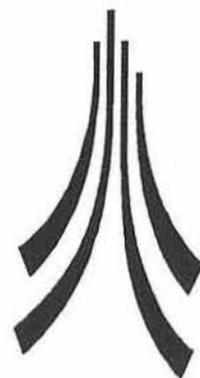


LANCASTER
UNIVERSITY
ARCHAEOLOGICAL
UNIT



November 1994

**GREENACRES FILLING STATION
KIRKBY THORE
Cumbria**

ARCHAEOLOGICAL EVALUATION

Commissioned and funded by:

**Ian Hignett
on behalf of BP Oil UK Ltd.**

Greenacres Filling Station
Kirkby Thore
Cumbria

Archaeological Evaluation

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November 1994

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EXECUTIVE SUMMARY

Introduction

A desk-based appraisal and archaeological field evaluation was undertaken by Lancaster University Archaeological Unit (LUAU) on behalf of the client, Ian Hignett, Disposal Negotiator for BP Oil UK Ltd., of the disused Greenacres Filling Station (centred on NGR NY 6344 2541). The appraisal arises from a condition applied by Eden District Council to outline planning permission for the construction of two detached houses on the site. Following on-site discussions, a project design for the archaeological evaluation was prepared by LUAU and accepted by Cumbria County Council. The desk-based survey was undertaken on 17 and 18 October, and the field work on 19 to 21 October 1994.

Purpose

The purpose of the archaeological evaluation was to identify and record any below-ground archaeological features or artefacts, through a programme of trial excavation, supplemented by the collation of published and unpublished documentary, cartographic, and aerial photographic material relating to the site or areas adjacent to it. It was specifically not in the project design to excavate archaeological deposits revealed, other than to establish their likely vertical extent in suitable places.

Assessment results

The desk-based assessment indicated a strong possibility that archaeological deposits would be encountered on the Greenacres site, provided that construction of the filling station had not completely destroyed them. There was little indication of other recent activity on the site. A few pottery sherds found in the adjacent telephone exchange site, and the presence of stratified deposits there, and at Bow Window Cottage to the east, indicated the possibility that larger than 'standard' evaluation trenches would confirm the extent and nature of archaeological deposits. Previous excavations further north, and extensive analysis and hypothesis-building did much to raise the potential importance of the Greenacres site in academic terms.

Five trenches of varying size were excavated. Over 50% of the grassed areas in the centre of the filling station forecourt was excavated, a similar proportion of the small grassed area to the east, while *c*10% of the large grassed area to the west was investigated.

Stratigraphic sequence

Throughout the site, topsoil varied in depth between 0.70m and 0.30m. Below this, a mid-brown clayey loam ploughsoil, with numerous mottles of red clay, varied in depth between 0.05m and 0.10m and was largely indistinguishable from the upper fill of some large features. The ploughsoil, in places, overlay a deposit of clayey gravel, which was taken to be an old ground surface. Elsewhere other subsoils were encountered where Roman deposits were not present. Red clay subsoil was exposed in places.

Discussion

The evaluation has shown clearly that archaeological deposits, apparently all of Roman date, exist in the north of the site (the grassed area sampled by Trench 1), and much of the length of the site for at least c3.5m from its A66 boundary. All the archaeological features recorded were 'negative' (ie cut, as opposed to built), and therefore little can be said about the potential for structures standing nearer to the surface.

Modern disturbance

It may be fairly safe to assume that the boundary of the major disturbance extends from c5.5m east of the south corner of the site, across Trench 3 to the east corner of Trench 2 and then across the tarmac a maximum of 4m from the petrol pump island. The areas occupied by the island itself, the petrol tanks to the north-east of it, and everything between the island and the WC/Office building (including under the building), are very probably devoid of archaeological deposits.

Trench 4 showed that levelling and ballasting has removed most of the ploughsoil and topsoil overburden below the tarmac surfaces, but that archaeological deposits do survive in the area and may be present under tarmac elsewhere. It is possible, therefore, that archaeological deposits exist throughout the areas of grass and tarmac north-west of the pump island, across the whole width of the site.

Archaeological deposits

The deposits which most easily lend themselves to interpretation are the linear features in Trenches 1, 3, and 4. These all share a south-west to north-east orientation. As a working hypothesis, it is possible to consider the possibility of an enclosure, with a width of c59.5m.

The approximate alignment of sub-circular features in Trench 1, and the adjacent larger and smaller features, are acceptable candidates for parts of a timber structure or structures. A feature containing quantities of burnt bone and carbon is convincing as a hearth while a large feature is best interpreted as a pit.

Two mortar horizons in Trench 2, interpreted as floors, suggest the presence of at least one room of a building, but none of the adjacent horizons are obvious as the locations of timber or stone wall alignments. Many possible small stakeholes were seen cutting an old ground surface in the north-west of Trench 2, but no stratigraphic relationship between them and the mortar was seen during the evaluation.

Predicted impact and mitigation measures

The archaeological deposits on the Greenacres site are extensive, well preserved, and in places near to the present ground surface. Whilst the depth of deposits has only been tested in two parts of the site, a few deep negative features may be expected to contain upwards of 1m of archaeological fill horizons.

