KIRKBY THORE PIPELINE
Cumbria

Watching Brief Report

Oxford Archaeology North

May 2002

United Utilities plc

Issue No.: 2002-03/006
OA North Job No.: L9036
NGR: NY 6390 2545 - NY 6410 2570
and NY 6360 2525 - NY 6360 2330

Document Title: **KIRKBY THORE PIPELINE, CUMBRIA**

Document Type: **Watching Brief Report**

Client Name: **United Utilities plc**

Issue Number: 2002-2003/006

OA Job Number: L9036

National Grid Reference: NY 6390 2545 - NY 6410 2570 and NY 6360 2525 - NY 6360 2330

Prepared by:	Andrew Bates	
Position:	Project Supervisor	
Date:	May 2002	
Checked by:	Alan Lupton	Signed…….
Position:	Project Manager	
Date:	May 2002	
Approved by:	Rachel Newman	Signed…….
Position:	Director	
Date:	May 2002	
Document File Location	Alan/Projects/9036/report	

Oxford Archaeology (North)
Storey Institute
Meeting House Lane
Lancaster
LA1 1TF
t: (0044) 01524 848666
f: (0044) 01524 848606

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

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

Oxford Archaeological Unit Limited is a Registered Charity No: 285627

CONTENTS

SUMMARY

A watching brief was undertaken, on behalf of United Utilities plc, in September 2001 and February to March 2002, during the laying of two new waste water pipes. The pipelines were excavated in the fields to the south-east of the village leading down to the Trout Beck (national grid references NY 6390 2545 - NY 6410 2570 and NY 6360 2525 - NY 6360 2330). The area of the groundworks is in the immediate vicinity of the Roman fort of *Bravoniacum* and its associated extramural settlement, recorded in the County Sites and Monument Record (SMR reference 2800) and protected as a Scheduled Monument (SM 11603).

Close to the Trout Beck, the watching brief revealed a series of fluvial deposits associated with previous courses of the river. The stagnogley soils located to the north of these deposits in Trench 1, layers ***12*** and ***13***, contained Roman material dating from the second to the fourth centuries, presumably derived from activity upslope relating to the Roman fort and extramural settlement; unfortunately, the stratigraphical relationship between these layers and the riverine deposits close to the Trout Beck was not entirely resolved. The stagnogley soils located to the north of the riverine deposits in Trench 2 produced no finds.

On the higher ground in Trench 1 away from the Trout Beck, little Roman archaeology or pottery, was located. The exception was a likely fence alignment, ***26***, which had been replaced by a shallow ditch, ***25***; the secondary fill of this later feature contained a sherd of probable fourth century Crambeck ware. The lack of evidence for any buildings, the generally small amount of finds for the area examined, and the discovery of a single possible boundary feature, is suggestive of an area given over to agricultural purposes rather than the activities that one would expect in an extramural settlement associated with the Roman fort.

Only two features were located dating to the post-Roman period. The first was the mill race associated with the corn and saw mill (LUAU 2001, site 6) in the village, which was crossed by both Trenches 1 and 2. The second feature was a culvert of unknown date, although likely to be associated with either the medieval or post-medieval periods. Located in the eastern half of Trench 1, this was seen to be running towards the Trout Beck and was almost certainly associated with field drainage.

ACKNOWLEDGEMENTS

The project was undertaken on behalf of United Utilities plc, and thanks are due to Sarah Jakubiak, as well as other staff of United Utilities plc, for their co-operation during the project. Oxford Archaeology North (OA North) would also like to thank the staff of Montgomery Watson, who co-ordinated the work on behalf of United Utilities plc, Seamus Murphy of West Shields, and John Hunter and staff of P & H Plant Hire Ltd, who undertook the groundworks.

The fieldwork was undertaken by Andrew Bates and Victoria Hughes. The CAD work was completed by Emma Carter, and the finds were assessed by Christine Howard-Davis. The report was compiled by Andrew Bates and the project managed by Alan Lupton, who also edited the report.

1. INTRODUCTION

1.1 CIRCUMSTANCES OF THE PROJECT

1.1.1 A programme of improvements to the sewerage system took place in the fields to the south-east of the village of Kirkby Thore (Figs 1 and 2) during September 2001 and in February and March 2002. The works affected an area of archaeological significance recorded on the County Sites and Monuments Record (CSMR reference 2800) and protected as a Scheduled Monument (SM 11603). Consequently, United Utilities plc were advised by Cumbria County Council's (CCC) Archaeology Service and English Heritage (EH) that an archaeological watching brief was required during the course of the groundworks associated with the pipeline.

1.1.2 The CCC Archaeology Service produced a brief for the archaeological work, which was to comprise a desk-based assessment and watching brief of the proposed groundworks (*Appendix 1*). United Utilities plc commissioned Oxford Archaeology North (OA North), formerly Lancaster University Archaeological Unit (LUAU), to undertake the archaeological works. The desk-based assessment was completed in November 2001 (LUAU 2001); a detailed archaeological and historical background is found in *Section 3* of the desk-based assessment report and the information will not be repeated here. The following document details the results of the watching brief.

1.1.3 The improvements to sewerage works in Kirkby Thore involved excavation of five 0.4m x 0.4m window sampling investigation holes in September 2001. This was followed in February and March 2002 by the installation of temporary roads for machine access, in the form of a metal trackway, and the excavation of two trenches, 1.0m to 1.3m wide, except in the position of the manholes, where the trench was widened to a maximum of 3.0m wide (Fig 2).

1.2 PLANNING BACKGROUND AND CONSTRAINTS

1.2.1 Much of the work falls within the area of the statutorily protected Scheduled Monument of *Bravoniacum* Roman fort and its associated extramural civilian settlement (SM 11603). Scheduled Monument Consent was granted by English Heritage for the programme of works to be completed.

1.3 SITE LOCATION AND GEOMORPHOLOGY

1.3.1 Kirkby Thore lies within the undulating farmland of the Eden valley, approximately 15km east of Penrith, in that part of east Cumbria formerly constituting the county of Westmorland (Fig 1). The village is situated on the northern side of the A66 trunk road and to the north of the Trout Beck, which flows into the River Eden some 250m to the south-west. An area of higher ground (*c* 120m OD) to the north-west of the Trout Beck and 400m north from the A66 is occupied by the Roman fort, which is bisected by Main Street (Fig

2). The study area (NY 6363 2543 – NY 6388 2546), which lies to the east of the fort, is of irregular shape, encompassing several fields directly behind the houses fronting on to the main axial street in Kirkby Thore; it is thought to lie within the extramural settlement associated with the fort. The landscape surrounding the village consists of open and rolling farmland that has a rectilinear field pattern subdivided by hedgerows with a high density of mature hedgerow trees (Countryside Commission 1998, 39).

1.3.2 The drift geology of the study area is categorised as belonging to the Clifton Association, which are fine, reddish, loamy till soils and are stagnogley in character (Jarvis *et al* 1984). Around the Trout Beck itself, there are pockets of alluvial sands and gravels. The resulting landscape is one of mixed arable and pastoral agricultural land. The underlying geology is mainly composed of Permian sandstone and some Carboniferous limestone, with the overlying glacial till being of Devensian date (*op cit,* 40).

