Ambleside Sewerage Scheme, Borrans Road

Archaeological Excavations and Watching Brief within the Roman *vicus* at Ambleside: Interim Report

Report 121

CENTRE *for* FIELD ARCHAEOLOGY

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Andrew Dunwell BA AIFA, Surindar Mann MA and Bill Finlayson MA PhD FSA(Scot) MIFA

Contributors: Geraint Coles BA PhD, Nicola Murray MA, Rob Sands BA, and Gordon Thomas MA MLitt FSA (Scot) MIFA

Illustrator: Martin Wilson BA FSA(Scot) PIFA

Editor: Ian Ralston MA PhD FSA FSA(Scot) MIFA

CENTRE *for* FIELD ARCHAEOLOGY
University of Edinburgh
Appleton Tower
Crichton Street
Edinburgh EH8 9LE

Tel: 031 650 4138
Fax: 031 662 4094

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0. NON-TECHNICAL SUMMARY

This report presents the interim results of a programme of archaeological excavation and a permanent presence watching brief relating to the Roman civilian settlement or *vicus* which lies beside the Roman fort at Ambleside, Cumbria (National Monument No. 13567; NGR of fort NY 372 033 area). Archaeological fieldwork was undertaken by the Centre for Field Archaeology (CFA) between 23 November 1992 and 26 May 1993, and was commissioned by South Lakeland District Council (SLDC) on behalf of North West Water Limited. The programme was undertaken under the terms of a scheduled monument consent and a brief issued by SLDC, and was necessitated by the planned laying of new gravity foul sewers between Waterhead and Borrans, Ambleside (Fig. 1).

Archaeological fieldwork comprised three elements:

(a) Hand excavation of five trenches which lay within the scheduled area.

(b) An archaeological watching brief of the remainder of the development area which lay within the scheduled area (NGR: NY 3747 0333 to NY 3730 0360, Fig. 1).

(c) An archaeological watching brief of the development area which lay outside the scheduled area (NGR: NY 3770 0315 to NY 3747 0333, Fig. 1).

Remains associated with the Roman *vicus* were recorded at a number of locations along the route of the development. These were most complex where the pipe crossed Borrans Field, and were patchy beneath Borrans Road. The remains appear to derive principally from occupation during the second century AD. No traces of the *vicus* were identified outside the scheduled area.

Future post-excavation analysis of the artefacts and environmental samples collected during excavation will allow a more detailed understanding of the physical remains recorded during fieldwork. It is intended to publish the results of excavation in a recognised archaeological journal.

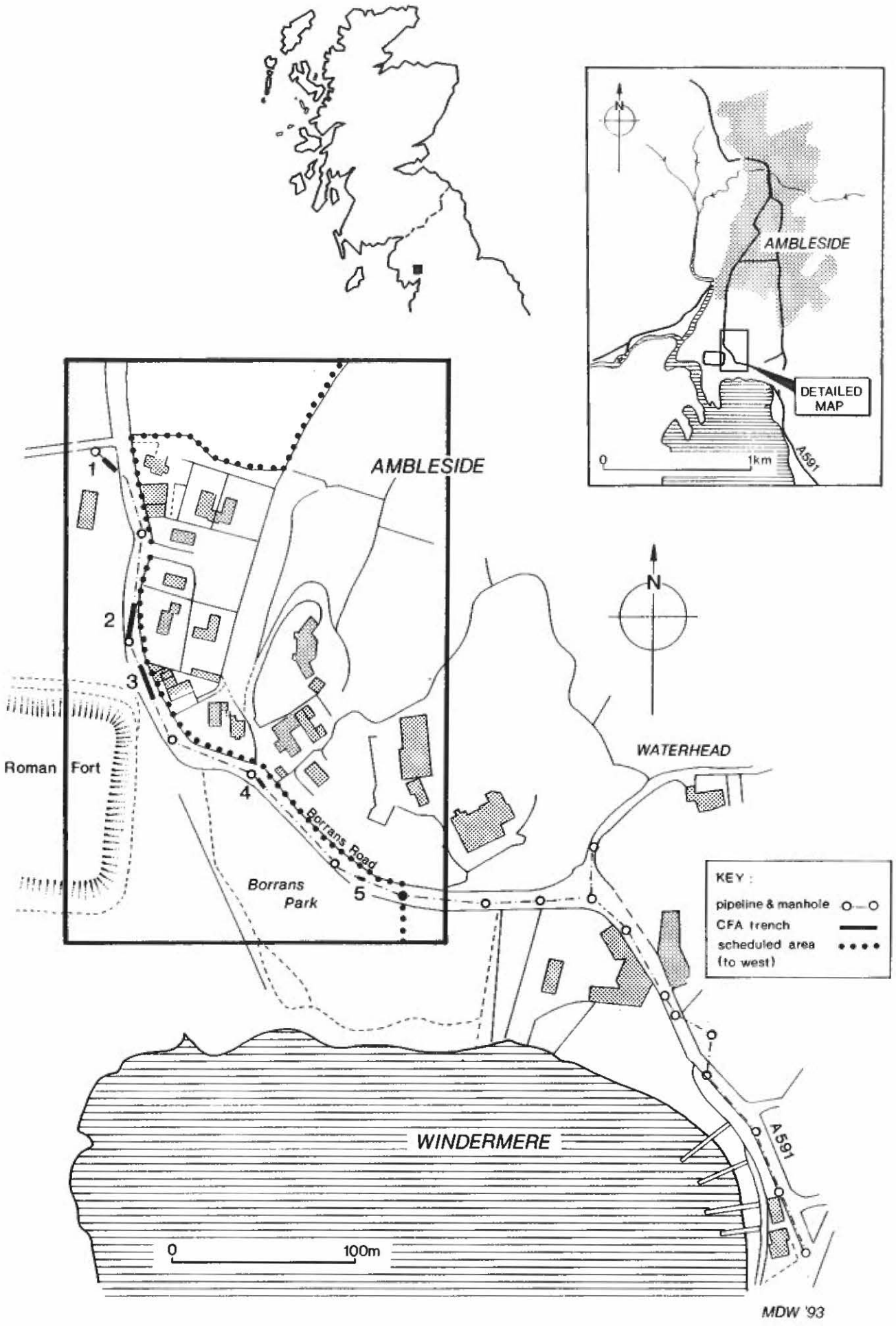

Fig. 1 - Location Maps

1. INTRODUCTION

1.1 General

This report presents the interim results and assessment of potential of a programme of archaeological excavation and permanent presence watching brief relating to the Roman civilian settlement or *vicus* which lies beside the Roman fort at Ambleside, Cumbria (National Monument No. 13567; NGR of fort NY 372 033 area). Archaeological fieldwork was undertaken by the Centre for Field Archaeology (CFA) between 23 November 1992 and 26 May 1993, and was commissioned by South Lakeland District Council (SLDC) on behalf of North West Water Limited. The programme was undertaken under the terms of a scheduled monument consent and a brief issued by SLDC, and was necessitated by the planned laying of new gravity foul sewers between Waterhead and Borrans, Ambleside (Fig. 1).

1.2 Scope and layout of this report

1.2.1 Scope

This is the Interim Report relating to archaeological fieldwork. It has two main aims.

a) The Interim Report provides an illustrated summary and working interpretation of the physical results of the excavation and the watching brief. A provisional analysis of the archaeological stratification recorded during fieldwork accompanies this (Appendix 1). This analysis forms the basis for the working interpretations of physical remains detailed above.

b) The Interim Report provides an assessment of the potential for the various materials recovered, including artefacts and palaeoenvironmental samples, for addition to, and refinement of, these working interpretations.

c) The Interim Report provides an outline account of the contents of the site archive.

Little attempt is made in this report to address the impact of the results of fieldwork on the wider research issues outlined in section 2 of CFA's Project Designs (Appendices 15-16). This report has been produced by reference to the criteria outlined in Phase 3 of *Management of Archaeological Projects* (English Heritage 1991, 15-18; 6.1-6.16). An updated project design, as defined in that document (*ibid.*, 18-19; 6.17-6.23), has not been produced in this report. In accordance with a note accompanying the final Project Brief supplied by SLDC (dated 1 December 1992), and by agreement with the regional inspector for English Heritage, a post-excavation and publication programme for this project is to be agreed and carried out in conjunction with that from a similar project undertaken at Borrans Road, Ambleside by Lancaster University Archaeological Unit (LUAU) for North West Water Limited in 1991.

1.2.2 Layout

This report provides results of fieldwork at two levels. The first part (sections 2-6) provides a summary of relevant background information, a statement of working methods, an illustrated working interpretation of the physical remains, assessments of the potential of the artefacts, samples and

stratigraphic and structural data recovered by fieldwork for further analysis (as detailed above 1.2.1, a), and a brief evaluation of the interim results. The second part is more technical, and comprises an interim analysis of site stratigraphy, an account of the site archive, and a copy of the brief supplied by SLDC and CFA's Project Designs. These elements are included as appendices (1-17), and are intended primarily for reference purposes.

1.3 Archiving and finds disposal

The site archive, including finds and environmental materials, is being conserved and stored according to UKIC guidelines for the preparation of excavation archives for long-term storage. On completion of the project, the site archive (excepting the finds) will be deposited with Cumbria County Records Office. Finds and environmental material will be stored in a Registered Museum fulfilling the HBMC/MGC storage criteria, along with a paper copy of the site archive. The process and timetable of archive deposition will be carried out in consultation with the landowner, client, relevant museum authorities and local authority archaeological curator. A copy of the reproducible elements of the archive will be deposited in the National Archaeological Record. An entry for the Cumbria SMR will be compiled in consultation with the Sites and Monuments Record Officer.

1.4 Acknowledgements

The assistance of Phil Turner and Dominic Scott of SLDC Technical Department is gratefully acknowledged. The continuous co-operation of the main contractor, Ennis, was instrumental in assuring the smooth progression of fieldwork. Advice and assistance on archaeological matters provided by Henry Owen-John and subsequently Gerry Friell, both of English Heritage, and Bette Hopkins, Cumbria Sites and Monuments Record Officer and Acting County Archaeologist, was gratefully received.

2. BACKGROUND

2.1 Previous work at Ambleside Fort

2.1.1 Occupation of the fort

Ambleside Roman Fort survives as a substantial earthwork in Borrans Field, at the head of Lake Windermere. In relative terms its area of 1.9 acres is small, and it was of a size to hold no more than a detachment of an auxiliary unit (Shotter 1984, 42). Limited excavations in the early part of this century explored its interior and perimeter defences (eg Collingwood 1915; 1921).

The chronology of its occupation is not known in detail - a few general trends have been identified, although there are also lacunae which are relevant not only to the occupation of Ambleside but also to the Roman military occupation of north-west England as a whole (Potter 1979a; Shotter 1984). The upstanding fort at Ambleside was probably a Hadrianic construction (AD 122-138). It may have been abandoned or provided with a reduced garrison during the reign of Antoninus Pius (AD 138-161) as troops were deployed northwards to garrison the Antonine frontier. Little is known of its history of occupation after this date. There is no convincing evidence for the presence of a garrison at Ambleside between c.AD 220 and c.AD 270; a similar lack of evidence has been recorded at the nearby Roman fort at Watercrook, Kendal (Potter 1979a, 362). A late fourth century coin is the latest evidence for Roman occupation at Ambleside.

The early excavations at Ambleside also defined the presence of a turf and timber fort mostly sealed beneath the later stone fort; no earthwork traces of this earlier fort survive. Re-examination of the Samian ware recovered from Ambleside has suggested that this turf and timber foundation was of late Flavian, first century AD, origin (Hartley 1966, 12). This early fort may have been abandoned during the reign of Trajan, prior to the Hadrianic construction of its stone successor (Potter 1979a, 177). It is now widely accepted that the initial permanent military occupation of the Lake District did not occur until c.AD 90 or later, after the withdrawal of Roman forces from much of Scotland following the Agricolan advances (eg Hanson 1987, 161). A substantial reorganisation in the pattern of military occupation within Cumbria appears to have occurred during Hadrianic times (eg Potter 1979b, 197). Definition of the date of construction of the two successive forts at Ambleside has contributed towards the development of this general hypothesis.

The established annotation of 'Galava' as the Roman name for the fort at Ambleside has recently been challenged (Shotter, in Potter 1979a, 315-20), and use of this term is therefore avoided in this report.

2.1.2 Nature and extent of the *vicus*

The *vicus*, or extramural civilian settlement, is known to lie to the east and north of the fort. Collingwood's excavations revealed the first definite traces of its existence in Borrans Field to the north of the fort (1921, 13-4). These comprised the remains of a road flanked by an extensive area of 'floor-levels'. Pottery recovered from these deposits was of 2nd and 3rd century AD origin.

More recently, a substantial area of buildings and occupation deposits associated with the *vicus* were revealed to the east of Borrans Road and to the north-east of the fort (Burkett 1965). The decorated Samian ware recovered from this excavation was restricted to first and second century AD forms

(Hartley and Pearce, in Burkett 1965, 93-97). A cremation jar dating to c.AD 80-130 was found in the same general area in 1962 (Burkett 1965, 88). A number of watching briefs were carried out during the 1960s and 1970s along and beside Borrans Road; the results of these have been published only in brief (Burkett 1977). Evidence of Roman buildings, roads and occupation deposits were identified at various points beneath Borrans Road by this work. Walling has been observed in the lake-side to the south-east of the fort, suggesting that dock facilities were present here (information from Schedule List).

Recent archaeological investigations within the *vicus* have comprised limited excavation and watching briefs to the north of the fort, beneath Borrans Road and adjacent fields; these operations were necessitated by the widening of Borrans Road in 1982 (Leech, forthcoming) and the laying of a service trench in 1991 (LUAU, 1992). Remains of an extensive *vicus*, including timber-framed buildings and industrial activity flanking the road issuing from the north gate of the fort, have been recorded. This work suggests that the northern limit of the *vicus* was defined by a c.7m wide, military-style defensive ditch (Leech, forthcoming). The extent of the *vicus* is not known in other directions, although it may have been initially concentrated beside the roads leading north and east from the fort and subsequently expanded. Lake Windermere and the River Brathay would appear to form natural southern and western limits to any such expansion.

2.2 Circumstances of current fieldwork

The fieldwork which forms the subject of this report is related to the laying of new gravity foul sewers at Waterhead and Borrans, Ambleside, and the re-laying of 630m of existing gravity sewer between these two locations (Fig. 1). All but the northernmost c.15m of this route lies beneath Borrans Road. Approximately half the length of the route lay within the scheduled area of the Roman fort, associated *vicus* and Roman road. The gravity sewer was to be laid at depths varying between 1.5m and 3.5m.

Recent linear developments detailed above have been concentrated to the north of the fort, whereas the Ambleside Sewerage Scheme project extended from the north-east to considerably beyond the south-east of the upstanding fort. This project therefore allowed observation of the nature and extent of any archaeological remains within the *vicus* in an area which had previously not been examined in any detail.

2.3 Geology and topography

The solid geology of the Ambleside area comprises Ordovician tuffs, with small areas of extrusive rhyolite and andesite lavas. This is detailed on the 1980 Institute of Geological Sciences survey (Lake District). The drift cover comprises a complex stratigraphic sequence of fluvial clays, sands and silts within the area of the head of Windermere lake.

Borrans Field is a relatively low-lying area containing a number of rocky knolls. Trench 1 lies on the eastern side of one such knoll occupied by Borrans Barn. Borrans Road runs southwards past the eastern side of the fort on relatively level ground before traversing a spur and descending almost to water level beside the head of Lake Windermere. The level of the road then rises southwards.

3. WORKING METHODS

3.1 General

Archaeological fieldwork comprised three elements:

(a) Hand excavation of five trenches which lay within the scheduled area (Trenches 1-5, Fig. 2).

(b) An archaeological watching brief of the remainder of the development area which lay within the scheduled area (NGR: NY 3747 0333 to NY 3730 0360, Fig. 1).

(c) An archaeological watching brief of the development area which lay outside the scheduled area (NGR: NY 3770 0315 to NY 3747 0333, Fig. 1).

3.2 Hand excavation

Five trenches were excavated by hand between 25 January 1993 and 5 March 1993 (Trenches 1-5, Fig. 2). Their approximate positions were detailed in the brief supplied by SLDC, and their precise locations were marked on the ground prior to the commencement of fieldwork. The positions of the trenches were coincident with that of the pipeline trench. Trench 1 lay in the extreme north-eastern corner of Borrans Field, and was 10m long. Trenches 2 and 3 were cut through Borrans Road and were c.20m long, and Trenches 4 and 5, also cut through Borrans Road, were each c.5m long. All excavation in Trench 1 was carried out by hand. For Trenches 2-5, the road surface and foundation deposits immediately beneath it were removed by earth-moving machinery operating under close archaeological supervision. After removal of this material at Trench 4, the exposure of a service pipe crossing the northern limit of the trench required the position of Trench 4 to be moved southwards by c.1m. Trenches 2-5 were surrounded by hoarding during excavation, and all trenches were backfilled by earth-moving machinery on the completion of excavation. Excavation and recording were carried out according to standard CFA procedures.

Each trench was 1.2m wide and excavated initially to a maximum depth of 1.2m beneath ground level, with test pits excavated to determine the nature of any archaeological deposits present beneath this level. Only in Trenches 1 and 4 were archaeological deposits preserved below this depth. In Trench 4 these deposits were recorded during the watching brief within the scheduled area (section 3.3). In Trench 1 the sides of the trench were secured by shoring, and excavation proceeded to a depth of c.1.8m. Further excavation was carried out along the pipeline to either side of Trench 1 as part of the watching brief within the scheduled area (section 3.3).

3.3 Watching brief within the scheduled area

Permanent presence monitoring of the excavation of the pipe trench was undertaken throughout the affected part of the scheduled area. The objective of this exercise was to observe and record any archaeological deposits exposed by excavation of the pipe trench in areas where prior hand excavation had not taken place. The archaeologist undertaking this task was able to enter the pipe trench as necessary before it was excavated to a depth greater than 1.2m. At depths greater than this the archaeologist was able, in consultation with SLDC,

CFA and SLDC that routine stoppages of construction of up to an hour in duration could be authorized by the archaeologist for the recording of important archaeological deposits. In the area between Trench 1 and Borrans Road a longer stoppage and the provision of additional archaeological support was agreed between CFA and SLDC, in order to examine in detail substantial stratified deposits.

3.4 Watching brief outside the scheduled area

Permanent presence monitoring was carried out during the excavation of the pipe trench outside the scheduled area. The code of practice adopted for this exercise was the same as for within the scheduled area (section 3.3, above). No stoppage of works exceeding one hour in duration was required.

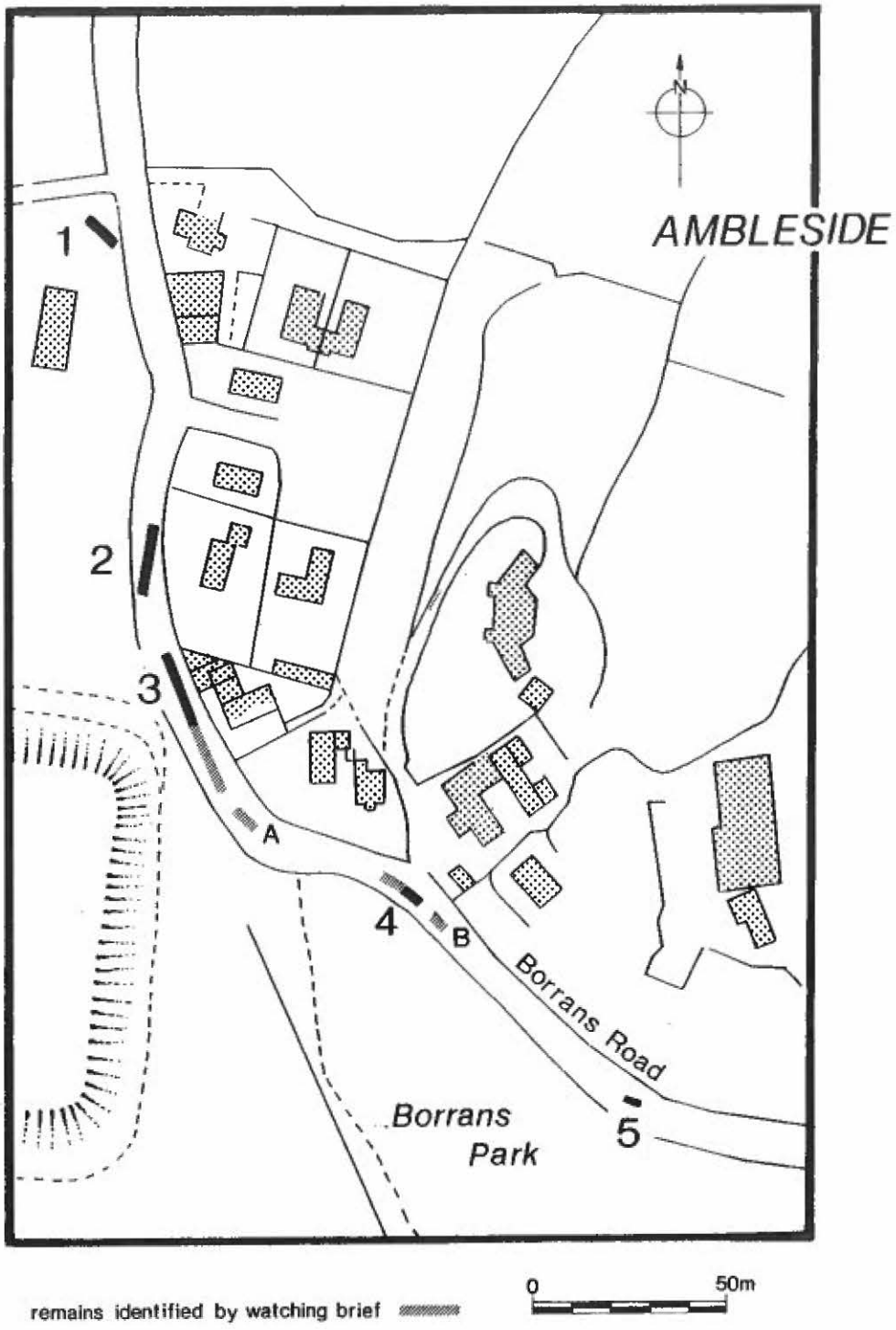

Fig. 2 - Trench locations and watching brief findspots

4. ARCHAEOLOGICAL RESULTS

4.1 General

The following sections provide accounts of the archaeological remains recorded during fieldwork. Each trench is considered separately, and the watching briefs collectively. The interpretations presented are based primarily upon the physical characteristics of the remains, and their stratigraphic relationships, as detailed in Appendix 1. Particularly in the case of Trench 1, future detailed analysis of the finds and environmental samples may require reconsideration or modification of these interpretations, and may provide new information. Numbers in parentheses in the following sections refer to context numbers allocated during fieldwork: these are discussed in detail in Appendix 1, and are annotated on the illustrations which accompany this text.

4.2 Hand excavation: trench summaries

4.2.1 Trench 1 (Figs. 3-8)

Trench 1 was located in the north-eastern corner of Borrans Field, c.115m north of the fort (NGR: NY 3732 0360, Fig. 2). It was orientated north-west to south-east, and measured 10m long by 1.2m wide. Excavation was initially undertaken to a depth of c.1.2m. The sides of the trench were then shored and excavation proceeded to a depth of c.1.8m. The trench was extended c.4m to the north-west and c.1.5m to the south-east under the watching brief arrangements for the recording of archaeological deposits. To the north-west all deposits were removed by machine; to the south-west the uppermost 1.2m were removed by machine and deposits below this excavated by hand. A complex sequence of archaeological remains associated with the *vicus* were located within this area.

Five structural phases of activity were identified within the remains present. Deposits c.1.8m deep were excavated. Assessment of the pottery recovered from this trench (section 5.2) suggests that this activity relates to second and possibly third century AD occupation of the *vicus*. Trench 1 appears to contain the western side of the main road issuing from the north gate of the upstanding fort and a limited area of land immediately beside it. This road appears to have been repeatedly rebuilt or repaired, and its width appears to have varied. The exposure of the remains flanking the road was too limited to allow any detailed assessment of their function, although a building of unknown form appears to have been present on two separate occasions. Analysis of the artefacts and soil samples collected from this trench may allow a more detailed understanding of the remains exposed.

Phase 1 (Figs. 7-8): The earliest activity within Trench 1 comprised one, or possibly two successive, attempts to provide a raised trackway above marshy ground. A compacted layer of timber off-cuts and twigs (070) with a mat of bracken above it (058) were laid directly above a putative marsh soil (074). A number of birchwood stakes (088-092) had been driven through the bracken mat; these were overlain by a layer of small branches and twigs, some of which had clearly been trimmed (065). A layer very similar to marsh soil 074 lay directly over these elements of the trackway, suggesting that it had become submerged and had fallen out of use.

A series of thin deposits 0.25m deep lay above this, and have been attributed to Phase 1. Their origin is unclear. The only feature present within these

deposits was a bowl-shaped pit containing a quantity of pottery, mostly from a single vessel.

Phase 2 (Figs. 6-8): This phase comprised principally four upright wooden piles located in the centre of Trench 1 (079, 080, 076, 085), three of which were associated with a shallow, possibly rectilinear, depression (063). The posts formed no discernable pattern, and are undoubtedly part of a larger feature continuing beyond Trench 1. They were sealed beneath a continuous layer of pink clay, which is possibly a laid foundation for the subsequent Phase 3 road (055); the piles are therefore unlikely to be directly related to this road.

Phase 3 (Figs. 3-5): This phase was defined by the construction of a substantial stone foundation, probably for a road (048), upon only the southern part of which was a laid metalled surface (025, 044). The road appears to have been resurfaced (040). The north-west edge of the road was flanked by some form of physical boundary running from south-west to north-east. This boundary was visible as a linear channel (042) filled with stone rubble and mortar, which may represent the remains of a wall. To the north of this two artefact-rich layers may be the remains of occupation or demolition material associated with a building which flanked the road (035-36).

Phase 4 (Figs. 3-5): The features of the previous phase appear to have been replaced by very similar structures. The southern part of the trench was occupied by a road at least 5.5m wide running from south-west to north-east (030, 021). As with its predecessor, there is some evidence of repair to this road (013, 014). A building foundation lay immediately to the north-west of the road (019). The remains of this building foundation were truncated and no associated floor levels or occupation levels survived.

Phase 5 (Fig. 3-4): The modern deposits comprised a series of garden soils (002, 003, 008), which were cut by a pipe trench (009). Almost all deposits at the northern end of Trench 1 had been removed by disturbance associated with the construction of Borrans Pumping Station (007).

4.2.2 Trench 2 (Fig. 9)

This trench was cut through Borrans Road, c.65m south of Trench 1 and c.25m north of the upstanding Roman fort (NGR: NY 3733 0352, Fig. 2). It was orientated north-north-east to south-south-west, and measured c.19.6m long by 1.2m wide. Excavation was undertaken to a depth of c.1.2m, with a number of test pits excavated beneath this level to a maximum depth of c.1.45m. No coherent deposits of archaeological significance survived in this trench.

A continuous layer of silty clay ran across the trench (204-7) directly upon the subsoil (203). Four prehistoric chipped stone artefacts were recovered from this level in the southern part of the trench (207). The absence of Roman finds from this level suggests that 204-7 may be explained as a prehistoric ground level. Discontinuous patches of a burnt deposit located in depressions in the surface of this layer may represent the heavily denuded remains of later, possibly Roman, occupation (208). However, no datable artefacts were recovered from these patches with which such an hypothesis could be substantiated. All deposits succeeding these were of modern origin.

4.2.3 Trench 3 (Figs. 10-11)

This trench was cut through Borrans Road, c.15m south-east of Trench 1 and adjacent to the north-east corner of the upstanding Roman fort (NGR: NY 3734 0348, Fig. 2). It was orientated north-west to south-east, and was excavated in two sections each c.9.3m long and 1.2m wide at the surface, separated by a central baulk c.2.5m wide. Battering of the ends of these two sections decreased their basal lengths to c.8.5m and 7.8m. Excavation was undertaken to a depth of c.1.2m, with a number of small test pits excavated beneath this level to a maximum depth of c.1.65m. Significant archaeological remains associated with the *vicus* were located in this trench. The features identified consist of a substantial stone spread, possibly a building foundation; a truncated feature lay c.1.5m north of it and a timber feature a further c.3m north of that. The stone spread had been laid directly upon a turf-line, whereas the timber feature may have been set into it. It is possible that all these features relate to a single phase of activity.

The earliest archaeological layers present were a buried soil and turf-line (306-7); these lay directly above the subsoil (308). Between 306 and 307 lay two pieces of charred timber (315 and 317), the larger (317) worked and laid horizontally on the surface of 307 and the smaller (315) placed at right angles to it. The pieces may belong to a structure which had been burnt in antiquity. However, it is equally possible that the timbers are redeposited. Although the timbers are sealed beneath the turf-line, it is possible that they were inserted through it, and that turf grew back over them after they were burnt.

A c.8m wide substantial stone arrangement, bonded by stiff clay, was identified by hand excavation at the southern end of the trench and by the watching brief adjacent to this (311). The stone feature appeared to have an abrupt end to the north, but no kerb was present: the south end was less clear due to the mechanical methods of excavation employed. The stones were unworked but formed a fairly even, compact surface. It appears to have provided a solid foundation, possibly for a road but more likely for a building similar to those identified by Burkett (1965).