On the basis of the current development proposals, the impact on the archaeological deposits is potentially considerable, though the northern part of the site, where stratigraphy appears to be deepest, may be least affected, depending on proposals for service and landscaping works.

In keeping with the recommendations in the Government's Guidance Note *Archaeology and Planning* (PPG 16), if BP Oil UK Ltd. choose to proceed with the application for the proposed development and Eden District Council wish to grant planning permission, a condition should be applied such that full archaeological excavation should be carried out.

All such work would normally be expected to be funded by the developer. In view of the proximity to a Scheduled Monument, and the previous work elsewhere at Kirkby Thore by Inspectorate of Ancient Monuments personnel, it is probable that English Heritage (EH), through the regional Inspector of Ancient Monuments, would wish to be a party to discussions concerning the project design for the work. In such a case, it might be appropriate to make an approach to them for grant aid, though the success of this would be dependent on a number of aspects of EH policy.

In the case of a decision by BP Oil UK Ltd. not to pursue the development of the site, for whatever reason, LUAU recommend a limited amount of further post-excavation analysis, followed by publication of a brief report, based on the present document, in an appropriate journal.

1. INTRODUCTION

1.1 Background

A desk-based appraisal and archaeological field evaluation was undertaken by Lancaster University Archaeological Unit (LUAU) on behalf of the client, Ian Hignett, Disposal Negotiator for BP Oil UK Ltd., of the disused Greenacres Filling Station (centred on NGR NY 6344 2541). The appraisal arises from a condition applied by Eden District Council to outline planning permission (granted 21 April 1994, application number 94/0109) for the construction of two detached houses on the site. Following on-site discussions, a project design for the archaeological evaluation (Appendix 1) was prepared by LUAU and accepted by Mike Daniells, County Archaeologist with Cumbria County Council. The purpose of the evaluation was to assess the general nature of archaeological deposits on the site, and to what extent they had survived the construction of the filling station in the 1960s.

The central, northern part of the site was assumed to have been rendered archaeologically sterile by the construction of the petrol holding tanks and pump island. The former were known to have been filled with concrete following disuse of the filling station in c1984, while the latter survived. The desk-based survey was undertaken on 17 and 18 October, and the field work on 19 to 21 October 1994. The present report is intended to allow the client to decide on the potential of the site for development, within archaeological constraints, and for submission by the client to Eden District Council, in order to meet the planning condition.

Following standard practice, the scope of work for the the archaeological evaluation of the site was discussed with Mike Daniells, County Archaeologist with Cumbria County Council (CCC), and a project design was prepared by LUAU, which was approved by CCC and the client. The LUAU project design (Appendix 1) is enclosed with the present report.

1.2 Purpose

The purpose of the archaeological evaluation was to identify and record any below-ground archaeological features or artefacts, through a programme of trial excavation, supplemented by the collation of published and unpublished documentary, cartographic, and aerial photographic material relating to the site or areas adjacent to it. It was specifically not in the project design to excavate archaeological deposits revealed, other than to establish their likely vertical extent in suitable places. Discussion of the deposits revealed in each of the five trenches excavated is therefore largely restricted to their surface characteristics and horizontal (as opposed to vertical) stratigraphy. Assessment of artefacts recovered - which comprised ceramic, lead, iron, copper alloy, worked stone, burnt and unburnt bone, and soil samples for subsequent analysis if necessary - is also restricted to a brief appraisal of the most distinctive pieces.

1.3 The site

Greenacres Filling Station lies at the western end of the village of Kirkby Thore, Eden District, Cumbria, in the old county of Westmorland. It was constructed

adjacent to the busy A66 Penrith to Scotch Corner road, in or about 1964 (pre-construction plan, dated May 1964, supplied by the client), on a green-field site with the same boundaries (OS 1898, sheet 9.1), measuring 69m on the road frontage by a maximum of 20m. Kirkby Thore has long been known as the site of a Roman fort and civil settlement (*vicus*) (CSMR PRN 2800), and the area first protected as a Scheduled Monument (SM) in March 1961 was revised in December 1990 (English Heritage ref MPP 23/AA10665/1), following increasing numbers of fieldwalking and metal detector finds, such that the filling station is now bounded to the north and west by the scheduled area. The SM in fact now comprises three areas (National Monument Number 13450/1-3): north and west of the village, east of the village but west of the Trout Beck, and south of the A66 but north of the Trout Beck (Fig 1). The houses of the village, the filling station, and the A66 and Main Street are the only significant exclusions from the scheduled area, though it has always been recognised that archaeological deposits could survive under all of the above. The A66 follows the line of the Roman, and perhaps pre-Roman, road from Brougham to Scotch Corner, generally referred to as Margary 82 (CCC PRN 1809; Margary 1957, fig 3).

2. METHODOLOGY

2.1 Project Design

A copy of the Project Design is given at Appendix 1. The conditions set out in this document have been adhered to, the documentary material cited was consulted as was reasonably possible. Over 50% of the grassed areas in the centre of the filling station forecourt was excavated, a similar proportion of the small grassed area to the east, while c10% of the large grassed area to the west was investigated. As stated in the project design (Appendix 1, 5), the central, northern, part of the site (c300 m²) was assumed to have been rendered archaeologically sterile by the construction of the petrol holding tanks and pump island. The former were known to have been concrete-filled following disuse of the filling station in c1984, while the island and a kiosk survive. An office and WC building at the eastern corner of the site was also avoided, and was shown to overlie probable disturbed ground.