2. METHODOLOGY

2.1 WATCHING BRIEF

2.1.1 The work undertaken followed the method statement detailed in the project design (*Appendix* 2) and complied with current legislation and accepted best practice, including the Code of Conduct and the relevant professional standards of the Institute of Field Archaeologists (IFA). Close liaison between OA North staff and the site contractors, and a permanent presence during the excavations, was maintained at all times.

2.1.2 The programme of field observation recorded accurately the location, extent, and character of any surviving archaeological features. This work comprised observation during the groundworks, the examination of any horizons exposed, and the accurate recording of all archaeological features, horizons and any artefacts found during the excavations. The pipe trench was excavated using a thirteen ton 360° tracked excavator, fitted with a 0.70m wide toothed bucket, down to the level of the first archaeological deposits. Any further excavation was completed by hand.

2.1.3 The recording comprised a full description and preliminary classification of features or structures revealed, on OA North *pro-forma* sheets, and their accurate location in plan. A plan was alsoproduced of the area of groundworks showing the location of each trench (Fig 2). In addition, a photographic record in colour slide and monochrome formats was compiled. The finds assemblage from the site was processed in a manner according to the project design (see *Section 3.3*).

2.2 ARCHIVE

2.2.1 A full professional archive has been compiled in accordance with the project design (*Appendix 2*), and in accordance with current IFA and English Heritage guidelines (English Heritage 1991). The archive will be deposited with the Cumbria Record Office, and a copy of the report will be sent to English Heritage and to the Cumbria Sites and Monuments Record.

3. RESULTS

3.1 INTRODUCTION

3.1.1 Following the stripping of topsoil over a roughly triangular area adjacent to the entrance to Kirkby Hall Farm for a site compound facility (Fig 2), two trenches were excavated for the insertion of new pipes. The first, Trench 1 - the Eastern Pipeline, led a short distance north-west from the weir across the Trout Beck, before turning north-east and running upslope in the general direction of Kirkby Hall Farm; it then turned north to link up with Main Street; for the most part, the trench followed the line of an existing pipeline. The results of the initial watching brief in September 2001 on the five window samples along the route of Trench 1 have been incorporated with those from the main watching brief of this trench undertaken in February and March 2002. The second trench, Trench 2 - the Western Pipeline, ran north-north-east from the Trout Beck to Kirkby Thore Pumping Station; again, for the most part, the trench followed the line of an existing pipeline.

3.2 TRENCH 1 - THE EASTERN PIPELINE

3.2.1 Excavation of a 1.0m to 1.3m wide trench proceeded to a maximum depth of 2.5m, although along much of the length of the pipeline the depth was more in the region of 1.0m to 2.0m.

3.2.2 At the western end of the route near the Trout Beck, the mill race associated with the corn and saw mill (NY 36365 52535; LUAU 2001, site 6) was located (Fig 2; Plates 1 and 7). Excavation of 0.75m of topsoil, ***3***, revealed the top of the surviving southern wall, ***4***, of the mill race. The wall measured a minimum of 1.0m by 0.50m by 0.90m, with a maximum stone size of 0.50m by 0.50m by 0.40m, and was rendered with a compact dark grey mortar on the internal face. It was unevenly coursed with all faces squared, except the external face, which was left roughly hewn. The stones of the wall had been laid flush against the construction cut, ***10***, which cut into subsoil ***2***.

3.2.3 The northern wall and base of the mill race appeared to have been robbed out at this point. An irregular cut, ***11***, 2.10m wide and 0.90m deep, was located running parallel, and up to, wall ***4***. This cut was filled with a mid grey coarse sandy clay, ***3***. Included within the fill was subrounded and irregular sandstone of a maximum size of 1.20m by 0.80m by 0.50m, making up 80% - 90% of the deposit. Red brick fragments made up 10% - 15% of the fill.

3.2.4 Located to the north of, and stratigraphically below, the mill race was a series of deposits, ***5*-9** (Plate 2), associated with fluvial activity from previous courses of the Trout Beck. Beneath subsoil ***2*** was layer ***5***, a deposit of light grey coarse fluvial sand with waterworn sandstone inclusions, of a maximum size of 0.15m by 0.10m by 0.10m, making up 10% - 15% of the deposit. This layer measured 0.26m in depth, but was of unknown length and width.

3.2.5 Below ***5*** lay deposit ***6***, a layer of mid grey medium sand with 1% - 5% waterworn sandstone, of a maximum size of 50mm by 20mm by 20mm, and less than 1% charcoal fleck inclusions. It measured 1.0m in width and 0.26m deep, but had an unknown length. This layer represented a period of low energy fluvial deposition mixed with material discarded into the river.

3.2.6 Layer ***7***, beneath deposit ***6***, consisted of a light grey fine to medium well-sorted sand with no inclusions. It measured 0.50m thick, but was of unknown width and length; it represented a low to medium energy fluvial deposit.

3.2.7 Located below ***7*** lay deposit ***8***, a mid grey, clayey, medium sand with wood and root fragments, of a maximum size of 0.13m by 0.01m by 0.01m, making up 5% - 10% of the layer. This deposit, which was 0.14m in depth, but was of unknown length and width, was likely to have been deposited during a period of flooding. Beneath ***8*** was layer ***9***, a light grey coarse sand and gravel representing a well-sorted fluvial deposit which was left unexcavated.

3.2.8 Further north, at the point where the pipe trench changed direction to run north-east, three deposits were identified which were unlikely to be the result of riverine deposition, but possibly had been affected by seasonal flooding. The first, deposit, ***12***, located beneath subsoil ***2***, consisted of mid grey medium sand measuring 0.20m thick, but of unknown length and width. Included within the deposit was 1% - 10% subrounded waterworn sandstone, of a maximum size of 50mm by 40mm by 40mm, and less than 1% charcoal flecks. Finds from this layer included five small sherds of Roman pottery and part of a box tile, also dating to the Roman period.

3.2.9 Deposit ***13***, below ***12***, was a mid brown grey medium sandy clay. Included within the deposit was 1% - 10% waterworn sandstone, of a maximum size of 80mm by 50mm by 50mm, and less than 1% charcoal fragments of a maximum size of 10mm by 10mm by 10mm. Finds from this layer included 18 fragments of animal bone, including cow and sheep/goat, five small sherds of Roman pottery, and an iron nail.

3.2.10 Beneath ***13*** was deposit ***14***, a light grey fine sandy silty clay, measuring 0.09m thick, but of unknown width and length. Within this layer was 1% to 5% charcoal flecks and less than 1% charcoal inclusions, of a maximum size of 15mm by 10mm by 2mm.

3.2.11 These deposits, ***12*** to ***14,*** almost certainly represent the stagnogley soils of the region described in Jarvis *et al* (1984). The relationship between these deposits and deposits ***5*** to ***8*** was not clearly resolved, but the former are thought to be soils formed by material eroded from the slope immediately to the north of the pipeline in the vicinity of the Roman fort.