A possible cultivated soil partly overlapped stone spread 311, and extended continuously to the north of it (305). A patch of charcoal-rich silt lay beneath 305 and on the surface of putative turf-line 306, c.1.5m north of the stone feature (312). It may be the remains of an archaeological feature or deposit truncated by ploughing associated with 305. The stone feature and adjacent cultivated soil lay directly beneath modern deposits.

4.2.4 Trench 4 (Fig. 12)

This trench was cut through Borrans Road, c.65m south-east of Trench 3 and c.60m east of the upstanding Roman fort (NGR: NY 3739 0344, Fig. 2). It was orientated north-west to south-east, and measured 5.2m long by 1.2m wide. Excavation was undertaken to a depth of c.1.3m, with two small test pits excavated beneath this level to a maximum depth of c.1.60m. Extensive archaeological remains associated with the *vicus* were located in this trench, and further deposits were recorded at the base of the trench during the watching brief. All deposits on the western side of the trench had been removed by the insertion of a modern water main (403-4).

A sequence of archaeological deposits was observed between c.0.6m and c.1.5m beneath the road surface. The earliest comprised a charcoal rich spread in the northern part of the trench (410), which was recorded during the

watching brief as extending southwards from the trench for c.4m (612). This may be the remains of a buried turf-line, although it was not continuous. A shallow depression lay to the north of this; this was possibly the truncated remains of a ditched feature (613).

Above the putative turf-line lay a layer of sandy clay (408). Concentrations of stones lay upon the surface of this layer (407). These appear to have been disturbed in antiquity. They may be the remains of a once-continuous floor level or building foundation. Sandy clay layer 408 may have been laid as a make-up deposit for this feature. Stone feature 407 was sealed beneath two silty clay deposits containing Roman pottery (409, 405). The latter was continuous and deep, and may be a buried ploughsoil. A thin patch of silt lay on its surface (412); it may have been truncated with the deposition of 402, a deposit also located in Trenches 2 and 3, and probably associated with the presence of Borrans Road. All deposits succeeding this were of modern origin.

4.2.5 Trench 5 (Fig. 13)

This trench was cut through Borrans Road, c.65m south-east of trench 4 and c.120m from the east gate of the upstanding Roman fort (NGR: NY 3744 0337, Fig. 2). It was orientated north-west to south-east, and measured 6m long by 1.2m wide at the surface. The ends of the trenches were battered inwards with depth, creating a basal length of c.5.2m. Excavation proceeded to a maximum depth of c.0.9m, with a test pit excavated beneath this level to a maximum depth of 1.2m. No deposits of archaeological significance were recorded in this trench.

A deposit of silty sand and gravel containing modern debris, including tarmac (503) was the only layer present between the modern road (500, 501) and the subsoil (504, 506). A water pipe ran along the south-west side of the trench (507). A further modern cut made through the road foundations was identified at the north-western end of the trench (508). Monitoring of this area during the watching brief indicated that no pipe occupied this cut. Its function remains unclear. All finds from this trench are of modern origin.

4.3 Watching brief within the scheduled area

The continuations of several deposits which had been recorded during hand excavation were observed during the watching brief. These have been discussed in the appropriate parts of section 4.2. In addition to these, two clusters of deposits and features were located which could not be physically related to those within Trenches 1-5. These clusters were rapidly cleaned and recorded primarily by photography.

A stone wall of substantial proportions was located c.26m south of Trench 3 (NGR: NY 3735 0346, Fig. 2, A). The wall (604) lay immediately below the foundations of the modern road, and ran from north-west to south-east. It survived up to 0.9m in height and rested on a surface of tightly-packed stones (607), which lay above two very compact layers (608, 609). These may represent a previous road surface. Roman pottery was recovered from the layers running beneath the wall. These remains indicate that a substantial building may be present in this area.

Two clay silt layers were observed beneath Borrans Road c.5m south of Trench 4, over a distance of 3.5-4m (614, 615; NGR: NY 3740 0343, Fig. 2, B). The upper deposit contained a quantity of abraded pottery. These layers

represent the badly truncated remains of archaeological activity of unclear origin.

4.4 Watching brief outside the scheduled area

No deposits of archaeological significance were located within this area of the watching brief. A French drain of pre-recent origin was identified adjacent to the Waterhead Hotel. It was constructed of large slate slabs.

A Victorian refuse tip was located on level ground to the south of Trench 5. It lay between the modern road foundations and the subsoil, c.0.5m below the road surface. The tip was 1.3m long and c.0.5m deep, and showed evidence of two phases of deposition.

4.5 Areas without remains (Fig. 2)

Between the edge of Borrans Field and Trench 3 no features associated with the *vicus* were identified; any such remains appear to have been removed by the construction of Borrans Road. A similar area without Roman features lay between Trench 3 and Trench 4; in at least part of this area the route of the sewer coincided with that of an existing service channel. The remains extending northwards from Trench 4 appear to have been contained within a slight depression, and petered out where the level of the subsurface rose to meet the level of post-Roman truncation. This patchiness of the remains beneath Borrans Road matches the observations of Burkett (1977).

To the south of Trench 4 and associated deposits no further Roman features were identified. This may be explained partially by the nature of the ground crossed by the route of the sewer. The spur of land to the south-east of the fort comprised bedrock at or near the surface, and road material had been lain almost directly above it in many places. It may be that the *vicus* did not extend southwards beyond this spur; however, it is also possible that all traces of the *vicus* have been destroyed beneath Borrans Road at Waterhead.

5. MATERIALS ASSESSMENT REPORTS

5.1 General

The following sections present an interim statement on the nature and potential for analysis of the major categories of artefacts and environmental samples collected during fieldwork. A separate assessment report has been produced for each material, and has been prepared with reference to Appendix 4 of *Management of Archaeological Projects* (English Heritage 1991, 32-3).

Of the various categories of materials, the potential for detailed analysis towards an evaluation of the aims and objectives outlined in CFA's Project Design is considered greatest for pottery, metals, timber and environmental samples. Leather and waterlogged wood are in the greatest need of careful conservation.

5.2 Pottery

Gordon D Thomas, Department of Archaeology, University of Edinburgh.

The total pottery assemblage from fieldwork associated with the Ambleside Sewerage Scheme consists of c.450 sherds (Appendix 2). Trench 1 has been subdivided, provisionally, into four structural phases as well as post-Roman deposits. These latter deposits must be fairly recent judging by the occurrence of modern glazed pottery, and so have been disregarded for present purposes. All sherds have been examined for an initial assessment although no attempt was made to section or subject to microscopic study any of the material. Only those pieces which are complete enough to be identifiable are, at present, being considered with smaller, more eroded sherds, being included only where their appearance or fabric type is singular. Numbers given after an authority refer to a vessel type from within their published corpus of work. The decorated Samian ware and the mortaria are described only, in anticipation of future specialist study. No potters' marks were found on any of the sherds.

The range of vessel types and wares represented in such a small assemblage is noteworthy with no one type predominating either in number of vessels or quantity of sherds. Ordinary coarse ware jars, bowls and flagons as well as kitchen vessels such as Black Burnished Ware cooking pots and mortaria; amphorae for storage; and fine wares such as Samian bowls, cups and dishes are represented. This suggests a general domestic rather than a military or specialised industrial site. The present state of most of the material is fragmentary and heavily eroded to the extent that the smaller sherds exhibit only a rounded, worn fracture with, in many cases, the surface completely removed. This is most notable in the orange wares, including the mortaria, and most of the Samian. The larger and more robust amphora sherds have survived in a better condition. Only Phases 1-3 of occupation in Trench 1 have produced sherds in a fairly uneroded condition with clear joins and intact surfaces. Some of the material from Trenches 3 and 4 has been burnt and from Trench 4 also comes a glassy vitreous material adhering to burnt clay lumps.

The integrity of the assemblage appears, on the whole, to be good apart from two anomalies. A silty patch, 022, underlying the boulder feature of Phase 4 in Trench 1, 019, has produced one small modern sherd; this feature may have been contaminated at some time in the past. Slightly more problematic is the appearance in deposits of Phase 3 in Trench 1, boulder feature 041/048, of a

BB(?1) flanged bowl normally thought to have appeared in the north only after 200AD (cf Gillam 229/230, Farrar 57).

Apart from these two instances all the material fits well within a second century AD date range. The rim and handle of a common globular South Spanish amphora, Dressel 20, of the mid second century AD comes from the Phase 3 occupation in Trench 1 (046) and from below it, in 041/048, comes the complete rim of a Callender 8 amphora in an orange fabric with a cream slip. Black Burnished Ware appears in all phases and is commonly represented by cooking pots of the short, squat variety with fairly short, thick everted rims sometimes with a slight or moderately beaded edge. This type is common in the second century AD and is unlike later examples which are more elongated with pronounced cavetto rims (Swan 1978, 15). Several examples of dishes or small bowls with plain or slightly beaded rims are also represented. It is thought that both BB1 and BB2 types are present although this will require closer examination of the fabrics. Various small fragments of orange wares, one with a rilled exterior and one possibly rough cast, as well as examples of a fine thin, walled white fabric vessel and a sherd in a grey fabric with a cream colour coat, are also present.

Three examples of mortaria were recovered from the Phase 3 occupation in Trench 1, 046 and 041/048, and from Trench 3. All are badly eroded, and are in a smooth, light orange/buff fabric with multi-coloured triturition grits. Only part of one rim is preserved.

The majority of the Samian ware comes from the decorated bowl, Dr 37, in varying sizes. Fragments of the bowl/dish Dr 18/31, the barbotine decorated cup or dish, Dr 36, and the cup, Dr 33, are also represented. One small, badly preserved fragment appears to be of a tiny, fine closed jar. The majority of the Samian is of a soft, fine, light orange fabric with a bright orange surface which is easily eroded and worn. A dull, orange/greyish fabric in a harder material with a better preserved glossy red surface is also found. This is represented by two vessels in Dr 37 and Dr 33 in trench 3 and from a Dr 37 bowl with an ovolo and a hare running to the right from phase 3 in Trench 1, 041/048. The decoration on the bowls of Dr 37 in the softer fabric is generally badly worn and difficult to distinguish although the ovolos are identifiable. Figures can be made out and in three cases scenes or elements appear. A lion or dog leaping to the right towards three "feathered" stalks; a bird (?) in a medallion beside a tripod (?) between borders; and two animals (lions/dogs) leaping to the left and right, one below the other; are noteworthy. The ovolos and borders as well as the figures and arrangements appear to fall within second century AD Central Gaulish traditions.

The dating, nature and supply network of this part of the site can be confirmed by such an assemblage. The general physical condition of the material, extent of wear or burning, also gives some indication of the type and formation of the deposits in which it occurs. Further information about industrial activity may well be gleaned from a study of the small amount of vitreous material from Trench 3. Further study of the Samian pottery and a more thorough examination of the coarse wares may produce or confirm associations between different types or wares which will be of interest on a regional level.

5.3 Metals

Surindar Mann

Factual data
An assemblage of two hundred and ten (210) metal pieces was recovered during fieldwork undertaken as part of the Ambleside re-sewering project. Many objects are badly preserved and are represented by several corroded fragments. All stratified metal was collected. Metal from a pre-recent context (600) identified during the watching brief was sampled, and is therefore under-represented within the assemblage as a whole. A brief description and the provenance for these finds is given in Appendix 3.

The majority of metal finds were collected from Trench 1. Within this trench, three objects came from modern contexts and the rest were recovered from stratified Roman deposits. A surface find of two modern nails was made in Trench 2, and five nails were recovered from an archaeological horizon in Trench 4 (405).

The assemblage from Trench 1, excluding the modern pieces, consists of eighty one nails of various sizes and in some cases represented by the nail-head alone, twelve hobnails, one lead slingshot, two pieces of possible slag, three possible blade fragments, and 95 unidentified pieces. From these unidentified pieces, three objects located on the surface of context 021 are represented by twenty five, twenty and nine, and nineteen fragments, respectively. Another fragmented object was found on the surface of context 048 in twelve pieces.

Statement of potential
The potential for analysis of the metal assemblage is limited but there is some scope for further work on certain finds. For example, it would be worthwhile to X-ray and/or clean some of the unidentified objects such as those found on the surface of contexts 021 and 048. These features relate to a previous road surface and the finds may reflect specific types of activity.

The nails and hobmails are clearly identifiable, and require no further work other than perhaps making a detailed study of a small sample. It would be advantageous positively to identify the two pieces of slag as they could reflect metalworking activity in the area. It may be worthwhile to compare the lead slingshot with others found in the area (such as those recorded by Burkett 1965).

It will be necessary to compile a detailed catalogue of the finds and perhaps illustrate some of the better preserved pieces for future reference.

Storage and curation
The metal finds have been lightly cleaned, wrapped in acid-free tissue paper and stored in self-sealing polythene bags with silica gel. These bags are being kept in a stout cardboard box. This method of storage is thought to be adequate in both the long and the short term. Dry, long term storage conditions are advisable.

5.4 Brick and tile

Andrew Dunwell

Factual data
Twenty six (26) pieces of brick or tile have currently been identified within the assemblage of artefacts recovered during fieldwork associated with the Ambleside Sewerage Scheme project. This figure may rise with detailed analysis of the pottery assemblage, as further small pieces of brick and tile may then be identified.

Much of material derives from stratified Roman levels associated with the *vicus* beside the Roman fort at Ambleside. The possibility that this material has been introduced as contaminants is low. Five pieces are from post-Roman contexts: of these three are of modern origin (005, 600), and one may be a redeposited Roman artefact (Trench 3, unstratified). The observed assemblage, and the provenance of the pieces which form it, are outlined in Appendix Four.

Most of the stratified Roman assemblage is of brick (19 pieces). Most of this (17 pieces) is in a dull, hard red fabric; the remainder is in a softer, yellow-red fabric. Most of the pieces are irregular in shape, with few original edges present. Three pieces of tile are present; one of these (026) has an incised lattice pattern which is typical of box-flue tiles. The condition of the assemblage is generally poor and fragmentary.

All observed stratified examples of brick and tile were collected, whereas those from modern contexts were sampled, and are under-represented within the assemblage as a whole. The recovery rate of materials from those areas monitored by watching brief is likely to be relatively less comprehensive than from trenches excavated by hand.

Statement of potential
The potential for analysis of the brick and tile assemblage is limited. A detailed catalogue should be produced, with identification where possible of the types of brick and tile present. Illustration of the incised piece of tile should be carried out. Photographic recording of the pieces is not considered worthwhile. The stratigraphic context of the discoveries should be carefully considered as an aid to interpreting the structural sequence present, with particular reference to Trench 1.

Variations in the physical make-up of the tile and brick pieces may be of local significance. The materials from this excavation could be compared to those of previous projects at Ambleside (outlined in section 2.1). It is possible that different materials were used at different times (and possibly derived from different sources) during the life of the *vicus*: examination of material from the range of previous work may identify patterns within the data.

Storage and curation
The material has been cleaned, and is currently stored within sealed polythene self-sealing bags within a stout cardboard box. This method of storage is considered to be adequate in both the short and long term; dry long term storage conditions would be appropriate.

5.5 Glass

Andrew Dunwell

Factual data
Twenty (20) artefacts of glass were recovered during fieldwork carried out as part of the Ambleside Sewerage Scheme. Of these, fifteen are definitely modern in origin, and a further piece is probably modern. Only this final piece was recovered from an apparently securely stratified Roman deposit (036); its presence provides possible evidence for contamination. The four pieces of Roman or probably Roman glass were recovered from stratified contexts within Trench 1 (016, 023, 033, 035), and comprise three shards of vessel glass and a fractured blue glass bead.

All observed stratified pieces of glass were collected, whereas those from modern contexts identified during the watching brief were sampled, and are under-represented within the assemblage as a whole. A preliminary catalogue of glass artefacts is presented as Appendix 5.

Statement of potential
All but one of the fifteen modern pieces of glass are small body shards of vessel glass. No worthwhile further work is envisaged in regard to this material. The other modern piece was an intact, smoothed blue-green bottle with the legend "Dinneford's...fluid...magnesia" visible on one side. This artefact is of no relevance to the study of the Roman *vicus*, but may be of local historical interest. Identification of the source and date of this bottle is suggested.

Three of the four Roman or probably Roman pieces are small shards of vessel glass. There is very little scope for detailed analysis of these artefacts beyond basic cataloguing: illustration and photography are not considered to be worthwhile recording techniques for this material. Comparison to other material recovered at Ambleside may aid identification of the type of vessels from which the shards derive. Identification of the date of the piece from 035 is of importance towards evaluating the evidence for archaeologically undetected contamination of stratified layers. Comparanda for the single glass bead recovered should be sought, and illustration undertaken.

Storage and curation
The objects of glass have been lightly cleaned, and are currently wrapped in acid-free tissue paper and stored within self-sealing polythene bags within a stout cardboard box. The intact bottle is packed separately in a small box. These conditions are considered adequate for both short and long term storage.

5.6 Chipped stone

Bill Finlayson

Factual data
A small collection of flint and chert (6 pieces) has been recovered from the Ambleside site. The small sample size has permitted examination of all pieces.

Four pieces are from Trench 2, context 207. One chert piece is a small opposed platform bladelet core, probably of Mesolithic date. Two pieces are from Trench 1, contexts 065 and 074. Both these contexts are low in the stratigraphic sequence (Block 7). 074 lies immediately above subsoil and

contains pottery, bone and leather. 065 is a coarse sandy layer with crisscrossing birch branches.

Most of the artefacts are slightly weathered or patinated, with the exception of the flint from 074, which appears very fresh.

Statement of potential
The chipped stone artefacts are probably all prehistoric and not related to the Roman occupation of the site.

The collection of artefacts from Trench 2 may indicate the presence of prehistoric activity within the area, possibly a Mesolithic site on the lake margins.

A catalogue of the chipped stone artefacts has been produced (Appendix 6). Apart from illustration, no further work is envisaged on this assemblage.

Storage and Curation
The artefacts are currently stored wrapped in tissue in self-seal plastic bags. This method of storage is adequate for both short and longer term storage.

5.7 Unworked bone

Nicola Murray, Palaeoenvironmental Research Group, Department of Archaeology, University of Edinburgh.

Factual data
A small collection of bone fragments has been recovered from 15 separate contexts. Given the small size of the sample, the entire collection has been scanned in order to assess its potential for preliminary identification and further analysis.

Most of the bone is highly fragmented and burnt. The material was collected by hand and many fragments are less than 1 cm in diameter. It is anticipated that large quantities of similar burnt bone will have been missed and could be recovered by sieving existing soil samples.

Statement of potential
The bulk of the collection consists of unidentifiable fragments and the number of specimens which are identifiable to element is very small (six). As most of the latter cannot be identified to species this collection offers very little potential for further research. Comparison of this collection with inter-related material is unlikely to yield further information of significance to local, regional or national research priorities.

Storage and curation
Most of the bone fragments may be safely curated in their existing bags provided that the bags are not completely sealed and that air is allowed to circulate. A few fragile specimens require to be dried gently and should be wrapped in acid free tissue. All the material should be packed in a rigid container.

5.8 Leather

Andrew Dunwell

Factual data
Four pieces of waterlogged leather were recovered from the basal deposits of Trench 1 (Appendix 7). They relate to Phase 1 of activity. Ms Naomi Tarrant of the National Museums of Scotland has provisionally identified three of these pieces as shoe leather, with the fourth as possibly from an object such as a bag or scabbard (pers. comm.). One of the pieces has a pattern of perforations.

In addition, pieces of a modern perforated strap, possibly a horse fitting, were recovered during the watching brief.

Statement of potential
Identification, illustration and conservation of the waterlogged leather pieces are considered the major aims of further work. Identification of these pieces may aid interpretation of the contexts from which they were recovered. These finds have an importance at no more than the local level.

Storage and curation
The four pieces of leather from Trench 1 are currently held by the conservation laboratory of the National Museums of Scotland, Queen Street, Edinburgh. They are to be freeze dried.

5.9 Timber

Rob Sands, Department of Archaeology, University of Edinburgh.

Factual data
All the wooden material apart from two pieces comes from Trench 1. The observed data set consists of 22 pieces of worked and possibly worked wooden material (detailed in Appendix 8), varying in size from small fragmentary pieces to the remains of a post (0.40m long by 0.15m wide).

Most of the pieces were securely stratified, with a number of the pieces clearly recovered *in situ*. The *in situ* material falls into two main groups. The first group contains the remains of at least two fairly substantial squared timber posts (076 & 079). These were sealed by a layer of pink clay silt some 0.2m in depth that covered the entire trench (055). This has been provisionally interpreted as a foundation layer for road 048. The post-holes containing the material clearly cut through layers overlying 058, which contained a piece of Samian ware. The second group is a series of five worked stakes (the largest 0.30m long by 0.06m in diameter). These pieces were driven through 058.

Further wooden material, related to the first group, was noted in the section wall of Trench 1, indicating that this feature extends beyond the trench boundary. This material remains *in situ*.

Statement of potential
The condition of the material ranges from very poor to good. The poorest material is very fragmentary and very little information can be gained from it (eg 081). The best piece (squared post 079) was given a brief examination, including light cleaning of a small area. This showed relatively well preserved axe facets both on the base of the piece and along at least one of the faces. Preservation of surface detail is not good enough for tool mark 'signatures'

(striations left by damaged axes) to survive fully, but faint traces are present. The top part of this timber has completely degraded.

The condition of the stakes is not as good. Although axe marks survive on some of these pieces, they have obviously suffered from fluctuating water levels (French & Taylor 1985). Cell degradation and radial splitting is apparent. Future work should involve basic recording of the worked pieces, following Coles (1990), and including drawings, photographs and species identification. The guidelines produced by Crone and Barber may prove relevant to the interpretation of these pieces (1981). Closer examination should be given to pieces such as 076, with careful recording of tooling.

None of the pieces are appropriate for tree-ring examination. Post 076 is possibly large enough, but has been identified as alder (*alnus* sp.) and no sapwood is present.

Storage and curation
None of these pieces is particularly worthy of retention apart, perhaps, from post 076 and one of the better preserved stakes. Both of these should be stored by being kept submerged, cold, dark and sealed. Before discard of any pieces, careful note should be made of all the criteria outlined by Coles (1990, 15, section 12).

Note (Andrew Dunwell)

In addition to the timber pieces assessed in the above report, bulk samples of twigs and possible off-cuts were taken during excavation of Trench 1 (065, 070). This material should be analysed in conjunction with the timber pieces above.

5.10 Environmental samples

Geraint Coles, Palaeoenvironmental Research Group, Department of Archaeology, University of Edinburgh

Factual data
Samples of sediments and soils from the site are listed as Appendix 11. Field notes and sketches of selected sections are to be integrated with archaeological descriptions in discussion with the site supervisor.

Statement of potential
The palaeoenvironmental aspects of the project are intended to produce evidence on the local environment and economy of the Roman fort and *vicus*. The tools employed will include sedimentological, plant macrofossil and palynological analysis. The following research questions could be addressed.

1) What was the local (depositional) environment represented by the sediment units? How did the sediment units form? How did this local environment change over time, especially as a result of human activity? Of particular importance here is the question of the level of Lake Windermere, the position of the water front in relation to the fort and the palaeohydrology of the rivers entering the lake at this point.

2) What was the composition of the local and regional vegetation communities at the time of the site's occupation? What evidence is there for anthropogenic modification of this preceding or during occupation? Was the appearance of fort and *vicus* accompanied by a detectable change in agricultural practices?

3) What evidence is there for the subsistence economic activities of the fort and *vicus*? In particular, to what extent was the Roman diet dependant upon non-local, imported food staples?

Program of research
Work could proceed in 2 stages:

a) Trial examination of 10 samples to produce a preliminary report. It is suggested that these 10 include S53, S55 or S60, S65-67, as defined in Appendix 11.

b) Examination of up to 30 additional samples to produce a full report. The size of this stage is dependant upon the results achived by the preliminary processing detailed above.

In both cases the methods employed will be the same:

1) Characterisation of the physical and chemical properties of the soil or sediment - organic matter content by loss on ignition, pH, calcium carbonate content, phosphate content by spectrophotometer, colorimetry, texture (particle size analysis).

2) Recovery and identification of plant macrofossils by wet sieving and microscopic examination.

3) Pollen analysis.

Potential value
The presence of waterlogged plant macrofossils directly associated with the construction of Roman features has considerable potential. The conditions for the preservation of pollen are potentially very good. No unburnt bone remains were noted and conditions for bone preservation are poor.

The site may have considerable value as a record of local environmental change during the occupation of the fort. However, the context of many deposits as road make-up does pose considerable problems with regard to the taphonomic history of the remains. In this respect the remains are unlikely to be of more than local significance and are unlikely to throw much light on question 3 above.

Storage and curation
Samples should be stored in cool, dark conditions. Kubiena tins should be kept refrigerated until examined.

Long term - Samples of the Pteridium 'mat' should be freeze dried. Plant macrofossils should be examined and then discarded. Palynological slides and voucher samples of sediment should be stored in an archive.

6. INTERIM EVALUATION AND ASSESSMENT OF POTENTIAL

6.1 General

Assessment of the implications and importance of the results of archaeological fieldwork at Borrans Road best awaits completion of a detailed post-excavation programme relating to the artefacts and environmental samples collected during fieldwork. A few interim statements may be made, however.

6.2 Extent and date of the remains

Three clusters of remains associated with the *vicus* were identified. These lay at Trench 1, at Trench 3 and continuing to its south, and Trench 4 and continuing to its north (Fig. 2). Preliminary assessment of the pottery assemblage from these areas suggests that much of the remains identified relate to second century AD occupation of the *vicus*. There seems to be little evidence for substantial third or fourth century AD activity. A number of *vici* in North-West England, such as Watercrook, Manchester, Lancaster and Ribchester, do not appear to have been occupied beyond the late 2nd or early 3rd century AD (Shotter 1984, 45). The presence of substantial foundations and timber piling suggests that waterlogging may have been a problem for the inhabitants of the *vicus* at Ambleside. Traces of a substantial stone building were identified to the east of the fort. This may be a building of some communal importance, such as a bath-house or *mansio*, rather than a dwelling house or shop, these latter often represented in *vici* by timber-built strip houses.

6.3 Limitations of the data

Preservation of remains beneath Borrans Road is patchy. Towards the northern end of the sewer alignment, between Trenches 1 and 3, the construction of Borrans Road appears to have removed Roman levels. No remains of the *vicus* were located to the south of the Trench 4 area. This may reflect either destruction of the remains or the fact that the *vicus* did not extend this far to the south.

It is important that the results of current fieldwork are evaluated by reference to those of previous exercises. The data recovered to date regarding the Ambleside *vicus* result from a patchwork of limited excavation and monitoring which, when considered together, may provide a more representative view of the nature, extent and development of the *vicus* than would the results of a single such episode of fieldwork.

6.4 Future work

Detailed analysis of the samples, artefacts and stratigraphic data collected during fieldwork will address the following broad issues:

a) refinement of the chronology of Roman occupation at Ambleside,

b) establishment if possible of the activities represented by the physical remains recorded, and

c) establishment of the environment at the time when the *vicus* was founded, and, if possible, during its development and alteration,

A synthetic account of the results of this analysis will be produced for publication in conjunction with that of other recent work at Ambleside.

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APPENDIX 1 - STRATIGRAPHIC ANALYSIS: PROVISIONAL REPORT

This appendix provides a provisional account of the stratification recorded in the five trenches excavated by hand and for a further two areas of remains associated with the *vicus* identified during the watching brief.

For all but Trench 1 a simple matrix diagram is presented to illustrate the sequence of deposits recorded. Each matrix diagram details the stratigraphic relationships observed during excavation, with the earliest deposits or features at the base of the diagram and the latest at the top. Features and deposits which are not physically connected but which are believed to be contemporary are placed at the same level within the matrix diagram.

In the case of Trench 1, the large number and complexity of deposits recorded necessitate that stratigraphic description be subdivided into seven stratigraphic blocks. The relationships between these blocks are illustrated as a block matrix diagram.

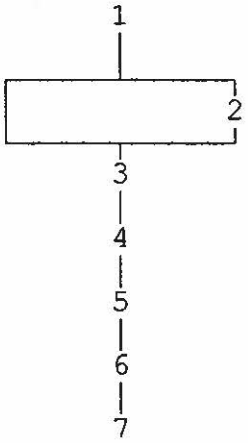
TRENCH 1 (Figs. 3-8)

Introduction

Trench 1 was located in the north-eastern corner of Borrans Field, c.115m north of the fort (Fig. 2). It was aligned north-west to south-east, and was 10m long by 1.2m wide. The trench was excavated by hand to a depth of 1.2m below ground surface, and the results of this are represented by Blocks 1 to 4 in the Block diagram.

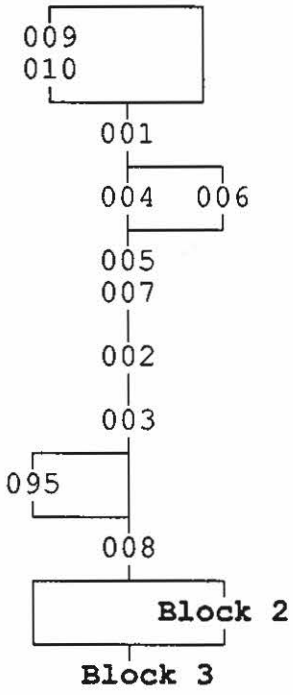
Hand excavation beneath a depth of 1.2m revealed that archaeological deposits were present to a depth of c.1.8m. Under the watching brief arrangements for the recording of archaeological deposits, the trench was extended c.4m northwards to the edge of Borrans pumping station, and also c.1.5m southwards to the wall bordering Borrans Road. The northward extension revealed the full extent of disturbance associated with the presence of Borrans Pumping Station. Deposits within 1.2m of ground level in the south-east extension were removed by machine under close archaeological supervision. Deposits excavated below a depth of 1.2m extended from the edge of Borrans Road to c.8.2m from the south-east end of Trench 1. All excavation at this depth was carried out only after the trench walls had been secured by the insertion of shoring. Excavation at a depth greater than c.1.2m is represented by Blocks 5 to 7 in the Block diagram.

