- 3.15.1 **Quantification:** in total, 20 stone objects (aside from the prehistoric flints; *Section 3.16*) and 251 fragments deriving from a single lava quern, were collected. Apart from the quern, the material is in good condition, and all the fragments were subject to rapid visual examination.
- 3.15.2 **Assessment:** the identifiable Roman objects include a fragment of polished flint, possibly used as inlay for a ring, three whetstones, three millstone fragments, two roundels likely to have been used as lids or stands, a gaming piece and a water-worn pebble, possibly a slingshot. The lava millstone, from a Phase 2 pit in Field 1, is likely to have been of Niedermendig lava. The spread of lava quernstones appears to have been closely associated with the Roman army (Buckley and Major 1990), and bearing in mind the proximity of the fort at Brougham, this must be viewed as a likely source.
- 3.15.3 **Potential:** as a group, the stone objects are of restricted potential. However, they could make a minor contribution to any synthetic discussion of finds from the site.

3.16 PREHISTORIC FLINT

- 3.16.1 **Quantification:** in total, 23 prehistoric flint artefacts were recovered from the site, ten from Field 1 and 13 from Field 2.

3.16.2 **Assessment:** the material was entirely residual within Roman and post-Roman contexts. The assemblage largely comprises debitage (waste), though a few tools, such as blades and scrapers, are also present.

3.16.3 **Potential:** since the material is residual, its potential is limited. However, its mere presence attests to some form of activity on or in the vicinity of the site in prehistory.

3.17 JET OBJECTS

3.17.1 **Quantification:** four artefacts were recovered from the site, all provisionally identified as jet.

3.17.2 **Assessment:** all are items of personal adornment: a bangle, a bead, a pendant, and the bezel from a copper-alloy finger ring. It seems likely that they are of Romano-British date; during this period, jet reached its height of popularity in the third and fourth centuries AD (Allason-Jones 1989, 128). All are in good condition and, with the exception of the bangle, complete.

3.17.3 A plain, wedge-shaped pendant (Plate 12), from a posthole associated with Phase 2C Structure **693** in Field 1, can be broadly paralleled by an example in the large group of jet from the fort at South Shields (Allason-Jones and Miket 1984, 7.169). The other items are relatively common artefact-types, although it is not clear whether the large spherical object is a bead, or served as a terminal for a composite object.

3.17.4 **Potential:** the group has some potential to contribute to an understanding and interpretation of the site, specifically illustrating the appearance and preferences of those who lived within the settlement.

3.18 HUMAN BONE

3.18.1 **Quantification:** two small, sub-circular pits (**10037**, **10096**; Fig 8) filled with charcoal-rich material were recorded in Field 3, immediately south of the known cremation cemetery excavated in the 1960s (Cool 2004). One of these contained tiny fragments of calcined bone; the other feature yielded a few small flecks and fragments that may be burnt bone. In addition, several other discrete, charcoal-rich features located towards the north-eastern end of Field 1 were also tentatively identified as cremations, and small amounts of burnt bone were present in spreads of charcoal-rich material in the same area.

3.18.2 **Assessment:** some of the material from these features and deposits has been identified as human, although in other cases preservation is too poor for certainty at the assessment stage. The two pits in Field 3, and several similar features in Field 1, resemble a type of simple, un-urned cremation burial (Plates 8 and 9), without any accompanying grave goods or obvious container, that is well known from Romano-British cemeteries elsewhere in Cumbria, including those at Carlisle (McCarthy 2002, 91) and Low Borrowbridge (Hair and Howard-Davis 1996), and in other part of the North West, for example at Lancaster (Zant *et al* 2009). In view of their proximity to the excavated

cremation cemetery, therefore, the likelihood is that the features in Fields 1 and 3 were also burials. However, whilst well-attested elsewhere in the region, simple, un-urned burials of this kind were seemingly rare in the Brougham cemetery itself, with only a single example recorded during the 1960s (Cool 2004, 454-5). The spreads of charcoal-rich material were again located in close proximity to the known cemetery, and could conceivably represent material spread from nearby funeral pyres.

3.18.3 **Potential:** the material from the putative un-urned cremations, and from the charcoal-rich spreads, have the potential to be associated with the known cremation cemetery immediately to the north. Burnt bone from other features and deposits in this part of the site (*ie*, towards the north-eastern end of Field 1, and in Field 3) warrants further study to determine if any of it represents redeposited human remains.

3.19 ANIMAL BONE

3.19.1 **Quantification:** in total, 1598 animal bone and teeth fragments, weighing *c* 8kg, were recovered (Table 5). The bulk came from stratified Roman deposits, with a small amount from post-medieval and modern levels. Overall, 54% of the material comprises loose tooth fragments; of the remaining 46%, nearly three-quarters (74%) is heavily burnt and highly fragmented. There are only six potential records of epiphysial fusion, two records of mandibular tooth wear, and two measurable bones within the assemblage.

Area	NISP
Evaluation trenches	81
Field 1 (stratified)	567
Field 2 (stratified)	868
Field 3 (stratified)	9
Fields 1 and 2 (unstratified)	73
Total	1598

Table 5: Animal bone; number of individual specimens (NISP) by site area

3.19.2 **Assessment:** the methodologies employed during the assessment of the animal bones are detailed in the project archive. The total number of individual specimens identified to species is summarised, by stratigraphic phase, in Table 6. Species present include horse, cattle, sheep/goat, pig, dog, and red deer. The preservational status of the assemblages from Fields 1 and 2 is summarised in Table 7, but the assemblage is very poorly preserved, a result of the inimical soil conditions, which resulted in the preservation only of tooth fragments and burnt or calcined bone, both of which are more resistant to decay.

	Phase 2					Period 5	Unphased	Total
	2A	2B	2C	2	Total			
Horse	-	-	1	-	1	-	1	2
Cattle	3	5	11	75	94	4	12	110
Pig	-	-	1	4	5	1	1	7
Sheep/goat	-	-	1	9	10	2	4	16
Dog	-	-	-	-	0	1	-	1

Red deer	-	-	-	1	1	-	-	1
Cattle/horse	-	1	-	-	1	-	-	1
Cattle/red deer	11	16	12	142	181	21	26	228
Sheep/goat/roe deer	23	2	35	69	129	14	5	148
Cat-sized mammal	-	-	-	2	2	-	-	2
Medium mammal	-	3	9	66	78	6	15	99
Large mammal	-	9	68	223	300	14	64	378
Unidentified mammal	3	2	66	317	388	92	124	604
Domestic fowl	-	-	-	1	1	-	-	1
Total	40	38	204	909	1191	155	252	1598

Table 6: Number of individual specimens (NISP) by species

Phase	Condition (% of total)					No fragments
	Very Poor	Poor	Moderate	Good	Very Good	
Phase 2A	100.0	0.0	0.0	0.0	0.0	3
Phase 2B	45.5	45.5	9.1	0.0	0.0	11
Phase 2C	76.1	23.9	0.0	0.0	0.0	88
Phase 2	43.8	51.8	3.9	0.6	0.0	541
Phase 5	79.6	19.4	0.0	0.0	1.0	98
Total	69.0	28.1	2.6	0.1	0.2	741

Table 7: Preservation of animal bone fragments identified to a species level (excluding loose teeth), from phased contexts in Fields 1 and 2

3.19.3 **Potential:** the material has limited potential for further analysis. There is no potential for estimating the age at death of the stock animals, nor for biometric study or analysis into the treatment of the carcasses after slaughter. The spatial distribution of the burnt bone across the site may be of some interest, however, to determine whether any of it may have been associated with the known cremation cemetery (see Section 3.18), and how much may have come from other sources, for example from domestic hearths.

3.20 CHARRED AND WATERLOGGED PLANT REMAINS AND CHARCOAL

3.20.1 **Quantification:** in total, 276 environmental bulk samples of 10-80 litre volume were collected from 264 contexts during the course of the excavations. Of these, 148 (53.62%) were chosen for rapid assessment of charred and waterlogged plant remains. This comprised the processing and evaluation of a 10-litre sub-sample from each of the bulk samples. The samples were selected from a range of representative feature and deposit types (Table 8). The presence/absence and quantity of charcoal was noted in each sample, but no further work was undertaken on the charcoal at this stage. Full details of the assessment methodologies employed are lodged in the project archive.

Feature Type	Samples assessed
Pit	58
Ditch	19
Possible waterhole	12
Charcoal-rich/burnt layers	11
Possible cremation	9
Posthole	8
Fills of feature 612	8
Possible occupation layer	6

Floor/deposit in structure	5
Hearth (and associated deposits)	5
External deposits	5
Stakehole	2
Total	148

Table 8: Breakdown of samples assessed, by feature/deposit type

- 3.20.2 **Assessment:** charred plant remains were recorded in 82 of the samples assessed (55.41% of the total assessed), of which 75 are considered to have further potential (*Appendix 1*), either for analysis of charred plant remains, further assessment/analysis of charcoal, or for radiocarbon dating (or, in some cases, all three of these). However, with the exception of the charcoal, quantities were generally low, with often less than five items in each sample (*Appendix 1*). Very small quantities of what was either modern plant material, or genuinely ancient waterlogged remains, were noted in some samples, but the amounts were too small to be of any great significance.
- 3.20.3 Small amounts of charred cereal grain were recorded in 57 samples (38.51% of the total assessed), from most feature/deposit types (*Appendix 1*). Many of the grains were of indeterminate type, but wheat (*Triticum*), barley (*Hordeum*) and oats (*Avena*) were present. Occasional charred weed seeds, including ribwort plantain (*Plantago lanceolata*), bromes (*Bromus*), and common sorrel (*Rumex acetosa*), were also recorded.
- 3.20.4 Charcoal was identified in most of the assessed samples, but the quantities in the flots were, on average, quite small, even in those features described in the primary site records as being charcoal-rich. However, abundant charcoal was recorded in the residues remaining after flotation. Burnt bone was noted in some flots and residues from the samples. Heat-affected vesicular material, coal, and spherical hammerscale, the latter indicative of iron smithing (*Section 3.12*) were also recorded. Hammerscale was present in several deposits, principally the fills of pits and possible waterholes in Field 1.
- 3.20.5 Plant remains are preserved in a little over half the samples assessed, but, like many other sites in the North West, the archaeobotanical record is sparse (Hall and Huntley 2007; Philpott and Brennand 2007; Huckerby and Graham 2009). Campbell (2004) identified only charcoal and a single hazelnut fragment in samples recovered from the Roman cemetery in the 1960s, and no other palaeobotanical remains have been recovered from Brougham, which makes the few charred cereal grains from the 2007-8 excavations of some significance. There is no evidence of crop processing from the site, but the presence of spherical hammerscale in some deposits provides evidence of industrial activity, specifically iron smithing, in the vicinity (*Section 3.12*).

3.20.6 **Potential:** although none of the samples assessed is exceptionally rich in charred plant remains, seven samples have the potential for further analysis of charred and waterlogged plant remains, and 55 have potential for further assessment and analysis of charcoal (*Appendix 1*). Some 70 samples (including the seven samples with potential for analysis of charred plant remains and the 55 samples with potential for charcoal assessment/analysis) have the potential to provide charred material suitable for radiocarbon dating (*Appendix 1*; see also *Section 7.16*). Further analysis of the charred plant remains has the potential to provide useful data on topics such as the economy and environment of the settlement and the diet of the inhabitants, whilst analysis of the charcoal can inform discussions about the availability and exploitation of wood for fuel.

3.21 POLLEN

3.21.1 **Quantification:** in total, 19 monolith samples were taken during the course of the excavations, and two cores were also taken with a Russian-type peat corer from two large pits or waterholes (**5819, 6281**; Fig 4) in Field 2, to the north of the core area of the extramural settlement. Of these, nine monolith samples were selected for assessment (*Appendix 2*), from a representative range of feature types, and both of the cores were also assessed; in total, 38 sub-samples from the selected monoliths and the cores were rapidly assessed for pollen (*Appendix 2*). The preservation of the pollen was noted, as was the presence of charcoal particles. In addition to identifiable pollen grains, indeterminable pollen was also recorded as an indication of the state of preservation.

3.21.2 Volumetric samples were taken from the sub-samples, and two tablets containing a known number of *Lycopodium* spores were added, so that pollen concentrations could be calculated (Stockmarr 1972). The samples were prepared using a standard chemical procedure (method B of Berglund and Ralska-Jasiewiczowa 1986), and were then stained with safranin, dehydrated in tertiary butyl alcohol, and the residues mounted in 2000cs silicone oil. Slides were examined rapidly at a magnification of 400x (1000x for critical examination) by two traverses, one from each of two slides, to reduce the possible effects of differential dispersal (Brooks and Thomas 1967). Full details of the assessment methodologies employed are available in the project archive.

3.21.3 **Assessment:** pollen was recorded in all but one of the sub-samples assessed (*Appendix 2*), in concentrations ranging from 4130 to 880,834 grains per cc. The state of preservation of the pollen grains varied from good to poor, though in many cases it was good, suggesting that the fills of some of the features assessed were anoxic when they were accumulating.

- 3.21.4 Overall, the pollen identified suggests the presence of alder carr, secondary woodland, moorland/mire, grassland/pasture, and some cultivated ground in the vicinity of the site, but the relative proportions of the various plant communities differed in the individual features (*Appendix 2*). The possible presence of local alder carr is reflected in the choice of wood used for the funeral pyres in the adjacent cemetery (Campbell 2004). Heather pollen was recorded in most samples, and this is possibly indicative of nearby moorland/mire communities and/or the utilisation of the heather within the settlement, perhaps for fuel, animal bedding, or as roofing material. The colonial alga *Botryococcus* was recorded in the samples from the fills of a large pit (**460**; Fig 6) in Field 1 (*Appendix 2*), suggesting an aquatic environment. Today, this alga is found in fresh to brackish environments, often oligotrophic to mesotrophic ponds, lakes or slow moving bodies of water (Batten 1996).
- 3.21.5 **Potential:** the assessment demonstrated that samples from four features, namely pit **460** and enigmatic feature **612**, both in Field 1, and possible waterholes **5819** and **6281** in Field 2, have potential for further pollen analysis (see also *Appendix 2*). Additional, detailed study of these deposits has the potential to provide a greater insight into environmental conditions on, and in the vicinity of, the site in the Romano-British period, and may also shed light on the exploitation of certain local resources.

4. CURATION AND CONSERVATION

4.1 RECIPIENT MUSEUM

- 4.1.1 Penrith Museum has been nominated as the ultimate repository for the finds. Arrangements were made with the Museum prior to the commencement of the excavations for the deposition of the complete site archive from the site, and the Museum Curator, Judith Clarke, has acknowledged the museum's willingness to accept the archive.

4.2 CONSERVATION

- 4.2.1 Most of the assemblage is well preserved and in good condition, and thus the conservation requirement is low. Only objects of copper alloy, silver and iron are likely to require cleaning, principally in order to facilitate precise identification; some of these objects should also be x-radiographed, in cases where this has not already been done.

4.3 STORAGE

- 4.3.1 The complete project archive, which will include written records, plans, black and white and colour photographs, 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).
- 4.3.2 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. The metalwork assemblage and the small quantity of medieval glass constitute the only material categories that are potentially unstable; although these materials will be packaged in airtight plastic boxes, they will also need to be stored in controlled conditions.

4.4 PACKAGING

- 4.4.1 The assemblage is currently well packed and will require no further packaging. Box lists are prepared and will be updated from the database when the identification of objects is complete.
- 4.4.2 Discard of the unstratified material is not recommended, but if it is to be undertaken, objects that are good examples of their fabric or type should be retained and a record should be kept of all discarded material.

5. STATEMENT OF POTENTIAL

5.1 INTRODUCTION

- 5.1.1 The excavations provided a valuable opportunity to study a significant area within the Romano-British extramural settlement south of the fort at Brougham, and other features and deposits of (predominantly) Roman date in the vicinity of the settlement. Generally speaking, the extramural settlements associated with Roman forts in northern England present infrequent opportunities for the controlled archaeological excavation of stratified, multi-phase deposits over reasonably large areas. Development on a large scale is not common, whilst research has lagged far behind that conducted on the forts themselves, which have been the principal focus of investigation from the nineteenth century to the present day. The relative lack of archaeological data available for extramural settlements in the region has recently been highlighted by the *Archaeological Research Framework for North West England*, in the *Resource Assessment and Research Agenda* for the Romano-British period (Philpott 2006, 71; Philpott and Brennand 2007, 63-4)
- 5.1.2 At Brougham, the work provided extremely important evidence for Roman occupation, particularly within the settlement south of the fort, which had not previously been subjected to any form of archaeological investigation, and was therefore essentially unknown. In addition, the discovery of quite extensive complexes of probable field boundary ditches and other features to the south-west and north-east of the settlement, together with evidence probably relating to the cremation cemetery to the east, has the potential to advance significantly present understanding of the origins and development of Roman occupation at Brougham. Overall, the results of the excavations are of considerable importance, and can be regarded as being of major regional significance.