3.2.12 At approximately 27.5m from the aforementioned corner of the pipe trench, a layer of peat, ***15***, was revealed below ***14***. Where it was possible to measure the thickness of this layer, it was 0.70m in depth, but was of unknown length and width. The age of the peat formation is unknown but it is certainly pre-Roman in date.

3.2.13 Beneath ***15*** was layer ***18***. This consisted of a mid brown red, friable, fine sand with 1% to 10% subangular and angular sandstone inclusions of a maximum size of 0.16m by 0.13m by 0.08m. Where this deposit was excavated to any great depth, the inclusions disappeared and a more compact sandstone developed. This is thought to represent an upper layer of sandy material eroded from the underlying Permian sandstone. In some areas, the inclusions were more concentrated, the upper layers of the deposit possibly being influenced by locally derived Devensian till.

3.2.14 By 69m from the aforementioned corner in the pipe trench (*3.2.8*), deposit ***14*** was no longer evident. By 139m from the same point, layers ***12*** and ***13*** had petered out (ie. at the point where the route of the pipeline moved away from the influence of the slope to the north and ran up the slope to the east), leaving just topsoil, subsoil and natural deposit ***18***.

3.2.15 Just beyond the break of the slope, a friable mid brown clayey medium sand, deposit ***27***, possibly the remains of an original ground surface, was seen above natural deposit ***18***. It had less than 1% charcoal fleck inclusions and measured 0.28m in thickness, but was of an unknown length and width.

3.2.16 Cutting through ***27*** was a ditch, ***25***, which measured approximately 2.30m wide by 0.67m deep (see Figs 2 and 3 and Plate 3), aligned north-south (Figs 2 and 3, plan 3). The ditch cut had concave sides, at a gradient of approximately 1:1, and a concave base, giving a U-shaped profile; it contained a primary fill, ***22***, and a single secondary fill, ***21***.

3.2.17 Primary fill ***22*** consisted of a friable mid brown grey silty medium sand, with less than 1% charcoal flecks and less than 1% waterworn sandstone, of a maximum size of 90mm by 80mm by 35mm. It measured 1.30m wide and 0.14m thick, but was of an unknown length. The deposit appeared to represent a mix of material eroded from the sandy sides of the cut and from the surrounding topsoils, whilst the sides of the ditch had stabilised after its excavation.

3.2.18 Secondary fill ***21*** was a friable mid grey clay medium sand with less than 1% charcoal fleck inclusions, probably the result of deposition of material eroded from the surrounding topsoils. It contained a single sherd of Roman pottery, possibly Crambeck ware, dating to the fourth century.

3.2.19 Beneath the cut of ***25***, and located to the east of the centre of the ditch, the remains of decayed wood ***24*** were observed (see Plate 4). This took the form of two lines of firm, very dark grey brown silt measuring 0.04m wide, 0.53m deep, but of unknown length, surrounded, or packed in by, redeposited friable mid red natural sands, ***23***. Both deposits were contained within a flat bottomed U-shaped cut, ***26***, measuring 1.15m wide and 0.72m deep, but of unknown length (Fig 3). The western side had a convex shape, at a gradient of approximately 1:1, and the eastern side a concave shape, at a gradient of approximately 2:1.5. At a depth of 0.30m both sides became straight and near vertical.

3.2.20 As with ditch ***25***, feature ***26*** was oriented in a north-south direction; it was thought to represent the remains of a fence alignment, a boundary feature re-established by the cutting of the later ditch.

3.2.21 Located in the eastern half of Trench 1, aligned in a north-south direction, was a small culvert (Figs 2 and 3, plan 4). The cut, ***30***, measured 0.58m wide and 0.41m deep with straight near vertical sides and a flat base. Its fill, ***29***, consisted of a dark grey brown fine sand clay, with subrounded waterworn sandstone, of a maximum size of 0.30m by 0.25m by 0.05m, making up 85% - 90% of the deposit. A central void, measuring 0.15m by 0.07m, was seen at the base of the feature, formed by cap stones placed on top of smaller stones placed at the edges of the cut.

3.3 TRENCH 2 - THE WESTERN PIPELINE

3.3.1 Excavation of the 1.3m wide Trench 2 reached a maximum depth of 1.4m. Immediately north of the concrete outflow of the existing waste water pipe into the Trout Beck, beneath 0.50m of topsoil and subsoil, was a series of deposits associated with an earlier river channel. The cut of the former river channel, ***62***, which measured 0.70m deep by *c* 2.50m wide but of an unknown length, was very irregular in shape and ran parallel to the course of the present river. It contained 0.20m of deposit ***52***, a dark grey clay with 5% - 10% wood and root inclusions, similar to layer ***8*** in Trench 1. Above this lay 0.50m of layer ***51***, a brown orange silty clay with sandy lenses. Both deposits were considered to be of fluvial origin.

3.3.2 Former river channel ***62*** had cut into an underlying layer, ***53***, 0.10m thick, which consisted of a mid grey clay, possibly a seasonally waterlogged subsoil. Approximately 4.0m to the north this layer changed in character to a light brown orange clay, but it was essentially the same deposit.

3.3.3 Beneath ***53*** lay deposit ***54***, a pale grey sand, with laminations of silty clay, 0.15m thick; this form of deposit is suggestive of fluvial derivation. Below ***54*** lay deposit ***55***, a mid grey, mid to coarse sand, below which was a dark red brown gravelly coarse sand, layer ***56***. Both deposits measured 0.1m thick and were thought to be of fluvial origin.

3.3.4 Deposit ***57***, beneath ***56***, measured approximately 0.30m thick, and consisted of a mid grey clay with rare organic, wood or root, inclusions. Underneath ***57*** lay a mid orange stony layer, ***58***, of undetermined depth, but which was only visible briefly due to the flooding of the trench. Again, both of these earlier deposits were thought likely to be the result of river deposition.

3.3.5 Approximately 20m north of the river, deposits ***53***-***58*** had petered out. Beneath 0.60m of topsoil and subsoil lay 0.1m of pale orange sand, layer ***60***, of undetermined origin. Below ***60*** was 0.35m of mid grey silty clay, lightening to a pale grey clay at the base, above a layer of peat of unknown depth, ***61***. This peat is almost certainly the same layer of peat as ***15*** in Trench 1, the deposits

above possibly representing the stagnogley soils typical of the area (Jarvis *et al* 1984).

3.3.6 In close proximity to the pumping station, a section through the mill race (*3.2.2*) was excavated (Fig 2; Plate 5). The construction cut of the mill race was cut into the subsoil, ***2***, and had straight near vertical sides 2.0m deep, with a flat base, which measured approximately 3.0m in width. Both mill race walls, ***45*** and ***48***, consisted of thin flat internal sandstone facing stones with a rubble core, approximately 0.70m wide. Both walls had collapsed inwards to some degree. The interior deposits consisted of a thin layer of topsoil, 50mm thick, above a layer of mid grey silty clay, deposit ***63***, representing material eroded from surrounding topsoils. Below this lay ***64***, a mid brown fine sand silty clay approximately 0.10m thick. The base of the mill race was absent, presumably having been robbed out.