Block matrix diagram



Block 1	Modern deposits: Phase 5
Block 2	Construction of building: Phase 4
Block 3	Second phase of road construction: Phase 4
Block 4	Initial phase of road construction and possible building: Phase 3
Block 5	Arrangement of timber uprights: Phase 2
Block 6	Phase 1 occupation (undefined)
Block 7	Timber stakes and associated deposits: Phase 1

Block 1 - Modern deposits (Figs. 3-4)



Context descriptions

009 A recent water pipe set in a mid-greyish brown sandy clay ran north-south across the south-east end of Trench 1. The fill was a mixed deposit made up from the surrounding layers which had been disturbed.

010 The edge to the cut for pipe 009 was difficult to define due to the similarity between its backfill and surrounding deposits. It was approximately 1.8m wide and 0.6m deep, with a U-shaped profile and a rounded base. It ran in a north-south direction.

001 The topsoil and turf was 0.1m deep. The topsoil comprised a dark brown sandy-silt containing 10%-20% pebbles. It had been disturbed by cut 010.

004 The uppermost fill of cut 007 consisted of compacted modern building rubble, crushed building material such as brick and tile, broken bricks and slate, and 40% small pebbles and gravel. The base of this fill was not reached by hand excavation as it lay below a depth of 1.2m. An approximate depth of 3 to 4m was noted during the watching brief. Accurate recording of its full depth was precluded by safety considerations.

006 A modern clay pipe of diameter 0.22m ran SW-NE within cut 007, and projected from the south-west trench wall. Further excavation revealed it to be a discarded length of pipe within fill 004.

005 This fill of cut 007 was sealed beneath 004 and consisted of a mottled, grey clay containing patches of degraded cement, crushed brick and tile and decayed organic material. It slumped from the south-east edge of cut 007 towards the base of the cut; its full depth, as for 004, was not accurately recorded due to safety considerations.

007 This cut is associated with the construction of Borrans Pumping Station. The cut sloped downwards gradually from the south-east to north-west, towards the pumping station. Its full depth was not established by excavation. It was noted, but not recorded fully, during the watching brief that the cut was approximately 4m deep.

002 This layer of black, charcoal-rich silty sand extended from the south-east end of Trench 1 for up to c.1.8m. It contained 70% cinders, 15% small stones and was 0.05m in depth.

003 A level deposit of brown/grey sandy silt extended from the south east end of Trench 1 for approximately 1.8m, and was up to 0.3m deep. It contained post-medieval pottery.

095 This was a 0.1m deep layer of pebbles and cobbles set within a grey/green sandy matrix. It was detected only in the north-east facing section, where a length of 0.5m was detected. It lay directly above 008, and appeared to fill a depression or cut.

008 This was a fairly compact, medium grey silty sand containing 5-10% large subangular stones and occasional charcoal flecks. It extended from the south east end of the trench for 6.4m, where it was cut by 007. It was up to 0.35m deep.

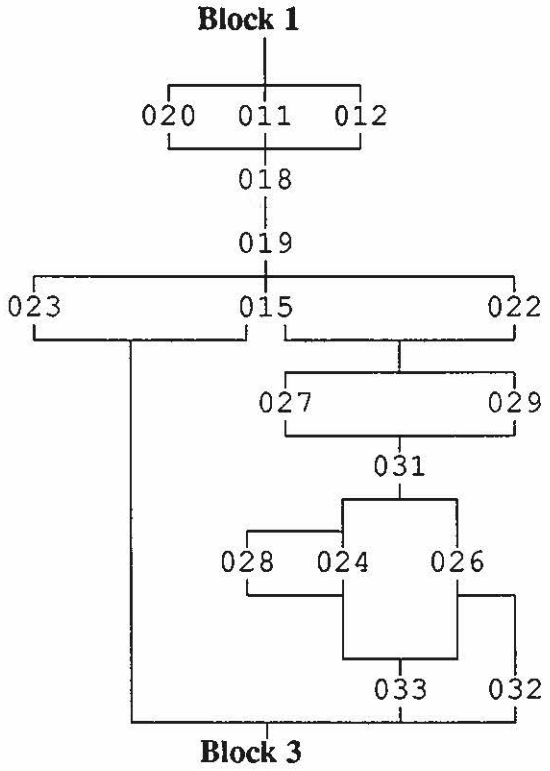
Interpretation

All deposits within Block 1 are of modern origin. This is indicated by the modern artefacts which were recovered from them. The total depth of this modern material was c.0.6m, except for the cut associated with Borrans Pumping Station (007), which was c.4m deep. Block 1 contexts are provisionally interpreted as representing the fifth phase of activity identified within Trench 1.

A series of two humic garden soils (008, 003) and a layer of cinders and other burnt material (002) were present directly beneath the topsoil and turf (001). The lower garden soil (008) formed a continuous layer, whereas the upper occurred only at the south-east end of the trench. This may reflect greater accumulation of material beside the wall bordering Borrans Field. The high gravel and pebble content of these layers may have resulted from the incorporation of material disturbed from Roman surfaces preserved beneath them. A narrow pocket of green gravel (095) appeared to have been cut into 008, and possibly may have been a drainage feature.

Two recent features truncated these modern deposits. All archaeological deposits within c.4m of Borrans Pumping Station had been removed by activity associated with its construction. A large, gentle-sided cut was present (007); this was filled by grey clay (005) and an infill of rubble and waste building materials (004). A recent water pipe (009/10) traversed the south-east end of the trench, running east to west. Evidence for cutting of the turf above this feature suggests very recent activity. It also cut through the southern extent of the cut for Borrans Pumping Station.

Block 2 - Phase 4 building and associated deposits (Figs. 3-5)



Context descriptions

020 This patch of light brown/grey, clay silt overlay 018 and was sealed directly beneath 008. It contained 10%-15% small stones and occasional iron staining, and was up to 0.05m deep. Its extent was irregular, with maximal dimensions of 1.04m south-west to north-east by 0.56m south-east to north-west.

011 This patch of a medium grey/brown sand had a coarse and gritty texture, and contained 10% small stones. It overlay the south-eastern end of 019. Its dimensions were 0.9m by 0.8m, with a depth varying from 0.02m to 0.15m.

012 This was an area of material similar in composition to 011, although slightly grittier and darker in colour. It contained c.20% stone. It extended over the north-east side of 019, with maximal dimensions of 2.2m by 1.2m and a depth of c.0.05m.

018 Immediately above and between the larger stones of 019 were several patches of grey/yellow mortar. These patches were partly sealed beneath 011 and 012, but not 020.

019 This stone spread consisted of tightly packed, large angular and sub-angular stones (varying in size from 0.2 to 0.4m in dimensions). It ran through the trench with a width of c.4m, and appeared to be orientated approximately east to west. The stones did not form a level surface. This feature was truncated to the north by 007 (Block 1). Its southern edge was clear, but was not defined by a wall or kerb.

015 This band of light brown/grey silty clay ran across the trench beneath 019 from west to east. It contained occasional charcoal flecks and less than 5% small stones. It was 1.8m wide and up to 0.15m deep.

022 This sub-circular patch of material was similar in composition to 015, and lay to its south. It measured 0.7m by 0.9m and was 0.1m deep.

023 This irregular patch of silty clay was similar to 015 and 022, but with a coarser texture. It measured 1.1m by 0.8m, and lay to the south of 022, and directly overlay Block 3 deposits.

027 A clearly defined linear band of medium grey, sandy silt delineated the boundary between contexts 024 and 026, and filled 031. It ran diagonally across the trench from east to west for 0.45m. It was 0.06m wide.

029 A linear band of medium grey-brown sandy silt, measuring 0.17m by 0.06m, ran on the same alignment as 027, to its north-west, and delineated the boundary between 024 and 026. It was also a fill of 031, and was 0.04m deep.

031 This was a shallow cut containing 027 and 029. It became less clearly defined to the west. It was 0.8m long and 0.04m deep.

024 This layer was a mottled mid grey/brown, sandy silt and orange red burnt clay. It contained 5% burnt bone, frequent charcoal flecks and occasional small stones. It ran through the trench from east to west in a band c.1.8m wide and c.0.05m deep.

028 This was a medium grey coarse sandy silt lense containing occasional charcoal flecks. It occurred as a triangular patch within 024. It had an average depth of 0.05m and measured 0.3m by 0.36m.

026 This was a mottled layer of light grey, silty clay with occasional charcoal and red burnt clay flecks. It was 1.7m long and 1m wide, with a depth of 0.05m, and ran in a band from east to west. It lay to the north of 024, from which it was separated by 027 and 029. The northern limit of this layer had been removed with the excavation of cut 007 (Block 1).

032 This was a poorly defined c.0.25m wide band of burnt material which extended across the trench from south-west to north-east. It consisted of a mid grey-brown, sandy silt with frequent inclusions of red burnt clay and charcoal flecks. It was 0.02m deep, and was sealed beneath 026.

033 This was a mid-brown, sandy silt layer which contained occasional charcoal and burnt clay flecks. It measured 2m east to west by 1.7m north west to south east, and was 0.04m deep.

Interpretation

General - The deposits which comprise Block 2 detail the deposition of a number of thin layers of occupation waste, upon which a substantial stone platform was laid (019, Fig. 5). This feature possibly represents the foundation of a building. Silt deposits survived on the surface of 019. The lower deposits within this Block ran from east to west, roughly parallel to the alignment of the road surfaces present within Block 3. Block 2 deposits lay directly above those of Block 4, and abutted those of Block 3 to their south. They had a total length of c.4m and depth of c.0.3m. The upper deposits were truncated by post-Roman activity (Block 1), and their northern limit had been removed by the cut associated with Borrans Pumping Station (007, Block 1),

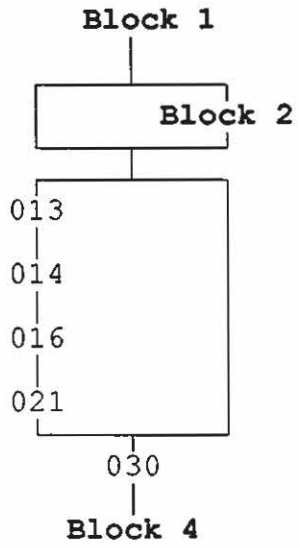
making definition of their precise alignment unclear. Block 2 deposits are provisionally identified as belonging to the fourth phase of activity identified in Trench 1.

Building - Context 019 was a c.4m wide substantial stone arrangement, the northern limit of which had been removed by cut 007 (Block 1). Its surface was covered by discontinuous patches of a mortar-like substance (018). It is unclear whether this represents the *in situ* remains of a bonding agent as opposed to redeposited material. The stone spread and mortar were mostly sealed beneath patches of silt and gritty sand (011, 012, 020) which may once have formed a continuous layer. These patches lay immediately beneath a post-Roman layer (008, Block 1).

The appearance of stone spread 019 is similar to building foundations identified by Burkett (1965); a similar feature was exposed in Trench 3 (311). 019 was not bounded to the south by a wall or kerb, however, suggesting that some degree of truncation may have occurred. The upper deposits of Block 2 may therefore represent the truncated remains of a building which lay immediately to the north or north-west of the Block 3 road.

Other deposits - A number of deposits sealed beneath the putative building were included within Block 2, as they appear to have formed after the construction of road surface 030 (Block 3). These include three irregular and discontinuous patches of silty clay (015, 022 and 023), which overlay a complex sequence of burnt deposits which were rich in charcoal and burnt bone (024, 026, 028, 032-3). The boundary between 024 and 026 was defined by a very shallow "slot" (fills 027 and 029 within cut 031) which were aligned east to west. The purpose of these features is unknown. It is perhaps significant that this alignment is similar to that subsequently formed by stone spread 019. Deposits 024, 026, 028 and 033 were rich in burnt material, particularly bone, and may represent an accumulation of domestic waste.

Block 3 - Phase 4 road surface and associated deposits (Figs. 3-4)



Context descriptions

013 This was a patch of green/yellow gravel set within a silty sand matrix. It measured 0.8m by 0.4m in extent, and was 0.1m deep.

014 This was a dark brown, coarse sandy, silt containing 20-30% small pebbles, occasional cobbles and occasional flecks of crushed brick and tile. It measured 2.7m from north-west to south-east, and was 0.15m deep.

016 This was a 0.7m by 0.6m patch of light grey/brown sandy silt containing occasional cobbles and occasional flecks of crushed brick and tile, and charcoal. It overlay part of the surface of 021.

021 This was a compact layer of light grey, coarse silt containing 25% large and 50% small round and sub-round pebbles. It ran east to west across the south-eastern area of Trench 1 for c.2m, and was c.0.2m thick.

030 A stone feature, consisting of 70% cobbles and boulders within a sandy silt matrix, extended for c.4m from the south-east end of Trench 1 and was 0.2m thick. It was noted during the watching brief that this layer ran as far as the wall at the edge of Borrans Road. This indicates that this feature had an original width of at least 5.5m.

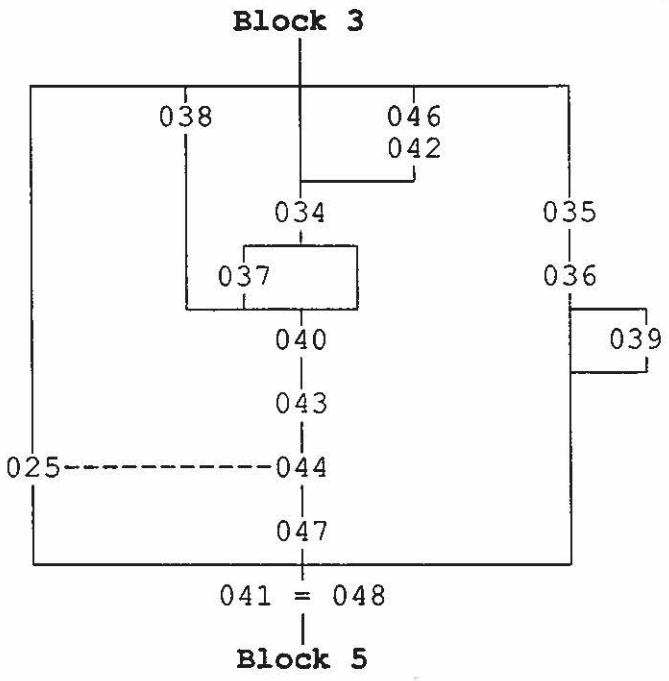
Interpretation

Block 3 deposits are provisionally identified as belonging to the fourth phase of activity identified in Trench 1. The basal deposit within Block 3 appears to mark a major rebuilding of the Block 4 road (030). The precise alignment of this road is difficult to ascertain due to later truncation and the limited exposure of the deposits; however, it appears to run broadly east-west, probably north-east to south-west. This surface was at least 5.5m wide.

Directly above the foundation material for this road (030) lay a cobbled surface (021). Layer 016 appears to represent waste which accumulated on the surface of the road

with its use. Contexts 014 and 013 appear to indicate episodes of repair or resurfacing. These latter three deposits may be contemporary to Block 2 activity.

Block 4 - Earlier road and associated deposits (Figs. 3-5)



Context descriptions

038 A rabbit burrow had undermined context 030 and cut through 040 in the southern end of Trench 1. The burrow had disturbed an area measuring c.1m by c.1m, and was visible in the surface of 040 as a hole measuring 0.35m by 0.33m.

046 The fill of 042 comprised sub-rounded stones set within a coarse light-grey, sandy silt containing 10%-15% small pebbles.

042 The cut containing 046 crossed the trench north-east to south-west, and was 1m wide by 0.3m deep. The sides of the cut were fairly steep and the base was flat.

034 This was a band of mottled medium grey, clay silt and orange clay patches which contained 5% small pebbles, less than 5% charcoal flecks and less than 5% burnt bone. It also contained a lense of mottled pink and cream clay. It passed through the trench from south-west to north-east, was 1.3m wide and 0.1m deep. This context was sealed beneath 030, and was confined to the southern side of cut 042.

037 This was an patch of mottled orange and brown clay silt which contained 5% small pebbles and occasional large fragments of charcoal (up to 2cm across). It measured 0.43m by 0.33m and was 0.18m deep. This context was partly sealed beneath 034, and was confined to the southern side of cut 042.

040 This was a layer of friable, coarse crushed sandy material, possibly mortar, and yellow green sand which contained 40% small pebbles and occasional charcoal flecks. It was 2m wide beside the north-eastern trench wall and 0.18m deep. This context lay beneath 030 and 034, and was confined to the southern side of cut 042.

043 This black, sandy silt layer contained 70% crushed charcoal and less than 5% small pebbles. Its dimensions were 1.37m by 0.7m and appeared to have been cut to the north-west by 042.

025 This was a layer of red/brown, sandy silt with a coarse, gritty texture which overlaid the surface of context 048 at the southern end of Trench 1. It was up to 0.2m deep. It appeared to be road metalling.

044 This layer was identical to 025 in composition and depth. It ran in a 1.8m wide band to the north of context 025. It appeared to have been either cut or delimited to the north-west by 042.

047 A mottled red, orange and black, clay silt layer lay directly below 044. It traversed the trench from south-west to north-east, and was c.2m wide and 0.1m in depth. It contained occasional burnt bone, and charcoal flecks and fragments. It appeared to have been either cut or delimited to the north-west by cut 042.

035 This was a deposit of light grey clay silt of medium texture, containing 5% small to medium pebbles, iron staining, and less than 5% flecks of burnt bone. It became stonier to the south-east. It traversed the trench in a c.3m wide band, and was 0.15m deep. It was truncated to the north by 007 (Block 1). This layer appeared to overlie cut 042, although it is suggested that this relationship is misleading and the result of slumping of 035 over 042 after disturbance to the latter.

036 This layer was similar to context 035 in composition, but was darker grey in colour. It was of the same orientation and extent. It contained many potsherds. This layer appeared to overlie cut 042 (see 035).

039 This was a patch of clay silt soil containing 70% small to medium, angular and subangular stones. It measured 1.1m by 0.6m in extent, and its southern edge appeared to overlie cut 042 (see 035).

041=048 This was an extensive arrangement of large, angular and sub-angular boulders set within a matrix of mid-grey silty sand. It measured 7.6m but had been truncated by cut 007 to the north. During the watching brief it was noted that the feature extended as far as the field boundary, giving a total length of 9.2m.

Interpretation

General - The contexts within Block 4 are provisionally interpreted as belonging to the third phase of activity identified in Trench 1. They detail the construction of a substantial stone foundation (048), probably for a road, only upon part of which was any evidence for a metalled surface identified (025, 044). Some form of boundary appears to have traversed the trench from north-east to south-west, as indicated by the presence of cut 042. There is a marked difference in the deposits present to either side of this feature, possibly suggesting the former presence of a solid boundary. This boundary feature, possibly a fence or a wall, appears to have been robbed out in antiquity: deposits which lay to the north-west of it (035, 036) subsequently slumped over it. The road foundation lay at c.1.2m beneath current ground level.

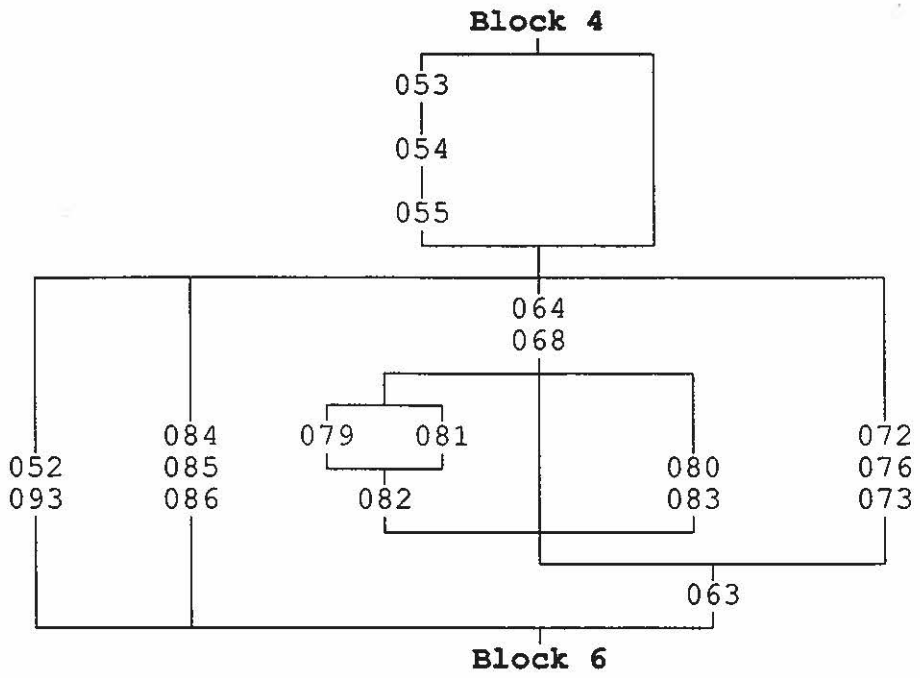
Road - Context 048 was a substantial stone surface located within Trench 1. It ran for 9.2m within the trench, but it was truncated both to south-east and north-west. It may form the stone foundation for a road, possibly the main road issuing from the north gate of the fort. Although the alignment of the feature cannot be judged from its

exposed remains, as no original edges were identified, the north-east to south-west trend visible in the layers lying upon it provides some indication.

The metalled surface of the road (025, 044) does not appear to have utilised the full width of the foundation. The road surface is cut to the north by a linear, stone-filled channel running across the trench from north-east to south-west (042, 046), and does not continue to its north. Although this linear feature is later than 025 and 044, it may represent the robber trench for a solid boundary contemporary with the metalled surface. The presence of mortar within the fill of the channel (046) suggests that a stone-built feature, possibly a wall, occupied the area of cut 042. Its robbing is likely to have been associated with preparation for the construction of Phase 4 features directly above those of Phase 3. A pebble-rich layer lay above the metalled surface of the road (040), and was also bounded to the north by cut 042. This may represent evidence for a resurfacing of the road. It was separated from metalling 044 by a thin layer of occupation waste (043). Patches of occupation waste lay upon this pebbled deposit (034, 037).

Other deposits - To the north of cut 042 lay two silty layers rich in artefacts (035, 036). These layers appeared to partly overlie, and hence post-date, cut 042. It is considered, however, that this relationship is misleading, and that it is a result of disturbance, possibly slumping. The matrix diagram for Block 4 shows these layers in their interpretive positions. 036 contains much heavily abraded pottery, iron nails and fragments of brick. This association of artefacts may suggest that this layer is a spread of demolition waste, possibly resulting from the dismantling of a building: the absence of charcoal from 036 suggests that any such destruction did not occur by fire.

Block 5 - Timber uprights (Figs. 6-8)



Context descriptions

053 A loose, red, pebble and coarse sand mixture underlay feature 048 at the northern end of the trench. Its full extent could not be identified during the watching brief, but its depth in section was approximately 0.05m.

054 This was a friable, grey, coarse, sandy silt layer containing 30% small pebbles. Its full dimensions were unobtainable during the watching brief, but its depth in section was 0.1m.

055 This pink clay silt was up to c.0.4m in depth, and extended across the entire area of excavation.

052 This deposit consisted of grey green silty sand, containing 10% small pebbles and occasional charcoal flecks. It was 2m long and 0.04m deep, and occurred in the northern part of Trench 1.

093 This was a deposit of pink orange clay silt which occurred immediately below 052 and 055. It was 2m long and 0.04m deep.

064 The fill of cut 063 consisted of rounded boulders (ranging from 0.15m to 0.4m) which were randomly arranged within a tenacious, pink/grey, sandy clay matrix. The matrix contained 5% small pebbles and degraded stone fragments.

068 The lower fill of 063, underlying stones 064, consisted of a very mixed layer of redeposited natural clays, silts, sands and pockets of an organic material similar to 074. This deposit also filled cuts 082 and 083.

079 This was one of two waterlogged worked timber uprights located within cut 063. It was rectangular in cross section, approximately 0.4m in length and

0.15m in width, with a squared, flat base driven vertically into the base of cut 082. The top of the post was badly degraded but the base was well-preserved.

081 This timber was in direct association with timber 079 but was less well-preserved. It abutted 079 to the southwest and was inclined 45° towards the northeast. The piece itself was roughly squared and was 0.25m long by 0.1m wide.

082 This was the socket containing timbers 079 and 081. It was an oval, shallow cut approximately 0.6m long by 0.4m wide, with its south-western edge situated beneath the trench wall. Its sides tapered towards a break of slope, creating a base 0.4m long by 0.2m wide. The maximum depth was approximately 0.2m. The base of timber 079 was partially driven through the base of this cut.

080 This piece of timber looked like an endpiece of a plank rather than a shaped upright. It was 0.25m long, 0.15m wide and about 0.05m thick and had been placed upright within cut 083, inclined slightly towards the west. As with 079 and 081, this was supported and held in place by boulder packing present within 068.

083 This posthole cut contained timber 080 and was similar in shape and horizontal dimensions to 082 but was much shallower and less well defined. It lay immediately to the northwest of cut 082.

072 This was the fill of posthole 073. It contained post 076. It was a very mixed deposit, and probably derived from the layers truncated by cut 073. It also contained small pieces of timber as well as several packing stones.

076 This was a substantial worked timber post positioned upright within cut 073. It was 0.4m long by 0.15m wide and was squared in cross-section. The top of the post was badly decomposed but the base was well-preserved and solid.

073 The socket for post 076 was 0.7m wide by 0.6m deep with fairly steep, smooth sides and a tapered, rounded base. The cut was stepped slightly on its southeast side.

063 The area of shallow cut 063 exposed within Trench 1 appeared to be the north-east corner of a possible rectangular feature. It was 2m north-west to south-east by 1m north-east to south-west. The edges of the cut were distinct and sloped gently on both sides towards a flat base. Postholes 082 and 083 were cut into the base of cut 063. Posthole 073 cut through its south-east corner.

084 This was the fill of posthole 086. It was a very mixed deposit, and appeared to derive from a mixture of the layers disturbed by cut 086.

085 The timber post within cut 086 was similar to 076, with squared sides and a flat base. It measured 0.15m long by 0.15m wide, and was partially driven through the base of the cut.

086 The sides of the oval socket for post 085 sloped steeply to a tapered, rounded base. It was 0.4m by 0.25m and approximately 0.2m deep.

Interpretation

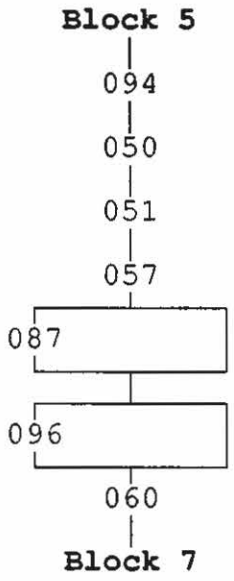
Timber uprights - The majority of deposits within Block 5 are provisionally identified as part of Phase 2 activity recorded within Trench 1. The structural

elements present with this block comprise a series of four timber uprights or piles (079, 080, 076, 085) located in the centre of Trench 1, three of which were associated with a shallow, possibly rectilinear, cut (063). The soil matrix of the fill of this depression (068) was the same as the fills around the three timber uprights cut through the depression (068). This suggests that all these features are contemporary. The timber uprights had been driven into pre-cut sockets, and had then been secured in place by the addition of packing stones.

The four timber uprights and the depression formed no discernible pattern, and are undoubtedly part of a larger feature extending to either side of Trench 1. It is conceivable that they served as piles supporting the foundations of the Block 4 road. However, they appeared to be sealed beneath a continuous layer of pink clay (055), which indicates that the timber uprights are unrelated to the subsequent road.

Other deposits - The timber uprights were sealed beneath a continuous layer of pink clay (055). Its deposition appears to mark the boundary between Phase 2 and Phase 3 activity. It possibly represents some form of foundation layer laid down for the Phase 3 road. Above it lay two truncated pebbly layers (053, 054); it is likely that these are Phase 3 features associated with the subsequent roadway (Block 4). Layer 055 was underlain by two thin layers of unknown origin at the northern end of the trench (052, 093); these deposits were not physically related to the timber uprights.

Block 6 - Phase 1 occupation (undefined) (Fig. 7)



Context descriptions

094 This consisted of dark grey silty sand, 0.04m in depth, which occurred to the north of feature 073 (Block 5) and which ran beneath 052 and 055. It extended northwards from post-socket 073 for c.2.4m.

050 This was a thin, but distinct, deposit consisting of a mottled grey brown and black charcoal-rich sandy silt, containing crushed mortar, brick and tile. It varied from 0.02m to 0.04m in depth and was cut by the timber uprights and cut 063 detailed above. This layer covered the entire trench.

051 This was a grey green silt containing occasional large stones, 20% small pebbles and occasional charcoal flecks. It was about 0.1m deep and extended northwards from the wall beside Borrans Road for c.6.5m.

057 This deposit consisted of a matrix of coarse green orange sand containing 50% pebbles and occasional boulders. The stones were more tightly packed towards the centre of Trench 1 and the layer had been disturbed by the cutting of feature 063. It occurred in the northern part of Trench 1, and was c.4m in length.