5.2 PRINCIPAL POTENTIAL

- 5.2.1 Assessment of the primary stratigraphic records has established a fairly complex sequence of activity on the site, largely Roman in date. The sequence is set out in *Section 2*, above. Likewise, assessment of the artefactual and environmental assemblages has highlighted those elements that have the greatest potential to advance archaeological knowledge, and which require further detailed analysis leading to full academic publication.
- 5.2.2 ***Roman period:*** there can be little doubt that the data recovered from the site have considerable potential to advance understanding of Romano-British activity at Brougham. Further detailed analyses of the site records and many of the material remains recovered from the excavations have the potential significantly to advance understanding of the chronology, morphology, character and extent of the extramural settlement, which has hitherto been clouded in a great deal of uncertainty, and in so doing to make an important contribution to ongoing research on Roman settlement in the wider region.

- 5.2.3 By comparison with the very considerable amount of archaeological excavation that has been carried out on Roman forts, the study of other Romano-British site-types in the North, including the extramural settlements (Sommer 1984, 1-2), has been somewhat neglected. Any substantial stratigraphic or artefactual assemblages from a site other than a fort, such as those recovered from Brougham, must therefore be regarded as being of considerable importance.
- 5.2.4 Despite an historical over-emphasis on the excavation of fort interiors, however, important advances have been made in the study of extramural settlements in the past 30 years or so, and it is now becoming clear that some, perhaps many, of the settlements in the North grew to a considerable size, and developed in ways that might lead us to regard them as more than mere villages (Higham and Jones 1985, 59-66; Shotter 2004, 115-18). In some cases, they may have functioned as local administrative, commercial and industrial centres in their own right (*ibid*), and are likely to have been inhabited by a cosmopolitan mixture of locals and incomers from across the Empire (Philpott 2006, 71; Bidwell 1997, 76).
- 5.2.5 Some settlements, such as those at Ribchester, Lancaster and Old Carlisle, appear to have had a planned layout (Higham and Jones 1985, 60-2; Philpott 2006, 71), whilst others seemingly grew more organically, often as ribbon-development along a major road (Shotter 2004, 114). The results of the investigations at Brougham are consistent with the broader picture in suggesting that the settlement was larger than previously thought. The excavated evidence might also provide an indication that the settled area on the south side of the fort may, in part at least, have had a rectilinear grid of roads and lanes, though further excavation or geophysical survey of the area would be required to test this hypothesis. The regularity of some settlement plans suggests they were laid out by the army (Bidwell 1997, 73-4), but it is possible that the communities, once established, administered their own affairs (*ibid*).
- 5.2.6 What evidence there is suggests that, in the majority of settlements, the major street frontages were crammed with strip-buildings, long, relatively narrow structures running back from the street frontage (Bidwell 1997, 72). Such buildings probably served a range of functions, the frontages of some serving as shops or workshops, with living areas to the rear, and/or above (*ibid*; Shotter 2004, 116). Ephemeral evidence for buildings of this type, associated with cobbled yards and stone-lined pits, was recorded at Frenchfield, north of the fort at Brougham (Martin and Reeves 2001), and it seems likely that at least some of the partially excavated structures south of the fort were also of this kind. However, in the few cases where seemingly complete buildings were excavated in this area (*eg* Phase 2C Structure **554I**), they were found to be rectangular but not particularly long (Structure **554I**, for example, measured *c* 10.8 x 6.2m).
- 5.2.7 Generally speaking, little is known of the types of activities that were carried on within extramural settlements. Metalworking appears to have been more-

or-less ubiquitous, however (Sommer 1984, 35; Bidwell 1997, 73), having been noted in the settlements at Manchester, Lancaster, Maryport and Burgh-by-Sands, to name but a few. At the latter site, there is also tentative evidence for possible functional zonation (I Miller *pers comm*); east of the fort, reasonably extensive evidence for metalworking is known, but to the south, very little metalworking debris has been recovered. Similar evidence was also noted at Deansgate in Manchester, where a substantial area of industrial activity was revealed, suggesting that industry may have been concentrated into particular parts of the settlement (Shotter 2004, 117). With the exception of a few small fragments of metalworking debris from stratified Roman deposits, and a few more from cleaning levels and modern contexts (*Section 3.12*), no good evidence for the kinds of activities being carried on within the extramural settlement at Brougham was recovered from the 2007-8 investigations.

- 5.2.8 For the most part, Romano-British extramural settlements appear to have lacked the larger and more prestigious buildings found in the towns and larger civil settlements of the province (Shotter 2004, 115). However, the settlement at Old Carlisle contained a *mansio*, a large courtyard building that served as a kind of travel-lodge for military and civilian officials (Higham and Jones 1985; Shotter and White 1990, 38), and examples are known from several other British sites (Bidwell 1997, 72). Furthermore, epigraphic and structural evidence suggests the existence of temples at a number of sites (Sommer 1984, 47), including, in the North West, the settlements at Maryport (Biggins and Taylor 2004, 126), Lancaster (Shotter and White 1990, 59-60), Ribchester (Edwards 2000, 73-7; Shotter 2004, 122), and possibly Manchester (Philpott 2006, 71).
- 5.2.9 There is currently no good evidence for the existence of unusually large or substantial buildings within the Brougham settlement. At Frenchfield, north of the fort, limited investigations revealed the remains of several structures fronting the main road (Martin and Reeves 2001). However, all were clearly timber-framed and of the ubiquitous 'strip-building' type, with walls seemingly constructed either on drystone sills or postpads, or even laid directly on the ground. All the excavated structures south of the fort were also of timber-framed construction, with simple, rectilinear ground plans and little, if any, evidence for architectural pretension or specialised functions. As at Frenchfield, a variety of construction techniques were employed, but there is some suggestion that, south of the fort, these changed during the lifetime of the settlement. In Period 2A, it would appear that walls were largely of sill-beam construction (*Section 2.3.6*), with the timber sills set in narrow construction trenches. Later, in Periods 2B and 2C (*Section 2.3.7-8*), foundation trenches packed with cobbles and sandstone fragments were employed, though Structure 5541 appears to have had one wall built on a low stone sleeper wall, with the rest laid directly on the ground, presumably on vanished timber sills (*Section 2.3.8*). Antiquarian discoveries of several altars at Brougham (Birley 1932, 130-4) might hint at the presence of one or more temples or shrines within the settlement, though altars dedicated to Jupiter Optimus Maximus and to Mars are undoubtedly military (*op cit*, 136), and

probably came from within the fort. However, the four known dedications to the indigenous deity Belatucadros are somewhat different, in that they appear to have been made by 'lower status' individuals, some at least of whom appear to have been civilian Britons rather than serving or retired soldiers (*op cit*, 137). This might imply the existence of a temple or shrine to the deity within the extramural settlement, though any such building may not necessarily have been particularly large or imposing.

- 5.2.10 The origins and development of all extramural settlements in Britain were closely linked to the occupational histories of the forts outside which they grew up; without a fort, there would not be a settlement (Sommer 1984, 6). The dating of the settlement at Brougham is therefore of considerable importance in elucidating the fort's sequence of development, which is still far from clear. Whilst the strategic position of the fort implies an early foundation date, perhaps during the initial penetration of the region by the Roman army in the early AD 70s (Shotter 2004, 27, fig 3.1, 31-2), there is, as yet, very little evidence, either from the fort itself or the adjacent settlement, for occupation before the second half of the second century at the earliest. The investigations of 2007-8 clearly indicated that the excavated part of the settlement south of the fort originated no earlier than the late second-early third century AD, and might, therefore, have been established at a time when the fort was itself being rebuilt or refurbished, perhaps in connection with the arrival of a new garrison (Birley 1932). At Frenchfield too, little evidence for activity before the later second-third century was found (Martin and Reeves 2001), though there the investigations were limited to cleaning and recording the latest surviving Roman deposits, so it may be that earlier occupation levels lay beneath the recorded remains.
- 5.2.11 There is evidence from several northern extramural settlements for abandonment, or at least a marked contraction in the settled area, during the later Roman period (Bidwell 1997, 76-7; Hodgson 2009, 35-6). However, the idea that the majority of extramural settlements on, and in the hinterland of, Hadrian's Wall, were abandoned at this time (Hodgson 2009, 35-6) is likely to be an over-simplification, though further research is required.
- 5.2.12 At Brougham, an assemblage of nearly 1100 Romano-British potsherds from the settlement area at Frenchfield contained very few fourth-century fragments (Martin and Reeves 2001), even though only the latest surviving Roman levels were exposed. The evidence from the settlement south of the fort is currently equivocal; for assessment purposes, the bulk of the later Roman pottery (corresponding to Phase 2C) can only be assigned a broad late third-fourth-century date. Consequently, it is not yet possible to say whether intensive occupation continued into the first half of the fourth century, or if the settlement suffered a major decline in the late third century. However, that some form of activity occurred during the second half of the fourth century is evident from the presence of some mid-late fourth-century pottery (including at least one sherd dating to after *c* AD 380; *Section 3.4.4*), and a coin of the AD 350s (*Section 3.8*). What is not yet clear is whether this represents continuity of occupation from the third century onwards, or an episode of

reoccupation following a period of abandonment in the first half of the fourth century, though the total lack of the normally prolific Constantinian coinage of the AD 330-40s (*Section 3.8*) might indicate the latter.

- 5.2.13 In all cases where fourth-century activity within extramural settlements has been recorded, the adjacent fort continued to be occupied (Bidwell 1997, 76-7), and the evidence, though limited, suggests that Brougham was no exception. Pottery recovered from the defensive ditch on the south side of the fort during renovation works in the early 1930s proved to be predominantly of late fourth-century date (Birley 1932, 134-5), and two Constantinian coins, dating to AD 323-4 and AD 337-41, were found just outside the north-east corner of the fort defences during limited archaeological works in 1997 (Zant 2001, 33). A few sherds of Huntcliff-type calcite-gritted ware, dating to after *c* AD 360, were also recovered from the same site (*op cit*, 33, 36). The discovery at Brougham of a tombstone, possibly commemorating a Christian (Philpott 2006, 79), might also suggest occupation relatively late in the Roman period.
- 5.2.14 In common with most late Roman military sites in Britain, the precise date at which the fort and extramural settlement at Brougham were finally abandoned is not known. Elsewhere in the North, there is increasing evidence that some forts (but, in all probability, not the associated settlements) continued to be occupied into the fifth century or beyond. At Brougham, continuity of occupation much beyond the traditional 'end' of Roman occupation in the early fifth century cannot be demonstrated archaeologically. However, Birley (1932, 138) points to the apparent survival of the Roman name for the site (*Brocavum*) in the modern place-name as evidence that settlement may have persisted there long into the post-Roman period.
- 5.2.15 From this brief survey of the regional evidence, it can be seen that many unanswered questions remain concerning the origins, development and status of Romano-British extramural settlements in the North. More particularly, the evidence pertaining specifically to Brougham is extremely limited, both in terms of our understanding of the fort and of the associated settlement and its hinterland. In this respect, the 2007-8 investigations are particularly significant, since the archaeological deposits were excavated and recorded in detail using modern techniques of controlled excavation. The excavated data are, therefore, of high quality and have the potential to make an important contribution to the study of Romano-British extramural settlements in Britain.
- 5.2.16 **Stratigraphy:** the greatest potential for further stratigraphic analysis of the Brougham data undoubtedly lies with the remains of the Romano-British extramural settlement recorded in the central part of Field 2, immediately south of the extant fort platform. The assessment has demonstrated the existence of quite complex deposits in this area, representing multiple phases of activity within what appears to have been the core area of the settlement, adjacent to a road leading south from the fort's south gate. Provisional interpretation of the stratigraphic data indicates at least three main occupation phases in this area (Phases 2A, 2B, 2C), dating from the late second or (more

probably) early third century AD to the later fourth century, though the most intensive activity clearly occurred during the third century. However, within this broad sequence several sub-phases of activity occurred in certain buildings and in other activity areas, though further detailed analysis of the stratigraphy is required in order to refine the sequence and chronology, and to clarify details.

- 5.2.17 In Fields 1 and 3, the features and deposits that are likely, on the evidence of the assessment, to have been related to the cemetery east of the fort, are probably second only in potential importance to the exposed remains of the extramural settlement itself. A number of possible discrete cremation deposits, together with spreads of possible pyre debris, and ditches and other features that may potentially represent the boundaries of funerary plots, were recorded, together with several features of uncertain function and significance. Assessment of the stratigraphic data suggests there was more than a single phase of Romano-British activity in this area, though the precise sequence remains unclear, pending detailed analytical work on the stratigraphy and dating evidence.
- 5.2.18 The field boundary ditches located south-west of the settlement, and in the area of Field 1 south-west of the cemetery, together with the waterholes, pits and other features recorded in these areas, represent important elements of the wider agricultural landscape surrounding the settlement. Farming this land, and the exploitation of other local resources, would, in all likelihood, have supported many of the inhabitants, and would have been an important source of supplies for the fort garrison.
- 5.2.19 Spatially, it would appear that the putative field boundaries and trackway ditches in Field 1 do not share the alignment of the ditches located south-west of the settlement in Field 2. This suggests that there may be at least two main phases in the development of the field systems adjacent to the fort and settlement, but the assessment has not demonstrated any clear chronological difference between the systems, which appear, on present evidence, to be broadly contemporary. Further work on the stratigraphy and dating evidence is therefore required in order to elucidate this further. There is also some evidence to suggest that, at a comparatively late date, the settlement may have expanded southwards over part of the field system in this area, though further work is also needed to clarify this. The precise relationship between the settlement and the fields to the north-east is also currently unclear.
- 5.2.20 *Artefacts*: the assemblage of Roman artefacts from the site, though relatively small by national standards, represents an important addition to the corpus of Roman material from Brougham, and indeed from extramural settlements in the North generally. In terms of national and regional research priorities, it is the well-stratified assemblages of pottery that hold the greatest potential for further research. The precision with which samian ware and, to a lesser extent, other pottery types can be dated, and the ubiquity of pottery on most Romano-British sites makes it, together with the coins, one of the primary sources of dating evidence for the Roman period. Further work on the

identification of individual forms and fabrics in the Brougham assemblage would certainly refine the dating of the occupational sequence, and would therefore make a significant contribution to the interpretation of the structural development of the site. Analysis of changes in the nature of the assemblage through time also has the potential to highlight changes in the status and/or function of specific parts of the site during the Roman period.

- 5.2.21 In order to aid the establishment of a closely dated stratigraphic sequence, it is also important that the small assemblage of Roman coins recovered from the site is properly cleaned, conserved and identified, and that the significance of the group is discussed within the wider regional context.
- 5.2.22 Further work on the proportions of samian from the various Gaulish workshops, and on the varying proportions of other pottery types, is likely to shed new light upon changing patterns of trade and supply, both to the site at Brougham and regionally, particularly during the third century AD. Comparison with the pottery assemblages from other sites in the North West could also potentially provide information on military transport routes. Detailed analysis of spatial patterning across the site also has the potential to illuminate differences in the use of space within the settlement.
- 5.2.23 Further detailed analysis of the spatial and chronological distribution of the other categories of Roman artefacts recovered from the site has clear potential to advance understanding of the development of the Brougham settlement during the Roman period, and may in some cases shed light on the types of activities that were occurring on certain parts of the site. There is also some potential to address issues relating to trade practices. Detailed comparison of the assemblage with collections of material from other Roman sites in the region will also contribute to an understanding of how the North West developed during the Roman period. Certain elements of the assemblage may also supplement the dating evidence obtained from other sources.
- 5.2.24 *Environmental data:* the assemblage of plant remains, despite being small, can nevertheless be regarded as being of considerable regional importance, in view of the extreme paucity of such data in deposits of this period from Romano-British extramural settlements within the region (Hall and Huntley 2007). Further analysis of the charred plant remains and pollen has the potential to shed light upon the economy of the extramural settlement at Brougham, the diet of its inhabitants, and the character of the local environment. Further work on the charcoal can also yield significant information on the availability and exploitation of different woods for fuel, including, perhaps, the selection of wood for use on funeral pyres, thereby providing an important comparator for the data recovered from the cemetery excavations of the 1960s (Campbell 2004).
- 5.2.25 *The post-Roman period:* generally speaking, the very limited evidence for activity on the site in the medieval and post-medieval periods has little potential for further study. However, the two or (possibly) three sherds of potentially early medieval pottery recovered from the site, though not associated with features of early medieval date, are of intrinsic interest in their

own right, and certainly require additional study. This is of particular importance in view of the fact that similar handmade pottery was found in association with sunken-floored structures in a seventh-eighth-century settlement at Fremington, c 300m south-east of the excavations (Oliver *et al* 1996). For this reason too, the enigmatic sub-rectangular feature in Field 2 (612; Fig 7) that was initially interpreted as an early medieval sunken-floored building, but which is currently thought most likely to be a Roman feature of uncertain purpose (*Section 2.3.13*), should be analysed in detail and targeted for radiocarbon dating, in order to resolve the question of its date and purpose.