3.3.7 Located within the mill race, and cut into ***63***, close to southern wall ***48***, was a small pit, ***50***, measuring 0.95m in diameter and 0.80m deep. It was filled with rubble debris, ***49***, originating from wall ***48***. The purpose of the pit is unknown, but it was possibly an attempt to locate the masonry of the mill race for use elsewhere.

3.3.8 Beneath the topsoil to the north of the northern mill race wall, ***45***, was a 1.40m thick sequence of recent deposits, ***33-41***, thought to represent material backfilled against the mill race wall. At their northern extent these deposits were truncated by a modern east-west running sewer pipe, ***43***. Natural sands were reached at 1.40m below the topsoil.

3.4 THE FINDS

3.4.1 A total of 88 fragments of artefacts and ecofacts was recovered during the watching brief (see *Appendix 3*). Of these, just over 50% were unstratified; the remainder were divided between four contexts, ***6***, ***12***, ***13***, and ***21***, all from Trench 1; three of these, ***12***, ***13***, and ***21***, would seem, from the assemblages recovered, to be Romano-British in origin, the fourth producing only animal bone.

3.4.2 All of the stratified pottery (ten fragments) was Roman in date. Material from sandy layer ***12*** and secondary ditch fill ***21*** can be dated with confidence to the later third and fourth centuries on the presence of a late Black Burnished Ware 1 jar form, Crambeck Ware, and a late mortarium form. That from sandy clay layer ***13***, however, produced small fragments of Central Gaulish samian, and a fragment of form Dr 67 (probably South Gaulish), an enclosed and purely decorative vessel of Flavian to early second century date. These suggest that the context was considerably earlier than the others, although it must be borne in mind that the fragmented and abraded nature of this group, compared to other pottery from the site, might imply that it was residual within its context. As might be expected from Kirkby Thore, the range of vessels represented (decorated and plain samian, amphora, and mortaria, as well as coarsewares)

reflects its military connection, and emphasises its link with the military trading network.

3.4.3 A single fragment of unstratified medieval pottery was recovered. It is probably the base of a glazed jug of mid-twelfth to fourteenth century date. Other pottery from the site is considerably later in date, probably nineteenth and twentieth century (12 fragments). It represents the normal range of domestic kitchen wares in use at the time.

3.4.4 Only two fragments of metalwork were recovered, a single iron nail from layer ***13***, and an unstratified piece of modern aluminium tubing.

3.4.5 The remainder of the assemblage comprised ceramic building material. Little could be dated or identified with confidence, but a single fragment of Roman box flue tile was recovered from deposit ***12***. The remainder of the material was unstratified and contained a fragment of very hard-fired roof or floor tile that could be medieval or early post-medieval in date, and ten fragments of modern field drain.

3.4.6 In addition, 23 fragments of animal bone were recovered from stratified layers ***6***, ***12***, and ***13***.

4. DISCUSSION

4.1 ROMAN

4.1.1 Several deposits were located in close proximity to the Trout Beck in both Trench 1 (layers ***5-9***) and Trench 2 (layers ***53-58***) which appeared to be associated with previous courses of the river. None of these deposits produced any datable artefacts.

4.1.2 The stagnogley soils located to the north of these deposits in Trench 1, layers ***12*** and ***13***, contained Roman material dating from the second to the fourth centuries, presumably derived from activity upslope relating to the Roman fort and extramural settlement. Unfortunately, the stratigraphical relationship between these layers and the riverine deposits close to the Trout Beck was not entirely resolved. The stagnogley soils located to the north of the riverine deposits in Trench 2 produced no finds.

4.1.3 On the higher ground in Trench 1, away from the Trout Beck, little Roman archaeology or pottery, was located. The exception was a likely fence alignment, ***26***, which had been replaced by a shallow ditch, ***25***; the secondary fill of this later feature contained a sherd of probable fourth century Crambeck ware. It is possible that the ditch was originally of a shallow nature, and not intended for drainage, but was used to create a bed upon which to plant a layered hedge-type field boundary (Pryor 1998, 70-72). The lack of evidence for any buildings, the generally small amount of finds for the area excavated, and the discovery of a single possible boundary feature, is suggestive of an area given over to agricultural purposes rather than the types of activity expected in an extramural settlement associated with the Roman fort.

4.2 POST-ROMAN

4.2.1 Only two features were located dating to the post-Roman period. The first was the mill race associated with the corn and saw mill (LUAU 2001, site 6) in the village. This proved to have been extensively robbed, the north wall being missing where it was crossed by Trench 1 and the base where it was crossed by Trench 2; however, two types of wall construction were evident. Close to the river in Trench 1, it was constructed with large sandstone blocks, squared-faced on all but the side laid flush against the construction cut, and rendered on the internal face with mortar. The construction near the Kirkby Thore Pumping Station seen in Trench 2, although eroded on the internal faces, had thin sandstone slabs used on the internal face, with a rubble core making up the rest of the wall. Close to the southern terminus of Trench 1, adjacent to the river, two pillars of a sluice gate associated with the mill race were located (see Plate 7).

4.2.2 The second feature was a culvert, ***30***, of unknown date, although likely to be associated with either the medieval or post-medieval periods. Located in the

eastern half of Trench 1, this was seen to be running towards the Trout Beck and was almost certainly associated with field drainage.

BIBLIOGRAPHY

Countryside Commission, 1998 *Countryside Character*, *Volume 2: North West*, Cheltenham

English Heritage, 1991, *Management of Archaeological Projects,* 2nd edn, London

Jarvis, RA, Bendelow, VC, Bradley, RI, Carroll, DM, Furness, RR, Kilgour, INL, and King, SJ, 1984 Soils and Their Uses in Northern England, *Soil Survey of England and Wales,* London

LUAU, 2001 *Kirkby Thore Pipeline, Cumbria: Archaeological Assessment,* unpubl rep

Pryor, F, 1998 *Farmers in Prehistory*, Stroud

APPENDIX 1: PROJECT BRIEF

1. SITE DESCRIPTION AND SUMMARY.

Proposed Works: New pipeline and four new manholes, for United Utilities plc

Location: Fields to the south-east of Kirkby Thore village (NGR NY 6369 2555)

A new pipeline and manholes are proposed by United Utilities plc. The route of the proposed pipeline falls within the Scheduled Ancient Monument of Kirkby Thore Roman fort and *vicus.*

Detailed proposals and tenders are invited from appropriately resourced, qualified and experienced archaeological contractors to undertake an archaeological watching brief during the course of the pipeline works and to produce a report on that work.

2. JUSTIFICATION.

The scheme affects area of archaeological significance, recorded on the County Sites and Monuments Record (reference 2800) and protected as a scheduled ancient monument. Consequently North West Water have been advised by Cumbria County Council's Archaeology Service and English Heritage that a programme of archaeological works (a watching brief) is required during the course of the pipeline works. This recommendation is necessary to the policy of the County Structure Plan, Eden District Local Plan and is also in line with guidance given in Planning Policy Guidance note 16 (Archaeology and Planning) section 30 and the advice of the Water Industry Act 1991 Code of Practice on Conservation, Access and Recreation 2000 and Article 1 (5) of Circular 04/99. English Heritage has also indicated that it will be a requirement of any forthcoming scheduled monument consent.