087 This feature was a bowl-shaped pit containing a tenacious silty clay similar to 068. This fill contained large amounts of pottery sherds. The pit was c.0.7m across and up to c.0.3m deep.

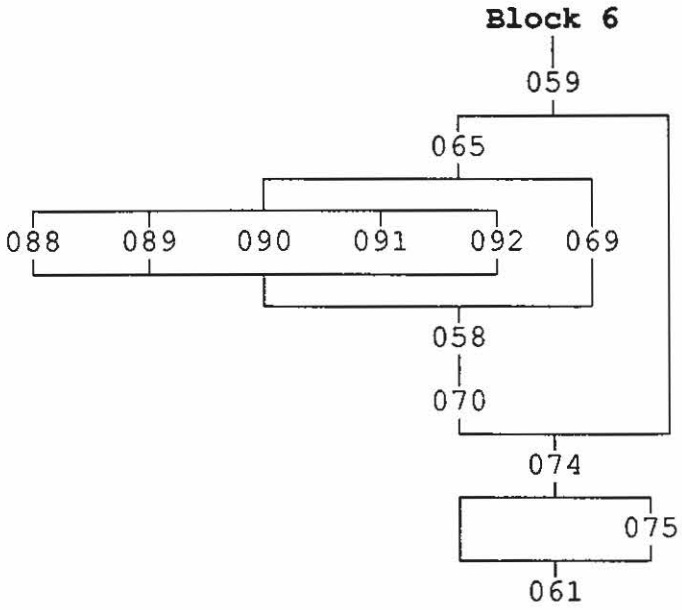
096 This was a small area of grey sandy silt located on the southern side of 073 (Block 5), where it was sealed between 057 and 060. It was up to 0.08m thick and c.1m long. This context did not extend as far as either trench wall.

060 This was a layer of orange pink silty clay, c.0.1m deep, which was continuous across the trench. The top 0.03m of this layer at the north-west end consisted of burnt clay which also occurred in patches towards the south.

Interpretation

Interpretation of the laminated deposits present within Block 6 is not possible in advance of detailed analysis of the soils. They represent an accumulation of layers from either domestic or industrial activity. The only feature present was a bowl-shaped pit of unknown function. Its fill contained a quantity of pottery, mostly from a single vessel. It was sealed beneath 051, and therefore on stratigraphic grounds cannot be directly contemporary with the timber uprights which are cut through 050. The contexts within Block 6 are provisionally identified as belonging to the first phase of activity identified within Trench 1.

Block 7 - Earliest deposits (Figs. 7-8)



Context descriptions

059 This was a stone-free, organic layer with a mid brown, silty clay matrix. It was 0.1m thick, and ran for c.5m from the northern end of Trench 1.

065 This was layer of red and green mixed, coarse sand containing a disordered spread of twigs (0.01-0.03m diameter), criss-crossing on the surface and throughout the deposit. Although most of the branches were unworked, some showed clear signs of cutting and trimming. This deposit extended for c.3.8m to the north of feature 073 (Block 5).

069 This was a 0.05m deep compacted layer of marled grey and mid-brown clay. It extended for 0.9m from the northern edge of cut 073 and tapered out.

088 This was one of a group of five pointed stakes that had been driven through layer 058, in an area measuring 1m by 1.2m (the latter the width of the trench). The stakes had been shaped from pieces of birch branch, which had been squared and tapered to a point, then split to produce two stakes. They were on average 0.3m long and 0.06m diameter. A small offcut lay on top of stake 088.

089 This stake dipped at c.45 degrees from horizontal towards the east, and also had a small offcut lying next to it.

090 This stake was 0.05m wide by 0.015m thick.

091 As above. Another small offcut lay to the west.

092 As above. This stake was slightly shorter and had no associated offcuts.

058 A waterlogged deposit of layered, matted bracken stalks 0.02m thick had been compressed by the overlying deposits to form a distinct dark brown organic layer. A piece of Samian ware was found within this deposit. This layer lay to the north of feature 073 (Block 5).

070 Immediately below 058 lay a compact layer of squared timber offcuts (ranging in length from 0.03m to 0.1m across), unworked branches and twigs. These components were laid flat, and had been compressed by the overlying deposits to form a compact layer 0.04m thick. The layer extended for c.3m.

074 This was a c.0.2m deep layer of organic, mid brown silty clay which extended for the length of the trench and thinned towards the south-east. It contained pieces of worked leather, bone and pot towards its surface.

075 This was the uppermost natural deposit located: it consisted of blocky orange clay.

061 This natural deposit consisted of light green-grey sandy clay. It lay immediately below 074 in the north-west part of Trench 1 and below 075 towards the south-east.

Interpretation

The deposits within Block 7 are provisionally attributed to the first phase of activity identified within Trench 1. They were present at a depth of c.1.5-1.8m below current ground level, were semi-waterlogged and showed excellent organic preservation.

As for Block 6, any detailed interpretation of the layers present is dependent upon palaeoenvironmental analysis of samples taken in Kubiena tins, and what follows here is a tentative and provisional brief analysis.

A preliminary investigation of deposit 074 which overlay the natural clays 061 and 075, suggested that it was akin to a marsh soil. This was overlain by a c.3m long laid deposit of timber off-cuts and unworked twigs (070), which in turn was overlain by a compacted "mat" of bracken stalks c.1.8m long (058). These twigs and bracken may possibly be the remains of a raised trackway. However, it is also possible that this material is a scatter of waste material associated with activity which occurred nearby. These deposits were truncated to the north by 007 (Block 1).

A number of stakes were driven into the surface of the bracken (088-092); five stakes were present within an area of c.1m by 1.2m at the north-west end of the deposits surviving at this level. This feature may originally have extended further northwards. The final structural layer in this particular phase would appear to be a thin layer of sand and young birch branches (065) which was spread over the surface of 058 and compressed into it by overlying deposits. This may represent an attempt to provide a dry walkway across marshy ground. It is conceivable that all Block 7 layers may relate to a single construction.

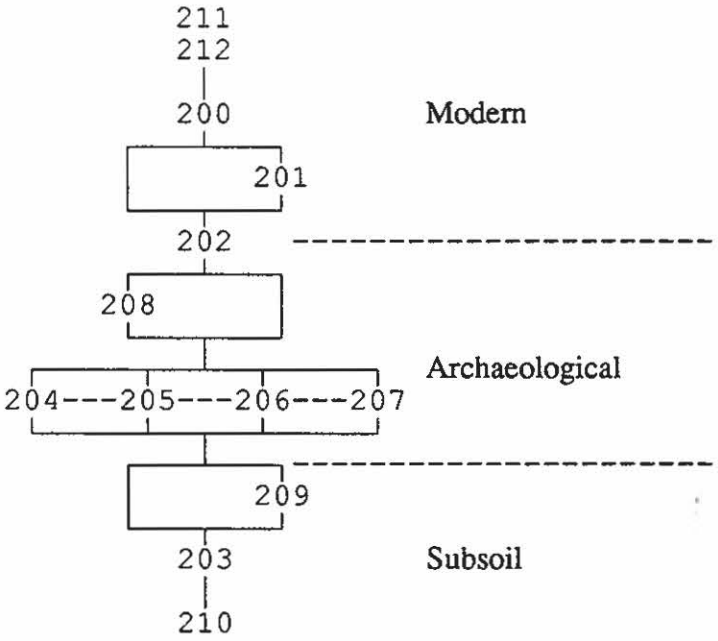
It is perhaps significant that a layer immediately overlying the remains of the possible trackways is very similar to the putative marsh soil upon which the trackways were lain (059, cf. 074). It is tentatively suggested that the attempt to provide a dry walkway was unsuccessful, either due to rising water levels or to sinking of the structures.

TRENCH 2 (Fig. 9)

Introduction

Trench 2 was situated in Borrans Road, approximately 65m south of Trench 1 and 25m to the north of the Fort (Fig. 2). It was 19.6m long and 1.2m wide. The road surface and foundation materials were removed by machine, prior to hand excavation. Hand excavation was undertaken to a maximum depth of 1.2m. Sondages were then excavated beneath the required depth to ensure that no deeply buried archaeological remains were present.

Matrix diagram



Context descriptions

211 A modern water main was cut through road foundations (200), and traversed the southwest corner of the trench in a north-south direction for 2m. Its backfill material consisted of modern rubble.

212 The cut for pipe 211 was 0.8m deep; only 0.6m of its width projected into the trench.

200 The road material consisted of 0.1m of tarmac underlain by 0.6m deep foundation materials comprising successive layers of concreted gravels, and pebbles.

201 This was an area of rounded and sub-angular boulders, 1.8m by 1m and 0.15m deep. It contained no bonding material and did appear to be structural. It was probably a concentration of larger stones at the base of the foundations for Borrans Road.

202 This layer consisted of a mottled pink and grey, silty clay containing lenses of coarse, orange and yellow sand, 20% small-medium pebbles, occasional

charcoal flecks and crushed mortar, brick and tile. It was c.0.2m deep and was continuous across the trench.

208 Discontinuous patches of a burnt deposit were found in depressions within the surface of 206 and 207, with dimensions ranging from 0.5m by 0.5m to 0.25m by 0.25m, and with an average depth of 0.1m. The deposit was a charcoal-rich, fine grey silt containing less than 5% small pebbles. It may represent the truncated remains of archaeological features associated with the *vicus*.

207 This c.0.25m deep, light orange-brown sandy silt contained 5% stones, occasional patches of iron pan and charcoal flecks. It occurred in the southern half of the trench and merged with 206 to the north. This deposit yielded three pieces of worked chert and a flint flake.

206 This c.0.25m deep, orange sandy silt of medium texture contained 20% gravel, occassional patches of iron pan and charcoal flecks. It was c.2m long, and merged with 207 to the south and 205 to the north.

205 This c.0.25m deep, light orange-brown sandy silt of medium texture contained 30% small pebbles. It was c.4m long and merged with 206 to the south and 204 to the north.

204 This mixed orange and brown silty sand had a medium, gritty texture and contained 10% small pebbles. It was c.2m long, c.0.25m deep and merged with 205 to the south. It petered out to the north, c.2.5m from the northern end of the trench.

209 This patch of light brown sandy silty clay had a medium texture and contained 10% small stones and gravel. It was 1m long by 0.5m wide, 0.05m deep and continued eastwards from the trench. This deposit lay below 207 and over 203 but did not occur in the east-facing trench wall.

203 This mottled, grey and brown, gritty, sandy silt contained 10% small pebbles and occasional charcoal flecks. It was c.0.35m deep at its northern extent, thinning to c.0.1m towards the south, and was continuous across the trench. There was a distinct interface between 203 and 204-207.

210 The subsoil was a grey sand containing numerous pockets of orange and brown gravel. It was continuous. Its base was not defined by hand excavation.

Interpretation

General - The sequence of deposits present in Trench 2 suggest that any remains associated with the *vicus* that may have existed in this area were truncated with the construction of Borrans Road.

Archaeological deposits - A series of layers of silty clay of very similar composition (204-7) lie directly upon the natural silts, sands and gravels (203 and 210). The merging of boundaries between 204-7 probably indicates that they represent lateral variation within a single deposit, with the variations resulting from slight changes in e.g composition or water content. The presence of four chipped stone artefacts of prehistoric origin, and the notable absence of artefacts of Roman origin, suggests that this level may represent a prehistoric ground level. A number of small patches of burnt material contained within depressions on the surface of this putative prehistoric ground level (208) may represent the vestigial traces of activity associated with the *vicus*. No artefacts were found within 208 by which this hypothesis could be

evaluated. These archaeological remains were truncated by activity which led to the deposition of 202. This deposit may be associated with the presence of Borrans Road.

Modern deposits - The modern deposits which overlay these archaeological remains comprised road materials (200-1) and a water main (211-2). This latter runs along Borrans Road, and was also located in Trenches 4 and 5 (403-4 and 502, 507 respectively). The cut had truncated the road foundations but not its tarmac surface.

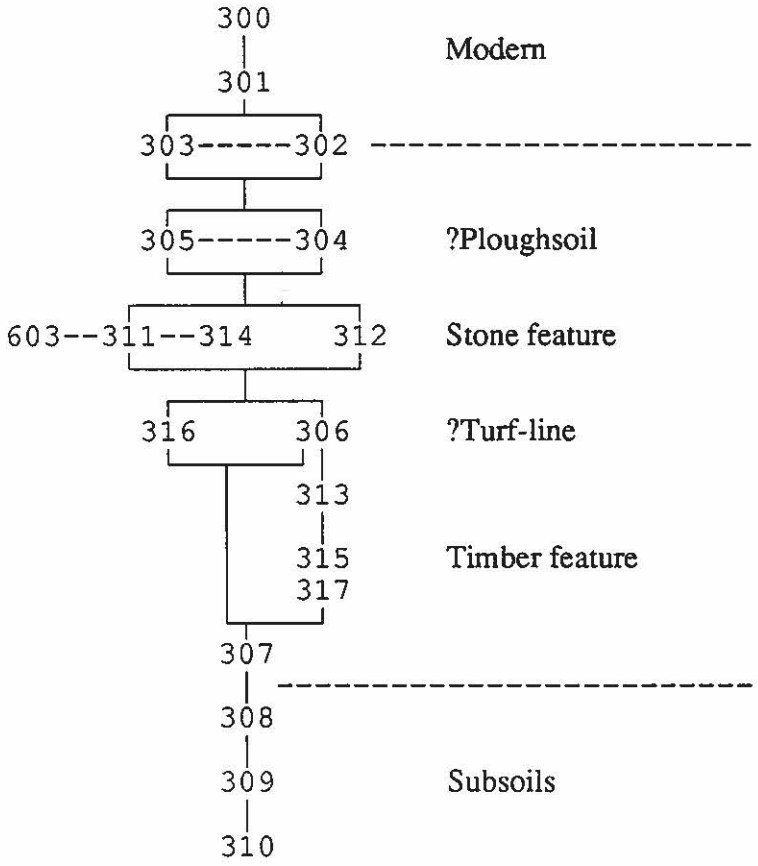
TRENCH 3 (Figs. 10-11)

Introduction

Trench 3 was cut through Borrans Road, c.15m south-east of Trench 1 and adjacent to the north-east of the upstanding Roman fort (Fig. 2). It was excavated in two sections c.9.3m long and 1.2m wide at the surface, separated by a central baulk c.2.5m wide. The baulk was left in order to maintain access to an adjacent house. The uniformity of the deposits present allowed a single matrix diagram to be produced.

Road materials were removed by machine prior to hand excavation. Deposits occurring at a depth greater than 1.2m below the surface of the road were investigated by sondages.

Matrix diagram



Context descriptions

300 The surface of Borrans Road consisted of a c.0.1m depth of tarmac.

301 The foundation material of Borrans Road at this point comprised a c.0.35m depth of successive layers of concreted pebbles and gravels containing occasional boulders.

303 This layer of tenacious, light grey, silty clay, mottled with flecks of iron pan, contained 5% small pebbles. It had a maximum depth of c.0.4m and covered all but the northernmost 3m of the trench.

302 This very mixed layer of light grey, silty clay and iron pan, with a depth of up to c.0.4m. It contained 5% small pebbles and a concentration of large angular and sub-angular stones towards the northern edge of the trench. It occurred in the northernmost 3m of the trench and merged with 303 to the south.

305 This layer covered all but the northernmost 3m and southernmost c.2.5m of the trench. It consisted of a light grey to brown clay silt containing 20% stone rubble. It was 0.2m deep and overlay stone feature 311 to the south.

304 This layer consisted of 30% rounded and sub-angular stones set within a mottled, light grey and orange silty clay matrix. It covered the northernmost 3m of the trench, and was c.0.1m deep. It merged with 305 to the south.

311 This spread of large angular and sub-angular stones lay at the southern end of the trench. It extended for c.2.6m, and was c.0.35m deep. The stones were bonded by a clay matrix (314). This feature was observed during the watching brief to extend southwards from the trench (603).

314 The matrix of 311 consisted of a tenacious, orange, silty clay containing small amounts of grit. This context was observed during the watching brief to extend southwards from the trench (603).

603 This layer was recorded during the watching brief as a southward continuation of deposit 314/311. It consisted of orange clay with occasional organic staining and pockets of brown, organic, sandy silt. It was 0.05m deep and extended for approximately 19m. It underlay randomly spaced boulders, probably part of 311, which extended for approximately 5m.

312 This patch of silty clay, containing 50% charcoal, lay within a slight depression in the surface of 306, c.1.5m north of stone spread 311. It was c.0.5m long, 0.22m wide and 0.03m deep, and continued westwards from the trench.

306 This layer of grey-brown, sandy silt contained less than 5% small pebbles and occasional charcoal flecks. It covered the entire trench; where sealed below 311, this layer was recorded as 316.

316 This was the same deposit as 306, where sealed beneath stone spread 311; it was grey black in colour and had a greater clay content.

313 This deposit of light grey to brown, clay silt contained occasional fragments of charcoal. It occurred in the centre of the trench; it was c.6m long by c.1m wide, and was 0.15m deep. It did not extend into the east-facing section.

315 This piece of burnt timber lay upon 317. It had a circular cross-section, with a diameter of 0.08m. It was noted in the west-facing section only, and its full extent is unknown.

317 This piece of burnt timber had a rectangular cross-section, measuring 0.9m by 0.15m. It projected 0.1m from the west-facing trench wall. It appeared to have been worked but was too degraded to lift intact. It lay horizontally.

307 This layer of pink and brown silty clay contained less than 5% small pebbles and decayed root material. It covered the entire trench, dipping gradually towards the south, and was up to 0.2m deep.

308 This light brown, sandy layer contained less than 5% small pebbles and occasional grit. It was located in sondages, where 0.1m deep, and appears to have been a continuous deposit. Its surface level dipped to the south.

309 This deposit of dark grey sand had a variable depth of 0.3m to 0.5m, and dipped towards the south.

310 This deposit was identified in the northernmost sondage only. It consisted of coarse, red brown gravels within a sandy silt matrix.

Interpretation

Introduction - A concentration of archaeological features relating to the occupation of the *vicus* were identifed at the southern end of this trench. Archaeological monitoring subsequent to hand excavation indicated that this activity extended further to the south of Trench 3. The features identified consist of a substantial stone spread (311), possibly a building foundation; a truncated feature lay c.1.5m north of it (312) and a timber feature (315/7) a further c.3m north of that. The stone spread had been laid directly upon a turf-line (306/16), whereas the timber feature may have been set into it. It is possible that all these features relate to a single phase of activity.

Subsoils - A sequence of three stratified subsoils were identified by hand excavation (308-10). Each sloped southwards, towards the head of Lake Windermere. The layer present directly above these (307) may also be a subsoil, but an explanation as a buried soil preceding the occupation of the *vicus* is considered more likely.

Timber feature - The structural elements within this trench included two pieces of charred timber (315 and 317). The larger timber (317) appeared to have been worked and had been laid horizontally on the surface of 307. Timber 315 lay at right angles to 317. The pieces may belong to a structure which had been burnt in antiquity. However, the surrounding layers show no evidence of any such burning, and it is possible that the timbers are redeposited.

The timbers were sealed between 306 and 307. These may represent the turf and topsoil respectively of an old ground level. The presence of decayed roots within 307 tends to support this hypothesis. Where preserved beneath stone spread 311, the turf horizon was less degraded and decayed, and appeared as a greasy, blacker deposit. The presence of 313, which is very similar in composition to, the putative turf-line, is difficult to adequately explain. It may represent lateral variation within the turf-line resulting from disturbance associated with the timber feature which underlies it. The lumps of charcoal within this context conceivably derive from burning associated with these timbers.

Although the timbers are sealed beneath the turf-line, it is possible that they were inserted through it, and that turf grew back over them after they were burnt. If this is the case, then then it is possible that the timbers belong to the same phase as stone spread 311, which was placed directly upon the turf-line c.3m to the south of the timbers (see below).

Stone feature - A substantial stone arrangement bonded by stiff clay was identified by hand excavation at the southern end of the trench, and recorded as continuing southwards during the watching brief (311/314 and 603 respectively). The stone feature was c.8m wide, and appeared to have an abrupt end to the north: that at the south was less clear due to the mechanical methods of excavation employed. The old ground level beneath this feature was depressed by up to c.0.15m, most probably as a result of compaction by the weight placed upon it. The stones were unworked but formed a fairly even, compact surface. It appears to have provided a solid foundation,

possibly for a road but more likely for a building similar to those identified by Burkett (1965).

A layer of clay silt soil containing cobbles and boulders partly overlapped stone spread 311, and extended continuously to the north of it (305). This layer contained Roman pottery. It is possible that this deposit is a cultivated soil. At the northern end of the trench its composition varied noticeably, perhaps as a result of differences in water content (304). A patch of charcoal-rich silt lay beneath 305 and on the surface of putative turf-line 306 c.1.5m north of the stone feature (312). It may be the remains of an archaeological feature or deposit truncated by ploughing associated with 305.

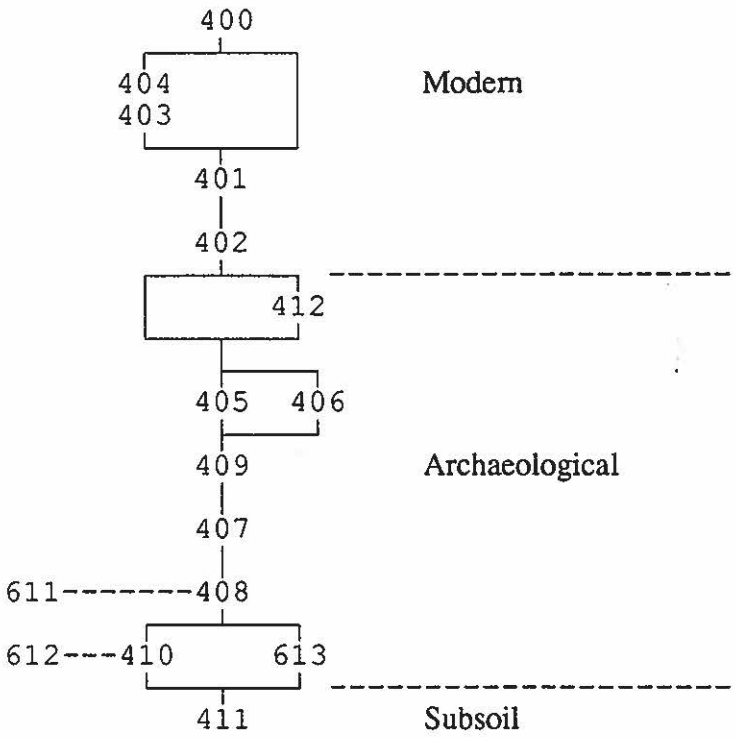
Modern features - The archaeological features detailed above were overlain by a continuous layer of light grey silty clay (303). At the northern end of the trench a lateral variation in the texture of this material was recorded as 302. The similar composition and stratigraphic position of this layer to 202 in Trench 2 suggests that they are part of the same deposit, and associated with the presence of Borrans Road. This deposit lay directly beneath the foundations of Borrans Road (301).

TRENCH 4 (Fig. 12)

Introduction

Trench 4 was located on Borrans Road, midway between Trench 3 and Trench 5, and c.60m east of the upstanding Roman fort (Fig. 2). The dimensions of the trench were 5.2m by 1.2m. Road material was removed by machine prior to hand excavation of all other deposits to a depth of c.1.3m. Sondages were then excavated at either end of the trench to a depth of 1.6m below the road surface, in order to assess the nature of any archaeological deposits present. These basal deposits were further recorded during the watching brief, and those results are included here.

Matrix diagram



Context descriptions

400 The surface of Borrans Road at this point comprised tarmac c.0.1m deep.

401 The foundation material of Borrans Road at this point consisted of successive layers of concreted pebbles and cobbles up to 0.5m deep in total.

404 The fill of pipe trench 403 was a light brown silty clay sealing a water main. A 1.8m long alignment of irregular stone slabs, each measuring approximately 0.3m by 0.4m, lay immediately above the water pipe.

403 The trench for water main 404 ran north-west to south-east along the western side of the trench. Its cut was steep-sided and was 0.8m deep. Its full width is unknown as it extended westwards from the trench. Its base was not exposed due to the presence of the water main.

402 This context was a grey brown, silty clay containing occasional light brown and compacted orange clay patches. It covered the entire trench except where truncated by cut 403. Some large angular and subangular stones lay at the north-western limit of this layer.

412 A small lense of grey brown, clay silt, containing 5% charcoal flecks, was identified in the south-west facing trench wall. It lay on the surface of deposit 405, and was c.1m long and 0.02m deep.

405 This layer of grey brown, silty clay was mottled with patches of pinkish clay. It contained occasional charcoal flecks and less than 5% small pebbles. It covered the entire length of the trench except where cut by pipe trench 403, and varied between 0.25m and 0.6m deep.

406 This lense of bright orange clay was mottled with charcoal flecks within context 405. It measured 0.7m by 0.5m, and was 0.04m deep. It was contained within 405.

409 A layer of yellow brown, clay silt was sealed beneath 405 in the southern end of the trench. It contained 20% medium to large sub-angular stones and was c.0.45m deep.

407 This area of sub-angular stones lay on the surface of 408 in discrete concentrations. This feature had been heavily disturbed.

408 A fine, cream, sandy clay layer, which lay beneath stone feature 407, extended across the trench. It was up to c.0.4m in depth.

611 A layer of yellow-grey clay containing 5% small stones was located during the watching brief as running for approximately 4m northwards from Trench 4. It was c.0.2m deep and contained much pottery. It was most probably the same deposit as 408.

410 This was a 0.12m deep layer of dark grey charcoal-rich silt. It was identified in a sondage towards the northern end of the trench. More extensive exposure of this deposit occurred during excavation of the pipe trench: the deposit was at this stage detailed as 612.

612 This was a coarse, dark grey sandy silt containing 5% charcoal flecking, 5% small rounded pebbles and 10% angular stones. It was c.0.1m deep, and extended northwards from Trench 4 for c.4m. It is most probably the same deposit as 410.

613 This deposit extended for 1.5m from the southern extent of context 410, and was sealed beneath 611. It was up to 0.1m deep, lay within a depression or shallow cut, and consisted of a grey black sandy silt containing less than 5% grit.

411 This natural deposit of cream-yellow clay was exposed in the sondages. Its base was not reached.

Interpretation

General - The sequence of deposits excavated in Trench 4 can be divided into three categories: subsoil, archaeological deposits and modern deposits. The survival of archaeological deposits in this trench is limited due to removal in the western part of the trench by a water main (403) and due to horizontal truncation with the

construction of Borrans Road. The archaeological remains excavated appeared to have been disturbed in antiquity, possibly by cultivation of the land. Only a single structural element was identified.

Subsoil - Context 411 comprised pure clay and appeared to be a natural deposit. Its base was not reached by hand excavation.

Archaeological deposits - The basal deposit of archaeological significance comprised a layer of dark grey, charcoal-rich silt (410), which was observed during the watching brief to continue northwards from Trench 4 (612). It is conceivable that this layer represents a buried turf-line, although it was not continuous. A patch of black sandy silt lay to its north, and was separated from it by a noticeable depression, possibly the truncated remains of a ditched feature (613); no reliable interpretation can be given for this deposit.

Above these deposits lay a layer of sandy clay (408). A series of concentrations of stones lay upon the surface of this layer (407): these may be the disturbed remains of a once continuous feature, such as the building foundation identified in Trench 3 (although other origins are of course possible). 408 may have been a dumped foundation layer for this feature.

Stone feature 407 was sealed beneath two substantial deposits (409, 405). The latter of these was continuous and up to 0.6m deep. It contained heavily abraded Roman pottery and a small number of iron nails. It is possible that this context is a buried ploughsoil - a similar putative deposit was identified in Trench 3 at a similar stratigraphic position (305).

A thin patch of silt lay on the surface of 405 (412), and appeared to have been truncated with activity associated with the deposition of 402.

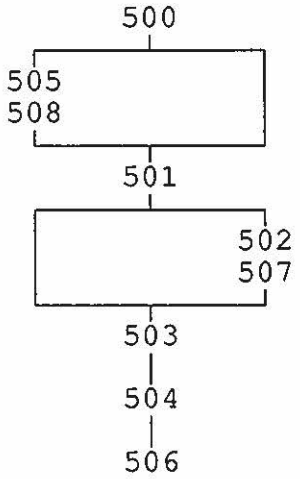
Modern deposits - Beneath the surface (400) and foundation material (401) of Borrans Road lay a continuous layer of grey brown silty clay material (402). This is the same stratigraphic position as 302 and 202, and may also be associated with the presence of Borrans Road. A water main ran through the foundations of Borrans Road (403/4); its insertion had removed any archaeological deposits once present along the western side of the trench. This water main was also identified in Trenches 2 and 5 (211/2 and 502, 507 respectively).

TRENCH 5 (Fig. 13)

Introduction

Trench 5 was cut through Borrans Road, c.65m to the south-east of Trench 4, and approximately 120m from the east gate of the upstanding Roman fort (Fig. 2). It was 5.2m long by 1.2m wide at the base. Road materials were removed by machine prior to hand excavation of deposits present beneath this. Excavation proceeded to a maximum depth of c.0.9m, with a test pit excavated beneath this level to a depth of c.1.2m beneath the road surface.

Matrix diagram



Context descriptions

500 The road surface consisted of a c.0.1m depth of tarmac.

505 The fill of cut 508 consisted of grey clay silt and concrete. It contained a modern glass bottle.

508 This cut projected into the northern end of Trench 5 and therefore its full dimensions were not recorded during hand excavation. Its recorded depth was 0.8m. Monitoring carried out during the watching brief revealed that this cut did not contain a service pipe, and its function is therefore unknown.