- 5.2.26 No significant features or deposits of certain post-Roman date were recorded anywhere within the pipeline easement. The small collections of medieval and post-medieval pottery, together with the few fragments of clay tobacco pipe and other post-medieval objects, came almost exclusively from modern agricultural soils or cleaning levels. This suggests that most of the excavated material may have reached the site in domestic rubbish from nearby farms and/or settlements, which was used to manure the fields.

5.3 NATIONAL RESEARCH PRIORITIES

- 5.3.1 In 1991, English Heritage produced a document, *Exploring Our Past*, which included a strategy for dealing with the problems and opportunities that would be encountered during the following decade (English Heritage 1991b). Many of the ideas first raised in this document were developed further in a draft *Research Agenda* (English Heritage 1997), which outlined a series of research priorities. The government's own strategy and vision for the historic environment, *A Force for Our Future*, was published by the Department for Culture, Media and Sport (DCMS) in 2001 (DCMS 2001). The most recent English Heritage research strategy documents are *Making the Past Part of Our Future* (English Heritage 2005a), English Heritage's corporate strategy for 2005-2010, *Discovering the Past, Shaping the Future* (English Heritage 2005b), which sets out the organisation's research strategy for the period 2005-2010, and the *English Heritage Research Agenda* (English Heritage 2005c), an introduction to English Heritage's research themes and programmes. However, these documents are effectively strategies for English Heritage itself, and as such do not set out detailed archaeological research priorities; consequently, the draft 1997 *Research Agenda* continues to be of value in the respect. The areas of research of potential relevance to the Brougham site can be summarised as follows:

Processes of change

- *Briton into Roman*: evidence for the extent to which the indigenous population of the Brougham area embraced (or rejected) the opportunities presented by the arrival of the Roman army, and the establishment of the extramural settlement (*op cit*, 44);
- *Empire into kingdom*: evidence for the nature of society in the settlement at Brougham during the third and fourth centuries AD (*ibid*);

Chronological priorities

military and civilian interaction: evidence for potential interaction between the Roman army and the local (and non-local) civilian population, including traders or entrepreneurs, in the development and organisation of the settlement at Brougham (*op cit*, 49);

population change in fourth-seventh-century England: evidence for the fate of the settlement at Brougham, and by extension of its inhabitants, during the fourth century, and possibly later (*ibid*);

Themes

- *Settlement hierarchies and interaction*: evidence for the social and economic status of the settlement at Brougham has the potential to contribute to research on the relationship between extramural settlements in the North and other Romano-British settlement types in the region, such as towns and rural ‘native’ sites (*op cit*, 51);
- *patterns of craftsmanship and industry*: evidence for the types of craft and/or industrial activities undertaken on or in the vicinity of the site in the Roman period (*op cit*, 53).

5.3.2 More recently, English Heritage produced a Strategic Framework for historic environment activities (*SHAPE*; English Heritage 2008), which links historic environment research to English Heritage’s corporate strategy (English Heritage 2005). Although aimed primarily at projects in which English Heritage has some involvement, it is worthy of note that the Brougham project has significant potential to address Corporate Objective 1A (English Heritage 2005; 2008), which seeks to ensure that research addresses the most important and urgent needs of the historic environment. More specifically (since each Corporate Objective is sub-divided into a number of more specific Research Programmes and Sub-Programmes (English Heritage 2008)), the project has the potential to provide a significant contribution to Research Programme A3 (*Unlocking the riches: realising the potential of the research dividend*).

5.3.3 In 2001, the Council for British Archaeology (CBA) published *Britons and Romans: advancing an archaeological agenda* (James and Millett 2001), which sought to stimulate thinking and debate on future priorities for research on Roman Britain. The urgent need to gather additional data on extramural settlements was stressed (James 2001, 86), since it was pointed out that knowledge of these sites had not advanced significantly for many years (*ibid*), largely due to a lack of published excavation data.

5.3.4 It is clear that Brougham has the potential to contribute significantly to several of the research topics highlighted in the CBA report, through detailed stratigraphic analysis of the development of the settlement south of the fort, and a similarly detailed study of the artefactual and ecofactual assemblages recovered. At the most fundamental level, several papers highlighted the need to advance understanding of the precise character, status and function of extramural settlements, particularly their relationship with the local hinterland (Burnham *et al* 2001, 70), and the degree to which they interacted with

neighbouring indigenous societies (Taylor 2001, 59). The need for metrological and spatial analysis of building plots, especially in the earliest levels, was also identified as a research priority (Burnham *et al* 2001, 73). This could potentially shed light on the extent to which extramural settlements were deliberately planned, or were allowed to develop organically. The population profile of these sites is also poorly understood (James 2001, 84), but understanding could potentially be significantly advanced through analysis of artefactual assemblages (Allason-Jones 2001), undertaken in conjunction with detailed functional analysis of individual buildings (Burnham *et al* 2001, 73-4), to address issues of functionality and social identity.

5.4 LOCAL AND REGIONAL RESEARCH PRIORITIES

- 5.4.1 The current state of knowledge pertaining to the archaeology of north-west England has recently been set out in a series of period-based *Resource Assessments* produced as part of the *North West Region Archaeological Research Framework* (Brennand 2006). These summaries formed the basis for the compilation of *Research Agendas* and a *Research Strategy* (Brennand 2007), which highlight significant lacunae in current knowledge and formulate initiatives to address these gaps. The documents of particular relevance to the Brougham project are the *Resource Assessments* and *Research Agendas* for the Roman period (Philpott 2006; Philpott and Brennand 2007), and possibly also the early medieval period (Newman 2006; Newman and Brennand 2007). The other period-based *Assessments* and *Agendas* are of very little relevance to the project, in view of the extremely limited nature of the pre-Roman and post-Roman data from the site.
- 5.4.2 The *Romano-British Research Agenda* (Philpott and Brennand 2007) highlights many gaps that still remain in our understanding, both of the region's Romano-British extramural settlements and their associated cemeteries. Generally speaking, settlements appear to have begun to develop around most of the forts in the region during the late first-early second century AD (Philpott 2006, 71). However, the assessment has provided a strong indication that the southern settlement at Brougham, or at least that part of it subjected to excavation, originated no earlier than the early third century, as seems also to have been the case with the known cemetery to the east (Cool 2004). If this is the case, and if it is presumed, in view of its strategically important location, that the fort at Brougham was an early (presumably first-century) foundation, the origins of the settlement must lie elsewhere (unless the early fort is itself located elsewhere). For this reason, it would be desirable to undertake some limited work on the stratigraphic data (and, ideally, the ceramic assemblage) recovered during earlier investigations within the settlement at Frenchfield, to the north of the fort (Martin *et al* 1999; Martin and Reeves 2001). This would also go some way to addressing an initiative put forward in the *Research Agenda* for the Romano-British period, which identifies as a priority the need to publish and disseminate unpublished work from military sites in the region (Philpott and Brennand 2007, 62; Initiative 3.18).

- 5.4.3 At the most basic level, the nature of extramural communities in the North West remains largely unexplored (*op cit*, 64). Themes such as ethnicity (*op cit*, 62; Initiative 3.22), and the extent to which the populations interacted with local ‘native’ communities, have been little studied, largely due to a paucity of data. As one of the largest modern excavations undertaken within an extramural settlement in the region, the Brougham project has considerable potential to address this topic.
- 5.4.4 The reasons behind the apparent decline of many of these settlements in the later third century AD are also not well understood (*op cit*, 63-4). Indeed, it is not even clear if the paucity of late third- and fourth-century artefacts at these sites really signifies decline and abandonment, however likely that may seem. Another possibility, for example, is that the lack of artefacts reflects the disengagement of some communities from the ‘Romanised’ cash-based economy, and a return to the use of ‘traditional’ materials such as wood and leather that did not have to be purchased from commercial producers. Some sites, however, seemingly including Brougham, were still receiving pottery during the late fourth century, albeit in smaller quantities than previously. To what extent (if at all) the settlement history of such sites differed from the others is not known, nor is it at all clear if the presence of late pottery reflects the continuation of existing supply networks or the establishment of new supply systems following a period of dislocation. Detailed analysis of the Brougham data, and in particular the stratigraphic and ceramic evidence, may go some way to addressing these important research questions, and to fulfilling Initiative 3.48 of the regional *Research Agenda* for the Romano-British period (*op cit*, 72), which stresses the need to pay particular attention to the latest stratigraphic levels of Romano-British sites of all kinds.
- 5.4.5 The regional Romano-British *Research Agenda* points out that burials can yield important information about individuals and the social groups to which they belonged (Philpott and Brennand 2007, 68). However, burial evidence is generally sparse in the North West, though the cemetery at Brougham is singled out for specific mention as a key site (*ibid*). Though limited by comparison with the cemetery remains excavated under salvage conditions in the 1960s (Cool 2004), the putative burial evidence recovered from the site in 2007-8 was collected in a controlled and methodical manner. These data must, therefore, have considerable potential to contribute to Initiative 3.36 of the *Agenda* (*ibid*), which states that, wherever identified, cremated remains should receive full and integrated analysis.
- 5.4.6 The *Agenda* also identifies the urgent need for systematic publication of well-stratified artefactual assemblages from all types of Romano-British sites in the region, which have the potential to shed important light on the function of particular buildings, features and activity areas, on regional and social identity (and possibly ethnicity), and on the economy and settlement of the wider region (Philpott and Brennand 2007, 66-7; Initiative 3.31). Data generated by the excavations also have potential to address a number of more specific initiatives set out in the *Research Agenda*, including the origins of stone used for building (principally in the foundations of some of the timber-framed

structures recorded on the site), and the production of quernstones (*op cit*, 69; Initiative 3.40). The publication of artefact assemblages also has the potential to provide raw data for research on patterns of production, trade and exchange (*op cit*, 71; Initiative 3.44).

- 5.4.7 Although the recovery of two or (possibly) three sherds of early medieval pottery (*Section 3.5.2*) provides an indication of activity on or near the site at this time, much depends upon the final interpretation of feature **612** in Field 1. This enigmatic feature was initially interpreted as an early medieval sunken-floored structure, possibly located within a ditched enclosure, but is currently thought most likely to be of Roman date. The uncertainty regarding the date and function of **612** makes it a key target for further detailed analysis, and also for radiocarbon dating (*Section 7.16*). Such an approach would be consistent with Initiative 4.3 of the regional *Research Agenda* for the early medieval period (Newman and Brennand 2007, 76), which stresses the need to undertake radiocarbon dating as a matter of routine on any site with the potential to yield evidence for early medieval activity. To this end, it will also be necessary to look closely at other features in the vicinity of **612**, and in particular the boundary ditches (**554**, **1226**, **547**) of the enclosure within which it may have been deliberately located, in order to assess their suitability for radiocarbon assay.

5.5 PUBLICATION STRATEGY

- 5.5.1 It is envisaged that the results of the excavations will be published through the auspices of the Cumberland and Westmorland Antiquarian and Archaeological Society, as a stand alone report in the Society's *Cumbria Archaeological Research Reports* series. An outline publication synopsis is presented in *Section 8* of this report.
- 5.5.2 Aims and objectives, intended to bring each of the principal elements of the project (stratigraphy, artefacts and environmental evidence) to publication, are set out in *Section 6*. Detailed methodologies designed to achieve the objectives are presented in *Section 7*.

6. UPDATED PROJECT DESIGN

6.1 UPDATED RESEARCH AIMS AND OBJECTIVES

6.1.1 This section follows the guidance of English Heritage regarding the formulation of updated project aims (English Heritage nd, 2-3). This guidance recommends that it is helpful to treat *aims* as major themes or goals to which specific *objectives* contribute, and to consider these aims and objectives as questions.

6.1.2 The original aims of the fieldwork are still valid, but these have now been updated, with new aims and objectives derived from the statement of potential set out in *Section 5*. At the present stage of assessment, these necessarily emphasise the presence, absence and sufficiency of data to support further analysis of components of the archaeological record. This analysis would have two primary objectives in view: to add to the archaeological knowledge in the areas prioritised by the original fieldwork aims; and to understand how people lived in the Romano-British extramural settlement at Brougham.

6.1.3 The updated research aims will consider the following:

- the development of the site during the Roman period, including evidence for changes, both spatial and chronological, in the layout of individual structures and external areas, and the use of dating techniques to track these changes;
- changes in the nature of the community occupying the site through the Roman period, including possible military influences and the presence of ‘non-military’ elements;
- evidence for military and civilian interactions throughout the period of Roman occupation, and for the relationship of the site to the rest of the settlement;
- information on the economy of the Roman site, including any evidence for farming practices in the fields adjacent to the settlement, and for manufacture and repair of goods within the settlement. Evidence for trade, supply, consumption, and resource exploitation and management will also be sought;
- daily life on the site in the Roman period, including diet, standards of living, pastimes, costume and personal adornment;
- evidence for death and burial;
- the place of the Roman settlement in the wider context of the creation and development of what we see as a military zone in northern England. The relationship of the settlement to similar sites in the area, and the place of Brougham in the overall pattern of Roman occupation in the region;
- site development in the post-Roman period.

- 6.1.4 **Updated Research Aim 1:** What are the occupation sequences of the Brougham site?
- *Objective 1.1:* What are the main periods of occupation on the site as shown by detailed stratigraphic analysis of the primary records?
 - *Objective 1.2:* Is it possible to refine the phasing of the site further through the identification and dating of stratigraphic sub-phases, and to attribute all contexts to these periods?
 - *Objective 1.3:* Which structures and other features can be assigned to these refined phases?
 - *Objective 1.4:* What is the dating evidence for each of the refined periods and sub-phases of activity the site? In particular, is it possible to date key deposits through the selection of samples for radiocarbon dating?
- 6.1.5 **Updated Research Aim 2:** How did the site develop through the Roman period?
- *Objective 2.1:* Can the date at which Roman activity commenced be established in detail?
 - *Objective 2.2:* Is it possible to characterise the nature of occupation on the site throughout the Roman period?
 - *Objective 2.3:* How did the layout of buildings and external areas on the site develop during the Roman period? Is there any evidence for the use of regular units of measurement in the layout of the site or in individual buildings?
 - *Objective 2.4:* How were the Roman buildings repaired, modified and demolished? What evidence is there for salvage and reuse of building materials?
 - *Objective 2.5:* To what extent do distribution patterns of artefactual and ecofactual material change during the course of the Roman period?
 - *Objective 2.6:* Is there any evidence that alterations to the layout of the site or changing patterns of artefact and ecofact deposition reflect changes in the character, status and function of the site through time?
 - *Objective 2.7:* Is there evidence that changes in the layout of the site were prompted by changes in the composition of the community through time?
 - *Objective 2.8:* Is it possible to determine the date and character of the later phases of Roman occupation on the site?
- 6.1.6 **Updated Research Aim 3:** What evidence is there for military and civilian interactions during the Roman period?
- *Objective 3.1:* What is the evidence for interaction between the occupants of the site and the adjacent fort during the Roman period? Is it possible to determine whether the settlement was primarily ‘civilian’ in character, or was, perhaps, under military supervision?

- *Objective 3.2:* Do the artefacts found at the site reflect local contacts? Is there evidence for local manufacture and the exploitation of local resources?
 - *Objective 3.3:* Are there artefacts present in the artefactual assemblage that appear to be particularly domestic or family orientated, and if so, is their spatial distribution of any significance?
- 6.1.7 **Updated Research Aim 4:** How did the Roman settlement interact with its hinterland, and with other Roman settlements in the region?
- *Objective 4.1:* To what extent did the Romano-British community manage or exploit local natural resources such as stone, clay and wild food resources?
 - *Objective 4.2:* Is there any evidence for the kinds of farming practices carried out in the fields adjacent to the settlement?
 - *Objective 4.3:* What evidence for trade, supply and communication routes is reflected in the sourcing and distribution of commodities at the site?
 - *Objective 4.4:* Do the artefactual and ecofactual assemblages point to the utilisation of stores or stockpiles, or to the possible existence of local monopolies in certain goods?
 - *Objective 4.5:* Is there any evidence to shed light on the nature of the relationship between the activity on the site and the adjacent fort throughout the Roman period?
- 6.1.8 **Updated Research Aim 5:** What is the evidence for trades, crafts, manufacture and repair being carried out in the Roman settlement?
- *Objective 5.1:* What information can be found for on-site metalworking, including evidence for ironworking, lead working and the manufacture and repair of equipment?
 - *Objective 5.2:* What other trades and crafts were being undertaken on or in the vicinity of the site?
 - *Objective 5.3:* What does the spatial and chronological distribution of artefacts and the association of artefactual groups tell us about how buildings and external areas within the Roman settlement were used?
- 6.1.9 **Updated Research Aim 6:** What can we learn about daily life in the Roman settlement?
- *Objective 6.1:* What personal possessions have been found and what do they tell us about the everyday life of the Romano-British community?
 - *Objective 6.2:* Can we shed light on perceptions and expressions of status and social and cultural identity?
 - *Objective 6.3:* What equipment was used for food preparation and for the consumption of food and drink? What is the evidence for containers, such as amphorae?