3. ARCHAEOLOGICAL BACKGROUND.

The site lies to the south-east of Kirkby Thore village and within the area identified as *Bravoniacum* Roman fort. The fort is protected as a scheduled ancient monument. Recent excavations indicate that a civilian settlement occupied a large area around the fort. Roman occupation was identified during a recent field evaluation just to the south of the Trout Beck. This was interpreted as typical vicus type settlement activity. In a field to the north-east of the fort defences Roman date settlement was also identified, although here it was more 'native' in character and may to represent a continuity of settlement from the late Iron Age into the Romano-British period. Similar remains are expected to survive within the area affect by the proposed pipeline.

4. SCOPE OF THE PROJECT.

Objectives: The principal aim of the project is to identify any archaeological remains within the soil strip and pipe trench cut and to investigate and record any revealed archaeological remains or deposits.

Work Required: All topsoil stripping and trench cutting must be carried out under archaeological supervision. Any putative archaeological features must then be cleaned by hand and if possible a stratigraphic record made. Finds and environmental samples should be retrieved as appropriate. A reasonable period of uninterrupted access to the archaeologist should be allowed for all necessary archaeological recording. Both archaeological features observed in the soil strip for any working easement and the excavation for the pipe trench should be subject to the archaeological recording outlined above.

Before any fieldwork commences the County Sites and Monuments Record should be consulted and a rapid desk-based survey of the existing resource undertaken. This should include an assessment of those primary and secondary sources referenced in the County Sites and Monuments Record as well as any relevant aerial photographs held by the County Sites and Monuments Record.

5. PROJECT DESIGN.

Before the project commences a project proposal must be submitted to and approved by both the CCC County Archaeologist and the English Heritage Inspector.

Proposals to meet this Brief should take the form of a detailed project design prepared in accordance with the recommendations of The Management of Archaeological Projects, "2nd ed. 1991, and must include:

- A description of the methods of observation and recording system to be used
- An explanation of the finds and environmental sampling strategies to be used
- A projected timetable for work on site including staff structure and numbers
- A projected timetable for all post excavation work (through to final publication of results), including staff numbers and specialist sub-contractors

Any significant variations to the proposals must be agreed by the English Heritage Inspector and County Archaeologist in advance.

6. REPORTING AND PUBLICATION REQUIREMENTS.

The archaeological work should result in a report, this should include as a minimum;

- a site location plan, related to the national grid
- a concise, non-technical summary of the results
- a description of the methodology employed, work undertaken and the results obtained
- plans and sections at an appropriate scale showing the location and position of deposits and finds located

- a list of, and spot dates, for any finds recovered and a description and interpretation of the deposits identified
- a description of any environmental or other specialist work undertaken and the results obtained

A summary report should be submitted to a suitable regional or national archaeological journal within one year of completion of fieldwork. If archaeological remains of significance are identified, one or more full reports should be published in a suitable journal or other publication.

A copy of the report should be deposited with English Heritage and two with the County Sites and Monuments Record within six months of completion of fieldwork. This will be on the understanding that the report will be made available as a public document through the County Sites and Monuments Record.

7. THE ARCHIVE.

An archive must be prepared in accordance with the recommendations of The Management of Archaeological Projects, 2nd ed. 1991, and arrangements made for its deposit with an appropriate repository. A copy shall also be offered to the National Monuments Record.

The English Heritage Inspector and County Archaeologist must be notified of the arrangements made.

8. FURTHER REQUIREMENTS AND INFORMATION.

- The Code of Conduct of the Institute of Field Archaeologists will be followed. All work must be carried out by an archaeological team of appropriate competence and experience.
- One weeks notice must be given to both the English Heritage Inspector and County Archaeologist prior to the commencement of fieldwork, unless otherwise agreed.
- It is the archaeological contractor's responsibility to establish safe working practices in terms of current health and safety legislation, to ensure site access and to obtain notification of hazards (eg. services, contaminated ground, etc.).

APPENDIX 2: PROJECT DESIGN

Lancaster University Archaeological Unit

July 2001

ARCHAEOLOGICAL WORKS ALONG THE ROUTE OF A PIPELINE, KIRKBY THORE

CUMBRIA

ARCHAEOLOGICAL WATCHING BRIEF
PROJECT DESIGN

Proposals

The following project design is offered in response to a request by Ms Sarah Jakubiak, of United Utilities, for an archaeological watching brief in advance of work along the route of a pipeline, Kirkby Thore, Cumbria.

1. INTRODUCTION

1.1 A new pipeline and five new man-holes are proposed by United Utilities plc (hereafter the 'client') in fields to the south-east of Kirkby Thore village (NY 6369 2555). The proposed works affect an area of archaeological significance recorded on the County Sites and Monuments record (CSMR reference 2800) and protected as a Scheduled Ancient Monument. Consequently, United Utilities have been advised by Cumbria County Council's (CCC) Archaeology Service and English Heritage (EH) that a programme of archaeological works is required during the course of the groundworks associated with the pipeline. The assistant archaeologist of CCC has produced a brief for the archaeological work; United Utilities have asked Lancaster University Archaeological Unit (LUAU) to undertake the archaeological works and the following document represents a project design to undertake the task as defined in the brief.

1.2 The proposed development lies to the south-east of *Bravoniacum* Roman fort possibly within the *vicus* settlement which developed around the fort. Recent excavations in Field OS 8866 to the north-west of the proposed works (LUAU 2001) and a field evaluation just to the south of Trout Beck (LUAU 1999) identified extensive Roman, medieval and post-medieval occupation. Similar remains are expected to survive within the area affected by the pipeline.

1.3 LUAU has considerable experience of the assessment, evaluation and excavation of sites of all periods, having undertaken a great number of small and large scale projects during the past 21 years. Watching briefs, evaluations and excavations have taken place within the planning process, to fulfil the requirements of clients and planning authorities, to very rigorous timetables. In recent years, LUAU has undertaken similar types of work in many parts of Lancashire, Cumbria, Cheshire, Yorkshire and the North East, including work along the Hadrian's Wall Path National Trail, the Rosgill Moor to Shap Water Main Renewal Scheme and at the Waste Water Improvement Scheme at the Burroughs, Papcastle.

1.4 LUAU has particular experience of the archaeology of the Kirkby Thore area, having undertaken assessments, evaluations and watching briefs in and around the village, including the 1983 evaluation (Gibbons 1989), 2000 geophysical survey (LUAU 2000) and 2000/2001 excavation (LUAU 2001) in Field OS 8866 to the north-west of the proposed development site, the evaluation of the Green Acres filling station on the A66 (LUAU 1994), and recent watching brief and consultancy work associated with proposed traffic improvements on the A66 (LUAU 1999).

1.5 LUAU has the professional expertise and resources to undertake the project detailed below to a high level of quality and efficiency. LUAU is an Institute of Field Archaeologists (IFA) registered organisation, registration number 27, and all its members of staff operate subject to the IFA Code of Conduct.