2.2 Desk-based assessment

The desk-based assessment of the site and adjacent areas (Figs 1-2) entailed visits to the various sources of documentary, cartographic, and photographic material (listed in the Bibliography), in order to determine the position, nature, and type of archaeological sites and any previous buildings (of which there proved to be none), as an aid to assessing the impact of the filling station on those archaeological deposits. This information has been summarised in section 3.3 (Historical context). Particular importance was given to studying published and unpublished reports on the nearest other archaeological investigations, viz:

1. Trial holes (three in 1971, two in 1979) prior to the construction of the new telephone exchange immediately north-west of the filling station (centred NY 6341 2545; CSMR file; English Heritage file AA 10665/2C), and
2. A watching brief on an extension to Bow Window Cottage (NY 63530 25375), and to Kirkby Thore Bridge (NY 63545 35300) in 1985-6 (Gibbons *et al* 1989, 103-7 and Fiche 1, 3).

2.3 Sources consulted

Published, written, sources were consulted in the Lancaster University library. Published cartographic sources were also viewed there, and in the Cumbria Record Office, Kendal. Unpublished synthetic appraisals of Roman Kirkby Thore (Plowright 1970), geophysical prospecting east of the village (Blackburn 1987), and an assessment by LUAU of Kirkby Thore alongside other *vici* (civil settlements adjacent to forts) (Brandon 1984) were consulted in LUAU's own library and in the Cumbria Sites and Monuments Record, Kendal. The latter also supplied extensive details of recorded finds and sites in the vicinity, and copies of correspondence concerning the scheduled area, and earlier planning applications. Georgina Plowright (English Heritage, Corbridge Roman site) and Colin Richardson (Tullie House Museum, Carlisle) supplied additional verbal comment on recent finds in the vicinity.

2.4 Trial trenches

Following the recommendations of the project design, five trenches were excavated. The locations of these, in relation to the National Grid, are shown on Figure 3. Trenches 2, 3, and 4 were linked together, giving a total length, parallel to the A66, of 25.3m, a total of $c110\text{ m}^2$ excavated, from a total site area of $c950\text{ m}^2$. If the central, northern, part of the site ($c300\text{ m}^2$) is excluded from this total, since it is assumed to have been rendered archaeologically sterile by the construction of the petrol holding tanks and pump island, $c17\%$ of the site was investigated. This is a considerably higher percentage of the site than is typical in archaeological evaluations, but necessarily so in view of the anticipated level of disturbance of the site, and the exclusion of excavation of features from the project design.

Turf, topsoil, and where necessary tarmac, were removed from all the trenches, using a Case 580K wheeled mechanical excavator, with a professional and proficient operator. Further excavation using hand-tools was then carried out in each trench to reveal the uppermost archaeological horizon. The depth below present ground surface of these deposits varied between 0.75m in Trench 1 and 0.35m in Trench 2.

The recording of the field evaluation comprised the compilation of individual context sheets for each discrete stratigraphic element; the production of accurate scale plan drawings (at 1:20 scale for Trenches 1, 2, and 5; 1:100 for Trenches 3 and 4), and a photographic record on colour slide and monochrome film stock of each trench, including representative baulk (trench side) sections. The trenches were located in relation to the site boundaries, and the site itself to the National Grid, by hand-measurement. A Temporary Bench Mark on the petrol pump island was surveyed in relation to an Ordnance Survey Bench Mark on the former village Post Office at NY 63656 25467. Spot heights were put on the plan drawings in relation to this TBM. Artefactual evidence from the topsoil was 'batch' collected during mechanical excavation, while almost all artefacts retrieved during subsequent hand-tool removal of soil were accurately located by triangulation (polar co-ordinates can be calculated later, as necessary). There being relatively little variation in height within each trench, finds were not levelled-in. The recording methods employed by LUAU during the evaluation process accord with those recommended by English Heritage's Central Archaeological Service, as set out in their *Management of Archaeological Projects* (2 edn, 1991).

2.5 Results and reporting

The majority of the collated information has been presented in this report in the form of a trench-by-trench description of the archaeological deposits (Paragraph 5.3), together with an assessment of the finds (Paragraph 6) and a discussion (Paragraph 7.1). Graphic evidence has been presented in the form of a slightly simplified plan of the numerous features in Trench 2 (Fig 4), and a very simplified composite plan of the features in Trenches 1, 3, 4, and 5 (Fig 3).

2.6 Archive

A full archive of the desk-based assessment and field work will be produced to a professional standard, in accordance with current English Heritage guidelines, as set out in *Management of Archaeological Projects* (2 edn, 1991). The archive will be deposited with the Cumbria Record Office, Kendal, and a copy with the National Monuments Record, Swindon. A synthesis of the archive will be provided for inclusion in the Cumbria Sites and Monuments Record.

By law, the finds from archaeological excavations are the property of the landowner (excluding any items which might be subject to Treasure Trove law - of which there are none in this instance). However, it is accepted national and LUAU policy that, once appropriate specialist study has been completed, finds should be deposited in a museum approved by English Heritage (with a copy of the written and drawn archive if requested) for permanent storage and/or display as appropriate. Discussions should therefore be initiated with Cumbria Museums Service.