- *Objective 6.4:* What light do the artefacts and environmental data shed upon the diet of the people in the Roman settlement? Is there evidence for on-site food preparation?
- 6.1.10 **Updated Research Aim 7:** What can be learnt of the community at Brougham, both soldiers and civilians, through analysis of the possible cemetery evidence?
- *Objective 7.1:* What can the possible human remains tell us about the composition of the community at Brougham, or at least that part of it interred within the known cemetery?
 - *Objective 7.2:* What light does the data shed on burial rites and practices within the cemetery?
- 6.1.11 **Updated Research Aim 8:** What can be learnt of the place of the settlement at Brougham in the wider Roman world?
- *Objective 8.1:* Is there any evidence that sequences of construction, refurbishment or abandonment recorded at other Roman sites in the region are directly paralleled at Brougham?
 - *Objective 8.2:* What was the role of Brougham in the initial Roman military occupation of the region?
 - *Objective 8.3:* Does the stratigraphic and dating evidence reflect episodes of apparently reduced activity on the site? Does this provide any new information on Roman military activities in the region?
 - *Objective 8.4:* What was the status of the site in the fourth century AD? Is the apparent decline in activity borne out by detailed analysis of the data?
 - *Objective 8.5:* Do changes in the occupation of the site reflect events in the wider Roman world?
- 6.1.12 **Updated Research Aim 9:** What can be learnt of the development of the site in the post-Roman period?
- *Objective 9.1:* What can the stratigraphy, artefacts and ecofactual assemblages tell us about the nature of occupation in the post-Roman period?

9. METHOD STATEMENT

7.1 INTRODUCTION

7.1.1 The following methods are required to fulfil the revised research aims outlined in *Section 6*. The link between the methods and the objectives is given, and both methods and objectives are linked to the tasks within the task list (*Section 9.3*).

7.2 SET-UP AND MONITORING

7.2.1 *Tasks 1-6*: to facilitate all Objectives.

7.2.2 Management and monitoring tasks have been built into the project. These tasks will include internal project monitoring, management of the finds and environmental post-excavation programmes, advice and co-ordination, problem solving, and conducting meetings with project staff and all interested external parties.

7.2.3 There will be regular project review meetings, which will take place approximately at six monthly intervals throughout the preparation of the report. The meetings may involve, as appropriate, representatives of the Client, the Cumbria County Archaeologist (Cumbria County Council), and the staff of OA North who are working on the project on a regular basis.

7.3 X-RAY, CLEANING AND CONSERVATION

7.3.1 *Tasks 7-11*: to contribute to Objectives 1.4, 2.1-2, 2.5-6, 2.8, 3.1-3, 4.1, 4.3-5, 5.1-3, 6.1-4, 7.2, 8.2-4, 9.1.

7.3.2 Some of the items of Romano-British metalwork require additional cleaning, conservation and, in some cases, x-radiography, to prepare them for long-term storage. The metalwork and coins require desiccated microenvironments and require conservation before they will be accepted by the museum. The long-term storage requirements for archaeological materials and archives are set out in documents compiled by Walker (1990) and the Museums and Galleries Commission (1992).

7.4 TRANSPORT OF MATERIALS

7.4.1 *Task 12*: contributes to all Objectives.

7.4.2 At an early point in the analytical stage of the project, arrangements will be made to transport all relevant artefactual and environmental assemblages to the appropriate external specialists to facilitate analysis and reporting of the material.

7.5 STRATIGRAPHIC ANALYSIS

- 7.5.1 *Tasks 13-21*: contributes to all Objectives.
- 7.5.2 The stratigraphic data recovered from the excavations will need to be analysed in far greater detail, in order to refine the provisional phasing and iron out problems highlighted by the assessment. A provisional stratigraphic framework was produced for the assessment (*Section 2*), but there are many areas where further detailed worked is required. The stratigraphic framework will therefore be reviewed and refined, which will require careful analysis of the primary records, including all contexts, and site plans and sections.
- 7.5.3 All contexts need to be attributed to stratigraphic sub-phases once these are finalised, and the site database will then require updating and amending. In the course of this analysis, the site matrices will require redrawing to conform to the amended periods and sub-phasing, and to include those contexts which could not be resolved at the assessment stage.
- 7.5.4 A detailed analytical text (stratigraphic narrative) of the stratigraphic information, accompanied by phase drawings, sections and other relevant line illustrations, as required, will be drafted. This will provide detailed information on the periods and sub-phases of the site, and will indicate stratigraphically related groups. The draft text and phase drawings will form the basis both of the summary information to be supplied to specialists and of the stratigraphic section of the final published report. The phase plans, and selected plans and sections from the site, will be digitised.
- 7.5.5 The revised databases will result in all the context data being collated in a readily accessible digitised form, and this will be made available to all specialists. All specialists' assessment reports will also need to accommodate any new stratigraphic information, phasing and sub-phasing. As required, all necessary material will be sent to the specialists.
- 7.5.6 The data generated by the former Carlisle Archaeological Unit's 1999-2000 investigations at Frenchfield, which were located within that part of the Romano-British extramural settlement situated north of the fort (Martin *et al* 1999; Martin and Reeves 2001), provide a direct, and potentially highly informative, comparator for the evidence recovered from south of the fort in 2007-8. It is therefore extremely unfortunate that the Frenchfield data remain unpublished, though basic information on the character and significance of the stratigraphic data is available in unpublished 'grey literature' reports (Martin *et al* 1999; Martin and Reeves 2001). The data contained in these documents, which clearly has relevance to the interpretation of the 2007-8 excavations, could be largely 'cut and pasted' to produce a brief stratigraphic summary suitable for inclusion in the Brougham publication, with little or no resource implications for the wider project.

7.6 ROMAN POTTERY

- 7.6.1 *Tasks 22-25*: contributes to Objectives 1.1-2, 1.4, 2.1-2, 2.5-8, 3.1-3, 4.3-5, 5.2-3, 6.1-4, 7.2, 8.3-4.
- 7.6.2 All the Romano-British pottery recovered from stratified Roman contexts, including samian, mortaria, amphorae, finewares and coarse wares, will be fully quantified by fabric and form, and by sherd count, weight and equivalent rim estimate (ERE), and then entered onto the pottery database, in accordance with the guidelines laid down by the Study Group for Roman Pottery (Darling 2004; Willis 2004). The data will include such general information as vessel class, evidence of burning, repair in antiquity, evidence for reuse, and sherd joins. Stamps and signatures present on samian vessels and mortaria will be identified and fully recorded, as will all the graffiti present in the Romano-British pottery assemblage. All these elements will be considered and discussed in the analytical report. Roman pottery from post-Roman contexts, together with unstratified material, will be quantified to basic archive level (Darling 2004), that is by sherd count, sherd weight, and fabric and form.
- 7.6.3 All the major ceramic forms from stratified Roman contexts will be drawn, catalogued and published by context. Only small numbers of vessels are likely to require drawing from the residual material. Further study of the pottery, with detailed identification of the fabrics and forms, will be crucial to refining the dating of the Roman occupational sequence, whilst analysis of the distribution of pottery types may disclose patterns of use across the site. Analysis of context groups will also allow changes in supply through time to be mapped, facilitating discussion of the significance of trade in material originating from outside the region, as well as regional distribution. Detailed comparison with comparable sites in the region will potentially add significantly to an understanding of the precise character of the Roman settlement at Brougham.
- 7.6.4 Although the coarse pottery, mortaria and amphora have been grouped into broad ware groups, the fabrics will require further detailed analysis, in order to distinguish pottery from local kilns as well as imports. Provisional identification of the mortaria fabrics will require confirmation, and uncertain amphorae identifications will also need to be checked. Such fabric studies will clarify the trading links maintained by the inhabitants of Roman Brougham, and add to our understanding of ceramic supply and exchange in the North West.

7.7 POST-ROMAN POTTERY

- 7.7.1 *Tasks 26-27*: contributes to Objectives 1.1-2, 1.4, 9.1.
- 7.7.2 With the exception of the two or (possibly) three sherds of potentially early medieval pottery from the site, the small assemblages of medieval and post-medieval pottery are of little potential and do not require additional work. The early medieval material will, however, require detailed analysis and reporting, and an illustrated catalogue will be produced. For the late medieval and post-

medieval material, catalogues will be prepared for deposition in the project archive. It is not envisaged that any of the sherds will require illustration.

7.8 ROMAN CERAMIC BUILDING MATERIALS

7.8.1 *Task 28*: contributes to Objectives 1.3, 2.2, 2.4-8, 3.1-3, 4.1, 4.3-5, 5.3, 8.2-5.

7.8.2 The material from stratified Roman contexts will be recorded, quantified and catalogued for the project archive, and the information will be integrated, where appropriate, into the publication report, though no illustrations will be required.

7.9 ROMAN COINS

7.9.1 *Task 29*: contributes to Objectives 1.2, 1.4, 2.1-2, 2.5-8, 3.1-2, 4.5, 5.3, 8.1-5.

7.9.2 Of the 17 Roman coins from the site, it is estimated that nine will require additional cleaning and/or investigation by x-ray in order that a full examination can be made. All the coins will be identified, catalogued and compared to assemblages from other sites in the North West. Analysis will contribute to the study of regional coin circulation during the Roman period, in addition to aiding the dating of the stratigraphic sequence recorded on the site. A report suitable for publication will be prepared.

7.10 OTHER PRE-ROMAN, ROMAN AND POST-ROMAN FINDS

7.10.1 *Tasks 30-31*: contributes to Objectives 1.2, 1.4, 2.1-8, 3.1-3, 4.1-5, 5.1-3, 6.1-4, 7.2, 8.1-5, 9.1.

7.10.2 For all material categories (flint, copper alloy, iron, lead, metalworking residues, glass, ceramic objects, stone and jet), the outline catalogues produced for assessment will be expanded and completed. The assemblages of the lead, metalworking residues, stone, jet, and prehistoric flints will not sustain further analysis, but short reports on each group will be compiled for publication, and the material will be considered in a synthetic discussion of the finds from the site. Further analytical work will be undertaken on the copper-alloy, iron, Roman glass and ceramic objects, and full publication reports will be prepared.

7.10.3 None of the assemblages of other post-Roman artefacts from the site will sustain further analysis, though archive catalogues of each collection will be produced.

7.10.4 Identifiable, stratified Romano-British metalwork and other finds will be grouped according to a series of functional categories, within which they will be analysed. Items for illustration will be selected (*Section 7.18*) and catalogues will be produced, relating objects to their stratigraphic context. The catalogues will include descriptions of each object and basic comparanda, though exceptional objects will be accorded full academic discussion.

7.10.5 For the ceramic counters and roundels, the forms and fabrics of the pottery vessels from which they were fashioned will be studied in detail, in order to determine which wares, if any, were particularly favoured for this form of reuse. Additionally, consideration will be made of the distribution of all the finds from the site, which could perhaps lead to a better understanding of particular zones of activity. Following this further investigative work, the database record of the assemblage will be checked and updated.

7.11 HUMAN BONE

7.11.1 *Task 32*: to contribute to Objectives 2.2; 7.1-2.

7.11.2 All burnt bone from the north-eastern part of the site will be carefully scanned to determine if any human bone is present in the assemblage. In particular, the material from the putative un-urned cremations in Fields 1 and 3 (*Section 3.18*), and from the charcoal-rich spreads in Field 1, will be analysed in detail, should it prove to be of human origin (animal remains from these deposits will be integrated into the animal bone report, as necessary (*Section 7.12*)). A publication report will be prepared, together with an archive catalogue.

7.12 ANIMAL BONE

7.12.1 *Task 33*: to contribute to Objectives 2.2, 2.5-8, 3.1-2, 4.1-5, 5.2-3, 6.2-4, 7.2, 8.3-5, 9.1.

7.12.2 The identifiable animal bone fragments will be fully recorded, and a catalogue compiled for the site archive. A short report on the assemblage will then be prepared for inclusion in the publication.

7.13 CHARRED PLANT REMAINS

7.13.1 *Tasks 34-36*: to contribute to Objectives 1.2, 1.4, 2.1-2, 2.5-8, 3.1, 4.1-5, 5.2-3, 6.2-4, 8.3-4.

7.13.2 The remaining material from the 57 samples with potential for radiocarbon dating (*Section 3.20.6* and *Appendix 1*) will be processed, in order to determine the quality of the charred material in each, and its precise potential for radiocarbon dating. This will permit the radiocarbon dating sampling strategy to target the most suitable material, from the most stratigraphically significant deposits (*Section 7.16*). This group of 57 samples includes the seven samples selected for analysis of charred plant remains (*Appendix 1*), which will be subjected to full analysis and reporting, and the 26 samples with potential for analysis of charcoal (*Section 7.14*).

7.13.3 In addition to the above, a further 32 bulk samples that did not form part of the initial assessment will be selected and assessed for charred plant remains, including charcoal, and the results from this assessment will be included in the final report.

7.14 CHARCOAL

- 7.14.1 *Task 37*: to contribute to Objectives 1.2, 1.4, 2.1-2, 2.5-8, 3.1, 4.1-5, 5.2-3, 6.2-4, 8.3-4.
- 7.14.2 The 26 samples assessed with potential for charcoal analysis (*Appendix 1*) will be subjected to detailed analysis, and a report suitable for publication will be produced.

7.15 POLLEN AND SOIL MICROMORPHOLOGY

- 7.15.1 *Tasks 38-39*: to contribute to Objectives 1.2, 1.4, 2.1-2, 2.5-8, 3.1, 4.1-5, 5.2-3, 6.2-4, 8.3-4.
- 7.15.2 Pollen analysis will be undertaken on four monoliths/cores: from putative waterholes **6281** (monolith 1122 and core) and **5819** (core only); from pit **460** (monolith 113); and from feature **612** (monolith 64). In addition, the monolith sample from feature **612**, and another monolith sample (1078) from a buried soil horizon sealed beneath Roman road **6531**, will be submitted to Dr Richard MacPhail for soil micromorphological analysis. Pollen and soil micromorphological reports suitable for publication will be produced.

7.16 SCIENTIFIC DATING

- 7.16.1 *Tasks 40-42*: to contribute to Objectives 1.2, 1.4, 2.1, 2.8, 8.1, 8.3-5.
- 7.16.2 A selection of up to 20 samples suitable for radiocarbon dating will be made, from the 57 samples assessed that were found to contain material suitable for radiocarbon dating (*Section 7.13.2* and *Appendix 1*). The precise number of samples sent for radiocarbon dating will be dependent upon the quality of the charred material present (information on which will be refined by further work on the samples (*Section 7.13.2*), and the perceived stratigraphic significance of the sampled deposits. The dating strategy will target those deposits that appear, on stratigraphic or other evidence, to be key to understanding the sequence of human occupation on the site, and which also contain material best-suited for reliable dating (eg charred cereal grains or seeds rather than oak charcoal fragments). A report suitable for publication will be prepared on the radiocarbon dating strategy, and the dates themselves will be presented in tabular form.

7.17 PUBLICATION TEXT

- 7.17.1 *Tasks 43-50*: to contribute to all Objectives.
- 7.17.2 Following completion of the full analysis of all the stratigraphic and artefactual evidence, a text suitable for publication will be drawn up. It is envisaged that the report will be published in the Cumberland and Westmorland Antiquarian and Archaeological Society's series of *Cumbria Archaeological Research Reports*. The report will be in the format described in *Section 8*, and will incorporate as necessary any information from comparable excavations. As specialist reports are received, information of relevance to the interpretation of the stratigraphic sequence will be integrated

into the text. In order to discuss fully the regional and national significance of the site, to find comparators for the excavated data, and to put the site into context, a degree of library research will be required in order to reference and obtain relevant specialist literature. Preliminary sections, an introductory chapter, a full bibliography, and a comprehensive discussion of the regional and national significance of the data will be prepared. The discussion will incorporate an overview or synthesis of the finds from the site. This will be based around the significance of the assemblage as a whole to the interpretation of the site, and its implications locally and regionally. The excavated material will be compared to assemblages recovered from similar sites in the region and, if appropriate, more widely.

- 7.17.3 The individual texts will be compiled into chapters. Following this, the report will be subject to internal revision, and will be submitted to all specialists after editing for their comments.

7.18 PUBLICATION ILLUSTRATIONS

- 7.18.1 *Tasks 51-58*: to contribute to all Objectives.
- 7.18.2 During each part of the analytical programme, a selection will be made of appropriate artefactual material for illustration. Drawings will be produced to illustrate adequately the stratigraphic narrative and the introductory and discursive sections of the report. These will include such things as location plans, phase plans, section drawings, and interpretative plans. An experienced illustrator, using standard conventions, will compile these illustrations, either digitally or manually, as appropriate.
- 7.18.3 For the pottery, the samian, mortaria, amphorae, Roman coarseware, and early medieval sherds selected for illustration by the relevant specialists will be drawn to an appropriate scale and the illustrations digitised. The other Roman and post-Roman finds selected for illustration will also be drawn and digitised at the appropriate scales.
- 7.18.4 During preparation of the report text, photographs suitable for inclusion in the publication will be selected from the excavation archive. These are likely to include general location shots, photographs of particular features, structures, or areas of the site, and artefact images.