2 OBJECTIVES

2.1 The following programme has been designed to provide for accurate recording of any archaeological deposits that are disturbed by the soil strip associated with the pipeline easement and the construction works for the pipe itself. The watching brief will be preceded by a desk-based assessment in order to place any findings that are made in to the context of known archaeological sites and/or artefact discovery sites in the immediate vicinity.

2.2 A written client report will assess the significance of the data generated by the watching brief, within a local and regional context.

2.3 A summary report will be submitted to the *Transactions of the Cumberland and Westmorland Antiquarian and Archaeological Society* within one year of completion of the fieldwork.

3 METHOD STATEMENT

3.1 DESK-BASED ASSESSMENT

3.1.1 The following will be undertaken as appropriate, depending on the availability of source material.

3.1.2 ***Documentary and Cartographic Material:*** This work will assess the full range of potential sources of information relating to the area affected by the proposed development. It will include an appraisal of the data in the CSMR, appropriate sections of County histories, early maps (printed and manuscript), and such primary documentation (tithe and estate plans etc.) as may be reasonably available. Particular attention will be paid to field and place names recorded on early cartographic sources relating to estate and parish boundaries, field boundaries, woodlands and routes, as these often provide important evidence of archaeological activity and transformation of the historic landscape. All available published and unpublished documentary sources will also be examined and assessed. Organisations/Institutions to be consulted will include the Cumbria Record Office (Kendal Office).

3.1.3 ***Aerial Photography:*** Any relevant photographic material held by Cumbria County Council will also be studied. This may indicate the range and survival of archaeological and structural features in the designated area no longer visible at ground level.

3.1.4 ***Physical Environment:*** A rapid desk-based compilation of geological (both solid and drift), pedological, topographical and palaeoenvironmental information will be undertaken in order to set the archaeological features in context. Any engineering and/or borehole data relating to the site will also be examined.

3.2 WATCHING BRIEF

3.2.1 ***Methodology:*** A programme of field observation will accurately record the location, extent, and character of any surviving archaeological features and/or deposits within the excavations in the course of the proposed development works. This work will comprise observation during the excavation for these works, the systematic examination of any subsoil horizons exposed during the course of the groundworks, and the accurate recording of all archaeological features and horizons, and any artefacts, identified during observation.

3.2.2 During this phase of work, recording will comprise a full description and preliminary classification of features or materials revealed, and their accurate location (either on plan and/or section, and as grid coordinates where appropriate). Features will be planned accurately at appropriate scales and annotated on to a large scale plan provided by the Client. A photographic record will be undertaken simultaneously.

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

3.2.4 A watching brief will be conducted of all topsoil stripping and all below ground works. Putative archaeological features and/or deposits identified by the machining process, together with the immediate vicinity of any such features, will be cleaned by hand, using either hoes, shovel scraping, and/or trowels depending on the subsoil conditions, and where appropriate sections will be studied and drawn. Any such features will be sample excavated (ie. selected pits and postholes will normally only be half-sectioned, linear features will be subject to no more than a 10% sample, and extensive layers will, where possible, be sampled by partial rather than complete removal).

3.2.5 It is assumed that LUAU will have the authority to stop the works for a sufficient time period to enable the recording of important deposits. It may also be necessary to call in additional archaeological support if a find of particular importance is identified or a high density of archaeology is discovered. Also, should evidence of burials be identified, the 1857 Burial Act would apply and a Home Office Licence would be sought. This would involve all work ceasing until the proper authorities were happy for burials to be removed. In normal circumstances, field recording will also include a continual process of analysis, evaluation, and interpretation of the data, in order to establish the necessity for any further more detailed recording that may prove essential.

3.2.6 Environmental samples (bulk samples of 30 litres volume, to be sub-sampled at a later stage) will be collected from suitable deposits (i.e. the deposits are reasonably well dated and are from contexts the derivation of which can be understood with a degree of confidence). Where such deposits are encountered, an appropriate sampling strategy will be agreed with the Assistant Archaeologist.

3.2.7 Samples will also be collected for technological, pedological and chronological analysis as appropriate. If necessary, access to conservation advice and facilities can be made available. LUAU maintains close relationships with Ancient Monuments Laboratory staff at the Universities of

Durham and York and, in addition, employs artefact and palaeoecology specialists with considerable expertise in the investigation, excavation and finds management of sites of all periods and types, who are readily available for consultation.

3.2.8 Full regard will, of course, be given to all constraints (services etc.), as well as to all Health and Safety regulations. LUAU provides a Health and Safety Statement for all projects and maintains a Unit Safety policy. All site procedures are in accordance with the guidance set out in the Health and Safety Manual compiled by the Standing Conference of Unit Managers.

3.3 ARCHIVE/REPORT

3.3.1 ***Archive:*** The results of all archaeological work carried out will form the basis for a full archive to professional standards, in accordance with current English Heritage guidelines (*Management of Archaeological Projects*, 2nd edition, 1991). The project archive represents the collation and indexing of all the data and material gathered during the course of the project. The deposition of a properly ordered and indexed project archive in an appropriate repository is considered an essential and integral element of all archaeological projects by the IFA in that organisation's code of conduct. LUAU conforms to best practice in the preparation of project archives for long-term storage. This archive will be provided in the English Heritage Centre for Archaeology format and a synthesis will be submitted to the CSMR (the index to the archive and a copy of the report). LUAU practice is to deposit the original record archive of projects (paper, magnetic and plastic media) with the appropriate County Record Office, and a full copy of the record archive (microform or microfiche) together with the material archive (artefacts, ecofacts, and samples) with an appropriate museum. Wherever possible, LUAU recommends the deposition of such material in a local museum approved by the Museums and Galleries Commission, and would make appropriate arrangements with the designated museum at the outset of the project for the proper labelling, packaging, and accessioning of all material recovered.

3.3.2 ***Report:*** One bound copy of a written synthetic report will be submitted to the Client, one to English Heritage and a further two copies submitted to CCC within six months of completion of fieldwork. The report will include a copy of this project design, and indications of any agreed departure from that design. It will present, summarise, and interpret the results of the programme detailed above and will include a full index of archaeological features identified in the course of the project, with an assessment of the overall stratigraphy, together with appropriate illustrations, including detailed plans and sections indicating the locations of archaeological features. Any finds recovered will be assessed with reference to other local material and any particular or unusual features of the assemblage will be highlighted and the potential of the site for palaeoenvironmental analysis will be considered. The report will also include a complete bibliography of sources from which data has been derived.

3.3.3 This report will identify areas of defined archaeology. An assessment and statement of the actual and potential archaeological significance of the identified archaeology within the broader context of regional and national archaeological priorities will be made. Illustrative material will include a location map, section drawings, and plans. This report will be in the same basic format as this project design; a copy of the report can be provided on 3.5" disk (IBM compatible format), if required.

3.3.4 ***Confidentiality:*** All internal reports to the client are designed as documents for the specific use of the Client, for the particular purpose as defined in the project brief and project design, and should be treated as such. They are not suitable for publication as academic documents or otherwise without amendment or revision.

3.3.5 Following on from the completion of the fieldwork and submission of the Client report LUAU will prepare a summary report to appear in the *Transactions of the Cumberland and Westmorland Antiquarian and Archaeological Society* within one year of completion of the fieldwork.