501 The foundation material for Borrans Road at this point consisted of successive layers of concreted pebbles and cobbles, including bricks and lumps of tarmac, with a total depth of c.0.2m.

502 The fill of the cut for a water main 507 consisted of a brown clay silt of coarse texture, containing a mixed deposit of modern debris. The water main lay at the base of this material.

507 The cut for the water pipe was steep-sided, and was 0.8m deep. It ran along the south-western edge of the trench. A width of 0.5m was exposed.

503 This was a layer of dark brown coarse silty sand containing pockets of orange brown, gritty silt and gravel, which may have been redeposited. The layer

contained pieces of tarmac, modern debris and burnt timber, and increased in depth from c.0.25m at the north-west to c.0.6m at the south-east.

504 This was a fairly compact natural deposit of orange brown, gritty silt which contained occasional patches of gravel.

506 This natural deposit comprised large, sub-angular stones within a fine orange silt matrix containing occasional pockets of gravel. The stones may represent degraded bedrock.

Interpretation

No deposits of archaeological significance were located in Trench 5. All deposits were of either natural or modern origin. A deposit of sand and gravel containing modern debris, including tarmac (503), was the only layer present between the modern road (500/1) and the subsoil (504 and 506). The presence of tarmac indicates that this layer is associated with the construction of Borrans Road. A water main ran along the western side of the trench - this feature was also exposed in Trenches 2 and 4 (211/2 and 403/4 respectively). A modern cut of unknown purpose was identified at the north-western edge of the trench (508).

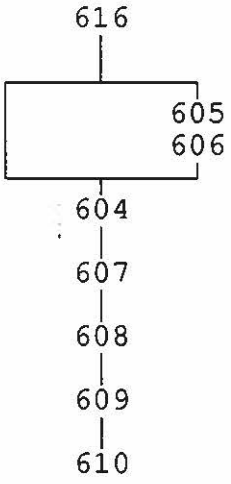
WATCHING BRIEF

Introduction

A permanent presence watching brief was conducted along the entire length of the pipeline development, in order to locate and record any archaeological remains present outwith the areas of hand excavation. Certain finds were a continuation of deposits already recorded during hand excavation of Trenches 1-5, and these have been dealt with in the appropriate section. At two locations archaeological deposits associated with the occupation of the *vicus* were identified, which could not be directly related to those excavated within Trenches 1-5. These are examined in the following sections.

A. BUILDING (Fig. 2, A)

Matrix diagram



Context descriptions

616 The road materials here comprised a 0.1m depth of tarmac overlying 0.35m deep foundations of concreted bands of pebbles.

605 This water main ran north-west to south-east.

606 The cut for water main 605 had disturbed the south-west side of wall 604; pieces of disturbed masonry were visible in the backfill of the pipe trench.

604 A 3.8m long section of a substantial stone-built wall was located c.26m south of Trench 3, running north-west to south-east across the pipe trench. It lay directly beneath 616. The original cut for the wall was not located as it lay outwith the trench. The c.0.9m high north-east face of the wall comprised three courses of roughly hewn stone blocks (c.0.5 x 0.4m) bonded by a light orange brown, coarse sandy silt. The core material of the wall consisted of small to medium angular stone fragments within a coarse, sandy silt matrix. The south-west face of the wall lay outwith the pipe trench. The wall continued to the north west and south east. A full cross-section of the wall was not exposed: it cannot have been less than 1.7m wide, and must have been at least 2m wide.

607 This was a well-compacted, even surface of stones within a dark brown silty sand matrix. The stones, which constituted 70% of the layer, were rounded towards the southern extent, becoming smaller and more angular towards the northern extent. The wall (604) had been constructed directly upon this surface. Its original extent had been disturbed by the insertion of the modern services.

608 This was a very compact layer of coarse grey sand, 40% small pebbles and occasional large angular stones. It was 0.15m deep and lay below context 607. It had also been disturbed by modern services.

609 The layer immediately below 608 consisted of coarse, cemented grey and orange sand with 40% small pebbles and angular stones. It was 0.2m deep and had been disturbed to the north-west and south-east.

610 This layer of orange clay contained frequent charcoal fragments (c.0.03m in dimensions) and charcoal flecks. It also contained 20% large angular stones. It was 0.15m deep and immediately overlay natural clays.

Interpretation

Wall 604 lay immediately beneath road foundations 616, and had been constructed directly on stone surface 607. The absence of any accumulation deposits between 604 and 607 may suggest that they belong to the same building phase. The dimensions of 604 suggest a structure of substantial proportions. No return walls were located. The rest of the structure may remain to the west of the pipe trench. The exposed remains had been disturbed by water main 606. Roman pottery was recovered from stone surface 607.

The two deposits underlying the stone surface (608 and 609) comprised cement-like material and may be related to the same phase of building, possibly as foundation layers. Alternatively, they may be earlier dump layers of waste bulding material. Roman pottery was recovered from the upper of these layers.

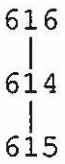
Context 610 lay beneath layer 609. It contained large fragments of charcoal. It contained no pottery and its origin is uncertain.

B. ISOLATED LAYERS (Fig. 2, B)

Introduction

Archaeological deposits were identified c.5m south of Trench 4. These comprised two layers stratified between the foundation material of Borrans Road and the subsoil. No structural elements were identified.

Matrix diagram



Context descriptions

616 The foundations of Borrans Road were 0.7m deep at this point.

614 A layer of grey brown clay silt containing 5% small, angular stones and frequent charcoal flecks was located c.5m to the south of Trench 4. It varied from 0.15m to 0.3m in depth and extended across the pipe trench for 3.5m.

615 This was an orange brown clay silt containing 10% small stones and gravel, and occasional charcoal flecks. It was 0.15m deep and extended across the trench for c.4m.

Interpretation

These two isolated deposits (614, 615) described here have no stratigraphic relationship with any of the previously recorded contexts. They were located c.5m to the south of Trench 4 and lay between the road foundations and the natural silts and clays.

Context 614 lay immediately below the road foundations and contained small, heavily abraded, potsherds. Context 615 below contained traces of charcoal but no pottery. It is probable that 614 and 615 represent the truncated remains of archaeological activity within that area. No structural elements were identified in relation to these deposits.

APPENDIX 2 - POTTERY QUANTIFICATION TABLES

The following tables provide a breakdown by trench and context of the pottery recovered. Of the column headings, 'context' refers to the context of recovery; 'sherd' refers to the total number of potsherds recovered from that context; 'rim', 'base' and 'dec' (not mutually exclusive categories) refer to the number of rimsherds, basal sherds and decorated sherds present within the assemblage from that context; '%dec' refers to the representation of decorated sherds as a percentage of that assemblage; 'range' refers to the size range of sherds within the context assemblage - the first figure refers to the number of large sherds, classified as having any one dimension greater than 50mm, the central figure to the number of sherds of medium size, with a maximum dimension of 20-50mm, and the last figure to the number of small sherds, with no dimension greater than 20mm. These size ranges are expressed as relative percentages in '%range'.

In the following tables, all pottery, including both Roman and post-Roman pottery, is quantified. An assessment report of the Roman pottery is included as section 5.2 of this report.

Trench 1

CONTEXT	SHERD	RIM	BASE	DEC	%DEC	RANGE	%RANGE
001	3	1	0	0	0	0/2/1	0/66/34
004	6	0	2	1	16	0/5/1	0/84/16
008	11	3	0	3	27	0/7/4	0/64/36
009	4	3	0	1	25	0/1/3	0/25/75
011	4	0	1	0	0	0/2/2	0/50/50
014	2	2	0	0	0	0/2/0	0/100/0
015	17	2	4	1	6	2/8/7	12/47/41
016	2	0	1	1	50	0/1/1	0/50/50
017	1	0	0	0	0	0/1/0	0/100/0
018	3	0	1	1	33	0/3/0	0/100/0
019	31	1	0	9	29	2/20/9	6/65/29
020	10	0	0	1	10	1/6/3	10/60/30
021	13	1	0	2	0	1/9/3	8/69/23
022	8	1	0	0	0	0/5/3	0/62/38
023	2	0	0	0	0	0/2/0	0/100/0
024	2	0	0	0	0	0/1/1	0/50/50
025	6	2	0	0	0	0/4/2	0/67/33
026	12	0	2	0	0	0/11/1	0/92/8
030	18	1	0	1	5	2/15/1	11/83/6
033	1	1	0	0	0	0/1/0	0/100/0
034	10	2	0	0	0	0/7/3	0/70/30
035	14	0	0	0	0	0/12/2	0/85/15
036	58	5	0	7	12	17/36/5	29/62/9
037	5	1	0	0	0	1/2/2	20/40/40
039	8	6	0	2	25	5/3/0	63/37/0
040	1	0	0	0	0	0/1/0	0/100/0
041	7	2	1	0	0	4/3/0	57/43/0
043	4	0	0	0	0	0/3/1	0/75/25
044	11	3	1	2	18	3/7/1	27/64/9
047	1	1	0	0	0	0/1/0	0/100/0
048	5	0	2	1	20	2/3/0	40/60/0
049	1	1	0	0	0	0/1/0	0/100/0
050	1	0	0	0	0	1/0/0	100/0/0
056	1	1	0	1	100	0/1/0	0/100/0

CONTEXT	SHERD	RIM	BASE	DEC	%DEC	RANGE	%RANGE
057	1	0	0	0	0	0/1/0	0/100/0
058	2	0	1	0	0	1/0/1	50/0/50
060	1	0	0	1	100	1/0/0	100/0/0
072	3	1	0	0	0	0/3/0	0/100/0
074	1	0	1	0	0	1/0/0	100/0/0
077	1	0	1	0	0	1/0/0	100/0/0
087	34	6	0	6	18	9/23/3	26/65/9
unstrat	4	1	0	0	0	0/4/0	0/100/0
TOTAL	330	48	18	41	12	54/216/60	16/66/18

Trench 3

CONTEXT	SHERD	RIM	BASE	DEC	%DEC	RANGE	%RANGE
303	4	0	1	0	0	0/3/1	0/75/25
305	19	4	1	0	0	5/13/1	26/68/6
306	4	3	0	2	50	1/3/0	25/75/0
311	1	1	0	0	0	0/1/0	0/100/0
313	1	0	0	1	100	1/0/0	100/0/0
Surface	4	0	1	0	0	1/3/0	25/75/0
TOTAL	33	8	3	3	9	8/23/2	24/70/6

Trench 4

CONTEXT	SHERD	RIM	BASE	DEC	%DEC	RANGE	%RANGE
402	10	0	0	1	10	1/8/1	10/80/10
404	8	0	1	2	25	3/5/0	37/63/0
405	21	2	0	6	28	4/12/5	19/57/24
409	11	3	0	1	9	2/8/1	18/73/9
unstrat	1	0	0	0	0	0/1/0	0/100/0
TOTAL	51	5	1	10	20	10/34/7	20/66/14

Watching brief

CONTEXT	SHERD	RIM	BASE	DEC	%DEC	RANGE	%RANGE
600	1	0	0	0	0	0/1/0	0/100/0
607	1	0	0	0	0	0/1/0	0/100/0
608	1	1	0	0	0	1/0/0	100/0/0
611	32	5	0	9	28	1/25/6	3/78/19
614	3	0	0	0	0	0/3/0	0/100/0
TOTAL	38	6		9	28	2/30/6	5/79/16

APPENDIX 3 - PRELIMINARY CATALOGUE OF METAL FINDS

The metal finds were collected by context and are listed below with a brief description. All artefacts are of iron apart from a single object of lead, possibly a slingshot (Trench 1, 019). No cleaning has yet been undertaken of any of these artefacts; descriptions are therefore necessarily brief and interpretations provisional. An assessment report of metal artefacts is included as section 5.3 of this report.

Trench 1

008 One unidentified sub-circular ferrous object (0.09m) and one broken bolt (0.05m), both appear to be recent in origin.

009 One ferrous object (0.075m), possibly a key or nail.

011 One ferrous nail (0.03m).

015 Four ferrous nails (0.025-0.05m) and one nail-head (0.02m).

016 Two sub-circular ferrous objects (0.03m) and three long, flat ferrous objects (0.02-0.04m), all unidentified.

017 One ferrous nail (0.09m), four ferrous rivets corroded together (0.01m) and one unidentified ferrous object (0.015m).

019 One spherical lead object (0.035m in diameter), possibly a slingshot, two ferrous nails and one nail-head (0.02m) and one unidentified piece of ferrous material (0.05m).

020 One ferrous nail (0.04m).

021 One hollow ferrous object, corroded onto a pebble and associated with another twelve ferrous fragments (0.02-0.04m), possibly pieces of metal binding as rivets are partially visible in places, sixteen small fragments of ferrous material associated with eight unidentified ferrous pieces (0.01-0.03m), one piece of possible slag, three ferrous nail-heads (0.015m) and eight possible hobnails.

Also, four ferrous pieces (0.03-0.07m) showing at least two thicknesses of metal with rivets visible and eleven unidentified ferrous fragments corroded onto pebbles.

022 Three ferrous nails (0.02-0.05m) and one unidentified ferrous object (0.045m), probably a nail.

023 One ferrous nail (0.045m).

024 Eleven unidentified ferrous pieces (0.01-0.05m).

025 Two long, thin pieces of same ferrous object corroded onto a large pebble, possibly binding as rivets are visible along its length (0.07m). One similar piece on smaller pebble with rivets also visible (0.045m) and one hollow unidentified ferrous object (0.015m).

030 Six large nails (0.02-0.03m) and two small nails (0.02m), two possible hobnails, one flat ferrous object (0.03m) possibly from a blade, and one unidentified ferrous object.

033 One badly corroded ferrous object (0.02m), unidentified.

034 One nail (0.04m), one nail-head (0.02m) and one fragment of small, possibly circular ferrous object (0.015m).

035 Nine ferrous nails (0.03-0.05m) and two nail-heads (0.02m).

036 Seventeen ferrous nails (0.025-0.065m), two nail-heads, one piece of slag and one unidentified ferrous object (0.025m).

040 Five ferrous nails (0.025-0.05m), two nail-heads (0.02m) and one unidentified ferrous object (0.02m).

041 Nine unidentified ferrous objects (0.03-0.05m), possibly part of the same object, with nails visible in six of the pieces, and three ferrous nails (0.02-0.04m).

044 One ferrous nail (0.045m).

Trench 2

Unstratified Two ferrous nails (0.075-0.085m).

Trench 4

405 Four ferrous nails (0.02-0.06m) and one possible nail (0.07m).

Watching brief

600 One buckle, one nail and four fragments of a flat metal object, of recent origin.

APPENDIX 4 - PRELIMINARY CATALOGUE OF BRICK AND TILE FINDS

Fragments of brick and tile were recovered from Trenches 1, 3 and 4, and during the watching brief. These were collected by context and are listed below. An assessment report on this material is included as section 5.4 of this report.

Trench 1

005 Two fragments of modern ceramic pipe, one piece of modern brick; all red.

026 Squared piece of tile, yellow-red, with lattice decoration incised on one face: possibly from a box-flue tile associated with a hypercausted building, such as a bath-house.
Two fragments of brick, red.

030 Three brick fragments, red.

036 Seven brick fragments, red.

Trench 3

Unstratified One large fragment of coarse brick, 0.04m thick, possibly Roman.

306 One piece and one fragment of brick, yellow-red, Roman.

Trench 4

405 One piece of small tile, with three sides present, red.

409 Irregular fragment of brick, red.

Watching brief

600 One fragment of modern, glazed tile.

604 Large piece and fragment of coarse brick, probably Roman.

611 Two very small fragments of brick, possibly Roman.

APPENDIX 5 - PRELIMINARY CATALOGUE OF GLASS FINDS

Glass shards were recovered from Trenches 1, 3, 5 and during the watching brief. These were collected by context and are listed below. An assessment report of glass artefacts is included as section 5.5 of this report.

Trench 1

008 Three shards of brown bottle glass, from one vessel; recent origin.

016 One translucent shard of light green glass, possibly Roman. Distinctive smooth outer surface and pitted inner.

023 One small shard of fine, transparent vessel glass, probably Roman.

033 One small shard of transparent blue-green vessel glass, Roman.

035 One opaque, blue, spherical glass bead, 0.015m in diameter. Exhibits at least two failed attempts to bore a hole through bead, and shows the central hole in cross-section where bead has split. Probably Roman.

036 One small shard of transparent glass, probably not Roman.

Trench 3

Surface One shard of green glass, modern.

Trench 5

505 One intact light green glass bottle, modern, inscribed "Dinneford's...fluid...magnesia".

Watching brief

600 Ten shards of assorted brown, light and dark green, and clear shards, pre-recent. Minimum of 3 vessels present.

APPENDIX 6 - CHIPPED STONE CATALOGUE

Flint and chert artefacts were recovered from Trenches 1 and 2. They are listed below by trench and context. The total number of chipped stone artefacts recovered was six. An assessment report on the chipped stone artefacts is included as section 5.6 of this report. Dimensions are given in mm.

Trench 1

065 Chert blade, possibly of volcanic material.
42x18x5

074 Inner regular flint flake of very fresh material.
Faceted platform. Fine, light abrupt retouch around the lateral margins.
43x25x6

Trench 2

207 Inner irregular flake of heavily corticated flint or chert.
39x19x5

Inner regular chert flake.
19x16x5

Chert bladelet core with opposed platforms on one face. Occasional flakes removed from other parts of the block.
30x26x23

Irregular inner flint flake, patinated and partially corticated. Occasional small flakes removed from margins are probably post-depositional.
72x58x30

APPENDIX 7 - PRELIMINARY CATALOGUE OF LEATHER FINDS

The leather finds are here listed by trench and context of discovery, with a brief description. An assessment report of the leather finds is included as section 5.8 of this report.

Trench 1

065 An off-cut of leather, possibly from a shoe.

074 A regularly perforated robust piece of leather, possibly from a shoe.

Two irregular pieces of leather, one possibly from a shoe, the other from a bag or scabbard.

Watching brief

600 A few fragments of a perforated leather strap, possibly a horse fitting; preserved dry; pre-recent in origin.

APPENDIX 8 - PRELIMINARY CATALOGUE OF WOOD FINDS

The waterlogged timber remains have been listed here according to context and described briefly, including small find numbers where applicable. An assessment report of the wood finds is included as section 5.9 of this report.

Trench 1

005 One timber fragment probably redeposited from archaeological horizons during building of Borrans Pumping Station.

068 Three small worked pieces of timber and one very decayed piece within fill 068 of cut 063. Also, one small piece (SF 6) supporting timber 079.

069 One small fragment of timber.

072 Four small worked timber fragments found within fill 072, in association with timber post 076.

076 A substantial squared timber post within cut 073 (see context description).

079 A squared timber post within cut 082 (see context description).

080 A rectangular piece of a timber within cut 083 (see context description).

081 A roughly worked timber piece within posthole cut 082, in direct association with timber 079 (see context description).

085 A squared timber post from posthole cut 086 (see context description).

087 One possibly worked timber piece.

088 One narrow, pointed stake and one small fragment of worked timber.

089 One narrow, pointed stake and one small fragment of worked timber. The top end of the stake was lifted separately.

090 One narrow, pointed stake.

091 One narrow, pointed stake and one small fragment of worked timber. Part of the bark of the stake was lifted separately.

092 One narrow, pointed stake in a fragile condition.

Watching brief

603 Two small pieces of possibly worked timber.

APPENDIX 9 - PRELIMINARY CATALOGUE OF MISCELLANEOUS FINDS

Trench 1

035 One fragment of clay pipe stem.

APPENDIX 10 - LIST OF SMALL FINDS (SF)

SF 7-10 were originally assigned to timber pieces which, upon excavation, proved to be structural and were assigned context numbers instead.

SF1 Blue glass bead from 035 (TR1)
SF2 Coarse ware handle from 037 (TR1)
SF3 Pot rim (2 sherds) from 039 (TR1) - refits to SF5
SF4 Pot (4 refitting sherds) from 041 (TR1)
SF5 Pot rim (2 sherds) from 041 (TR1) - refits to SF3
SF6 Worked timber found with 079 from 068 (TR1)
SF11 Fragmented pot (33 sherds) from 087 (TR1)
SF12 Bowl base from 058 (TR1)

APPENDIX 11 - LIST OF SAMPLES

Samples were collected in either 40 x 30cm clear plastic bags or sampled in bulk in fertiliser bags. In the following list "BAG" relates to the 40 x 30cm sample bags, "BULK" relates to the fertiliser bag size. An assessment report of the palaeoenvironmental potential of the samples taken is included as section 5.10 of this report.

S1 Sample of yellow mortar 018 (TR.1) - 1 BAG.
S2 Sample of orange-brown burnt clay and charcoal 024 (TR.1) - 2 BAGS.
S3 Sample of mid grey-brown silt 028 (TR.1) - 1 BAG.
S4 Sample of a linear band of thin brown silt 027 (TR.1) - 1 BAG.
S5 Sample of a linear band of thin brown silt 029 (TR.1) - 1 BAG.
S6 Sample of thin burning layer 032 (TR.1) - 1 BAG.
S7 Sample of a diagonal brown gritty feature 033 (TR.1) 1 BAG
S8 Sample of a yellow clay lens within 034 (TR.1) 1 BAG.(30 X 20cm.)
S9 Sample of 034 (TR.1) 1 BAG.
S10 Sample of charcoal-rich orange silt 037 (TR.1) 1 BAG.
S11 Sample of 036 (TR.1) 1 BAG.
S12 Sample of charcoal-rich silt 208 A (TR.2) 1 BAG.
S13 Sample of charcoal-rich silt 208 B (TR.2) 1 BAG.
S14 Sample of charcoal-rich silt 208 C (TR.2) 1 BAG.
S15 Sample of charcoal-rich silt 043 (TR.1) - 1 BAG.
S16 Sample of mortar from between stones 046 (TR.1) 1 BAG.
S17 Sample of red metalled gravel 044 (TR.1) - 1 BAG
S18 Sample of brown metalled area between stones 041 (TR.1) - 2 BAGS.
S19 Sample of charcoal-rich silty layer 050 (TR.1) 2 BAGS.
S20 Sample of charcoal-rich silt 056 (TR.1) - 1 BAG.
S21 Sample of sandy-silt clay with a high organic content 059 (TR.1) - 1 BAG.
S22 Sample of compressed organics 058 and 070 (TR.1) 1 BAG.
S23 Sample of rich organic deposit 074 (TR.1) - 1 BAG.
S24 Sample of grey sandy clay 061, presumed natural (TR.1) - 1 BAG.
S25 Sample of mid-brown silty clay 405 (TR.4) - 1 BAG.
S26 Sample of orange-pink silty clay 060. (TR.1) 1 BAG.
S27 Sample of light grey-green sandy clay 061 (TR.1) 1 BAG.
S28 Sample of 066 (TR.1) - BULK.
S29 Sample of 067 (TR.1) - BULK.
S30 Sample of 068 (TR.1) - BULK.
S31 Sample of 069 (TR.1) - BULK.
S32 Sample of 070 (TR.1) - BULK.
S33 Sample of 071 (TR.1) - BULK.
S34 Sample of silty sand 306 (TR.3B) - 1 BAG.

S35 Sample of 312 (TR.3B) - 1 BAG.
S36 Sample of pink clay 060 (TR.1) - BULK.
S37 Sample of wet clayey fill 068 (TR.1) - BULK.
S38 Sample of burnt lens within 060 (TR.1) - BULK.
S39 Sample of charcoal-rich silt 316 (TR.3B) - 1 BAG.
S40 Sample of carbonised wood 317 (TR.3B)
S41 Sample of light grey silty sand 052 (TR.1) - BULK.
S42 Sample of pink-orange clay silt 093 (TR.1) - BULK.
S43 Sample of dark grey silty sand 094 (TR.1) - BULK.
S44 Sample of bright orange burnt clay 050 (TR.1) BULK.
S45 Sample of fill 068 occurring below and around timber 081 (TR.1) - 1 BAG.
S46 Sample of grey silty sand containing charcoal, pebbles and stones 051 (TR.1) - BULK.
S47 Sample of mixed sands and gravels 057 (TR.1) - BULK.
S48 Sample of mixed orange silty clays 060 (TR.1) BULK.
S49 Sample of sandy silt clay with a high organic content 059 (TR.1) - BULK.
S50 Sample of grey-green clay sand and gravel 065 (TR.1) BULK.
S51 Sample of marled clay 069 (TR.1) BULK.
S52 Sample of organic-rich compacted timber layer 058 (TR.1) - BULK.
S53 Sample of layer of high organic content (marsh soil) 074 (TR.1) - BULK (2 BAGS)
S54 Sample of coarse grey organic sandy silt with wood fragments 059 (TR.1) - BULK.
S55 Sample of bracken matting 058 (lifted intact) (TR.1) TUPPERWARE BOX.
S56 Sample of compacted friable organic layer 059 (lifted in fragments) (TR.1) - 1 BAG.
S57 Sample of posthole fill 084 (TR.1) - 1 BAG.
S58 Sample of grey-brown sandy clay 074 (TR.1) - 1 BAG.
S59 Sample of wood layer 070 from NW baulk (TR.1) 2 BAGS, 1 x BULK.
S60 Sample of matted bracken 058 (excavated by trowel) (TR.1) - 1 BAG.
S61 Sample of branches and twigs on surface of 074 showing signs of cutting (excavated by trowel) (TR.1) - 1 BAG.
S62 Sample of 309 from middle box-section (TR.3) 1 BAG.
S63 Sample of fill 072 from posthole 073, mixed deposit (TR.1) - 1 BAG, 1 x BULK.
S64 Sample of wood "off-cuts" from 065 (excavated by trowel) (TR.1) - 1 BAG.
S65 Kubiena tin sample from NW baulk. (TR.1) 3 TINS(0.09 x 0.06m), 2 TINS(0.2 x 0.07m)
S66 Kubiena tin sample of section 58 (TR.1) 3 TINS(0.25 x 0.15m).
S67 Kubiena tin sample of 074 (below sample 55) (TR.1) 1 TIN (small).
S68 Sample of compacted orange and grey sand 609 (W.B.) 1 BAG
S69 Sample of orange clay with charcoal flecks 610 (W.B.) - 1 BAG
S70 Sample of grey-black sandy silt 613 (W.B.) - 1 BAG

S71 Sample of grey-brown clay silt 614 (W.B.) - 1 BAG
S72 Sample of sandy matrix of 604 (W.B.) -1 BAG
S73 Sample of compacted timber layer 070, lifted in 3 blocks (A,B and C) (TR.1)
S74 Sample of matrix of 607 (W.B.) - 1 BAG
S75 Sample of cemented grey sand and stones 608 (W.B.) 1 BAG
S76 Sample of compacted timber layer 070 and burnt timber found in association (TR1) 1 BAG

APPENDIX 12 - LIST OF FIELD DRAWINGS

D1 Plan of 005, 006 and 007 - 1:20
D2 Plan of 009 and 010 - 1:20
D3 Plan of 011 and 012 - 1:20
D4 Plan of 019 - 1:20
D5 N/A
D6 Plan of 018 - 1:20
D7 Plan of 021 - 1:20
D8 Plan of 020 - 1:20
D9 Plan of 002 and 003 - 1:20
D10 Plan of 004 - 1:20
D11 Plan of 008 - 1:20
D12 Plan of 013 and 014 - 1:20
D13 Plan of 024, 026 and 027 - 1:20
D14 Plan of 015, 022 and 023 - 1:20
D15 Plan of 028 - 1:20
D16 Plan of 201 - 1:20
D17 Plan of 031 - 1:20
D18 Plan of 026 - 1:20
D19 Plan of 030 - 1:20
D20 Plan of 203-209 - 1:20
D21 Plan of 032 - 1:20
D22 Plan of 033 - 1:20
D23 Plan of 034 - 1:20
D24 Plan of 035 - 1:20
D25 Plan of 036 - 1:20
D26 Plan of 037 - 1:20
D27 Plan of 038 - 1:20
D28 North east facing section, Trench 1 - 1:10
D29 N/A
D30 East facing section, Trench 2 - 1:20
D31 Plan of 039 - 1:20
D32 Plan of 040 - 1:20
D33 South west facing section, Trench 1 - 1:20
D34 Plan of 044 and 046 - 1:20
D35 Plan of 041 - 1:20
D36 Plan of 302 - 1:20
D37 Plan of 303 - 1:20
D38 Plan of 048 - 1:20
D39 South east facing section, Trench 1 - 1:10
D40 North west facing section, Trench 1 - 1:10
D41 East facing section, Trench 3 - 1:20
D42 Plan of Trench 4 - 1:20
D43 Schematic plan of 063 and 064 - 1:20
D44 Schematic south west facing section of 063 - 1:20
D45 Schematic northwest facing section, Trench 1 - 1:20
D46 South west facing section, Trench 4 - 1:20
D47 South west facing section of 073 - 1:10
D48 Plan of 306,311 and 312 - 1:20
D49 Plan of 048 (s.end) - 1:20
D50 Plan of 073 and 076 - 1:20
D51 South west facing section of NW-SE baulk, Trench 1 1:20
D52 Sketch plans of layers in D51 - 1:20
D53 Sketch section of 079 and 080
D54 S. extension to D51 - 1:20