7.19 PUBLICATION REPORT COMPILATION AND EDITING

- 7.19.1 *Tasks 59-60*: to contribute to all Objectives.
- 7.19.2 After initial editing and the integration of specialists' comments, the draft report text will be submitted to the Publications Committee of the Cumberland and Westmorland Antiquarian and Archaeological Society for formal review. Following incorporation of the referees' and other comments, the report will be copy edited, typeset, indexed and proof-read, in co-operation with the society.

7.20 ARCHIVE DEPOSITION

7.20.1 *Tasks 61-68*: to contribute to all Objectives.

7.20.2 On completion of the full post-excavation analysis, a discard policy will be undertaken on the finds and palaeoenvironmental material. This will be completed prior to the final archive deposition, and in full consultation with staff at the Penrith Museum, and will cover the post-medieval artefactual assemblage, all the ceramic building materials and the palaeoecological evidence.

7.20.3 On submission of the completed text for publication, the archive will be updated as necessary, particularly the database information. Material in boxes will be checked, and box lists compiled and appended. The entire paper and material archive will be indexed, ordered and checked. Following this, the archive will be delivered to the receiving museum in good order.

8. PUBLICATION SYNOPSIS

8.1 INTRODUCTION

- 8.1.1 This section provides a provisional breakdown of the contents of the proposed publication report. It should be noted, however, that the following synopsis can only be regarded as a draft, based on current understanding of the results of the Brougham excavations, and may be subject to change as a result of the analytical phase of the post-excavation programme.

8.2 REPORT STRUCTURE

- 8.2.1 It is anticipated that the results of the Brougham excavations will be published as a stand-alone report in the Cumberland and Westmorland Antiquarian and Archaeological Society's *Cumbria Archaeological Research Reports* series. The text will be supported by an appropriate number of line drawings, including artefactual illustrations and interpretative phase drawings, and plates.
- 8.2.2 The report will primarily address the revised research objectives for the project (*Section 6*). The volume will present a closely argued stratigraphic narrative detailing the development of the site from the prehistoric to post-medieval periods. It will also provide an overview and discussion of the finds from the site, both artefactual and environmental, supported by specialist reports on all material categories. The site will be placed in its local, regional and national context, and a discussion of the importance of the data in terms of advancing understanding of the history and development of Brougham and of the wider region will be prepared.
- 8.2.3 Throughout the project, a high level of communication will be maintained between all members of the project team. It is anticipated that the specialists, especially those with inter-related study areas, will work closely together in order to facilitate integration between material categories, which will be essential in order to meet the research objectives. The finished volume will therefore aim to present a high degree of integration between the artefactual, ecofactual, structural and stratigraphical evidence.

8.3 OUTLINE SYNOPSIS

Preliminaries

Title page with publication details

Contents

List of illustrations (figures, plates and tables)

List of contributors

List of abbreviations

Preface

Foreword

Summary

Acknowledgements

Introduction (c 5000 words)

Brougham and its setting (c 500 words)

- a) physical setting
- b) geology

Historical and archaeological background (c 2000 words)

- a) the area in prehistory
- b) the evidence for Roman Brougham
- c) the post-Roman period

Circumstances of the excavations (c 2500 words)

- a) background
- b) fieldwork methodology
- c) post-excavation assessment
- d) site phasing
- e) the project archive

Site Development (c 10,000 words)

Introduction

The prehistoric flints (c 250 words)

The Romano-British period (c 9500 words)

Each of the sections set out below will include information on the pottery and environmental remains recovered from each phase and area of the site, and a summary of dating evidence.

- The core area of the extramural settlement;
- Romano-British activity adjacent to the core settlement area (the field system to the south-west, and the area immediately to the north-east),
- The field system, trackways and other features to the north-east;
- The putative cemetery area.

The post-Roman period (c 250 words)

The Finds (c 10,000 words)

Pottery (c 7000 words)

- a) Samian
- b) Mortaria
- c) Amphorae
- d) Roman coarse pottery
- e) Early medieval pottery

Metalwork (c 1500 words)

- a) Roman coins
- b) Copper alloy
- c) Iron
- d) Lead

Other Roman finds (c 1500 words)

- a) Industrial residues
- b) Roman glass
- c) Ceramic objects

- d) Stone objects
- e) Jet objects

Environmental evidence (c 10,000 words)

Human bone (c 3500 words)

Animal bone (c 1000 words)

Charred plant remains and charcoal (c 3500 words)

Pollen (c 2000 words)

Overview (c 20,000 words)

Introduction (c 500 words)

Finds and environmental overview (c 5000 words)

The origins, character and development of Roman Brougham (c 8500 words)
(encompassing the archaeological evidence for the fort, the extramural settlement and the cemetery)

- i) the pre-Roman flint assemblage in its wider context
- ii) the dating of Romano-British occupation at Brougham
- iii) the fort and its garrisons
- iv) the settlement - character and extent, including buildings (form and function)
- v) the cemetery - character and extent
- vi) the nature of the Romano-British community

Roman Brougham in its wider setting, including historical context (c 5000 words)

The post-Roman period (c 1000 words)

Bibliography

Index

Total word length (excluding preliminaries and bibliography): c 55,000 words

9. MANAGEMENT AND RESOURCES

9.1 PROJECT TEAM

9.1.1 The project team will comprise both internal OA North staff and external consultants (Table 9). As with the fieldwork and post-excavation phases, the programme of analysis and publication will be managed by Alison Plummer.

Name	Organisation	Tasks
Alison Plummer	OA North	Project management
Rachel Newman	OA North	Academic leadership and quality assurance
Richard Gregory	OA North	Editing
John Zant and Kelly Clapperton	OA North	Stratigraphic analysis; production of stratigraphic narrative and discussion
Christine Howard-Davis	OA North	Finds analysis, reporting and discussion
Jeremy Bradley	OA North	Post-Roman pottery analysis and reporting
Andrew Bates	OA North	Animal bone analysis and reporting
Jacqueline McKinley	OA North	Human bone analysis and reporting
Elizabeth Huckerby	OA North	Botanical analysis and reporting
Denise Druce	OA North	Charcoal analysis and reporting
Adam Parsons/ Rowland/ Tidmarsh	OA North	Illustrators
Marie Mark		
Joanne Levey	OA North	Archivist
Jo Cook	OA North	IT support
Margaret Ward	Freelance	Samian analysis and reporting
Ruth Leary	Freelance	Roman coarse pottery analysis and reporting
Kay Hartley	Freelance	Mortaria analysis and reporting
David Williams	Southampton University	Amphora analysis and reporting
David Shotter	Freelance	Roman coin analysis and reporting
Jenny Jones	Durham University	Conservator

Table 9: Proposed project team

9.2 MANAGEMENT STRUCTURE

9.2.1 OA North operates a project management system. The team is headed by the Project Manager, who assumes ultimate responsibility for the implementation and execution of the post-excavation programme and the achievement of performance targets, be they academic, budgetary, or scheduling.

9.2.2 The Project Manager may delegate specific aspects of the project to other key staff, who both supervise others and have a direct input into the compilation of the report. They may also undertake direct liaison with external consultants

and specialists who are contributing to the publication report, and the museum named as the recipient of the project archive. The Project Manager will define and control the scope and form of the post-excavation programme.

- 9.2.3 Communication between all concerned in the post-excavation programme is of paramount importance, and it is essential that the specialists involved liaise closely in order that comparable data are obtained. To this end, all information will be disseminated at regular intervals, thus ensuring that everyone is aware of current progress, strategy and thinking. OA North will also provide updates on the progress of the work at regular intervals during the course of the project.
- 9.2.4 OA North places importance on the tight and effective management of projects in order to deliver best value to our clients. An element of managerial time will be dedicated to on going quality assurance and internal monitoring. This is part of our internal quality assurance system and ensures the prompt delivery of the agreed report or other deliverables on time and budget.
- 9.2.5 OA North has considerable experience of excavation and post-excavation projects of all periods and is an Institute for Archaeologists (IfA) registered organisation (RAO 17). All members of staff operate to the IfA Code of Conduct.

9.3 TASK LIST

Task	Objective	Method	Description	Performed by
SET-UP AND MONITORING				
1	All	6.2.2	Internal monitoring	Rachel Newman
2	All	6.2.2	General management	Alison Plummer
3	All	6.2.2	Finds management	Christine Howard-Davis
4	All	6.2.2	Environmental management	Elizabeth Huckerby
5	All	6.2.2	Preparation for meetings	Alison Plummer
6	All	6.2.3	Project review meetings	Rachel Newman Alison Plummer Christine Howard-Davis Elizabeth Huckerby John Zant Kelly Clapperton
X-RAY, CLEANING AND CONSERVATION				
7	1.2; 1.4; 2.1-2; 2.5-8; 3.1-3; 4.1; 4.3-5; 5.1-3; 6.1-4; 7.2; 8.1-5	6.3.2	X-ray and clean nine Roman coins	Karen Barker
8	1.2; 1.4; 2.1-2; 2.5-8; 3.1-3; 4.1; 4.3-5; 5.1-3; 6.1-4; 7.2; 8.1-5	6.3.2	Conserve 17 Roman coins	Karen Barker

Task	Objective	Method	Description	Performed by
9	1.2; 1.4; 2.1-8; 3.1-3; 4.1-5; 5.1-3; 6.1-4; 7.2; 8.1-5	6.3.2	X-ray copper-alloy artefacts	Karen Barker
10	1.2; 1.4; 2.1-8; 3.1-3; 4.1-5; 5.1-3; 6.1-4; 7.2; 8.1-5	6.3.2	Clean selected iron and copper-alloy artefacts	Karen Barker
11	1.2; 1.4; 2.1-8; 3.1-3; 4.1-5; 5.1-3; 6.1-4; 7.2; 8.1-5	6.3.2	Conserve selected iron and copper-alloy artefacts	Karen Barker
			TRANSPORT OF MATERIALS	
12	All	6.4.2	Transport relevant artefactual and environmental assemblages to appropriate specialists	Project supervisor
			STRATIGRAPHIC ANALYSIS	
13	All	6.5.2	Analyse stratigraphy	Kelly Clapperton John Zant
14	All	6.5.3	Update contexts database	Project Assistant
15	All	6.5.3	Enhance matrices	John Zant
16	All	6.5.4	Prepare stratigraphic narrative	Kelly Clapperton John Zant
17	All	6.5.4	Compile phase plans and sections	Kelly Clapperton John Zant
18	All	6.5.4	Digitise plans and sections	Mark Tidmarsh
19	All	6.5.5	Compile information for specialists	Kelly Clapperton
20	All	6.5.5	Dispatch information to specialists	Project assistant
21	All	6.5.6	Integrate stratigraphic summary of Frenchfield excavations into stratigraphic text	John Zant
			ROMAN POTTERY	
22	1.1-2; 1.4; 2.1-2; 2.5-8; 3.1-3; 4.3-5; 5.2-3; 6.1-4; 7.2; 8.3-4	6.6.2-3	Analyse and report on samian ware, including catalogue of illustrated sherds and discussion of stratified groups	Margaret Ward
23	1.1-2; 1.4; 2.1-2; 2.5-8; 3.1-3; 4.3-5; 5.2-3; 6.1-4; 7.2; 8.3-4	6.6.2-3	Analyse and report on mortaria, including catalogue of illustrated sherds and discussion of stratified groups	Kay Hartley
24	1.1-2; 1.4; 2.1-2; 2.5-8; 3.1-3; 4.3-5; 5.2-3; 6.1-4; 7.2; 8.3-4	6.6.2-3	Analyse and report on amphorae, including catalogue of illustrated sherds and discussion of stratified groups	David Williams
25	1.1-2; 1.4; 2.1-2; 2.5-8; 3.1-3; 4.3-5; 5.2-3; 6.1-4;	6.6.2-3	Analyse and report on Roman coarsewares, including catalogue of illustrated sherds and discussion of stratified	Ruth Leary

Task	Objective	Method	Description	Performed by
	7.2; 8.3-4		groups	
			POST-ROMAN POTTERY	
26	1.1-2; 1.4; 9.1	6.7.2	Analyse and report on early medieval pottery	Jeremy Bradley
27	1.1-2; 1.4; 9.1	6.7.2	Produce archive catalogue for later medieval and post-medieval pottery	Jeremy Bradley
			ROMAN CERAMIC BUILDING MATERIALS	
28	1.3; 2.2; 2.4-8; 3.1-3; 4.1; 4.3-5; 5.3; 8.2-5	6.8.2	Produce archive catalogue for Roman ceramic building materials	Christine Howard-Davis
			ROMAN COINS	
29	1.2; 1.4; 2.1-2; 2.5-8; 3.1-2; 4.5; 5.3; 8.1-5	6.9.2	Analyse and report on Roman coins	David Shotter
			OTHER PRE-ROMAN, ROMAN AND POST-ROMAN FINDS	
30	1.2; 1.4; 2.1-8; 3.1-3; 4.1-5; 5.1-3; 6.1-4; 7.2; 8.1-5; 9.1	6.10.2-5	Analyse and report on other pre-Roman, Roman and post-Roman artefacts, as required, including catalogues of illustrated items and archive catalogues of unpublished material	Christine Howard-Davis
31	1.2; 1.4; 2.2; 2.5-8; 3.1-3; 4.3; 5.2-3; 6.1-2	6.10.5	Analyse fabric of Roman pottery reused as counters and roundels	Ruth Leary
			HUMAN BONE	
32	2.2; 7.1-2	6.11.2	Analyse and report on human bone	Jacqueline McKinley
			ANIMAL BONE	
33	2.2; 2.5-8; 3.1-2; 4.1-5; 5.2-3; 6.2-4; 7.2; 8.3-5; 9.1	6.12.2	Analyse and report on animal bone, and produce archive catalogue	Andrew Bates
			CHARRED PLANT REMAINS	
34	1.2; 1.4; 2.1-2; 2.5-8; 3.1; 4.1-5; 5.2-3; 6.2-4; 8.3-4	6.13.2	Process soil samples for plant remains and charcoal	Sandra Bonsall
35	1.2; 1.4; 2.1-2; 2.5-8; 3.1; 4.1-5; 5.2-3; 6.2-4; 8.3-4	6.13.3	Analyse and report on charred plant remains	Elizabeth Huckerby
36	1.2; 1.4; 2.1-2; 2.5-8; 3.1; 4.1-5; 5.2-3; 6.2-4; 8.3-4	6.13.3	Process, analyse, and report on 32 additional samples for charred plant remains and pollen	Sandra Bonsall Elizabeth Huckerby
			CHARCOAL	
37	1.2; 1.4; 2.1-2; 2.5-8; 3.1;	6.14.2	Analyse and report on charcoal	Denise Druce

Task	Objective	Method	Description	Performed by
	4.1-5; 5.2-3; 6.2-4; 8.3-4			
			POLLEN AND SOIL MICROMORPHOLOGY	
38	1.2; 1.4; 2.1-2; 2.5-8; 3.1; 4.1-5; 5.2-3; 6.2-4; 8.3-4	6.15.2	Analyse and report on pollen	Elizabeth Huckerby
39	1.2; 1.4; 2.1-2; 2.5-8; 3.1; 4.1-5; 5.2-3; 6.2-4; 8.3-4	6.15.2	Analyse and report on soil micromorphology	Richard Macphail
			SCIENTIFIC DATING	
40	1.2; 1.4; 2.1; 2.8; 8.1; 8.3-5	6.16.2	Select samples for radiocarbon dating	Kelly Clapperton John Zant Denise Druce
41	1.2; 1.4; 2.1; 2.8; 8.1; 8.3-5	6.16.2	Package and dispatch selected samples for radiocarbon dating	Elizabeth Huckerby
42	1.2; 1.4; 2.1; 2.8; 8.1; 8.3-5	6.16.2	Prepare report on radiocarbon dates and dating strategy	John Zant
			PUBLICATION TEXT	
43	All	6.17.2	Produce stratigraphic text for publication	John Zant
44	All	6.17.2	Integrate specialist information into stratigraphic text, as appropriate	John Zant
45	All	6.17.2	Library research	John Zant
46	All	6.17.2	Prepare preliminaries, introduction, discussion, and bibliography for publication	Kelly Clapperton John Zant Christine Howard-Davis Elizabeth Huckerby
47	All	6.17.2	Prepare finds material for publication	Christine Howard-Davis
48	All	6.17.3	Compile individual report texts into chapters	Christine Howard-Davis
49	All	6.17.3	Edit report text, catalogues and tables	Richard Gregory
50	All	6.17.3	Submit edited reports to specialists for comment	Richard Gregory
			PUBLICATION ILLUSTRATIONS	
51	1.1-3; 2.2-9; 3.1; 7.1-7; 8.1; 9.1	6.18.2	Prepare illustrations for Introduction, Stratigraphic Narrative, and Discussion	Adam Parsons
52	1.2; 1.4; 2.1-2; 2.4; 2.6-9; 3.1-3; 4.2-4; 5.3; 6.1-4; 7.2-5	6.18.3	Prepare samian illustrations	Adam Parsons
53	1.2; 1.4; 2.1-2; 2.4; 2.6-9; 3.1-3; 4.2-4; 5.3; 6.1-4; 7.2-6	6.18.3	Prepare mortaria illustrations	Adam Parsons

54	1.2; 1.4; 2.1-2; 2.4; 2.6-9; 3.1-3; 4.2-4; 5.3; 6.1-4; 7.2-6	6.18.3	Prepare amphorae illustrations	Adam Parsons
55	1.2; 1.4; 2.1-2; 2.4; 2.6-9; 3.1-3; 4.2-4; 5.3; 6.1-4; 7.2-6	6.18.3	Prepare Roman coarseware illustrations	Adam Parsons
56	9.1	6.18.3	Prepare early medieval pottery illustrations	Adam Parsons
57	1.2; 1.4; 2.1-9; 3.1-3; 4.2-4; 5.1-3; 6.1-4; 7.2-7	6.18.3	Prepare illustrations of selected Roman and post-Roman artefacts	Adam Parsons
58	All	6.18.4	Select publication photographs	Kelly Clapperton John Zant
			PUBLICATION REPORT COMPILATION AND EDITING	
59	All	6.19.2	Undertake quality assurance on text	Rachel Newman
60	All	6.19.2	Submit publication to external referees for formal review	Alison Plummer
			ARCHIVE DEPOSITION	
61	All	6.20.2	Prepare archive for long-term storage and deposition	Joanne Levey Sandra Bonsall
62	All	6.20.2	Liaise with receiving museum	Joanne Levey
63	All	6.20.3	Discard selected material	Christine Howard-Davis Sean McPhillips
64	All	6.20.3	Archive deposition	Joanne Levey

9.4 TIMETABLE

9.4.1 It is anticipated that the draft publication text will be completed by autumn 2011, and will be submitted to the client by November 2011. Publication in the CARR series of the Cumberland and Westmoreland Antiquarian and Archaeological Society is likely during 2012.