3. EXISTING CONDITIONS

3.1 Geology and soils

Kirkby Thore lies in a river valley which is a product of faulting, which has revealed the Penrith Sandstone (New Red Sandstones) of Permo-Triassic date, exposed in the upper parts of the village and elsewhere, flanked by the Upper and Lower Carboniferous limestones that had overlain the sandstones. Harder igneous rocks belonging to the Cross Fell intrusion are found at Knock and Dufton Pikes (Geol Surv 1893; Dakyns *et al* 1897, 37-8; Plowright 1970, 2-6). The overlying glacial deposits in the valley of the Eden and Trout Beck from Temple Sowerby through Kirkby Thore to Long Marton comprise sandy till and earthy clay (Dakyns *et al* 1897, 96). No recent re-mapping of the area's geology has taken place, and no bore-hole data was available to LUAU from the client or from BP Oil UK Ltd., so the depth of the glacial drift could not be accurately determined. The only published record of the depth of the till in the area around Appleby is 33 ft (10.06m) at Burwain, near Bewley Castle (Dakyns *et al* 1897, 95).

The soils of the area belong to the Clifton Association (711n), a group of seasonally waterlogged soils developed in reddish fine loamy till and related glaciofluvial deposits. Because of the slowly permeable nature of the till, the soils are of stagnogley type (Jarvis *et al* 1984, 135-7).

3.2 Topography

The Greenacres Filling Station site is situated south-east of the brow of a hill on the north side of the undulating A66 trunk road, on the western edge of the village of Kirkby Thore, Cumbria. The Trout Beck stream, a tributary of the River Eden, passes under the A66 c120m south-east of the site on its way to join the Eden c140m further to the south-west.

The site itself slopes very slightly from north-west to south-east, with a break of slope near the centre of its c70m length. The whole site is raised c0.50m above the field to the north-east and c0.20m above the pavement and grass verge to the south-east, but is level with the road surface to the south-west. The telephone exchange and track adjacent to the site to the north-west appear to be on the same level as the filling station.

3.3 Historical context

In this section, an overview of existing archaeological and historical knowledge of the general area of the development site will be given.

3.3.1 Prehistoric

Plowright (1970, 10-17) gives an outline of the prehistoric settlement of the Eden Valley and Gibbons *et al* (1989) do not add to her statements. Mesolithic finds are scant further inland than the coastal plains of Cumbria, but Neolithic activity is characterised by forest clearance and presents a picture of the growing prominence of the Stainmore Pass as a route between the Solway Estuary and the east. A two-way traffic of trade goods (including stone axes) and ideas (including burial practice and ritual monuments such as henges) is identified by Plowright. In the

Late Neolithic and Early Bronze Age, the eastern routes into the valley are prominent, as indicated by thirteen of the seventeen Beaker finds in Cumbria (made prior to 1970) being from the Eden Valley. However, the focus of such activity, according to the surviving evidence, was at the foot of the 'fell' land, rather than on the valley floor. Stone circles (hengese), for example, are typically found above the 500 ft (152m) contour. In later prehistory, exceptions to this distributions begin to occur, such as an irregular ditched enclosure c400m south of Kirkby Thore, identified on aerial photographs (Plowright 1970, 15; possibly CSMR PRN 16,550). By the time of the Roman occupation, high ground settlement was well established, as were traffic routes, not only in the valley but also using the ridgeways between the south Tyne Valley, Alston, and through the Eden Valley to the Lune.

The only pre-Roman find amongst the assemblage from Gibbons' excavations within the Kirkby Thore Roman fort is a single struck flint flake (Gibbons *et al* 1989, 127).

3.3.2 Roman

The Roman fort at Kirkby Thore has been known since the early seventeenth century or earlier. William Camden visited the North in 1599 and the 1607 (Latin) and 1610 (English) editions of his *Britannia* describe an inscription (RIB 759) and identify the site as the *Gallatum* of the *Antonine Itinerary*. Correct equation of the site with *Bravoniacum* was first made by John Horsley (1732, 298-9), on the basis of reconsideration of the road distances given in the *Itinerary*. *Gallatum* was shown to be Appleby. An important and reliable earlier source of antiquarian information is Thomas Machell (1647-99), rector of Kirkby Thore from 1677 until his death. The manuscripts written by Machell (CRO, Kendal Microfilm JAC 171, eg vol VI, 209), Ewbank's (1963) 'antiquary on horseback', contain much useful information, some of which was extracted by Nicolson and Burn (1777, 1, 379-80). Machell's (1684) published reference to a timber-lined well at Kirkby Thore, may refer to a feature still known locally, a little to the south-east of the Greenacres site on the opposite side of the A66.