4 PROJECT MONITORING

4.1 Monitoring of this project will be undertaken by the CCC Assistant Archaeologist, who will be informed of the start and end dates of the work.

5 WORK TIMETABLE

5.1 LUAU could commence the watching brief within two weeks of receipt of written notification from the client.

5.2 The desk-based assessment is expected to take approximately five days to complete. However, the duration of the archaeological presence for the watching brief is as yet unknown.

5.3 The client report will be completed within six months following completion of the fieldwork.

5.4 The summary report to appear in the *Transactions of the Cumberland and Westmorland Antiquarian and Archaeological Society* will be submitted within one year of completion of the fieldwork.

6 STAFFING

6.1 The project will be under the direct management of **Alan Lupton PhD** (Project Manager) to whom all correspondence should be addressed.

6.2 Present timetabling constraints preclude detailing at this stage exactly who will be undertaking the desk-based assessment and watching brief elements of the project.

6.3 Assessment of the finds from the evaluation will be undertaken by LUAU's in-house finds specialist **Christine Howard-Davis BA MIFA** (LUAU project officer). Christine acts as LUAU's in-house finds specialist and has

extensive knowledge of all finds of all periods from archaeological sites in northern England. However, she has specialist knowledge regarding Roman glass, metalwork, and leather, the recording and management of waterlogged wood, and most aspects of wetland and environmental archaeology.

6.4 Assessment of any palaeoenvironmental samples which may be taken will be undertaken by **Elizabeth Huckerby MSc** (LUAU project officer). Elizabeth has extensive knowledge of the palaeoecology of the North West through her work on the English Heritage-funded North West Wetlands Survey.

7 INSURANCE

7.1 LUAU has a professional indemnity cover to a value of £2,000,000; proof of which can be supplied as required.

BIBLIOGRAPHY

Gibbons, P, 1989 *Excavations and Observations at Kirkby Thore*, Trans Cumberland Westmorland Antiq Archaeo Soc, LXXXIX, 93-130

LUAU 1994 Green Acres Filling Station - An Archaeological Evaluation. Unpubl rep

LUAU 1999 Kirkby Thore Road Improvements - An Archaeological Assessment. Unpubl rep

LUAU 2000 Geophysical Survey report Kirkby Thore. Unpubl rep

LUAU 2001 Land at OS 8866 Kirkby Thore, Cumbria. Unpubl rep

APPENDIX 3: FINDS LIST

Context	Material	Category	No	Description	Date
6	Bone	Animal	4	Fragments of animal bone. Mixed species.	Not datable
12	Bone	Animal	1	Fragment of animal bone.	Not datable
12	Ceramic	Vessel	1	Rim fragment Black Burnished Ware 1 jar with flaring rim.	Late third to early fourth century?
12	Ceramic	Building material	1	Box tile fragment.	Romano-British
12	Ceramic	Vessel	1	Rim fragment, mortarium. Fine cream fabric with predominantly black trituration grits. Worn.	Mid-third to fourth century
12	Ceramic	Vessel	3	Small undiagnostic body fragments orange oxidised fabric.	Romano-British
12	Ceramic	Building material	2	Undiagnostic fragments.	Not datable
13	Bone	Animal	18	Fragments of animal bone. Mixed species.	Not datable
13	Ceramic	Vessel	1	Small undiagnostic body fragment. Amphora.	Romano-British
13	Ceramic	Vessel	2	Two very small chips; samian, probably Central Gaulish.	Second century?
13	Ceramic	Vessel	1	One body fragment form Dr 67, with barbotine decoration. South Gaulish.	Flavian – early second century
13	Ceramic	Vessel	1	Undiagnostic body fragment. Greyware.	Romano-British
13	Iron	Nail	1	Shaft only.	Not datable
21	Ceramic	Vessel	1	Rim fragment greyware bowl with lattice decoration below the rim. Probably Crambeck ware.	Fourth century
u/s	Aluminium?	Tube	1	Short fragment of metal tube.	Modern
u/s	Ceramic	Building material	3	Undiagnostic fragments.	Not datable
u/s	Ceramic	Building material	1	Fragment of hard fired (stoneware?) floor or roof tile, sand cast.	Not datable
u/s	Ceramic	Building material	10	Fragments of drainage pipes.	Modern?
u/s	Ceramic	Building material	1	Tile fragment.	Not datable
u/s	Ceramic	Clay pipe	1	Stem fragment.	Post-Medieval/ Modern
u/s	Ceramic	Vessel	2	Small undiagnostic body fragments with distinctive red ?grog inclusions. Amphora.	Romano-British
u/s	Ceramic	Vessel	1	Small rim fragment mortarium. Cream fabric with orange grog inclusions. Abraded.	Romano-British
u/s	Ceramic	Vessel	1	Body fragment mortarium. Greyish-cream fabric, no trituration grit.	Romano-British
u/s	Ceramic	Vessel	1	Small body fragment Black Burnished Ware 1. Burnt.	Second century or later
u/s	Ceramic	Vessel	1	Small body fragment, samian. Decorated form. Too small for further identification.	Late first century or later
u/s	Ceramic	Vessel	1	Chip, samian.	Romano-British

u/s	Ceramic	Vessel	3	Undiagnostic body fragments. Greyware.	Romano-British
u/s	Ceramic	Vessel	2	Small undiagnostic body fragments orange oxidised fabric.	Romano-British
u/s	Ceramic	Vessel	1	Body and base fragment, thumbed base. Oxidised cream sandy fabric with green glaze splashes. Probably a jug.	Twelfth-fourteenth century
u/s	Ceramic	Vessel	3	Undiagnostic body fragments black glazed redwares.	Eighteenth–twentieth century
u/s	Ceramic	Vessel	4	Body fragments under-glaze transfer-printed whitewares.	Nineteenth-twentieth century
u/s	Ceramic	Vessel	2	Body fragments brown glazed redware with yellow slip decoration.	Nineteenth-twentieth century?
u/s	Ceramic	Vessel	1	Body fragment, late blue and white slip decorated ware.	Nineteenth-twentieth century?
u/s	Ceramic	Vessel	2	Undiagnostic body fragments brown glazed redwares.	Nineteenth-twentieth century?