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LIST OF FIGURES

- Figure 1: Site location
- Figure 2: The excavated section of the pipeline easement in Fields 1, 2, and 3, showing its position relative to Brougham Roman fort
- Figure 3: Field 2: the core area of extramural settlement, Phases 2A, 2B, and 2C
- Figure 4: Field 2: distribution of Romano-British features south of the core area of extramural settlement
- Figure 5: Field 2: distribution of Romano-British features north of the core area of extramural settlement
- Figure 6: Field 1: distribution of Romano-British features over the western half of the field
- Figure 7: Field 1: distribution of Romano-British features over the eastern half of the field, including feature **612** within a possible ditched enclosure
- Figure 8: Field 3: distribution of Romano-British features, including putative cremation burials **10037** and **10096**

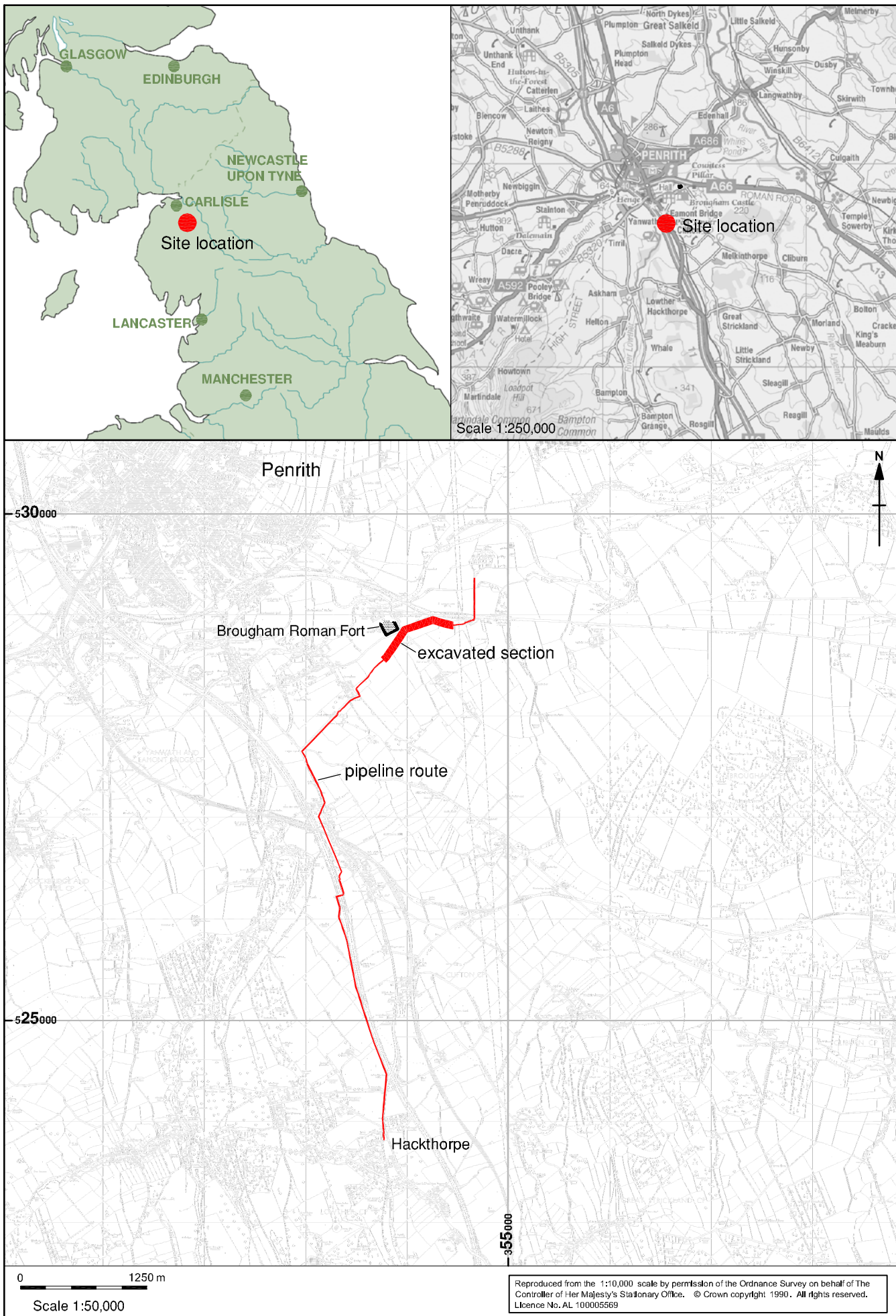


Figure 1: Site Location

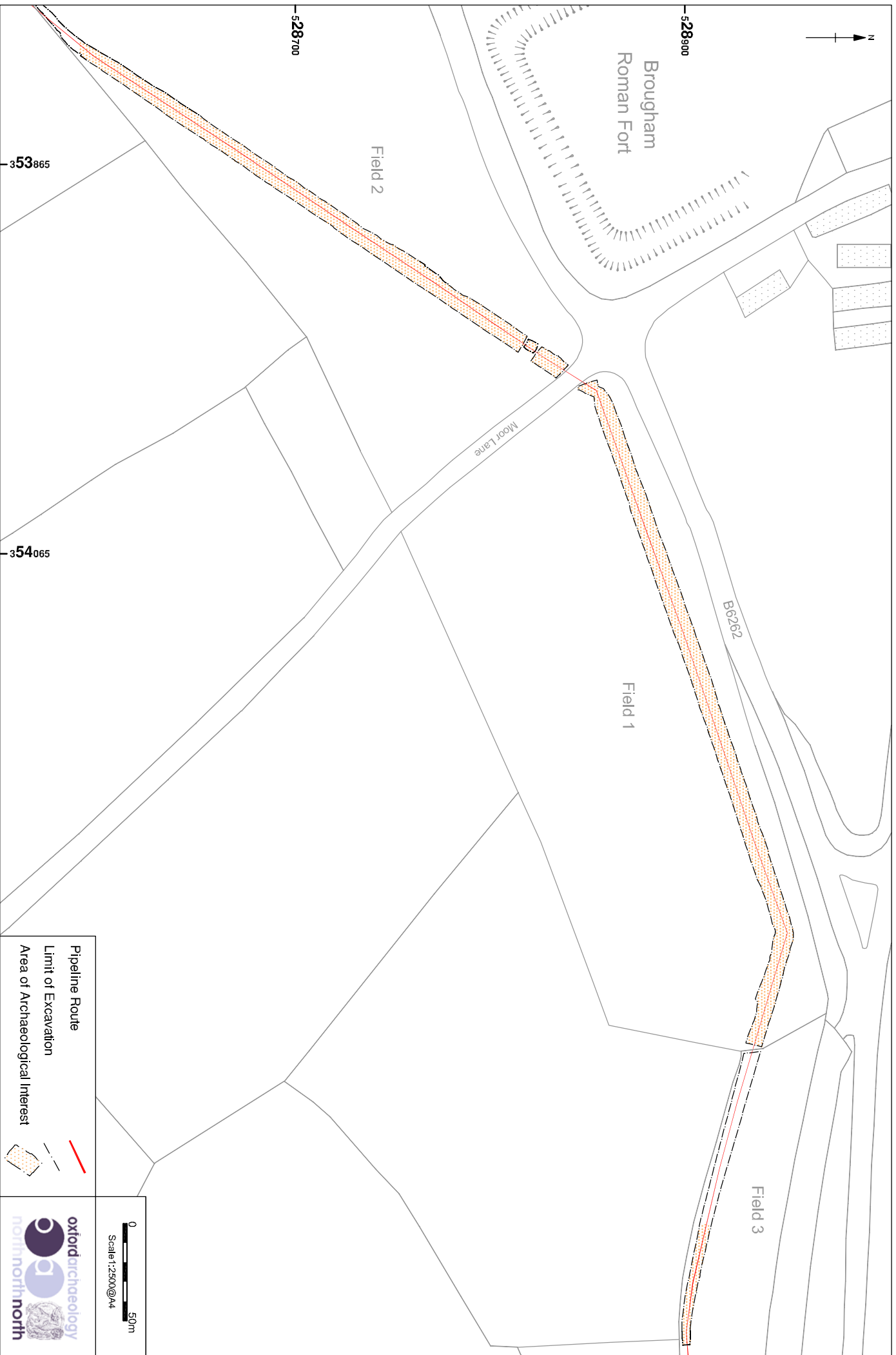
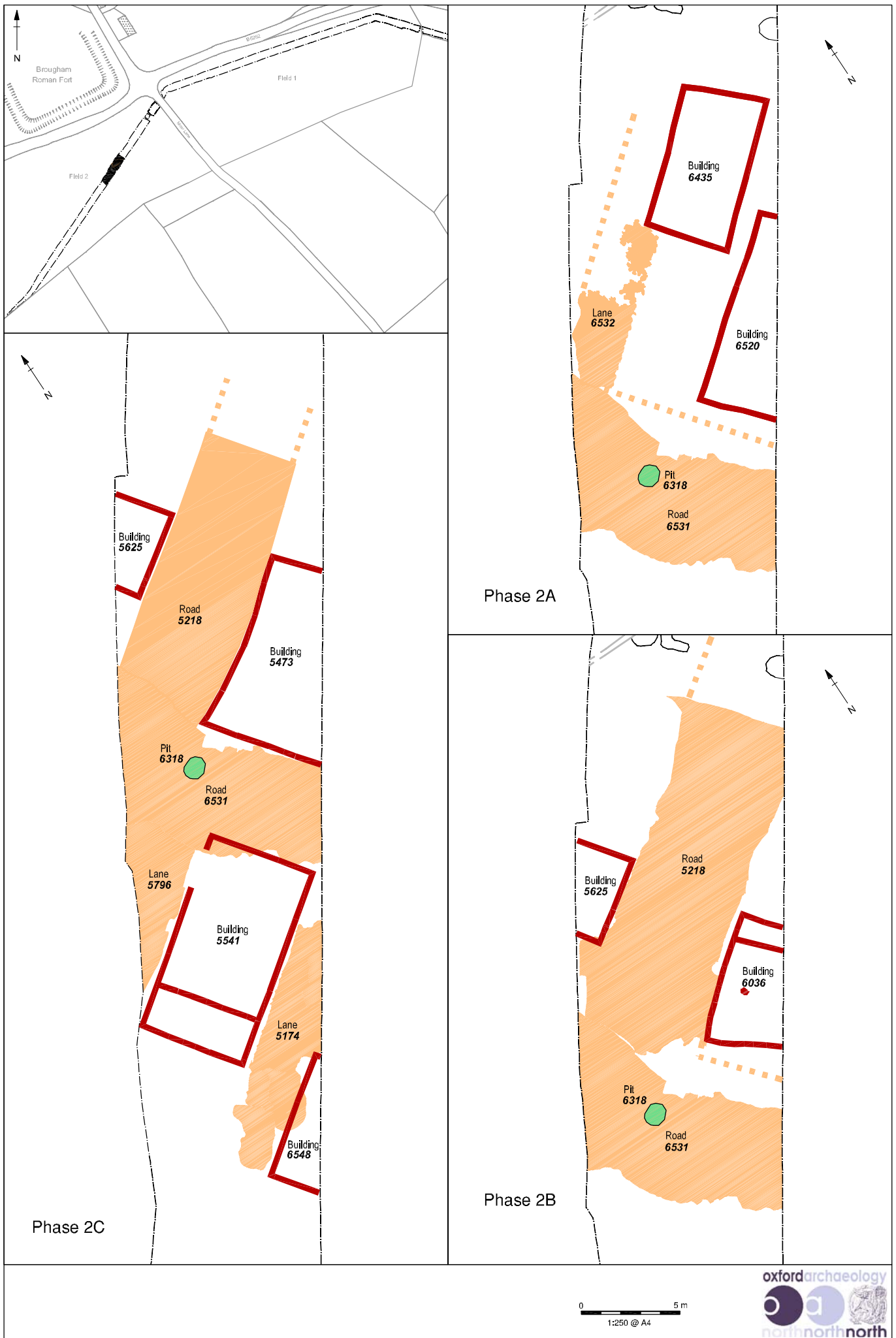


Figure 2: The excavated section of the pipeline easement in Fields 1, 2, and 3, showing its position relative to Brougham Roman fort



AP*L9931*MAT*July 2010

Figure 3: Field 2: the core area of extramural settlement, Phases 2A, 2B, and 2C

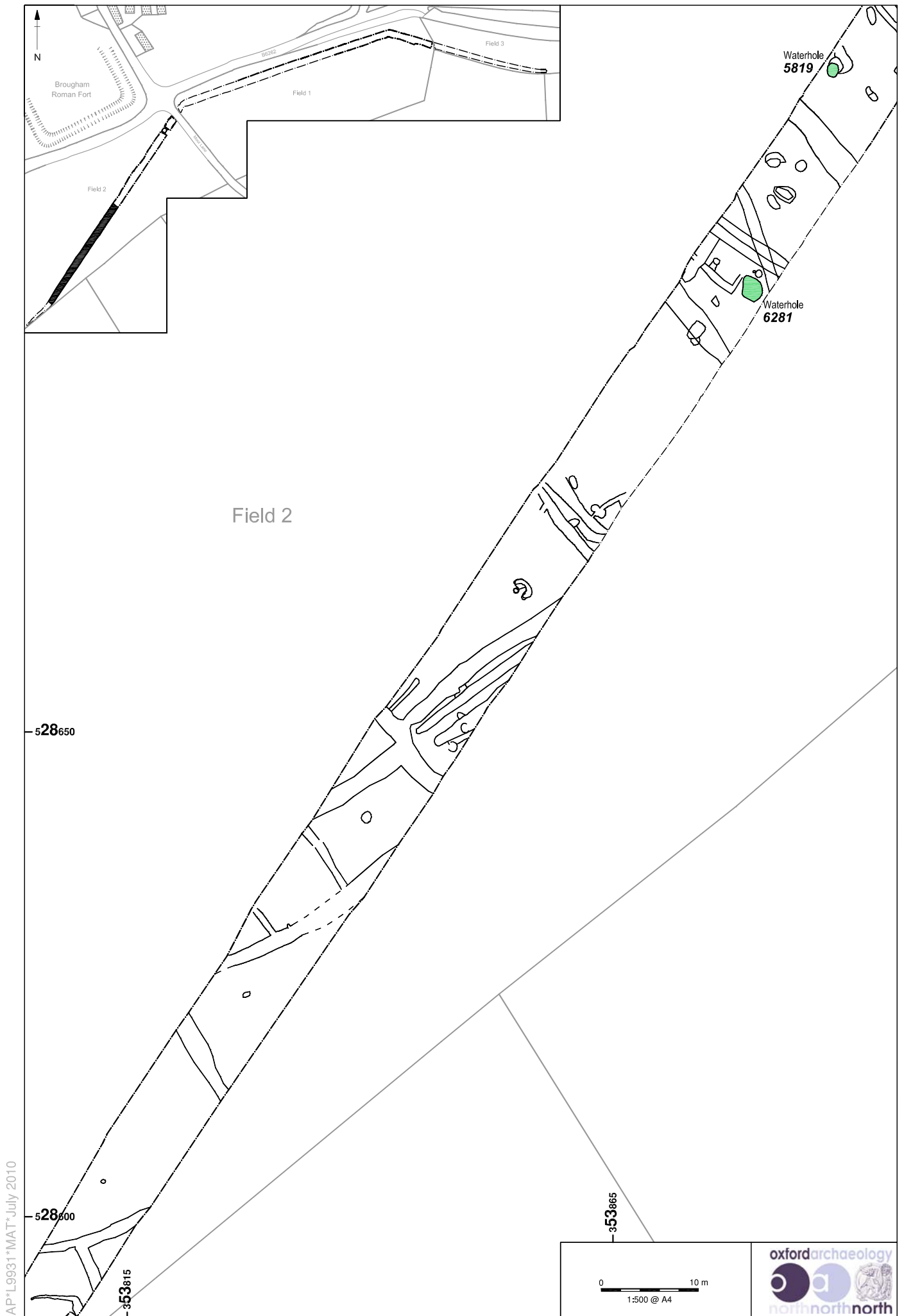


Figure 4: Field 2: distribution of Romano-British features south of the core area of extramural settlement