Machell carried out excavations in the area called The Burwens, but subsequent authorities, including Gibbons *et al* (1989, 115), have had difficulty in identifying the site of Machell's work from the manuscript description. More wall foundations were recognised by Hodgson (1814, 89) and others. However aerial photographic evidence (LUAU, J K St Joseph Collection DO 075-077 09.07.1949; AAK 70) finally confirmed the existence and position (about 300m from the A66) of the auxiliary fort, bisected by Main Street and with buildings and roads very clearly visible as parch marks. Further study of ancient sources and inscriptions identified the fort as housing a cavalry unit (Brandon 1984, 41), possibly with the function of patrolling the Kirkby Thore to Whitley Castle route known as the Maiden Way. As to the nature of the surrounding area, the Royal Commission on the Historical Monuments of England (1936, 146) may take the credit for prompting debate about the nature of the Kirkby Thore site by proposing it as a possible temporary camp, up to 36 acres (14.6ha) in extent, based on the spread of Roman finds and the presence of fragments of earthworks. Birley (1949; 1958, 54) developed the idea, describing the site as a town, bounded on one side by the Roman road which

is now the A66, by Piper Lane to the west, extending to Kirkby Thore Bridge to the south, and with the fort in its eastern corner.

Opportunities to excavate at Kirkby Thore were taken in 1961 and 1964 (Charlesworth 1964; 1965; Gibbons *et al* 1989, 117-18)). The former campaign, conducted in advance of housing development, included work in the north-east of the fort and further west along the defences of the supposed defended town, but failed to produce a foundation date for the fort or unequivocal evidence for the latter. The 1964 excavation, c76m from the junction of Piper Lane with the A66, examined an earthwork supposed to be part of the town defences, but produced neither features nor artefacts. Piper Lane was thought to be a pre-Roman road line, the Maiden Way, which continued in use until the medieval period (Margary 1957, 125), but this has been disputed. Gibbons considers it more likely that the Maiden Way passed through the fort from north-east to south-west, as the *Via Principalis*, and continued through the *vicus* to the Stainmore road, the A66. Birley accepted the results of the 1964 excavation as putting the 'town' hypothesis 'into a suspense account' (Birley 1967, 11; Gibbons *et al* 1989, 118-19).

The trial holes excavated in 1971 and 1979 on the Telephone Exchange site, adjacent to Greenacres Filling Station, will be discussed in Paragraph 4.2, below.

Gibbons excavations in 1983 and 1985/6 (Gibbons *et al* 1989) were again located in the northern part of the village, and tested the results of Charlesworth's 1961 excavation. Some 323 Roman pottery sherds, together with other finds, were analysed. The coarseware indicated a preponderance of second century types, beginning cAD 125, with a small amount of (?late) fourth century material. Third century wares were completely absent (Hird 1989). Wild (1989) states that the Samian ware included three sherds of Form Dr. 29, a plain bowl (Oswald 1936-7), which date from cAD 65-80, that is Neronian - early Flavian, though these came from disturbed contexts which did not help to date the structures reported. However, coins of first century date had previously been found at Kirkby Thore (Brandon 1984, 5).

Gibbons' very useful discussions of the Roman archaeology of Kirkby Thore as a whole, coupled with the unpublished work of Plowright (1970) and Blackburn (1987), put the Greenacres site firmly in context. Brandon's (1984) unpublished study gave a brief re-statement of the place of the site in current hypotheses, research design, and site protection strategies concerning the 17 accepted *vicus* sites in Cumbria and Lancashire. She concluded that sufficient of the area surrounding the fort was scheduled to be fairly certain of protecting the most vulnerable parts of the *vicus*. Correspondence seen during the desk-based assessment, concerning extension of the scheduled area, will be considered below (Paragraph 4.4).

3.3.3 Medieval

Pre-twelfth-century Scandinavian occupation at Kirkby Thore is fairly certain, on documentary and place-name evidence. Medieval buildings in the village include the twelfth century Church of St Michael and Kirkby Thore Hall, of which the core is fourteenth century (RCHM 1936, 146-8). The medieval village appears to have

developed as two separate areas, Town End/Bridge End in the south and Cross End/Town Head in the north, divided by the fort ruins. It now seems fairly conclusively proved that Whelp's Castle, mentioned in an early thirteenth century charter, comprised the ruins of the fort, but whether or not with medieval rebuilding remains uncertain (CSMR PRN 6848). Whelp was reputedly first lord of the manor of Kirkby Thore, in the reign of King Stephen or Henry II (Nicolson and Burn 1777, 375). Gibbons' excavations identified medieval features, all of them pointing to radical changes in land divisions in the intervening centuries. During the twelfth and thirteenth centuries the Cistercian Abbey of Holm Cultram received grants of land in Kirkby Thore, apparently west of the village towards Temple Sowerby, and north-west towards Hale, but not south-west of the A66 (Gibbons *et al* 1989, 110-13).

4. DESK-BASED ASSESSMENT

4.2 Documentary evidence

The published and unpublished sources consulted in preparing the foregoing paragraphs (3.3) on the historical context for the evaluation contained very few direct references to the Greenacres site, though clearly the extensive previous work by archaeologists at Kirkby Thore, and their hypotheses about the site's status in the Roman period, are of relevance in interpreting the results of this evaluation. Assessment focussed on the Telephone Exchange site, Bow Window Cottage, and Kirkby Thore Bridge. The inconclusive excavations (Charlesworth 1965) at the junction of Piper Lane and the A66, further west, have already been mentioned.