D55 Plan of 082 and 083 - 1:20
D56 South west facing section, Trench 5 - 1:20
D57 North west facing sectioin, Trench 5 - 1:20
D58 Schematic north west facing section, Trench 1 - 1:20
D59 South east facing section, Trench 4 - 1:20
D60 West facing section, Trench 3 - 1:20
D61 Plan of 317 - 1:20
D62 Plan of 047 - 1:20
D63 Plan of stakes 088 to 092 - 1:20

APPENDIX 13 - LIST OF PHOTOGRAPHS

Colour slide

Film 0 (Watching brief)

1 - Not used
2-3 - General shots of French drain 601
4-7 - Record shots of dismantled wall at Waterhead pumping station, from SE
8-11 - Drain 602, Waterhead, from SE
12-15 - Drain 602 from NW
16-21 - General shots of drain 602
22-24 - Re-excavation of existing sewage pipe trench, outside Waterhead Hotel
25 - General shot of trench, from N
26-31 - Trench south of manhole, Waterhead Hotel, from S
32 - Manhole by Waterhead Hotel, from S
33 - Manhole by Waterhead Hotel, from N
34-35 - Manhole by Waterhead Hotel, from S
36 - The manhole completed

Film 1

1-3 - Trench 1, general working shots
4-5 - Modern cut 007, from NE
6-7 - Modern cut 007, from NW
8-9 - Modern water pipe and fill 009, from N
10-11 - Modern water pipe and fill 009, from NE
12-13 - Layer 011, from NE
14-15 - Layer 012, from NE
16-17 - General shot of 011 and 012, from E
18-19 - Layers 011 and 012, from SE
20-21 - Cut 010 for pipe 009, from NE
22-23 - General working shots
24-25 - Pebble spread 021, from SE
26-27 - Mortar 018 overlying boulder feature 019, from SE
28-29 - Mortar 018, from NE
30-32 - Feature 019 after removal of 018, from SE
33-34 - General working shots, from NW
35-37 - Pebble spread 021, from E

Film 3

1-2 - Boulder feature 019, from NE
3-4 - General shots of 019, from W
5-6 - General shots of 019, from NW
7-8 - General shots of 019, from W
9-11 - Feature 019, from NE
12-14 - NW extent of feature 019, from NE
15-17 - General shots of 019, from NW
18-19 - Layer 015, from NE
20-21 - Layer 022, from NE
22-23 - Layer 023, from NE
24-25 - Machine excavation of Trench 2
26-27 - Layer 026, from NE
28-29 - Layers 024 and 026, from E
30-31 - Layer 024 and surrounding contexts, from SE

32 - Layer 024, from NW
33-34 - SE extent of 024, from NW
35 - SW extent of 024, from NE
36 - Modern pipe trench 211, from S

Film 5

1-2 - Modern pipe trench 211 and 212, from S
3-4 - Layer 028, from NW
5-6 - Layer 024, from SW
7 - Layer 024, from NW
8 - Layer 024, from NE
9-10 - Boulder spread 201, from W
11-12 - Boulder spread 201, from N
13-15 - Dump layer 202, from S
16-19 - Layers immediately below 024, from NE
20-21 - Boulder and pebble spread 030, from NW
22-25 - Dump layers 207 and 209, from N
26-27 - Dump layers 207 and 209, from S
28-29 - Area of burnt material 032, from NE
30-31 - Area of burnt material 032, from NW
32-33 - Layer 033, from E
34-35 - Layer 033, from NE
36-37 - Marled silt 034, from NE

Film 7

1-3 - Dump layer 203, from N
4-6 - Dump layer 203, from S
7-8 - Grey silt layer 035, from NW
9-10 - Layer 035, from SE
11-12 - Patch of clay 037, from NE
13-14 - Burrow 038, from NE
15-16 - Silt layer 036, from SE
17-18 - Area of stones 039, from SW
19-20 - SF3 within 039, from SW
21-22 - Crushed mortar and pebble layer 040, from NE
23-24 - General working shots, Trench 2, from N
25-26 - Natural sands 210, from N
27-34 - Sequential shots of section 30 (Tr2) north to south, from E
35-36 - Mains pipe 211 and 212, from N

Film 9

1-3 - Boulder feature 041, from NW
4 - SF4 within 041, from NE
5-6 - SF5 within 041, from NE
7-8 - Boulders 046 within cut 042, from NE
9-10 - Metalled layer 044, from NE
11-12 - Layer 047, from NE
13-14 - Layers 302 and 303, from NW
15 - Wasted shot
16-17 - SE extent of boulder feature 041, from NE
18-19 - Central area of 041, from NE
20-21 - N extent of 041, from NE
22-23 - Detail of 041, from SE
24-26 - General shots of 041, from SE

27-29 - General shots of 041, from NW
30-31 - SF5 within 041, vertical with scale to NE
32-33 - Dump layer 303, from NW
34-35 - Detail of 303, from E

Film 11

1-2 - Stone rubble layer 304, from NW
3-4 - S extent of layer 304, from SW
5-6 - Layers 048, 049 and 050, from SE
7-8 - Section 39 (Tr1), from SE
9-10 - Detail of 019, 024, etc. in section 28, from NE
11-12 - Detail of 019, etc. in section 33, from SW
13-14 - Section 40 (Tr1), from NW
15-24 - Sequential shots of section 28 (Tr1) SE-NW, from NE
25-32 - Sequential shots of section 33 (Tr1) SE-NW, from SW
33-34 - General shot of section 28, from NW
35-36 - Layer 402, from NW
37-38 - N extent of section 41 (Tr3A), from E

Film 13

1-8 - Sequential shots of section 41 (Tr3A) N-S, from E
9-10 - Sewage pipe and cut 403-404, from NE
11-12 - Contexts 403-406, from NW
13-14 - Contexts 406-407, from NE
15-16 - Contexts 403-408, from NE
17-24 - Section 58 (Tr1) after initial cleaning, from NW
25-27 - Section 58 and base of machine trench, from NW
28-31 - NE side of section 58, from W
32-34 - SW side of section 58, from NE
35-38 - RH photographing section 58, looking into Tr1

Film 15

1 - Detail of stones within 404, from NE
2 - Detail of stones within 404, from SE
3 - General shot of stones within 404, from NW
4 - Contexts 406 and 407, from SW
5 - Large stone beside cut 403, from NW
6-7 - General shots of Tr3, from SE
8-9 - SE extent of 063 and 064, from NE
10-11 - SE extent of 063 and 064, from SW
12-13 - NW extent of 063 and 064, from SW
14-15 - Cut 063 and fill 064, from NE
16-17 - SE extent of 063 and 064, from SW
18-19 - General of 063 and 064, from N
20-21 - NW extent of 063 and 064, from NE
22 - NW-SE sondage in Tr1 down to 060, from NW
23-28 - Deposit 060 and stakehole 062, from NW
29-30 - Deposit 060 and stakehole 062, from NE
31-34 - Cut 063 and fill 064, from NE
35-36 - Natural deposits in SE end of Tr1 sondage, from NE

Film 17

1-2 - General shot of Tr4 completed, from NW
3-5 - SF3 within fill 068, from NE
6-7 - Compacted timber 070 in NW end of Tr1 sondage, from NE
8-9 - Detail of timber within 070 , from NE
10-11 - Timber 076 within posthole 073, from SW
12-16 - Detail of 076 within posthole 073, from S
17 - Detail of 076 and 073, from SW
18 - Detail of 076 and 073, from S
19-28 - Sequential shots of section 46 (Tr4) N-S, from SW
29-30 - General shots of Tr4, from SE
31-32 - General shots of Tr3B,from N
33 - Layer 306, from N
34-35 - Boulder feature 311, from N
36 - Boulder feature 311, from W

Film 19

1-2 - Charcoal patch 312, from E
3-4 - Feature 048 in SE extension of Tr1, from SE
5-6 - NW extent of 048 (within extension), from SW
7-8 - SE extent of 048 (within extension), from SW
9-10 - General shots of 048, from S
11-12 - Contexts 307, 312 and 313, from N
13-16 - Working shots; recording section 51, from E & SE
17 - Cut 073 and timber 076, from S .
18-19 - Burnt timber 317, from W
20-22 - SE facing section of Tr1 baulk prior to kubiena tin sample, from SE
23-24 - SE facing section showing position of kubiena tins, from SE
25-26 - Stone packing within 072, from S
27-31 - Cut 073 and timber 076, from SW, scale to E
32-34 - Working shots; lifting timber 076, from NW
35-36 - Timbers 079 and 080 within fill 068, from NE
37 - Post-excavation of 073, from S

Film 21

1-4 - Post-excavation of cut 073, from W & S
5-10 - Sequential shots of section 41 (Tr3B) N-S, from E
11-12 - Section 60 (Tr3B), from W
13 - General shot of Tr3B, from NW
14 - General shot of section 41 (Tr3B), from SE
15-17 - Working shots; In the rain, from N
18-19 - Post-excavation of cuts 063, 082 and 083, from NE
20-21 - Section 58 (Tr1); area of sample 55, from SW
22-23 - Section 58 prior to kubiena tin sample, from NW
24-25 - Detail of section 58 (Tr1), from NW
26-27 - Stones within organic layer 074, from SE
28-29 - Section 58 showing position of kubiena tins, from NW
30-34 - Natural deposits at NW extent of NW baulk (Tr1), from SE
35-36 - Final SW extent of Tr1 NW-SE sondage, from NW
37 - Final extent of Tr1; NW facing section, from NW

Film 23

1-2 - Final extent of Tr1; NW facing section, from NW
3-4 - Central part of NW-SE baulk (Tr1), from NW
5-6 - Central part of NW-SE baulk (Tr1), from W
7-8 - SE extent of NW-SE baulk (Tr1), from SW
9-10 - Central part of NW-SE baulk (Tr1), from S
11-12 - SE extent of NE facing section (Tr1), from NE
13-14 - NW extent of NE facing section (Tr1), from NE
15-16 - SW facing section (Tr1) where deposits cut by road, from S
17-18 - NE facing section (Tr1) where deposits cut by road, from N
19-20 - Orange clay 093 on NW baulk, from SE
21-22 - 093 and SE facing section of NW baulk, from SE
23-24 - Posthole cut 086 in NW baulk, from SE
25-28 - Cut 086 and timber 085 in section, from SE
29-30 - Cut 086 in NW baulk, from SE
31-33 - Cut 086 and timber 085 in section, from SE
34-36 - Cut 086 and timber 085 in section, from E

Film 25

1-2 - Location of Trench 1, from SE
3-4 - Location of Trench 1, from N
5-6 - Timber 088 in section 58, from NE
7-8 - 088, and 058 at top of section, from NW
9-10 - Timbers 088 and 089, from NW
11-13 - Section 56 (Tr5), from SW
14 - General shot Tr5, from NW
15 - General shot Tr5, from SE
16-20 - Organic layers 058 and 070, from SE
21-22 - Detail of bracken matting 058, from SE
23-24 - Layers 058 and 070, from NW
25-27 - SF12 within 058, from SE
28-30 - SF12 within 058, from NW
31-33 - Detail of compacted wood layer 070, from SE
34-35 - Detail of twigs on surface of 074, from SE
36-37 - Timbers 089 and 091, from NW

Film 27

1-2 - Machining out manhole 66, from N
3-4 - Trench 1 completed, from NW
5 - Location shot of Tr 1, from SW
6 - Location shot of Tr 2 and 3, from W
7-8 - Location shot of Tr 4, from E
9-10 - Location shot of Tr 5, from SE
11-12 - Context 603 in section, from N
13-16 - Wall 604, from W
17-18 - Wall 604, from NW
19-22 - Wall 604, from NE
23-24 - Removing 604, from N
25-26 - Context 607, from NW
27-30 - Contexts 604, 607-609 in section, from E
31-33 - SE facing section across 610 and subsoil, from E

Black and white

Film 2

1-2 - Modern cut 007, from NE
3-4 - Modern cut 007, from NW
5-6 - Modern water pipe and fill 009, from N
7-8 - Modern water pipe and fill, from NE
9-10 - Layers 011 and 012, from SE
11-12 - Layers 011 and 012, from E
13-14 - Layer 012, from NE
15-16 - Layer 011, from NE
17-18 - Cut 010 for water pipe 009, from NE
19-20 - General working shots (Tr1), from NW
21-22 - Pebble spread 021, from SE
23-24 - Mortar 018 overlying boulder feature 019, from SE
25-26 - Mortar 018, from NE
27-28 - General working shots (Tr1), from NW
29-31 - Feature 019 after removal of 018, from NE
32-33 - Pebble spread 021, from E
34 - Working shot (Tr2), from N
35-37 - SE extent of feature 019, from NE

Film 4

1-3 - Feature 019, from NE
4-6 - NW extent of feature 019, from NE
7-9 - General shot of feature 019, from NW
10-11 - Layer 015, from NE
12-13 - Layer 022, from NE
14-15 - Layer 023, from NE
16-17 - Excavation of Trench 2, from N
18-19 - Layer 026, from NE
20-21 - Junction of 024 and 026, from SE
22-23 - Layer 024 and surrounding contexts, from NE
24 - Layer 024, from NW
25-26 - SE extent of 024, from NW
27 - SW extent of 024, from NW
28 - Modern pipe trench 211, from N
29 - Modern pipe trench 211, from S
30-31 - Layer 028, from NW
32 - Layer 024, from SW
33 - Layer 024, from NW
34 - Layer 024, from NE
35-36 - Boulder spread 201, from W

Film 6

1-2 - Dump layer 202, from N
3-5 - Dump layer 202, from S
6-9 - Layers immediately below 024, from NE
10-11 - Boulder feature 030, from NW
12-13 - Dump layers 207 and 209, from N
14-15 - Dump layers 207 and 209. from S
16-17 - Area of burnt material 032, from NE
18-19 - 032, from NW
20-21 - Layer 033, from E
22-23 - Layer 033, from NE

24-27 - Layer 034, from NE
28-30 - Dump layer 203, from N
31-33 - Dump layer 203, from S
34-35 - Layer 035, from NW
36 - Layer 035, from SE

Film 8

1-2 - Layer 037, from NE
3-4 - Burrow 038, from NE
5-6 - Layer 036, from SE
7-8 - Layer 039 and SF 3, from SW
9-10 - Layer 039 and SF 3, from SW
11-12 - Layer 040, from NE
13-14 - Layer 210, from N
15-22 - Sequential shots of section 30 (Tr2) north to south, from E
23-24 - Mains pipe 211 and 212, from N
25-27 - Boulder feature 041, from NW
28-30 - SF4 within 041, from NE
31-32 - Boulders 046 within cut 042, from NE
33-34 - Metalled layer 044, from NE
35-36 - Layer 047, from NE

Film 10

1-2 - Layers 302 and 303, from NW
3-4 - N extent of boulder feature 041, from NE
5-6 - Central area of 041, from NE
7-8 - SE extent of 041, from NE
9-10 - Detail of 041, from SE
11-13 - General shots of 041, from SE
14-16 - General shots of 041, from NW
17-18 - SF5 within 041, vertical with scale to NE
19-20 - Dump layer 303, from NW
21-22 - Detail of 303, from E
23-24 - Stone rubble layer 304, from NW
25-26 - S extent of layer 304, from SW
27-28 - Layers 048, 049 and 050, from SE
29-30 - Section 39 (Tr1), from SE
31-32 - Detail of 019, 024, etc. in section 28, from NE
33-34 - Detail of 019, etc. in section 33, from SW
35-36 - Section 40 (Tr1), from NW

Film 12

1-8 - Sequential shots of section 28 (Tr1) SE-NW, from NE
9-10 - Contexts 004, 006 and 007, from E
11-18 - Sequential shots of section 33 (Tr1) SE-NW, from SW
19-20 - General shot of section 28, from NW
21-22 - Layer 402, from NW
23-32 - Sequential shots of section 41 (Tr3A) N-S, from E
33-34 - Sewage pipe and cut 403-404, from NE
35-36 - Contexts 403-406, from NW

Film 14

1-2 - Contexts 406-407, from NE
3-4 - Contexts 403-408, from NE
5-8 - Section 58 (Tr1) after initial cleaning, from NW
9-11 - Section 58 and base of machine trench, from SW
12-16 - NE side of section 58, from NW
17-18 - SW side of section 58, from NE
19-20 - Detail of stones within 404, from NE
21 - Working shot, Tr 4, from NE
22 - General shot of stones within 404, from SE
23 - Contexts 406 and 407, from SE
24 - Large stone beside cut 403, from NW
25-26 - General shots of Tr3, from SE
27-28 - SE extent of 063 and 064, from SW
29-30 - SE extent of 063 and 064, from SE
31-32 - Cut 063 and 064, from SE
33-34 - Layer 060 and stakehole 062, from NW
35-36 - NW-SE sondage in Tr1 down to 060, from NW

Film 16

1-2 - NW extent of Tr 1 sondage, from NE
3-4 - Natural deposits in SE end of Tr1 sondage, from NE
5-6 - General shot of Tr4 completed, from NW
7-8 - Timber 076 within posthole 073, from SW
9-12 - Detail of 076 within posthole 073, from S
13-22 - Sequential shots of section 46 (Tr4) N-S, from SW
23-24 - General shots of Tr4, from SE
25-26 - General shots of Tr3B,from N
27 - Layer 306, from N
28-30 - Boulder feature 311, from N
31-32 - Cut 073 and associated layers, from S
33 - Cut 073 and associated layers, from SE

Film 18

1-2 - Feature 048 in SE extension of Tr1, from SE
3-4 - NW extent of 048 (within extension), from SW
5-6 - SE extent of 048 (within extension), from SW
7-8 - Contexts 307, 312 and 313, from N
9-12 - Working shots; recording section 51, from E
13- - Charcoal patch 312, from E
14-15 - Burnt timber 317, from W
16-18 - SE facing section of Tr1 baulk prior to kubiena tin sample, from SE
19-20 - SE facing section showing position of kubiena tins, from SE
21-22 - Stone packing within 072, from S
23-28 - Cut 073 and timber 076, from SW, scale to E
29-30 - Working shots; lifting timber 076, from NW
31-32 - Timbers 079 and 080 within fill 068, from NE
33-34 - Post-excavation of 073, from S
35-36 - Post-excavation of 073, from W

Film 20

1-2 - Layers to NW of cut 073, from W
3-8 - Sequential shots of section 41 (Tr3B) N-S, from E
9 - General shot of section 41 (Tr3B), from SE
10-11 - Section 60 (Tr3B), from W
12 - General shot of TrB, from N
13-14 - Section 58 (Tr1); area of sample 55, from SW
15-16 - Section 58 prior to kubiena tin sample, from NW
17-18 - Detail of section 58 (Tr1), from NW
19-20 - Stones within organic layer 074, from SE
21-22 - Section 58 showing position of kubiena tins, from NW
23 - Natural deposits at NW extent of NW baulk (Tr1), from SE

Film 22

1-2 - Stake 088 in section, from NW
3-4 - Branches on surface of 074, vertical scale in SE
5-6 - Stakes 089 and 091, from NW
7-8 - Stake 092 in section, from N
9-10 - Machining out for manhole 66, from N
11-12 - Trench 1 completed, from NW
13 - Location shot of fort and Tr 1, from SW
14 - Location shot of Tr 2 and 3, from W
15-16 - Location shot of Tr 4. from E
17-18 - Location shot of Tr 5, from SE

APPENDIX 14 - COPY OF BRIEF SUPPLIED TO CFA BY SLDC

Final Version

BRIEF FOR AN ARCHAEOLOGICAL EVALUATION FOR AMBLESIDE SEWERAGE SCHEME PHASE ONE (WITHIN SCHEDULED AREA FOR GALAVA ROMAN FORT)

This brief has been compiled by the Cumbria Sites and Monuments Record on behalf of South Lakeland District Council (SLDC) who are acting as agents for North West Water Limited for this scheme.

1. INTRODUCTION

1.1 The area affected by the works is one of extremely high archaeological potential with about 60% of the proposal falling within the scheduled area for Galava Roman Fort associated Vicus and Roman road (CSMR 1877). Only around 150 Roman forts are known to have existed in England of which 60 have produced evidence of associated civilian settlements (vici). The whole of the later fort at Ambleside and much of the vicus area is unencumbered by modern development and thus Galava is of high national importance. Previously deposits under Borrans Road were excluded from the schedule, but as of 23 October 1992 they are now included. For more details and a description of the monument see appendix I.

1.2 The area of archaeological potential is known to extend beyond the boundaries of the scheduled area and it is considered that even the works outside of the scheduled area require archaeological supervision. They are the subject of a separate brief.

2 THE SITE

2.1 The site comprises a length of the A5075, Borrans Road from NY 37470333 to NY 37300360 which is within the scheduled area. The remaining stretch, from NY 37700315 to NY 37470333, outside the scheduled area, will form part of a separate archaeological brief. For details of the proposed line see accompanying plans, appendix II.

2.2 The scheme includes the laying of new gravity foul sewers at Borrans and Waterhead, Ambleside. The works briefly involve the re-laying of approximately 630m of existing gravity sewer with 225, 300 and 375mm diameter vitrified clay pipes laid in open cut along the A5075, Borrans Road. Depths encountered will vary from 1.5m to 3.5m with 18 manholes located along the entire route as shown on the drawings. This brief covers the c. 300m inside the scheduled area.

2.3 It is anticipated that the Contractor will use hydraulic excavating machinery to remove material along the proposed route though some hand excavation will take place for careful removal of material around services, etc. It is likely that trenches will only be opened up over a short length at a time between 5m and 10m, excavation normally continuing whilst pipes are being laid as a continuous process. It is estimated to lay about 10m of pipe each day and under normal circumstances sections of excavated trench will

not lay open for examination for longer than half a day. However, it may be possible over the lengths highlighted in green on drawing 259/D/22 to open sections of each trench from manhole to manhole prior to laying pipes. This will only be possible where existing sewers are not on the line of the proposed pipes.

2.4 Preparatory Works are expected to start 9 November, with roadworks beginning the week of 23 November. The road is expected to be closed for a total of 20 weeks for the various phases of work. The non-scheduled area of the sewer will be constructed first, with this section to follow.

3 ARCHAEOLOGICAL IMPLICATIONS

3.1 In view of the high archaeological potential of the surrounding area and the destructive nature of the works, it is necessary to secure a programme of archaeological recording whilst the scheme is in progress. Scheduled monument consent will be necessary for this phase of work.

4 THE BRIEF

4.1 Five trenches should be cut as specified below to the appropriate professional standards.

4.2 A permanent presence watching brief should be carried out along the line of operations from NY37470333 to NY37303600.

4.3 A written project design is to be produced detailing how the work is to be undertaken, the name of the project director and the proposed programme of work. It should be written with reference to Management of Archaeological Projects , English Heritage, 2nd edn, 1991 (MAP 2).

4.4 It is important that the project design takes into account the state of the site and archaeological contractors are advised to discuss this with the developers, particularly with regard to 2.3 above, before formulating a project design.

4.5 Agreement should be reached with the developers concerning the deposition of the evaluation archive and the provision of an appropriate synopsis for the County Sites and Monuments Record and the National Archaeological Record. Costings should reflect the capital cost of the deposition of the archive. Whilst the site owners have property rights over finds, objects should normally be deposited in a Museums and Galleries Commission approved archaeological museum, either on loan or by donation.

4.6 The archaeological work shall be monitored by the Cumbria Sites and Monuments Record. The archaeological contractor should contact the Sites and Monuments Records Officer to discuss this monitoring.

5 SCOPE

5.1 Five trenches should be cut, up to 1.2m deep and 1.2m wide, in the following lengths and locations:

i) 10m in the field between Borrans Pumping Station and Manhole 66.

ii) 20m along the road between Manhole 66 and Manhole 64.

iii) 20m along the road between Manhole 64 and Manhole 63.

iv) 5m between Manholes 63 and 61.

iv) 5m between Manholes 61 and 60.

5.2 The trenches are to be co-incident with the trenches to be utilised for the construction of the sewer. South Lakeland District Council will undertake to mark the line and width of the construction trench necessary on the road.

5.3 South Lakeland District Council will cut and remove the road surface along the line of the trenches.

5.4 Services are detailed on the construction plans, but should also be checked on site prior to and during excavation. Damage to them should be avoided.

5.5 Sites of future manholes should be avoided when determining trench locations as should (as far as is possible) areas of recent ground disturbance.

5.6 A watching brief and salvage works were undertaken by Lanacaster University Archaeological Unit (LUAU) when previous works were carried out by North West Water in 1991. LUAU should be contacted to obtain information regarding the depth and complexity of stratification before a project design and costing is submitted.

5.7 As this work is in advance of pipelaying it is unlikely that any backfilling will be necessary, but this should be checked with SLDC.

5.8 The contractor should consult with SLDC and ensure that appropriate Health and Safety and Security measures are undertaken.

5.9 A permanent presence watching brief should be carried out along the A 5075, Borrans Road from NY37470333 to NY37300360 until the point where the works exit the area requiring scheduled monument consent. That area will be dealt with in a separate brief. The archaeologist should be on site as necessary in order to observe and record the contents of the trenches as they are excavated along the whole of the specified length of the scheme. SLDC has agreed in the areas which are subject to the watching brief that the top 1.2m should be mechanically excavated and that archaeological recording (as necessary) can take place before the full depth of the trenches is cut.

5.10 The archaeologist who carries out the watching brief should have the authority to stop works for up to an hour to enable recording of particularly important deposits, and to call in additional archaeological support to assist in recording if necessary. A clause to this effect should form part of any legal agreement.

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5.11 An interim report should be produced, describing the work undertaken, the results achieved and conclusions drawn from those results. The report should contain a copy of this brief and the agreed project design as appendices, as well as an indication of any departure from the agreed project design. It should also include maps, plans and sections of the trenches at an appropriate scale showing the nature and extent of archaeological deposits and findspots.

5.12 The report should be completed and submitted within 6 weeks after completion of the watching brief unless agreed otherwise with all parties.

5.13 A provisional sum for a published analysis of the excavation should be included at this stage. Following a post-excavation assessment in line with MAP 2 this figure may need to be refined.

6 GENERAL CONDITIONS FOR APPROVED ARCHAEOLOGICAL CONTRACTORS

6.1 Until such time as general conditions for approved archaeological contractors have been adopted in Cumbria, the document of the same name in use in Lancashire is in use as a model of expected practices and procedures. A copy of this document is attached as Appendix III. Where this document refers to the County Council, the role described is currently being undertaken by the Cumbria Sites and Monuments Record Officer.

7 FURTHER INFORMATION

Further queries regarding this brief or the general conditions can be addressed to the Cumbria Sites and Monuments Record Officer, Tel: 0539 814379 or by Fax 0539 726276.

For more details about the sewerage scheme please contact Phil Turner, Technical Dept., South Lakeland District Council, Tel. 0539 733333, Fax 0539 721006.

Bette Hopkins

1 December 1992
Bette Hopkins

Note:

A watching brief and salvage works were undertaken by Lancaster University Archaeological Unit when previous works were carried out in the vicinity by North West Water in December 1991. It will therefore be necessary for the successful tenderer to liaise closely with LUAU to ensure that, if appropriate, a single published analysis of the recorded data can be prepared which will include the 1991 works as well as the presently proposed works both within and outside the scheduled area. The financial provisions which may be required to meet the costs of report integration will be the subject of discussions at the MAP 2 post assessment stage (5.13 above).

BRIEF FOR AN ARCHAEOLOGICAL EVALUATION FOR AMBLESIDE SEWERAGE SCHEME PHASE ONE (OUTSIDE SCHEDULED AREA FOR GALAVA ROMAN FORT)

This brief has been compiled by the Cumbria Sites and Monuments Record on behalf of South Lakeland District Council (SLDC) who are acting as agents for North West Water Limited for this scheme.

1. INTRODUCTION

1.1 The area affected by the works is one of extremely high archaeological potential with about 60% of the proposal falling within the scheduled area for Galava Roman Fort associated Vicus and Roman road (CSMR 1877). Only around 150 Roman forts are known to have existed in England of which 60 have produced evidence of associated civilian settlements (vici). The whole of the later fort at Ambleside and much of the vicus area is unencumbered by modern development and thus Galava is of high national importance. Previously deposits under Borrans Road were excluded from the schedule, but as of 23 October 1992 they are now included. For more details and a description of the monument see appendix I.

1.2 Since the area of archaeological potential is known to extend beyond the boundaries of the scheduled area, it is considered that even the works outside of the scheduled area require archaeological supervision.

2 THE SITE

2.1 The site comprises a length of the A5075, Borrans Road from NY 37700315 to NY 37470333 which is outside the scheduled area. The remaining stretch, from NY 37470333 to NY 37300360 within the scheduled area, will form part of a separate archaeological brief. For details of the proposed line see accompanying plans, appendix II.

2.2 The scheme includes the laying of new gravity foul sewers at Borrans and Waterhead, Ambleside. The works briefly involve the re-laying of approximately 630m of existing gravity sewer with 225, 300 and 375mm diameter vitrified clay pipes laid in open cut along the A5075, Borrans Road. Depths encountered will vary from 1.5m to 3.5m with 18 manholes located along the entire route as shown on the drawings. This brief covers the c. 300m outside the scheduled area.

2.3 It is anticipated that the Contractor will use hydraulic excavating machinery to remove material along the proposed route though some hand excavation will take place for careful removal of material around services, etc. It is likely that trenches will only be opened up over a short length at a time between 5m and 10m, excavation normally continuing whilst pipes are being laid as a continuous process. It is estimated to lay about 10m of pipe each day and under normal circumstances sections of excavated trench will

not lay open for examination for longer than half a day. However, it may be possible over the lengths highlighted in green on drawing 259/D/22 to open sections of each trench from manhole to manhole prior to laying pipes. This will only be possible where existing sewers are not on the line of the porposed pipes.