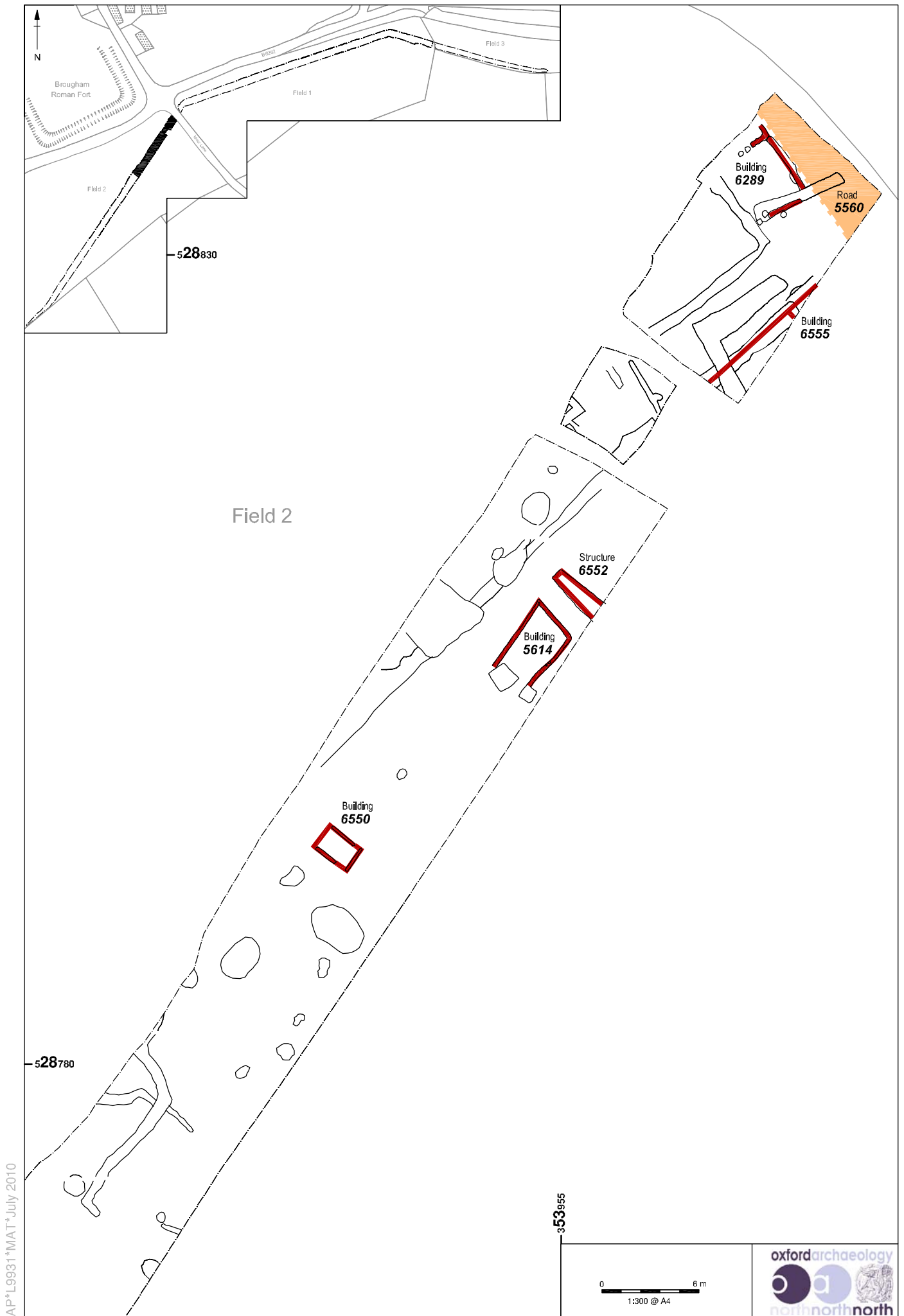


Figure 5: Field 2: distribution of Romano-British features north of the core area of extramural settlement

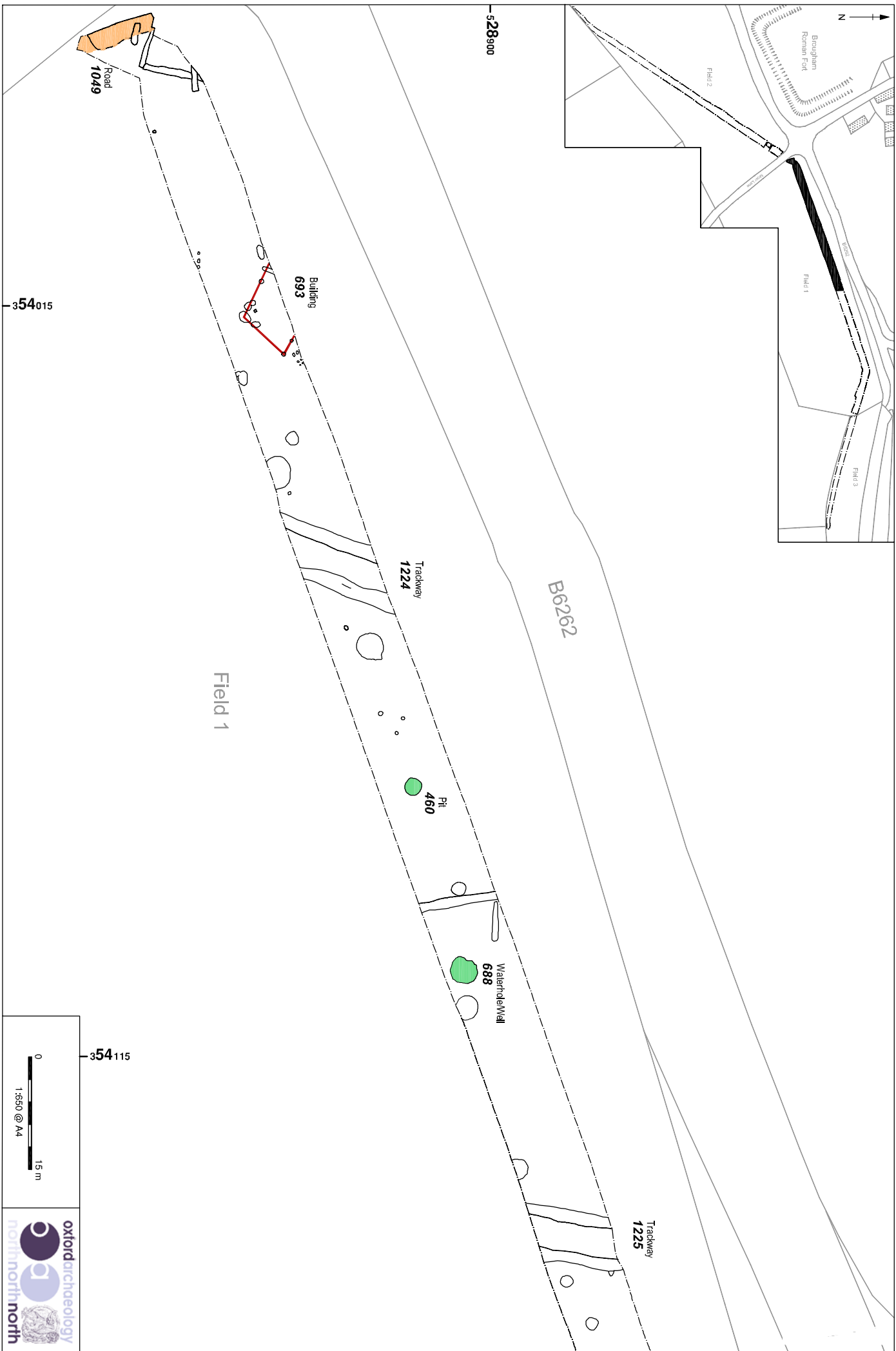


Figure 6: Field 1 : distribution of Romano-British features over the western half of the field



Figure 7: Field 1 : distribution of Romano-British features over the eastern half of the field, including feature 612 within a possible ditched enclosure

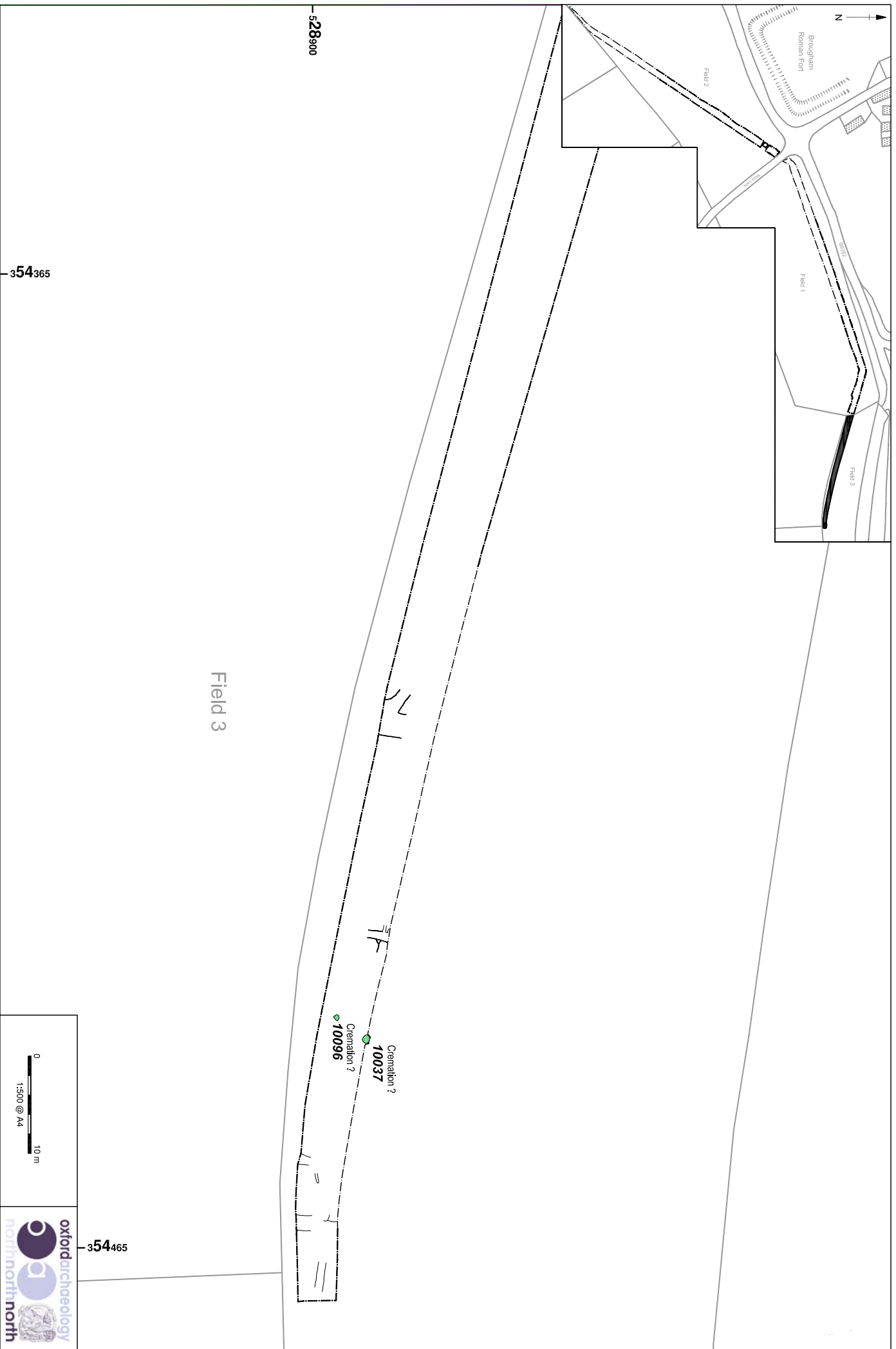


Figure 8: Field 3: distribution of Romano-British features, including putative cremation burials **10037** and **10096**

LIST OF PLATES

- Plate 1: The earthwork remains of the Roman fort at Brougham, from the north-east corner of Field 2, looking north-west
- Plate 2: The core area of extramural settlement in Field 2, looking north-east along the pipeline easement
- Plate 3: Field 2: the construction trenches for Building **6520** (Phase 2A), looking north-east
- Plate 4: Field 2: main road **6531** (foreground), with road **5218** extending from it to the north-east, beneath the excavators (Phases 2B, 2C)
- Plate 5: Field 2: the interior of Building **5473** (Phase 2C) adjacent to road **5218** (left), looking north-east
- Plate 6: Field 2: Building **5541** (Phase 2C) on the west side of main road **6531** (top), looking north-east, flanked by cobbled lanes **5174** on the south (right) and **5796** on the north (left)
- Plate 7: Field 1: section through Romano-British well or waterhole **688** (Phase 2C), looking south-east
- Plate 8: Field 3: probable cremation burial **10037**, looking north
- Plate 9: Field 3: possible cremation burial **10096**, looking north
- Plate 10: Field 1: feature **612** partially excavated, looking north-west
- Plate 11: Cast copper-alloy fitting in the form of a stylised deer, probably of Romano-British date, from a cleaning level in Field 2
- Plate 12: Wedge-shaped pendant in jet or shale, from a Romano-British feature (Phase 2C) in Field 1



Plate 1: The earthwork remains of the Roman fort at Brougham, from the north-east corner of Field 2, looking north-west



Plate 2: The core area of extramural settlement in Field 2, looking north-east along the pipeline easement



Plate 3: Field 2: the construction trenches for Building **6520** (Phase 2A), looking north-east



Plate 4: Field 2: main road **6531** (foreground), with road **5218** extending from it to the north-east, beneath the excavators (Phases 2B, 2C)



Plate 5: Field 2: the interior of Building **5473** (Phase 2C) adjacent to road **5218** (left), looking north-east



Plate 6: Field 2: Building **5541** (Phase 2C) on the west side of main road **6531** (top), looking north-east, flanked by cobbled lanes **5174** on the south (right) and **5796** on the north (left)



Plate 7: Field 1: section through Romano-British well or waterhole **688** (Phase 2C), looking south-east



Plate 8: Field 3: probable cremation burial **10037**, looking north



Plate 9: Field 3: possible cremation burial **10096**, looking north



Plate 10: Field 1: feature **612** partially excavated, looking north-west



Plate 11: Cast copper-alloy fitting in the form of a stylised deer, probably of Romano-British date, from a cleaning level in Field 2



Plate 12: Wedge-shaped pendant in jet or shale, from a Romano-British feature (Phase 2C) in Field 1

APPENDIX 1: ASSESSMENT OF CHARRED AND WATERLOGGED PLANT REMAINS AND CHARCOAL

Notes: Plant remains are scored on a scale of 1-4, where (1) is rare (one to five items) and (4) is abundant (more than 100 items)