Correspondence (CSMR; copies of English Heritage file AA10665/2c) concerning three trial holes excavated in November 1971 and two more in March 1979, in advance of construction of the Telephone Exchange adjacent to the garage, indicate that this work consisted of brief recording of contractors' (Public Services Agency) excavations. The trial holes (TH1-5) were in a diamond pattern, orientated due north-south, with TH5 in the centre and the nearest hole (TH3) being c30m north-west of evaluation Trench 1. THs 1, 4, and 5 were all located north-east of an extrapolation of the rear boundary of the Greenacres site. Finds were confined to the western (TH2) and central (TH5) holes, the latter producing a single Roman sherd from the ploughsoil. G Plowright (author of the 1970 assessment of Kirkby Thore) reported, in a letter to the Inspectorate of Ancient Monuments, that TH2 contained a layer of 'mixed (?)sand and clay', below topsoil and above natural clay, which was encountered at a depth of (40") c1.00m. She did not consider the sand/clay to be the fill of a pit, though the profile appeared to suggest this. Pottery and charcoal were recovered from the base of the horizon. G J Fairclough of the Inspectorate wrote in April 1979 to Dr Leech, then director of LUAU, with details of THs 4 and 5. He described a 'yellow, very sandy/gravelly, clay' below topsoil, which he equated with Plowright's 'mixed (?)sand and clay'.

Gibbons carried out a watching brief in September 1983 during the building of an extension to Bow Window Cottage, near the junction of Main Street with High Street (the A66). The garden of the neighbouring property, South View, had produced 'considerable finds' (Plowright 1970, 49). Approximately 0.35m of stratigraphy, overlying an orange/red sand subsoil, were recorded. No structures or dating evidence were recovered, apart from late medieval pottery in the topsoil.

In 1838 re-construction of the Kirkby Thore Bridge had produced a concreted mass of Roman copper alloy objects (coins, brooches, implements, and small statuettes), together with some iron objects, but the report of the time (Smyth 1846) is unspecific about aspects of the construction work and stratigraphy. Gibbons' watching brief in 1983 showed only that no paved ford existed at that point in the river, that there was no remaining trace of the pre-1838 bridge, and no archaeological stratigraphy was visible (Gibbons *et al* 1989, 103-7).

4.3 Cartographic evidence

Two sixteenth century plans of the village are reported to exist (Gibbons *et al* 1989, 113), but have not been located by Gibbons or the present writer. The inclosure award of 1820 (CRO, Kendal WQ/R/I/52) and tithe award of 1847 (CRO, Kendal WDRC/8/23) do not cover the area of the Greenacres site. Cartographic evidence studied was therefore confined to published Ordnance Survey (OS) maps. The first edition 6": 1 mile (1863) and second edition 1:2500 (1898 - no first edition available) maps show the filling station plot (Number 363 on the 1898 map) with the same boundaries as today. The only difference is an intermediated division, at right angles to the A66, c29m from the south-west corner of the site. Within the site, c50m from the south-west corner, a small (c5m) square structure, together with a further structure abutting the northern boundary, are shown in 1863, but not on later maps. No description is given against either.

The demolished barn abutting the site boundary to the east was shown in 1863, 1898, and 1957, but not in 1974, and the same is true of a row of buildings in front of this, on the A66 frontage, which extended to the junction with Main Street.

Geological and soil map evidence is discussed above, in Paragraph 3.1.

4.4 Sites and Monuments Record

The Cumbria Sites and Monuments Record, (CSMR) supplied copies of correspondence concerning the extension of the Scheduled Monument area at Kirkby Thore in the 1980s and a map (Fig 1) showing the current extent (SM 13450/01-03) at 22 November 1990. The addition of areas between the mill race and Trout Beck to the east of the village, and south-west of the A66 reflect recent chance discoveries, the geophysical surveys carried out by Blackburn (1987), and Cumbria County Council's Environment Group (1989) study.

A print-out of details of sites in the immediate vicinity of the village, together with a 1:10,000 map copy showing their location, was obtained from the CSMR. Whilst a number of unpublished discoveries east of Greenacres, in the area between Main Street and the Trout Beck particularly, were listed, no chance finds were seen to have come from the vicinity of the filling station. Records of fieldwalking and metal detector finds reported to Tullie House Museum, Carlisle (being prepared for publication by Colin Richardson), confirm this distribution. The scheduled status of much of the surrounding area, where the use of metal detectors is illegal, will have reduced the likelihood of reporting of any treasure hunting activity in the area.

4.5 Aerial photography

Copies of most of the relevant Cambridge University (St Joseph Collection) aerial photographs are housed at the CSMR and/or LUAU. Most concentrate on the fort area, and unfortunately none show the filling station, or the area immediately north or west of it. The CSMR gave some further detail concerning aerial photographic crop mark sites within the supposed Kirkby Thore Roman town area, and beyond it. A marching camp (CSMR PRN 9980; NGR NY 6265 2520), identified in 1981, lies c750m south-west of Greenacres. No attempt was made to consult

photographs housed at Durham and Manchester Universities during this evaluation..

4.6 Conclusions

The desk-based assessment indicated a strong possibility that archaeological deposits would be encountered on the Greenacres site, provided that construction of the filling station had not completely destroyed them. Apart from a minor post-medieval building, and a field boundary, there was no indication of other recent activity on the site, and the overall shape of the boundaries of the site had remained constant since at least 1863. A few pottery sherds found in the adjacent telephone exchange site, and the presence of stratified deposits there and at Bow Window Cottage to the east indicated the possibility that larger than 'standard' (ie c1.5m wide) evaluation trenches would confirm the extent and nature of archaeological deposits. Previous excavations further north, and extensive analysis and hypothesis building did much to raise the potential importance of the Greenacres site in academic terms.