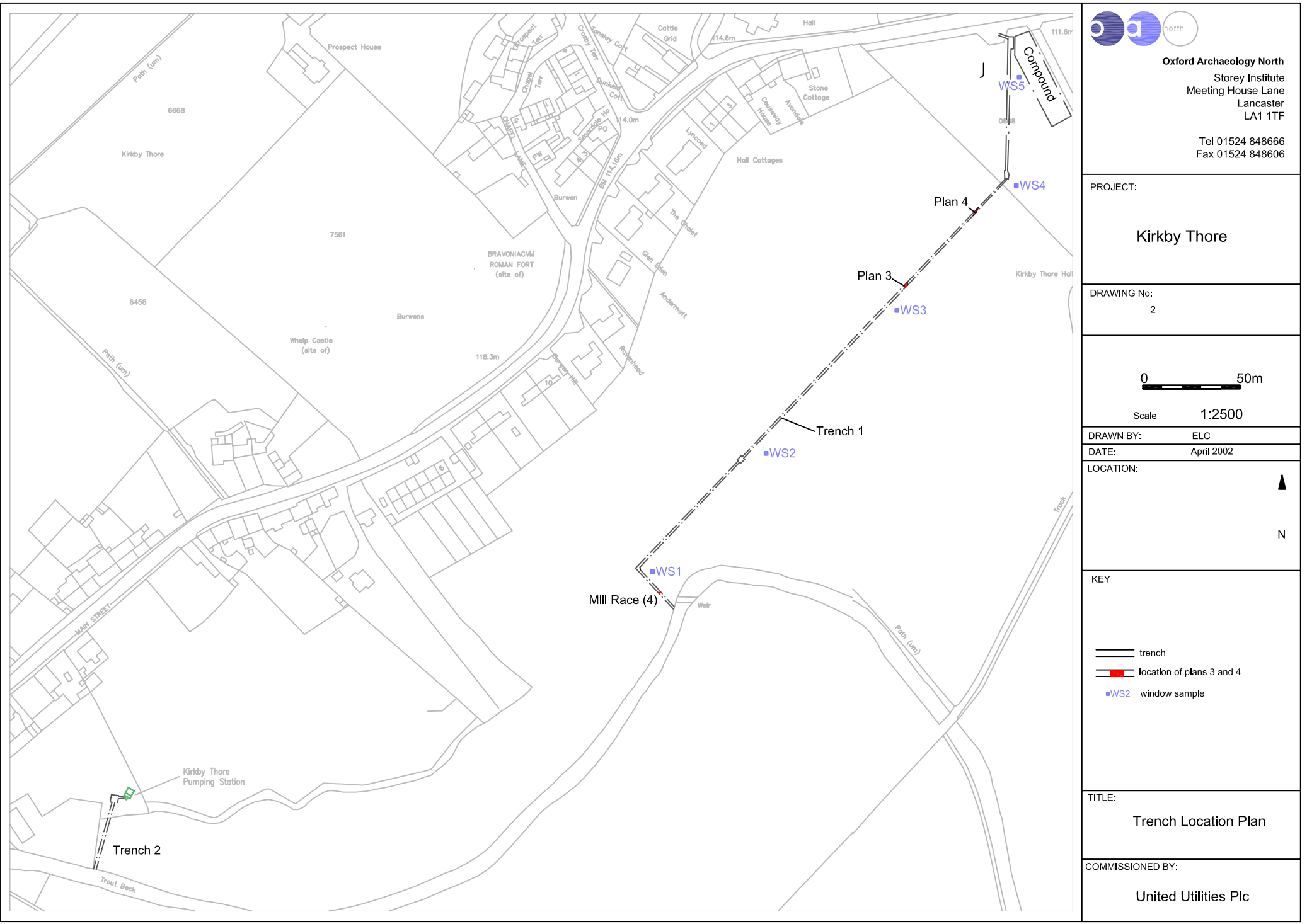
ILLUSTRATIONS

LIST OF FIGURES

LIST OF PLATES

based upon the Ordnance Survey 1:50000
with the permission of the controller of HMSO

Figure 1: Location Map



Oxford Archaeology North
Storey Institute
Meeting House Lane
Lancaster
LA1 1TF

Tel 01524 848666
Fax 01524 848606

PROJECT:

Kirkby Thore

DRAWING No:

2

0 50m

Scale 1:2500

DRAWN BY: ELC

DATE: April 2002

LOCATION:

N

KEY

trench

location of plans 3 and 4

WS2 window sample

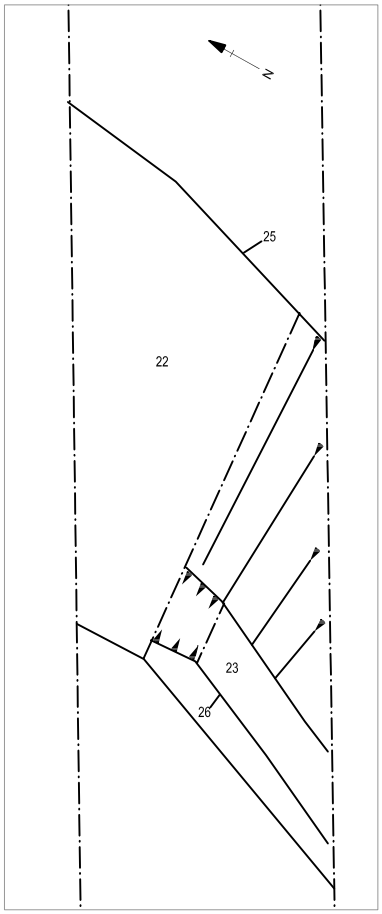
TITLE:

Trench Location Plan

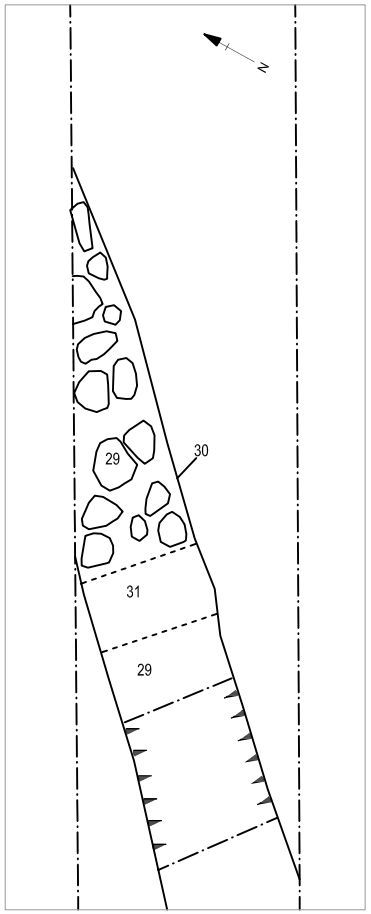
COMMISSIONED BY:

United Utilities Plc

Figure 2 : Trench Location Plan



Plan 3 at 1:20



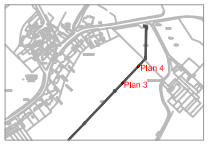
Plan 4 at 1:20

Oxford Archaeology North
Storey Institute
Meeting House Lane
Lancaster
LA1 1TF

Tel 01524 848666
Fax 01524 848606

PROJECT:	Kirkby Thore
DRAWING No:	03
SCALE:	1:20
TITLE:	Plans 3 and 4
CLIENT	United Utilities Plc
DRAWN BY:	ELC
DATE:	April 2002

LOCATION:



KEY

0 0.5m

Figure 3 : Plans 3 and 4

Plate 1: Mill race wall, ***4***, viewed from the south

Plate 2: Section through subsoil ***2*** and fluvial deposits ***5-9***, viewed from the east

Plate 3: Ditch ***25*** viewed from the north

Plate 4: Section through decayed wood ***24***, viewed from the south-west

Plate 5: View of Mill Race wall as seen in Trench 2

Plate 6: Mill Race crossed by temporary trackway associated with Trench 2

Plate 7: Mill Race sluice gate