2.4 Preparatory Works are expected to start 9 November, with roadworks beginning the week of 23 November. The road is expected to be closed for a total of 20 weeks for the various phases of work.

3 ARCHAEOLOGICAL IMPLICATIONS

3.1 In view of the high archaeological potential of the surrounding area and the destructive nature of the works, it is necessary to secure a programme of archaeological recording whilst the scheme is in progress.

4 THE BRIEF

4.1 A permanent presence watching brief should be carried out along the line of operations from NY37700315 to NY37470333

4.2 A written project design is to be produced detailing how the watching brief is to be undertaken and the name of the project director.

4.3 It is important that the project design takes into account the state of the site and archaeological contractors are advised to discuss this with the developers, particularly with regard to 2.3 above, before formulating a project design.

4.4 Agreement should be reached with the developers concerning the deposition of the evaluation archive and the provision of an appropriate synopsis for the County Sites and Monuments Record and the National Archaeological Record. Costings should reflect the capital cost of the deposition of the archive. Whilst the site owners have property rights over finds, objects should normally be deposited in a Museums and Galleries Commission approved archaeological museum, either on loan or by donation.

4.5 The archaeological work shall be monitored by the Cumbria Sites and Monuments Record. The archaeological contractor should contact the Sites and Monuments Records Officer to discuss this monitoring.

5 SCOPE

5.1 A permanent presence watching brief should be carried out along the A 5075, Borrans Road from NY37700315 to NY37470333 until the point where the works enter the area requiring scheduled monument consent. That area will be dealt with in a separate brief. The archaeologist should be on site as necessary in order to observe and record the contents of the trenches as they are excavated along the whole of the specified length of the scheme.

5.2 The archaeologist who carries out the watching brief should have the authority to stop works for up to an hour to enable recording of particularly important deposits, and to call in additional archaeological support to assist in recording if necessary. A clause to this effect should form part of any legal agreement

5.3 A report should be produced, describing the work undertaken, the results achieved and conclusions drawn from those results. The report should contain a copy of this brief and the agreed project design as appendices, as well as an indication of any departure from the agreed project design. It should also include a map and plans and sections of the trenches at an appropriate scale showing the nature and extent of archaeological deposits and findspots.

5.4 The report should be completed and submitted within 6 weeks after completion of the watching brief unless agreed otherwise with all parties.

6 GENERAL CONDITIONS FOR APPROVED ARCHAEOLOGICAL CONTRACTORS

6.1 Until such time as general conditions for approved archaeological contractors have been adopted in Cumbria, the document of the same name in use in Lancashire is in use as a model of expected practices and procedures. A copy of this document is attached as Appendix III. Where this document refers to the County Council, the role described is currently being undertaken by the Cumbria Sites and Monuments Record Officer.

7 FURTHER INFORMATION

Further queries regarding this brief or the general conditions can be addressed to the Cumbria Sites and Monuments Record Officer, Tel: 0539 814379 or by Fax 0539 726276.

For more details about the sewerage scheme please contact Phil Turner, Technical Dept., South Lakeland District Council, Tel. 0539 733333, Fax 0539 721006.

13 November 1992
Bette Hopkins

Appendix III

General Conditions for Appropriate Archaeological Contractors

Organisations and individuals wishing to be included on the County list of Appropriate Archaeological Contractors will be required to fulfil the following General Conditions:

1. **Professional Standards**

1.1 Contractors shall conform to the standards of professional conduct outlined in the Institute of Field Archaeologists Code of Conduct, the IFA Code of Approved Practice for the Regulation of Contractual Arrangements in Field Archaeology, and the British Archaeologists and Developers Liaison Group Code of Practice.

1.2 Contractors should encourage all appropriate staff to become individual members of the IFA. In addition, Project Directors should be recognised in an appropriate Area of Competence by the IFA.

1.3 Contractors with a significant backlog of unpublished projects will not normally be included on the approved list.

1.4 Where students or trainees are employed on a project, their ratio to professional staff should not normally exceed 1:2.

1.5 In cases of dispute, arbitration will normally be sought through the IFA or the British Archaeologists and Developers Liaison Group.

2. **Finance**

2.1 Contractors shall make available at the request of the County Archaeological Curator an audited set of recent accounts.

3. **Insurance**

3.1 Contractors shall hold a current certificate of Public Liability and (where relevant) Employers Liability insurance, and shall produce it at the request of the County Archaeological Curator.

4. **Health and Safety**

4.1 Contractors shall comply with the requirements of the Health and Safety at Work etc Act 1974 and related legislation.

4.2 Site procedures shall be in accordance with the guidance set out in the Health and Safety Manual of the Standing Conference of Archaeological Unit Managers.

5. **Project Design**

5.1 Individual projects should be designed in accordance with a brief provided by the County Archaeological Curator. Before commencement of a project, Contractors should prepare a written Project Design and agree it with the County Archaeological Curator.

5.2 Project Designs should be prepared with reference to the guidelines laid down in The Management of Archaeology Projects English Heritage 1991).

6. **Sub-Contracting**

6.1 The names of proposed Sub Contractors should be included in the Project Design. All such Sub Contractors shall be required to fulfil the General Conditions for Contractors.

7. **Form of Contract**

7.1 Before commencement of a project, the Contractor shall enter into a written agreement with the Client. Such an agreement should be in accordance with the IFA Model Contract for Archaeological Services or such other form as approved by the County Archaeological Curator.

8. **Project Monitoring**

8.1 The County Archaeological Curator shall be responsible for monitoring progress through out the project.

8.2 Contractors shall provide the County Archaeological Curator with an outline programme of work, and agree with the curator any proposed modification to this programme brought about by unforeseen circumstances. It is strongly recommended that Project Designs include a contingency factor to allow for such circumstances.

9. **Administrative Charge**

9.1 The County Archaeological Curator reserves the right to levy a charge for the archaeological monitoring and the provision of information from the Cumbria Sites and Monuments Record.

10. **Publication**

10.1 Publication shall be in a form and to a timetable to be agreed on completion of the site archive and narrative. A copy of the site narrative and publication synopsis shall be lodged with the County Sites and Monuments Record.

10.2 Whilst acknowledging the need for confidentiality in some instances, archaeological information should enter the public domain as soon as possible and within two years of the completion of fieldwork.

11. **Archive**

11.1 Archive deposition should take place according to a timetable to be agreed on completion of the site archive and narrative.

11.2 The site archive, including finds and environmental material, should be conserved and stored according to the UKIC Guidelines for the preparation of excavation archives for long-term storage.

11.3 The archive (excepting the finds) should be deposited as soon as is practicable with the County Record Office and the finds stored, wherever possible, in a Registered Museum fulfilling the HBMC/MGC storage criteria with a copy of the paper archive. It may be felt more appropriate in some circumstances to store both paper archive and finds together, and this should be, wherever possible, within a Registered museum fulfilling the HBMC/MGC storage criteria.

11.4 Any material to be archived, such as unstable material or items to be retained by the landowner, should be fully analysed and reported upon.

11.5 A copy of the reproducible elements of the archive should be deposited in the National Archaeological Record.

12. **Acknowledgement**

12.1 The collaborative role of the County Archaeological Curator shall be acknowledged in all publicity - including media releases, site displays, exhibitions and publications - arising from the project.

The role of the County Archaeological Curator is currently undertaken by:

Cumbria Sites and Monuments Record Officer
Cumbria Sites and Monuments Record
County Offices
Kendal
Cumbria
LA9 4RQ

Tel: 0539 814379
Fax: 0539 726276

APPENDIX 15 - CFA PROJECT DESIGN FOR WATCHING BRIEF OUTSIDE SCHEDULED AREA

1. Background

1.1 The project area is an approximately 300m length of the A5075 outside the scheduled area of Galava Roman Fort, Vicus and Roman road (CSMR 1877) as shown on the plan provided to CFA by South Lakeland District Council (Appendix III) running from NY 3770 0315 to NY 3747 0333. The continuation of the works into the scheduled area is covered in a separate Project Design (Annex Two).

1.2 Previous research has been conducted within the area. This is described in more detail in Annex Two. Preparatory work for the project will include a detailed assessment of previous work.

1.3 The project is proposed as the result of the planned laying of new gravity foul sewers at Borrans and Waterhead, Ambleside by South Lakeland District Council Technical Department. The project will comprise a watching brief with appropriate recording of archaeological deposits and possible further archaeological support, starting on November 23 1992 and ending around the end of February 1993.

1.4 The project archive, comprising all CFA record sheets, maps and reports, will be deposited with the County Records Office. If any finds are recovered they will be deposited in consultation with the Cumbria Sites and Monuments Record Officer with a Registered Museum fulfilling the HBM/MGC storage criteria, together with a paper copy of the archive.

2. Aims and Objectives

The objective of the project is to ensure that any archaeological deposits outside the scheduled area are recorded while the works are in progress and subsequently to interpret them, where possible, within the framework of current and previous excavations.

3. Methods Statement

3.1 The trenches will run through an area immediately adjacent to a site known to have well preserved archaeological deposits. In order to ensure that any archaeological deposits outside the scheduled area are recorded an archaeological inspector will be required to maintain a permanent presence during excavation of the trenches along the whole length of the scheme.

3.2 The archaeologist will have the authority to stop the works for up to an hour to permit recording of important archaeological deposits. Recording will be achieved by completing record sheets on features and individual contexts, collecting artefacts, and by drawing and photography.

3.3 If significant archaeological deposits are uncovered which the archaeological inspector cannot record adequately in the time available, the archaeologist shall be able to call on the services of additional archaeological support, in consultation with the South Lakeland District Council Technical Department, and arrange an adequate stoppage of works where this is essential.

3.4 Normal trenching methods employed by South Lakeland District Council involve driving trench sheets into the ground ahead of excavation. This will prohibit the viewing or recording of many of the sections, which will never be properly exposed. As a consequence of this, much of the information gathered may be expected to derive from material excavated from the trench. In the case of significant archaeological deposits being uncovered, the archaeologist may, in consultation with the South Lakeland District Council Technical Department, make arrangements to allow safe entry into the trench.

3.5 A report will be produced, describing the work undertaken, the results achieved and the conclusions drawn from those results. A map and appropriate plans and sections of the trenches at appropriate scales will be included, illustrating the archaeological deposits and finds.

4. Resources and Programming

4.1 Project Personnel

4.1.1 **Project Director** for CFA will be Bill Finlayson MA PhD FSA Scot MIFA. Dr Finlayson's CV is included in Annex Four. Dr Finlayson will manage the project, in conjunction with work in the scheduled area.

4.1.2 The permanent presence watching brief will be conducted by CFA **Field Officers**. Field Officers are employed by the University of Edinburgh as Research Associates.

4.2 Training

All CFA staff have the necessary training for this project. CFA staff have extensive experience of working on watching briefs coordinated with construction works.

4.3 Health and Safety

All CFA staff have been inducted into CFA's Health and Safety plan (approved by the University of Edinburgh Safety Office). CFA have experience with Health and Safety considerations on construction sites.

4.4 Timetable

CFA anticipate that the watching brief will start on Monday 23 November 1993 and will continue to 26 February 1993. There will be a break from 23 December to 4 January.

APPENDIX 16 -CFA PROJECT DESIGN FOR EXCAVATION AND WATCHING BRIEF WITHIN SCHEDULED AREA

1. Background

1.1 The area which forms the subject of this project design is a c.300m length of a proposed sewerage pipeline development which passes through the scheduled area relating to Galava Roman fort, associated Vicus and Roman road (NY 3747 0333 to NY 3730 0360), as detailed in the brief and 1:10,000 map supplied by South Lakeland District Council, Technical Department. As indicated in the Schedule Entry, supplied as an appendix to the brief, it is likely that archaeological remains present are extensive, complex, and well-preserved.

1.2 No Appendix II was sent with the letter sent to CFA by South Lakeland District Council on 13/11/92. Given the short notice to provide a price, CFA have had to tender without this detailed information.

1.3 A substantial amount of data relating to the scheduled remains and its environs has previously been gathered through excavation, survey and aerial photography. A broad historical framework has been developed from this evidence, within which a generalised view of the development of the site can be traced. This evidence is based upon investigation of a limited sample of the total remains, and the fieldwork forming the subject of this brief presents opportunities both for evaluation of existing interpretations and for the generation of further ideas. A synthesis of previous work at Galava and its environs therefore forms an essential element in preparatory work for the project.

1.4 The project is proposed due to the laying of new gravity foul sewers at Borrans and Waterhead, Ambleside. The work has two elements, a watching brief on areas not excavated by hand, which will follow the methods described in Annex One, and the hand excavation of five trenches. The work described within this project design will comprise preparatory work, archaeological excavation and palaeoenvironmental assessment of the specified areas, and a comprehensive post-excavation programme leading to the production of an archive excavation report and appropriate publication report. The site is legally protected as a Scheduled Ancient Monument. Excavation work is to be carried out between 7th December 1992 and 29th January 1993.

1.5 The site archive will be conserved and stored according to the UKIC Guidelines for the preparation of excavation archives for long-term storage. The site archive, comprising all CFA record sheets, maps and reports, will be deposited with the County Records Office. Finds and environmental material will be stored in a Registered Museum fulfilling the HBMC/MGC storage criteria with a paper copy of the site archive. The process of archiving will be carried out in consultation with the landowner, client, museum authorities and County Archaeologist.

2. Aims and Objectives

2.1 The proposed excavations present an important opportunity for assessing the nature and development of the Vicus adjacent to the Roman fort of Galava. Although the overall extent of the trench is small in comparison to the area of the Vicus the excavation may have the potential to investigate some of the following research issues:

- Consideration of the relationship and interaction between the civilian population of the Vicus and the military garrison housed within the adjacent fort.
- Consideration of the relationship between the Vicus and the surrounding rural landscape.
- Consideration of the economic role of the Vicus, especially in terms of evidence for industrial activities conducted within the Vicus (particularly given the possibility of a dock at this site).
- An assessment of the likely place of the Vicus in the regional context.
- Comparison with other Vici.

More specific opportunities arising from this excavation are raised as the possibility exists that the trenches will run through the apparent focus of the vicus, as suggested by previous work on the site. In addition, it is likely that the trench will intersect the Roman road running east from the fort. The location of a tombstone in the vicinity suggests that there is a possibility that evidence relating to a cemetery flanking this road may be recovered. Because the sewer trench will represent a cumulative long section through the vicus, this excavation represents a good opportunity to examine the development of the vicus from any initial core. In this light, the excavation or watching brief may also throw further light on the question as to whether the vicus was defended. Such a narrow trench is, however, unlikely to demonstrate the nature, planned or otherwise, of the street plan.

In addition, there is some potential at this site for the recovery of environmental evidence. A paleoenvironmental assessment will form an integral part of the project. It is important that the results of this work be assessed in the context of previous excavations on the site.

3. Methods Statement

3.1 Four of the five trenches lie under modern road surfaces. South Lakeland District Council will mark all trench locations and will cut and remove the road surface material in advance of hand excavation.

3.2 The location of the trenches will be determined by South Lakeland District Council in consultation with English Heritage. This method statement is constrained by the trench location.

3.3 Excavation will proceed according to standard stratigraphic excavation practice. All contexts will be recorded on standard CFA context sheets, planned and photographed. Registers will be kept for all plans, drawings and photographs.

3.4 Bulk soil samples will be collected from appropriate deposits. These will be used during the post-excavation programme for sieving for artefacts, flotation and sieving for environmental samples, and as reference material.

3.5 A site visit will be arranged to allow the palaeoenvironmental consultant to advise on sampling and storage of samples.

3.6 A watching brief of areas not excavated by hand will be conducted. The method will be as detailed in Annex One.

3.7 A post-excavation programme will be followed, including the production of a detailed stratigraphic report, finds processing and analysis, environmental sample processing and analysis, and cataloguing of all records ready for archiving.

3.8 A report will be produced, describing the work undertaken, the results achieved and the conclusions drawn from those results. A map and appropriate plans and sections of the trenches at appropriate scales will be included, illustrating the archaeological deposits and finds.

3.9 Publication form and timetable and Archive deposition will be as arranged following completion of the project post-excavation and client report.

4. Resources and Programming

4.1 Project Personnel

4.1.1 **Project Director** for CFA will be Bill Finlayson MA PhD FSA Scot MIFA. Dr Finlayson's CV is included in Annex Four. Dr Finlayson will manage the project, in conjunction with the watching brief outside the scheduled area.

4.1.2 **Site Director** will be Andrew Dunwell BA AIFA. Andrew Dunwell's CV is included in Annex Four. Andrew Dunwell will oversee the excavations and manage the post-excavation programme.

4.1.3 **Palaeoenvironmental Assessment** work will be coordinated by Geraint Coles BA PhD. Dr Coles is a Research Fellow in the Department of Archaeology, University of Edinburgh, who currently runs the Palaeoenvironmental Research Group, a unit within the Departments of Archaeology and Geography.

4.2 Training

All CFA staff have the necessary training for this project. CFA staff have extensive experience of working on sites within tight construction deadlines.

4.3 Health and Safety

All CFA staff have been inducted into CFA's Health and Safety plan (approved by the University of Edinburgh Safety Office). CFA have experience with Health and Safety considerations on construction sites.

4.4 Timetable

Excavation work will commence on 7 December 1992 and will be completed by 29 January 1993, with a break from 23 December 1992 to January 4 1993. CFA anticipate that the watching brief will start on Monday 23 November 1993 and will continue to 26 February 1993. There will be a break from 23 December to 4 January. Charts are enclosed showing the key activities up to the completion of the client report. Archive deposition and publication submission will be timetabled in consultation with the County Sites and Monuments Record Officer and English Heritage.

4.5 Budget

This budget only covers the excavation and post excavation work. All watching brief work is covered by a separate price.

APPENDIX 17 - VARIATIONS FROM CFA'S PROJECT DESIGN

1 An 'interim report', as opposed to the 'report' detailed in 3.8 of Appendix 16, has been produced. The interim report does not include all elements of work detailed in 3.7 of Appendix 16. This variation reflects amendments made to the brief (dated 1 December 1992) after CFA's Project Design had been submitted to SLDC.

2 The watching brief within the scheduled area was completed on 26 May 1993, as opposed 26 February 1993 detailed in 4.4 of Appendix 16.

3 The excavation of the five trenches took place from 25 January 1993 to 5 March 1993, not from 7 December 1992 to 29 January 1993 as detailed in section 1.4 of Appendix 16.

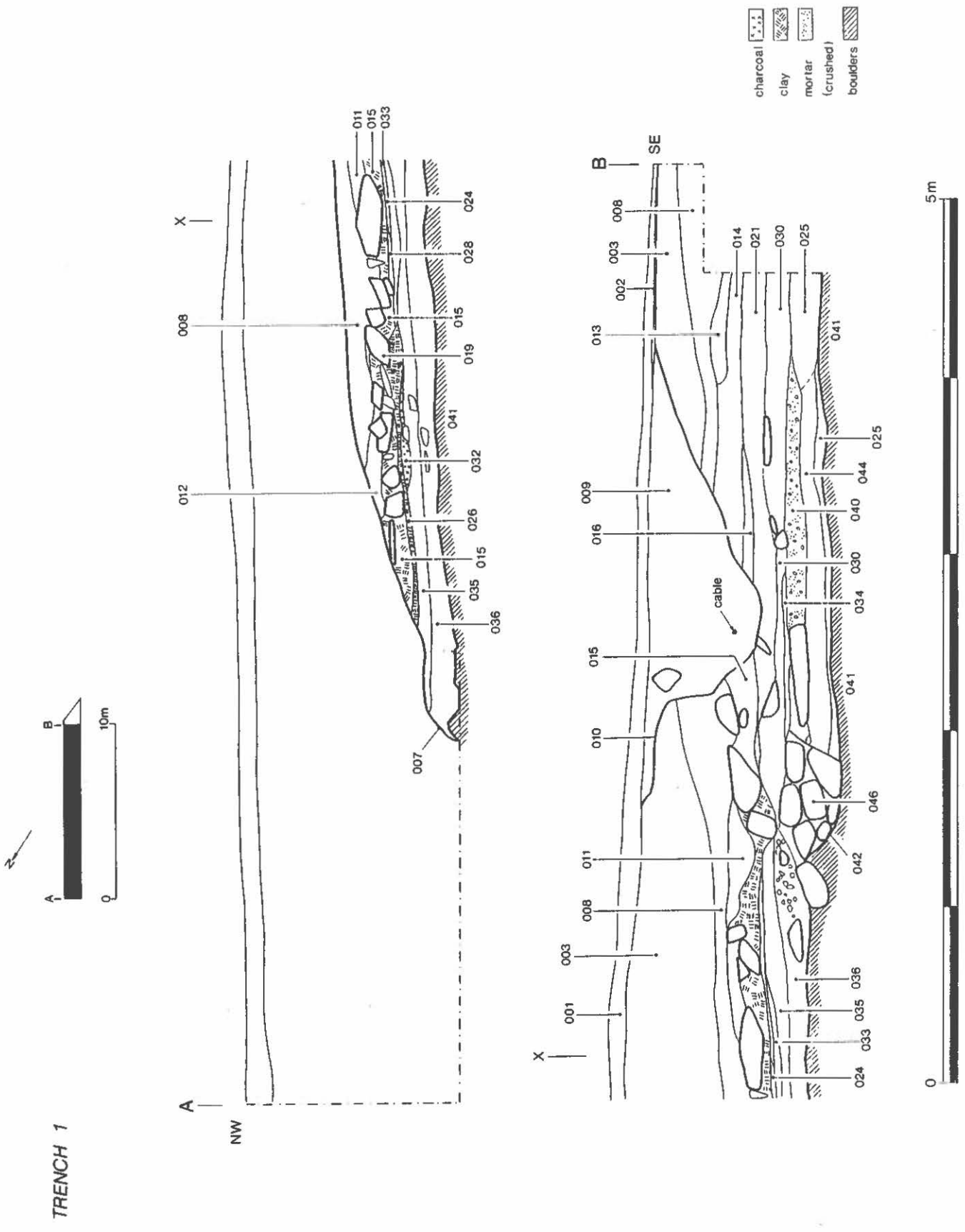


Fig. 3 - Trench 1, Phases 3-5, east section

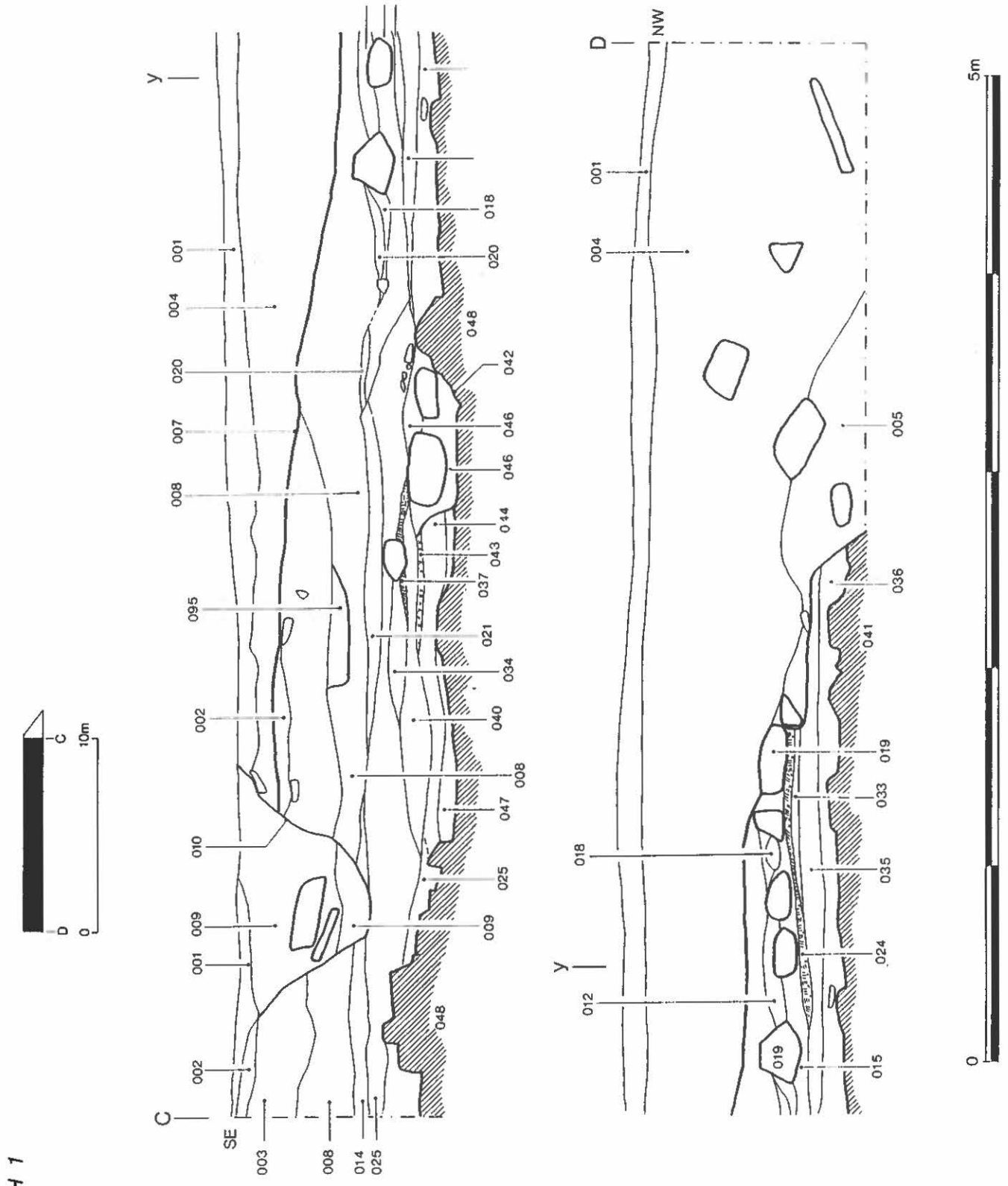


Fig. 4 - Trench 1, Phases 3-5, west section

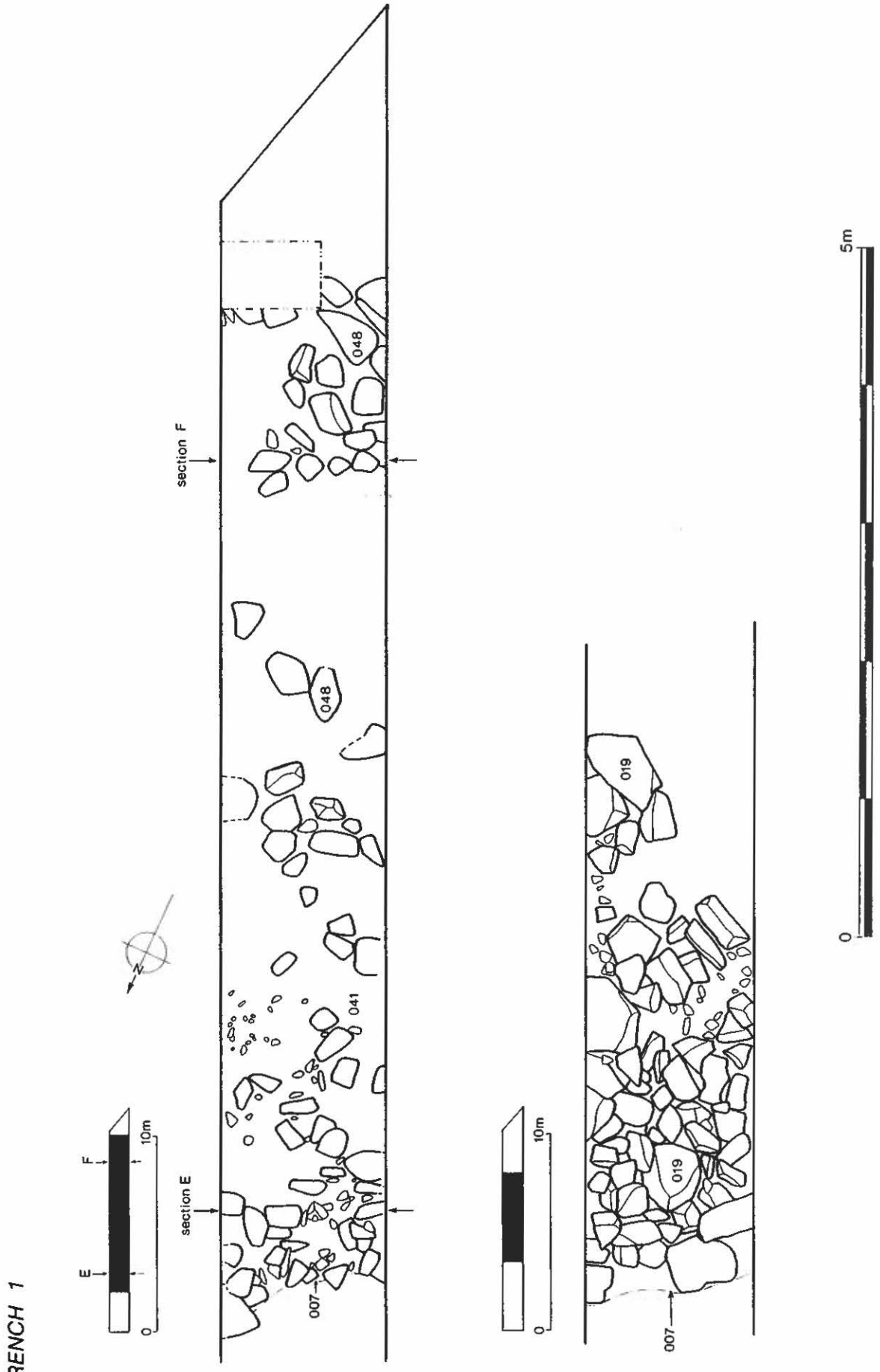
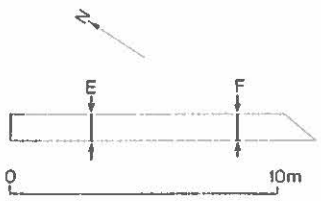