5. FIELD EVALUATION

5.1 Trial excavations

Five trenches of varying size were excavated. The locations of these, in relation to the National Grid, are shown on Figure 3. The stratigraphic sequence revealed in all the trenches was essentially similar, though it must be remembered that very little excavation of the archaeological deposits below topsoil took place. An overall description of the upper stratigraphic horizons and simplified picture of the underlying archaeology is given here, and further details are given below trench-by-trench of the archaeological horizons at which excavation was curtailed.

A sequential run of 'context numbers' was assigned to every discrete stratigraphic unit to facilitate description, plan recording, and finds recovery. An abbreviated inventory of finds appears in Section 6. Where context numbers are quoted in the text they appear in parentheses, thus [].

In a few instances, individual finds or soil samples are referred to, in each instance prefixed by their Object Record Number (ORN).

5.2 Stratigraphic sequence

Including the turf, the topsoil horizon in the trenches excavated in the three grassed areas of the site ([1, 2, 3, 5] in the trenches of the same numbers) was a very dark sandy clay-loam. The depth of these deposits varied between 0.70m in Trench 1 and 0.30m in Trench 2; the depth in Trenches 4 and 5 was c0.40m. Below this, a mid-brown clayey loam (ploughsoil), with numerous mottles of red clay varied in depth between 0.05m and 0.10m and was largely indistinguishable from the upper fill of some large features. While the upper c50% of this horizon ([6] in Trench 1, [7] in Trench 2, [8] in Trench 3, [13] in Trench 5) was removed by machine, the remainder was excavated by hand, and it was from these horizons that the majority of the artefactual assemblage was recovered.

In Trench 1, the ploughsoil [6] overlay a deposit of clayey gravel [17], which was taken to be an old ground surface. This was cut by a number of features, described below. Although a layer of large cobbles was revealed within the topsoil [1] in the northern part of Trench 1, no modern intrusions appeared to cut into ground surface [17]. This ground surface was shown by means of a sondage, on the western side of the trench, to overlie a heavy gravelly clay of redder-brown colour [70] to a depth of c0.15m. The gravelly clay [70] was presumed to be the natural subsoil. A possible small outcrop of it appeared in the north-east corner of the trench, but otherwise this horizon was only seen in Trench 1 in the sondage. Although encountered in all five trenches and tested to a depth of c0.70m in Trench 4, the natural clay was not bottomed anywhere on the site during the evaluation.

The stratigraphy in Trench 2 (Fig 4) was the most complex seen on the site. No horizon similar to [17] in Trench 1 was seen, but a brownish red sandy layer [44], cut by very numerous small features, abutted or overlay outcrops of red clay [43, 56] in the west of the trench. The clay, similar to and presumed to be equivalent to

the natural subsoil [70] in Trench 1, was restricted to the south-western half of the trench and gave way to more gravelly material [61] of similar colour further east. These natural subsoils appeared to slope downwards to the north-east, or to have been cut away and have been overlain - apparently in succession - by large cobbles, a mortar (?floor) layer, and the other deposits described below [54, 57, etc]. Although recent disturbances were present in Trench 2, these were localised and quite clearly defined.

In Trench 3, at the southern end of the site, a simple sequence of topsoil [3], over ploughsoil [8], over natural red clay [71] was cut by a large feature whose fill [9] contained Roman finds. Both this fill and the natural clay were cut sharply by large modern features. To the north-east a gravel-filled pit, lined with sand, took up the whole width of the trench, while a concrete raft in the south-west probably covered the pumping main sewer notified to LUAU by Eden District Council. This extended north-west into Trench 4.

In Trench 4, an area of levelling below tarmac overlay a small residual amount of topsoil [4], below which natural clay [72] was encountered. This was cut by a large feature, whose fill [12] contained Roman finds. The natural clay was cut to the south-east by a group of modern features, including a dump of tarmac; these were not studied in detail.

A horizon [30, 31] similar to [17] was revealed in Trench 5, nearest neighbour to Trench 1. Here, areas of clay were seen to be re-deposited within the fills of (probably modern) cut features, but no *in situ* natural clay was revealed. The fills of other cut features are described below.

5.3 Description of the excavated features

5.3.1 Trench 1

This 5 x 5m trench was located at the north-western corner of the site, separated from the site boundary fences by c2m. Features revealed in the trench are shown at small scale on Figure 3. The trench was later slightly extended at its south-west corner to attempt to confirm the width of a large linear feature [cut 73; fill 16], orientated parallel to the north-west baulk. This latter proved to be c0.70m in width and barely extended into the trench extension. In the sondage excavated on the north-western side of this feature, the upper part of its V or U-profile was revealed, and the fill [16], a dark brown clayey-loam, was shown to be at least 0.50m deep.

Near the south-eastern corner of the trench the curved end ('terminal') of another large feature was revealed (fill [18]), measuring c2.00m north-east - south-west by c1.60m. This may also have been linear, or alternatively oval, but too short a length of it was exposed to determine its shape clearly. A number of large boulders, in the base of the topsoil, were removed from its upper fill to reveal an oval hollow containing darker brown clayey-loam [19] at the northern end.