CPR = charred plant remains

Sample No	Context No	Context type	CPR	Potential for CPR analysis	Potential for charcoal analysis	Potential for radiocarbon dating
16	376	Fill of pit 377	Cerealia (1), indeterminate; Weeds (1), Legume <4mm	No	Full assessment	Yes
17	384	Fill of pit 384	Cerealia (1), indeterminate; Weeds (1), Legume <4mm	No	No	Yes
18	390	Fill of pit 380	Cerealia (1), indeterminate; Weeds (1), <i>Plantago</i>	No	Full assessment	Yes
19	395	Fill of pit 392	Cerealia (1), indeterminate; Weeds (1), <i>Rumex acetosella</i>	No	Full assessment	Yes
20	400	Fill of pit 409	Cerealia (2), <i>Triticum</i> , <i>Avena</i> , indeterminate; Weeds (2), <i>Plantago</i> , <i>Ranunculus repens</i> , <i>Rumex acetosa</i>	Moderate	Full assessment	Yes
21	425	Fill of pit 411	Cerealia (1), indeterminate	No	Full assessment	Yes
25	466	Fill of ditch 463	Cerealia (1), <i>Avena</i> , indeterminate	No	Full assessment	Yes
26	489	Fill of hollow 488	Cerealia (2), <i>Triticum</i> , <i>Avena</i> , indeterminate; Weeds (1), <i>Plantago</i> , <i>Chenopodium album</i>	Moderate	Full assessment	Yes
27	487	Fill of pit 486	Cerealia (1), indeterminate	No	No	Possible
28	494	Fill of pit 495	Cerealia (1), <i>Triticum</i> , indeterminate; Weeds (1), <i>Rumex</i>	No	No	Yes
29	499	Fill of pit 495	Cerealia (1), indeterminate	No	No	Yes
30	516	Fill of pit 517	Cerealia (1), indeterminate	No	Full assessment	Yes
32	518	Charcoal-rich spread	Cerealia (1), <i>Hordeum</i> ; Weeds (1), <i>Plantago</i> , <i>Bromus</i>	No	Full assessment	Yes
33	549	Fill of pit 623	Cerealia (1), <i>Triticum</i> , indeterminate; Weeds (1), <i>Bromus</i>	No	No	Possible
34	585	Fill of pit 586	Weeds (1), <i>Plantago</i>	No	Full assessment	Yes
38	611	Fill of feature 612	Cerealia (1), indeterminate	No	Full assessment	Yes
39	629	Fill of feature 612	Cerealia (2), <i>Triticum</i> , indeterminate; Weeds (1), large grass	Moderate	Full assessment	Yes
55	698	Fill of possible waterhole 697	Cerealia (2), <i>Triticum</i> , <i>Avena</i> ; Weeds (1), <i>Rumex acetosella</i> , <i>Chenopodium album</i> , <i>Bromus</i>	Moderate	Assess	Yes
56	716	Fill of posthole 717	Cerealia (1), indeterminate	No	No	Possible
65	610	Fill of feature	Weeds (1), Legume	No	No	Possible

Sample No	Context No	Context type	CPR	Potential for CPR analysis	Potential for charcoal analysis	Potential for radiocarbon dating
		612	>4mm, <i>Rumex acetosella</i>			
67	740	Fill of feature 612	Cerealia (1), indeterminate	No	No	Possible
68	628	Fill of feature 612	Cerealia (1), indeterminate; Weeds (1), <i>Plantago</i>	No	No	Possible
72	637	Fill of posthole in 612	No charred plant remains	No	Full assessment	Yes
79	756	Fill of pit 767	Cerealia (1), indeterminate	No	Full assessment	Possible
80	771	Fill of pit 770	Cerealia (1), <i>Triticum</i> ; Weeds (1), <i>Plantago</i> , Poaceae, indeterminate	No	Full assessment	Possible
81	774	Fill of pit 773	Cerealia (1), indeterminate; Weeds (1), <i>Rumex</i> sp	No	Full assessment	Possible
83	780	Fill of pit 779	Weeds (2), Legume <4mm	No	Full assessment	Possible
84	828	Fill of pit 829	Cerealia (1), <i>Triticum</i>	No	Full assessment	Possible
85	832	Fill of pit 833	Cerealia (2), <i>Triticum</i>	Possible	Full assessment	Yes
88	1043	Fill of ditch 1042	Cerealia (1) <i>Triticum</i> ; Weeds (1), Legumes <4mm, <i>Ranunculus repens</i>	No	Full assessment	Possible
93	699	Fill of possible waterhole 697	Cerealia (1), indeterminate	No	Full assessment	Possible
106	952	Fill of pit 952	Hazelnut fragment (1)	No	No	Possible
107	955	Fill of pit 955	Cerealia (1); Chaff (1); Weeds (1)	No	Full assessment	Yes
109	1095	Deposit in ditch 1091	No charred plant remains	No	Full assessment	Yes
111	1102	Deposit in pit 1103	Weeds (1), <i>Plantago</i>	No	Full assessment	Yes
112	923	Fill of pit 886	Cerealia (1), <i>Hordeum</i> ; Hazelnut fragments (1); Weeds (2), including <i>Galium</i> , <i>Rumex</i> , <i>Ranunculus repens</i> -type	No	Full assessment	Yes
114	1151	Fill of ditch 1152	Cerealia (1), <i>Triticum</i> , <i>Hordeum</i>	No	Full assessment	Yes
115	1161	Fill of pit 1162	Weeds (1), <i>Vitis vinifera</i> , Legumes <4mm	No	No	Possible
116	1156	Charcoal-rich spread	Cerealia (1), indeterminate; Weeds (1), Legumes <4mm, <i>Plantago</i> , <i>Bromus</i>	No	No	Possible
119	1176	Fill of pit 1167	Weeds (1), Legumes <4mm	No	Full assessment	Yes
121	962	Fill of pit 963	No charred plant remains	No	Full assessment	Yes
122	339	Fill of pit 941	Cerealia (1), <i>Triticum</i>	No	No	Possible
124	943	Fill of pit 942	Weeds (1) Brassicaceae, <i>Ranunculus</i> sp	No	Full assessment	Yes
125	875	Fill of pit 868	Cerealia (1), indeterminate; Weeds (1), <i>Plantago</i>	No	Full assessment	Yes
129	949	Fill of pit 948	Weeds (1) <i>Plantago</i>	No	Full assessment	Yes
134	959	Fill of pit 958	No charred plant remains	No	Full assessment	Yes
135	961	Fill of pit 960	Cerealia (1), indeterminate; Weeds (1), <i>Plantago</i>	No	No	Possible
143	836	Fill of pit 837	Cerealia (1), <i>Triticum</i>	No	Assess	Possible
145	824	Fill of pit 825	Cerealia (1), indeterminate	No	Full assessment	Yes

Sample No	Context No	Context type	CPR	Potential for CPR analysis	Potential for charcoal analysis	Potential for radiocarbon dating
148	830	Fill of pit 831	Cerealia (1), indeterminate	No	Full assessment	Yes
151	928	Fill of pit 929	Cerealia (1), indeterminate	No	No	Possible
152	924	Fill of pit 887	Cerealia (1), <i>Triticum</i> sp, weed seeds (1)	Possible	Full assessment	Yes
154	986	Fill of pit 987	No charred plant remains	No	Full assessment	Yes
160	902	Fill of pit 847	Cerealia (1), indeterminate; Weeds (1), <i>Plantago</i>	No	No	Possible
163	903	Fill of pit 848	Cerealia (1), indeterminate; Weeds (1), Legume <4mm, Poaceae	No	Full assessment	Yes
170	918	Fill of pit 916	Cerealia (2), indeterminate	Moderate	Full assessment	Yes
172	915	Fill of pit 856	Weeds (1), <i>Bromus</i>	No	Full assessment	Possible
179	976	Fill of pit 977	No charred plant remains	No	Full assessment	Possible
180	972	Fill of pit 973	Cerealia (1), <i>Triticum</i>	No	No	Possible
1005	5391/ 5389	Fill of ditch 5410	Cerealia (1), indeterminate; Weeds (1), <i>Rumex</i>	No	No	Possible
1006	5490	Clay surface, Building 5541	Cerealia (1), <i>Triticum</i>	No	No	Possible
1010	5537	Hearth 5171, Building 5541	Cerealia (1), <i>Avena</i> , indeterminate	No	Full assessment	Possible
1016	5646	Occupation layer, Building 5625	Cerealia (1), indeterminate; Weeds (1), Legume <4mm	No	No	Possible
1117	1172	Fill of posthole 1497	Cerealia (1), indeterminate; Weeds (1), <i>Euphorbia</i>	No	No	Possible
1028	5597	Fill of ditch 5697	Cerealia (1), indeterminate	No	No	Possible
1037	5235	Fill of ditch 5236	Cerealia (1), <i>Triticum</i>	No	No	Possible
1038	5302	Fill of ditch 5297	Cerealia (1), indeterminate	No	Full assessment	Yes
1044	5281	Fill of ditch 5280	Cerealia (1), <i>Triticum</i>	No	No	Possible
1047	5768	Burnt clay deposit, Building 6036	Cerealia (1), <i>Triticum</i>	No	Full assessment	Possible
1048	5807	Layer around hearth 5767, Building 6036	Cerealia (1), <i>Triticum</i>	No	No	Possible
1050	5605	Soil layer	No charred plant remains	No	Full assessment	Possible
1060	5973	Layer in Building 6036	No charred plant remains	No	Full assessment	Possible
1065	5802	Layer in Building 6036	Cerealia (1), <i>Triticum</i>	No	No	Possible
1069	6122	Layer in Building 6036	Cerealia (1), <i>Triticum</i> ; Weeds (1) Poaceae	No	No	Possible
1074	6038	Occupation layer in Building 6036	No charred plant remains	No	Full assessment	Possible
1083	6073	Layer in Building 6036	Cerealia (1), indeterminate	No	No	Possible
1085	6237	Fill of ditch 6238	Cerealia (1), indeterminate; Weeds (1), <i>Bromus</i>	No	No	Possible
1093	6316	Fill of pit 6318	No charred plant remains	No	Full assessment	Possible
1096	6324	Fill of pit 6325	No charred plant remains	No	Full assessment	Possible
1097	6547	Fill of pit 6348	Weeds (3), <i>Rumex acetosella</i> , <i>Plantago</i> , <i>Rhinanthus</i> , Poaceae,	Yes	No	Possible

Sample No	Context No	Context type	CPR	Potential for CPR analysis	Potential for charcoal analysis	Potential for radiocarbon dating
			indeterminate			
1112	6465	Fill of pit 6467	No charred plant remains	No	Full assessment	Yes
1118	5813	Fill of possible waterhole 5819	Weeds (1), <i>Bromus</i>	No	Full assessment	Possible
1119	5814	Fill of possible waterhole 5819	No charred plant remains	No	Full assessment	Possible
1120	5815	Fill of possible waterhole 5819	No charred plant remains	No	Full assessment	Possible
1121	5816	Fill of possible waterhole 5819	No charred plant remains	No	Full assessment	Possible
1125	6283	Fill of possible waterhole 6281	Cerealia (1), <i>Triticum</i> , <i>Avena</i> , glume; <i>Corylus avellana</i> fragment (1)	No	Full assessment	Possible

APPENDIX 2: ASSESSMENT OF THE POLLEN

Feature/deposit type	Monolith no	Sample depth (mm)	Context no	Conc/cc (x1000)	Preservation	Pollen types	Inferred vegetation	Potential
Possible waterhole 6281	1122	20.5	6284	8.4	Mixed-good	Occasional alder, hazel-type, with grass and cereal-type	Too little pollen to infer	No
	1122	45.5	6284	8.7	Poor	Occasional alder, hazel-type and grass	Too little pollen to infer	No
	1122	60.5	6283	9.9	Poor	Occasional alder, hazel-type and grass	Too little pollen to infer	No
	1122	80.5	6283	20.9	Mixed-poor	Occasional alder, hazel-type, heather and grass	Alder carr, moorland/mire and grassland/pasture	Possible
	1122	99.5	6283	27.7	Mixed-poor	Alder, hazel-type, heather, grass and other herbs	Alder carr, moorland/mire and grassland/pasture	Possible
	Core	199.5	n/a	18.6	Mixed	Occasional alder, hazel-type, heather and grass	Too little pollen to infer	Possible
	Core	249.5	n/a	475.2	Mixed	Alder, hazel-type, heather, grass, other herb types and fern spores	Alder carr, moorland/mire and grassland/pasture	Yes
Possible waterhole 5819	Core	268.5	n/a	880.1	Mixed-good	Alder, hazel-type, heather, grass, other herb types and fern spores	Alder carr, secondary woodland, moorland/mire and grassland/pasture	Yes
	Core	121.5	n/a	0.0	-	-	-	No
	Core	160.5	n/a	173	Good to mixed	Grass, ribwort plantain, cereal-type and other herbs	Grassland/pasture with evidence of cultivation	Yes
	Core	179.5	n/a	326.2	Good	Alder, hazel-type, birch, heather, grass, cereal-type, other herb types and fern spores	Alder carr, secondary woodland, moorland/mire, cereal cultivation and grassland/pasture	Yes
Buried soil below road 6531	Core	196.5	n/a	31.02	Good	Alder, hazel-type, heather, grass, other herb types and fern spores	A few trees, moorland/mire and grassland/pasture	Yes
	1078	1.5	5922	80.1	Poor	Alder, hazel-type, grass, other herb types, with some heather and fern spores	Pasture/grassland with some alder carr and secondary woodland	Possible
	1078	12.5	5922	6.3	Poor	Occasional grass and other herb types	Too little pollen to infer	No
	1078	25.5	5027	3.5	Poor	Occasional alder, hazel-type, grass and fern spores	Too little pollen to infer	No

Ditch 5699	1040	61.5	5697	22.3	Poor	Alder, hazel-type, heather and grass	Too little pollen to infer	No
	1040	85.5	5698	16.9	Good-moderate	Alder, hazel-type, heather, grass and fern spores	Alder carr, secondary woodland, moorland/mire and grassland/pasture	Yes
Pit 460	113	18.5	1132	23	Mixed-poor	Alder, hazel-type, heather, grass, other herbs and fern spores	Alder carr, secondary woodland, moorland/mire, and grassland/pasture	Possible
	113	22.5	1134	135.1	Mixed-poor	Hazel-type, birch, alder, heather, grass, other herbs, cereal-type, fern spores, aquatic pollen and algae	Secondary woodland, moorland/mire, grassland/pasture, possible cultivation and evidence of aquatic environment	Yes
	113	31.5	1135	345.1	Good	Heather, grasses, other herbs, cereal-type, hazel-type, alder, fern spores, aquatic pollen and algae	Moorland/mire, grassland/pasture, possible cultivation with some secondary woodland, and evidence of aquatic environment	Yes
	113	40.5	1149	157.0	Good-mixed	Hazel-type, alder, birch, heather, grasses, range of herbs, ferns, aquatic pollen and algae	Moorland/mire, grassland/pasture, with some secondary woodland and evidence of aquatic environment	Yes
Feature 612	64	10.5	610	56.8	Poor	Hazel-type, heather, grasses and bog moss spores	Secondary woodland, moorland/mire, and grassland/pasture	Possible
	64	16.5	611	173.9	Mixed-poor	Alder, hazel-type, heather, grasses, other herbs and fern spores	Secondary woodland, moorland/mire, and grassland/pasture	Yes
	64	20.5	628	83.8	Poor	Alder, hazel-type, heather, grasses, other herbs and fern spores	Secondary woodland, moorland/mire, and grassland/pasture	Yes
	64	23.5	629	50.8	Poor	Alder, hazel-type, heather, grasses and fern spores	Secondary woodland, moorland/mire, and grassland/pasture	Yes
	64	26.5	Natural subsoil(?)	7.1	Poor	Occasional alder, hazel-type, heather and grass	Too little pollen to infer	Possible
Ditch 5271	1041	10.5	5278	3.5	Poor	Occasional alder, hazel-type and grass	Too little pollen to infer	No
	1041	30.5	5279	4.1	Poor	Very rare hazel-type, grass, ribwort plantain and fern spores	Too little pollen to infer	No
	1041	45.5	5281	21	Mixed-poor	Hazel-type, alder, birch, heather, grasses, range of herbs and fern spores	Too little pollen to infer	Possible
	1041	65.5	5281	18	Mixed	Hazel-type, alder, birch, heather, grasses and ferns spores	Too little pollen to infer	Possible
Ditch 456	96	12.5	457	3.8	Poor	Very occasional pollen grains	Too little pollen to infer	No
	96	33.5	457	8.9	Poor	Heather, hazel-type, grass and other herbs	Too little pollen to infer	No

Feature 1393	1105	3.5	6423	14.4	Poor	Very occasional pollen grains	Too little pollen to infer	No
	1105	15.5	6505	31.3	Poor	Occasional alder, hazel-type, grass and fern spores	Too little pollen to infer	No
	1105	23.5	6399	4.9	Poor	Very occasional pollen grains and fern spores	Too little pollen to infer	No
	1105	33.5	6424	6.4	Mixed	Very occasional pollen grains, but some colonial algae	Too little pollen to infer	No
Ditch 442	89	22.5	441	9.4	Poor	Very occasional pollen grains and fern spores	Too little pollen to infer	No
	89	34.5	451	6.7	Poor	Very occasional pollen grains and fern spores	Too little pollen to infer	No

Note: Conc cc = Concentration (of pollen spores) per cubic centilitre (x1000)