Fig. 5 - Trench 1, plans of Phases 3 & 4 foundations

TRENCH 1



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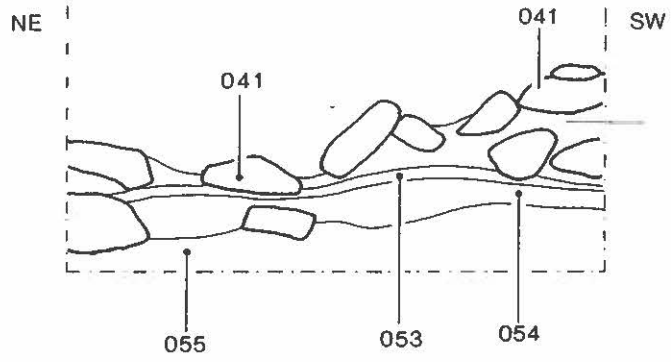

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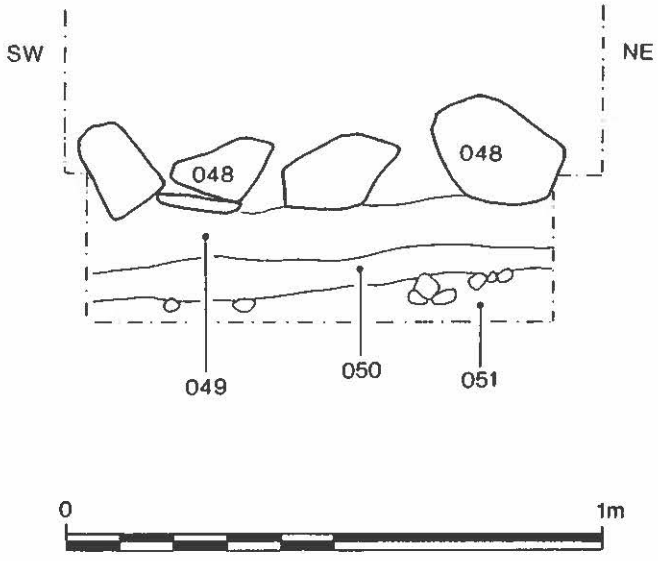

Fig. 6 - Trench 1, Phases 2-3, sections

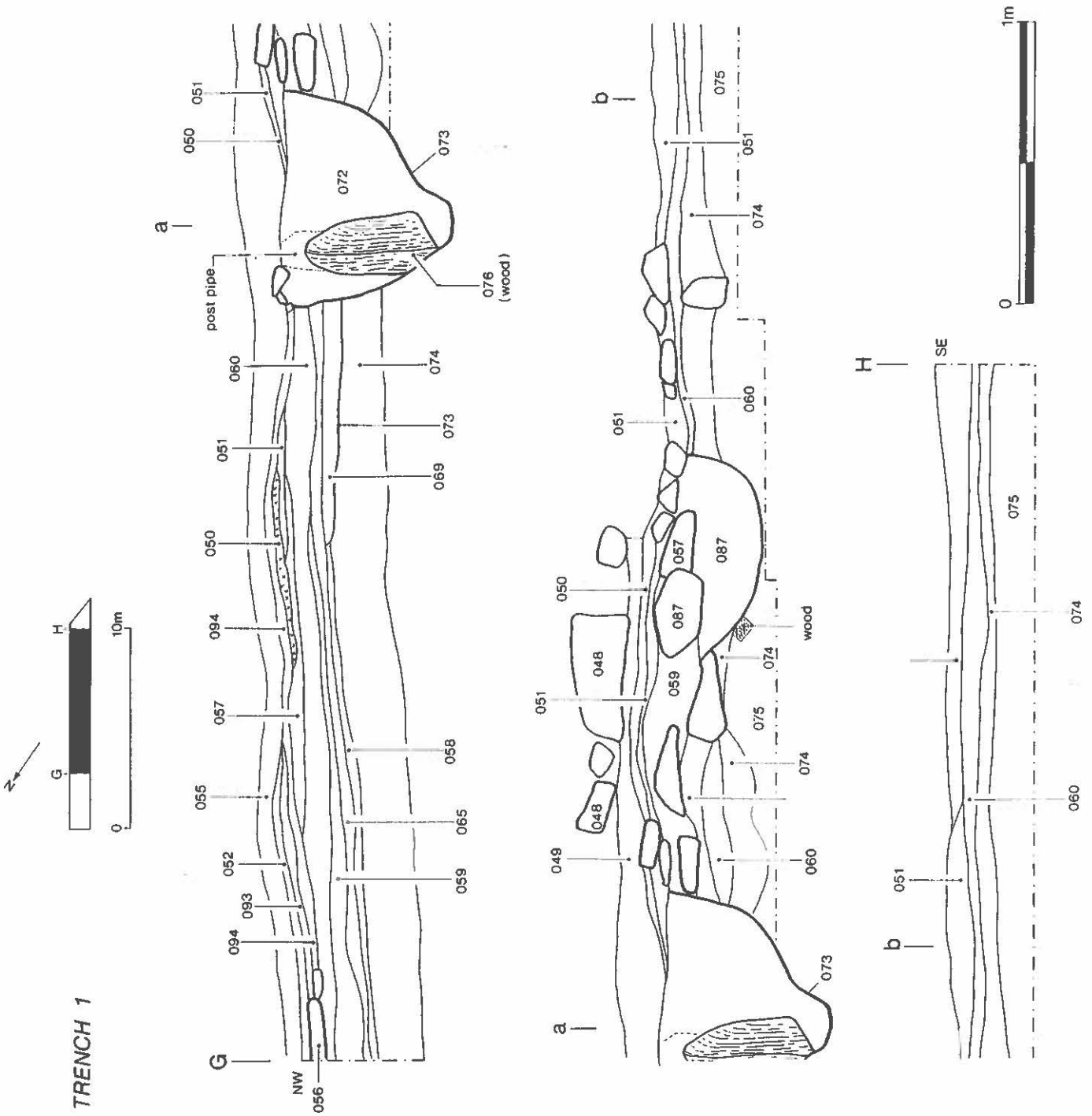

Fig. 7 - Trench 1, Phases 1-2, central section

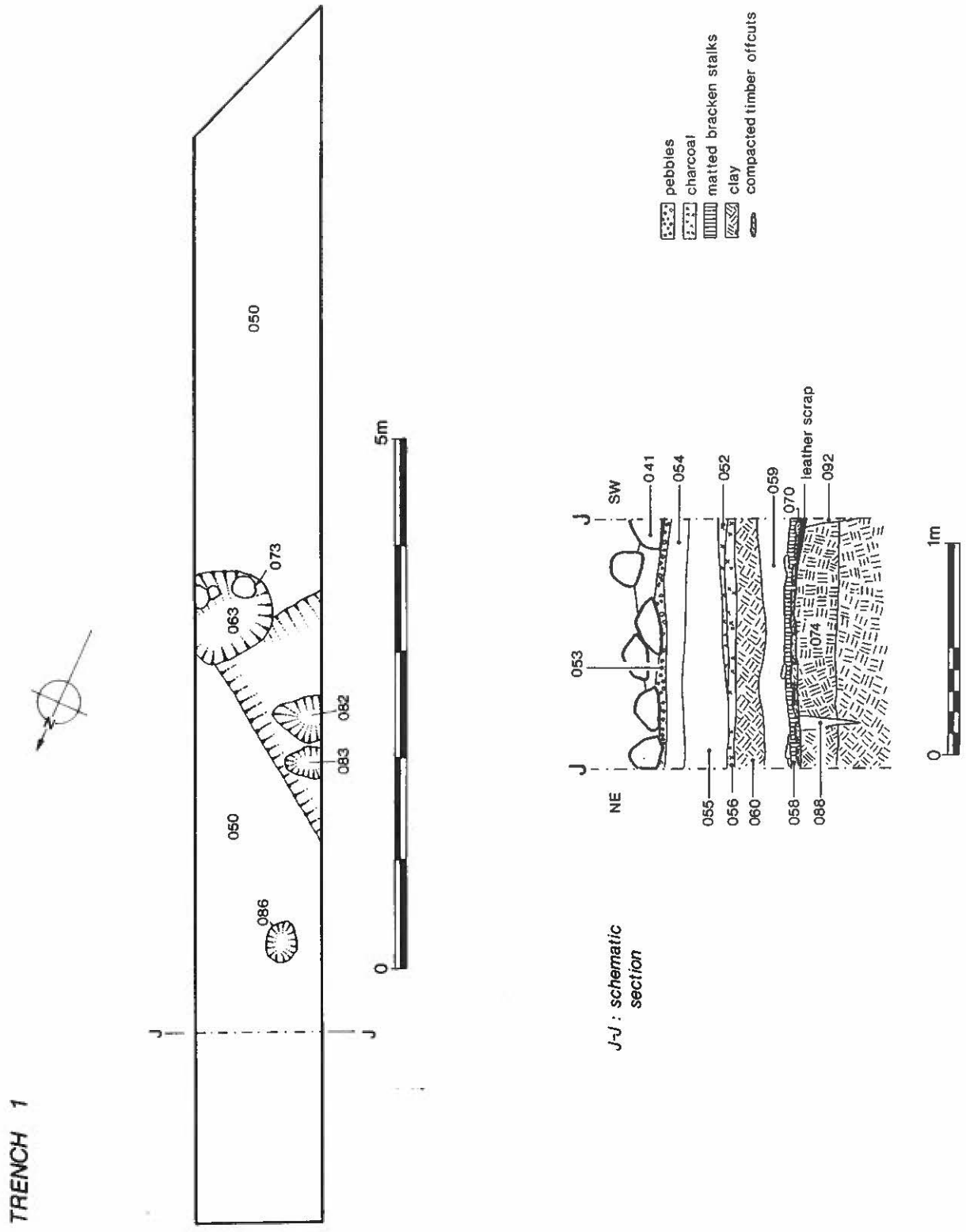

Fig. 8 - Trench 1, Phase 2 plan and Phases 1-2 schematic section

TRENCH 2

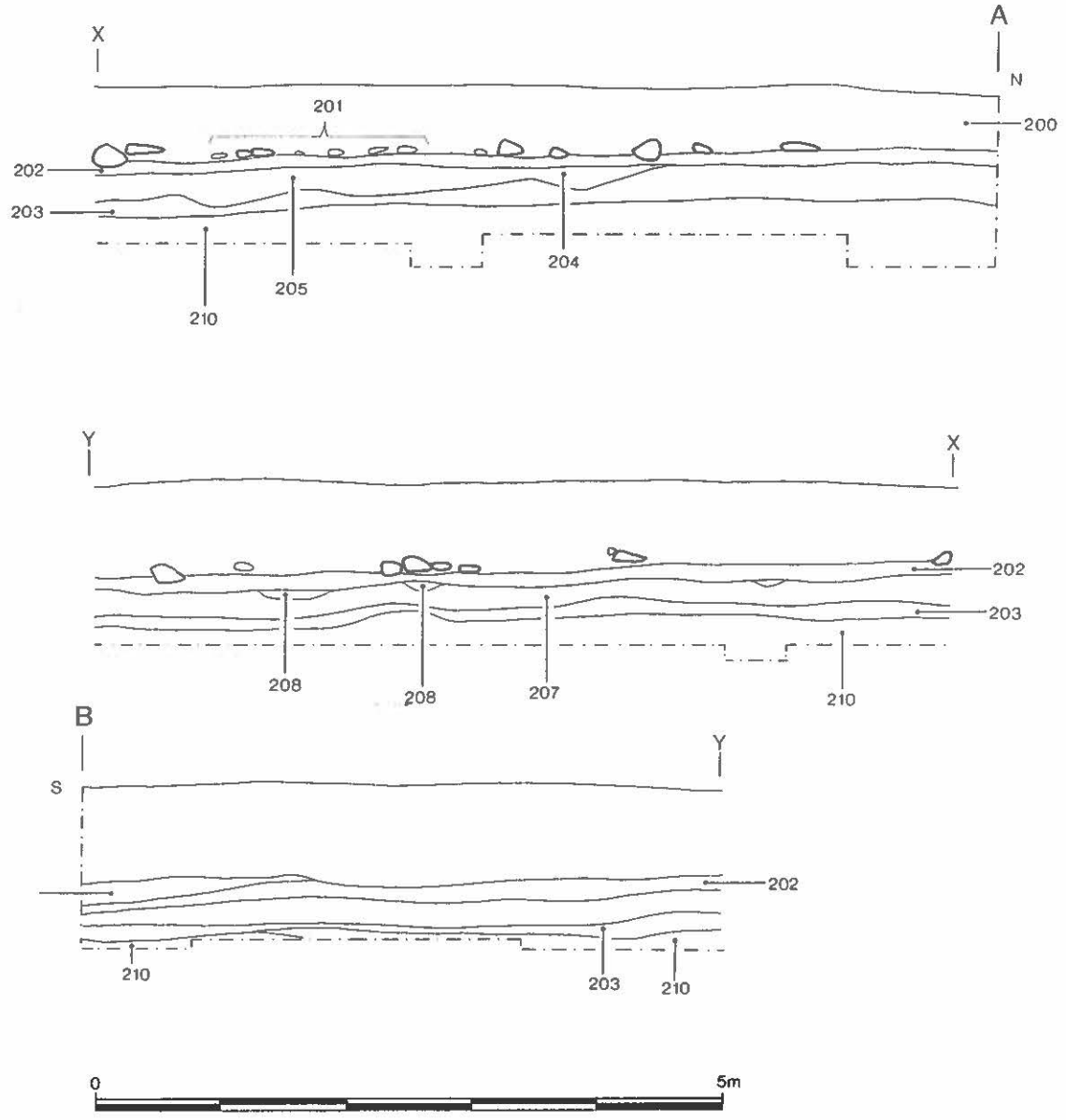

Fig. 9 - Trench 2, west section

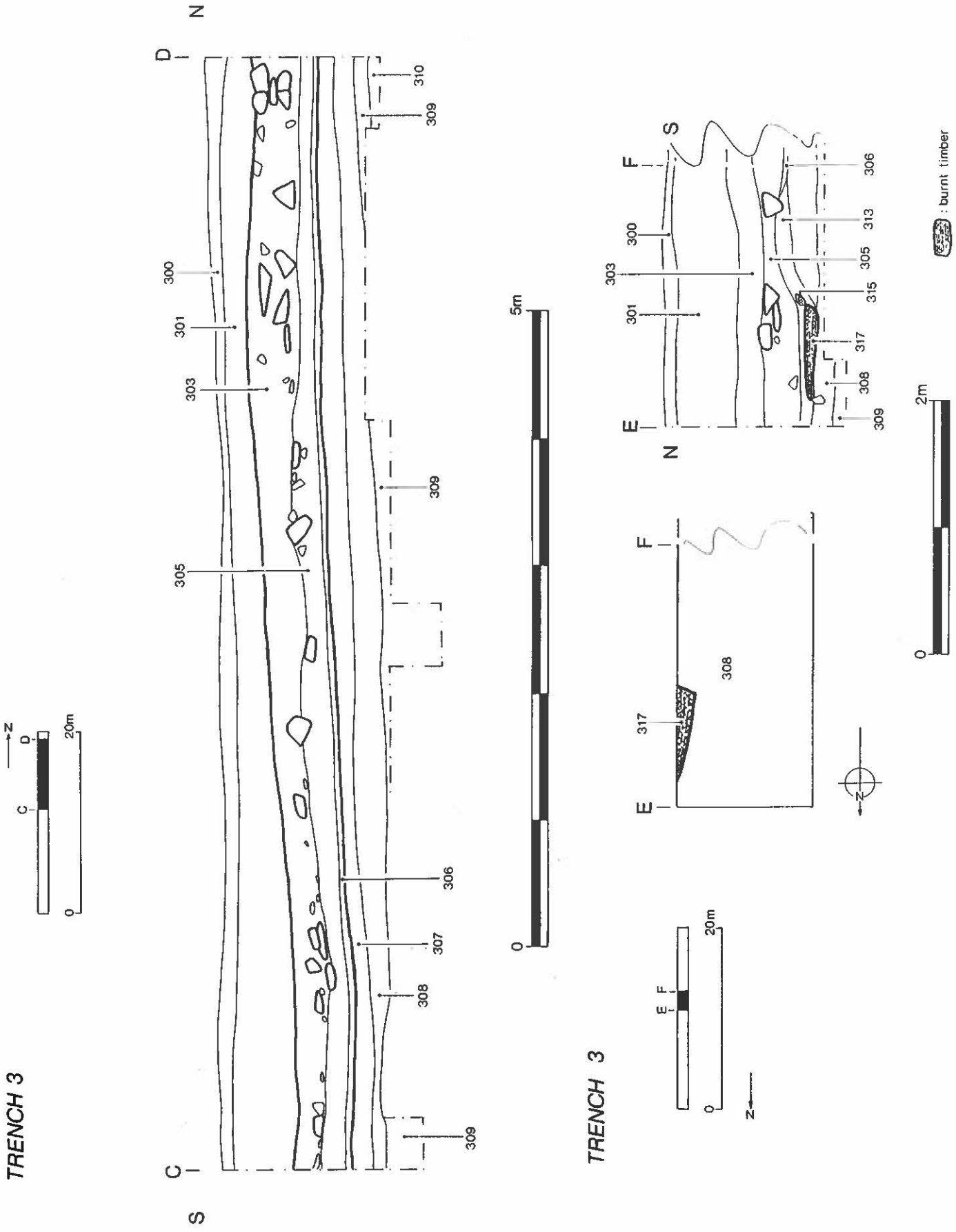

Fig. 10 - Trench 3, north part, plan and sections

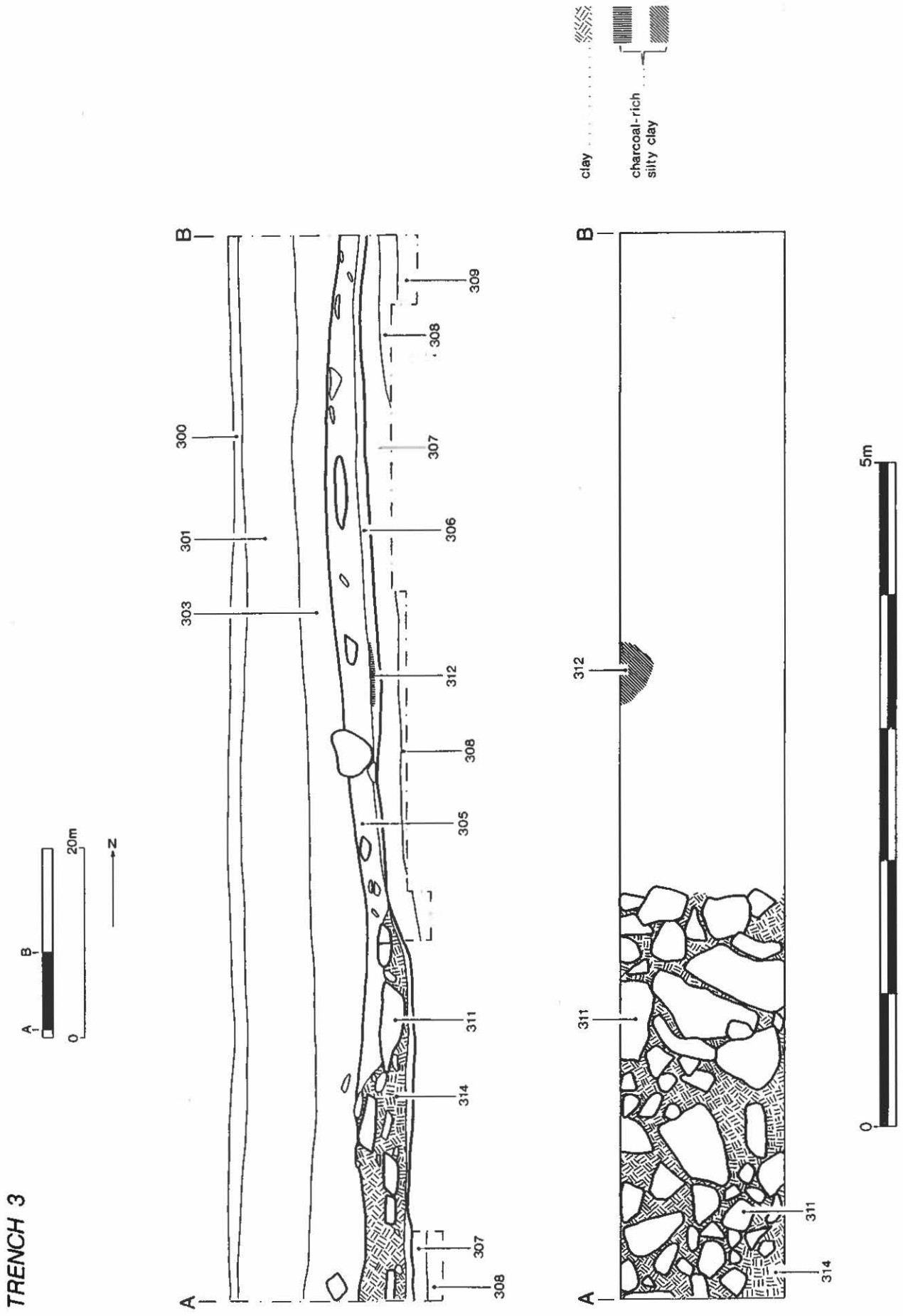

Fig. 11 - Trench 3, south part, plan and section

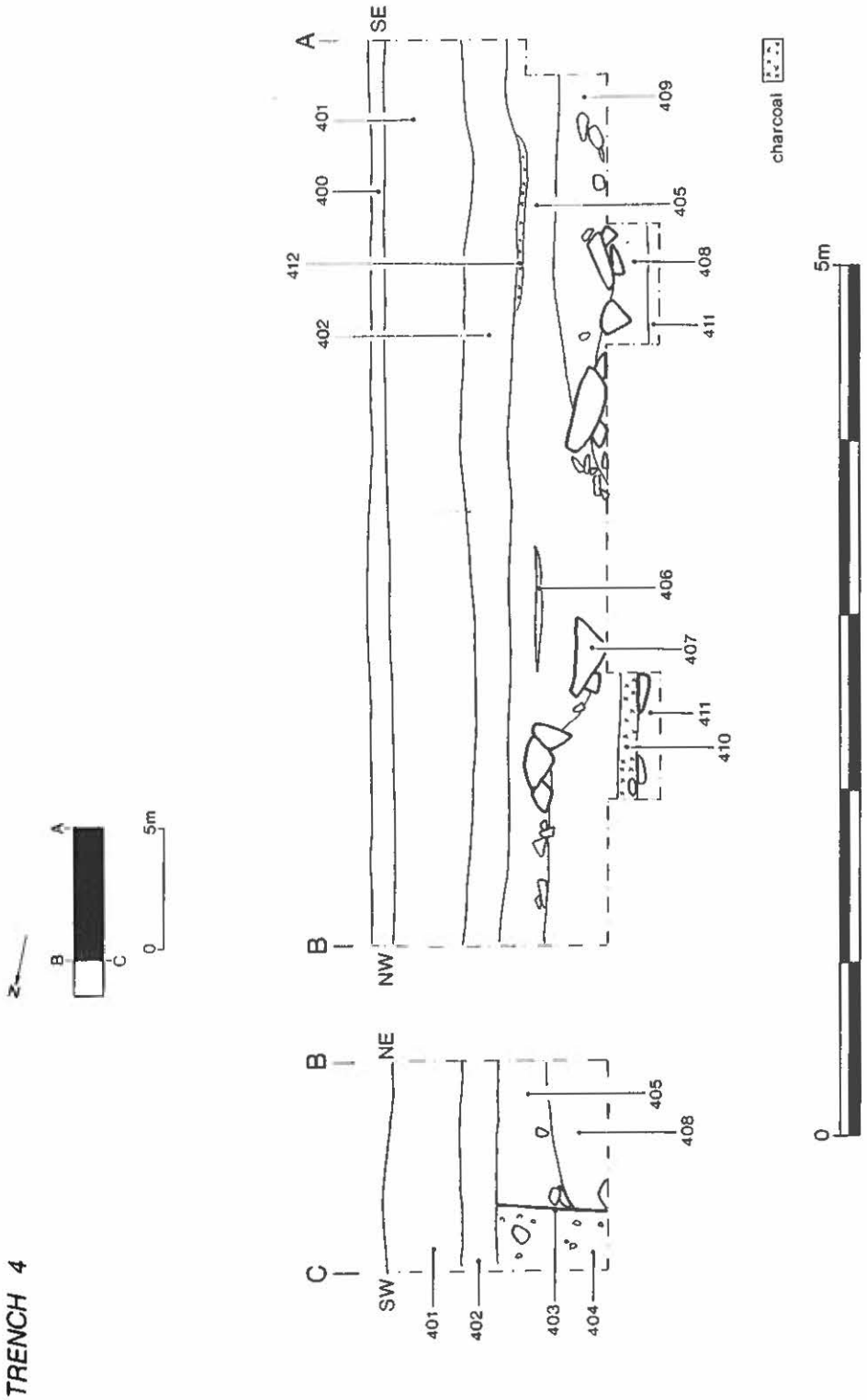

Fig. 12 - Trench 4, east and north sections

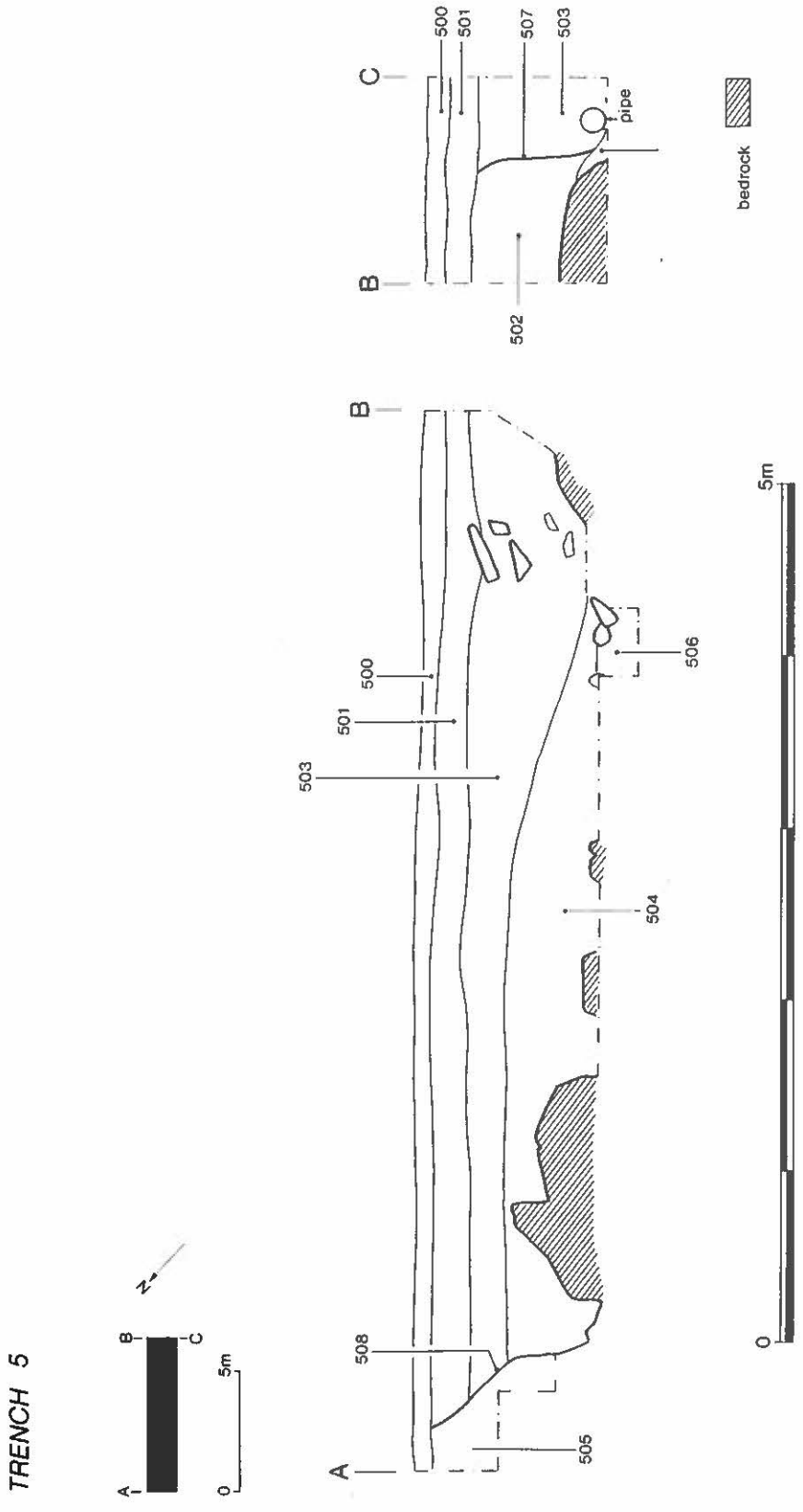

Fig. 13 - Trench 5, east and south sections