Nine other features were revealed in the area north and west of [18], but east of [16]. Three of these [20, 21, and 22] were c0.25 - 0.30m diameter sub-circular patches of dark brown clayey-loam (very similar to [16]), lying in a straight line

running approximately east-west for c2.5m. These may be assumed to be the fills of post-holes. Two small (0.10m diameter) features with similar fill [74, 75] (not shown on Fig 2) were clustered around [21], while two more small features [26, 29] (also not shown) with red-brown sandy fill lay 0.5 - 0.6m either side of the line of three features. A further larger feature [23], with similar fill to [20-22], lay to the north-west of the group, immediately beside the linear feature [cut 73].

Mid-way between the two large features in the trench, lay a sub-circular patch of carbon-rich loam [10], which contained quantities of burnt bone in small fragments (mostly less than 20mm), together with some sherds of ceramic. The machine-disturbed material on the top of this feature, and some fill loosened by heavy rain during excavation, was sampled (ORN 0001).

About 1.3m north-east of [18] lay a large rectilinear feature [24] c0.80 x 0.45m in size, with similar fill to [20-23], and a 0.40 x 0.15m oval patch of carbon-rich loam [25], without apparent burnt bone in the fill. In the north-east corner of the trench, an arrangement of stones [27], abutting an area of possible clay subsoil, could be post-packing or a fragmentary stone setting.

5.3.2 Trench 2

This 9.5 x 3.1m trench (Fig 4) was located parallel to the A66 boundary of the site, and only c0.5m away from it. To the south-east, Trench 4 continued on the same alignment, but at half the width. The dominant feature in this trench was a spread of mortar [57], containing smaller areas of pure lime [14] (sampled ORN 0028). This mortar spread, most probably a floor measured up to 3.1m north-west - south-east by 2.5m. Nowhere did it extend to the A66 boundary of the trench, though it continued below the opposite baulk towards the petrol pump island.

A sandy clay horizon with loam mottles [60], cut by two carbon-filled small features [48, 59], in the area between the mortar floor and the north-west baulk, may be a levelling layer for the floor, exposed by the cutting of a large intrusion [77], filled by dark brown loam [58].

The reddish-brown sandy loam [44, 53] in most of the north-east corner of the trench appeared to underlie the mortar and is most probably an old ground surface. As stated above (5.2), this old ground surface overlay small exposures of clay subsoil [43, 56]. It was cut by a number of small features, with largest dimension 0.2m [46, 47, 49-52], and many further, smaller features [un-numbered] filled by dark brown loam or carbon. A larger carbon-filled feature [45] extended under the west baulk.

It seems likely that the 2.5 x 1.4m area [54] of large cobbles (up to 0.30m diameter) in the north-east of the trench is the fill of a shallow-profile feature cutting the mortar. The upper c0.4m of the sides of this feature were overlain by ploughsoil and were therefore exposed during excavation. Level with the cobbles, and c0.15m below the sandy loam old ground surface [44], a thin, apparently vertical, deposit of brick and carbon [15] was encountered. At the northern corner of the trench, the cobbles [54] were cut by a modern trench [55] for a ruptured pipe (asbestos ?), set in concrete.

The horizontal stratigraphy in the south-eastern third of the trench was less clearly defined. A second mortar spread or floor [65] was separated from [57] by an area of mixed red clay and brown clayey-loam [69]. This material appeared to be the same as the matrix for a discontinuous area of cobbles [63] in the south of the trench. In the centre of the trench, an area of natural red clay [64] was exposed. Into this was cut a deeply embedded upright stone [78] abutted by a deposit of burnt bone (ORN 0003).

A brown sandy loam horizon [62], which underlay the cobbles [63] to the west and abutted the natural sandy gravel [61] at the west baulk of the trench, was similar in texture to, and may be equivalent to, the sandy old ground surface [44] in the north of the trench.

The south-east corner of the trench had been completely robbed by a modern intrusion, filled with clean gravel [66], and a further loam-filled disturbance [68] to the south-east of mortar [65] produced plastic and modern ceramics.

5.3.3 Trench 3

This trench, measuring 6.5m north-east - south-west by 3.5m, was situated at the south corner of the site, 1.85m from the south-east boundary fence and 0.85m from the A66 boundary fence. Natural red clay subsoil and modern disturbances occupied two thirds of the excavated area. Only two archaeological features other than those of modern date were recognised: a narrow strip of mid-brown clayey-loam ploughsoil [8], or perhaps an old ground surface, 0.30 x 4.40m on the western side of the trench, and a mid-brown sandy loam [9] to the east of it. The latter proved to be the fill of a linear feature [cut 81], which widened from 0.80m in the south of the trench to 1.30m in the north.

Both the ploughsoil/old ground surface [8] and the fill of the linear feature [9], together with the natural clay [71] in the eastern half of the trench, were truncated by the vertical cut of a disturbance pit - presumably for the petrol storage tanks and associated structures - consisting of sand overlain by gravel. A rubble-filled pit in the south-east corner of the trench cut the natural clay and linear feature, while a concrete raft, extending into Trench 4, cut the south ends of the linear feature and ploughsoil/old ground surface.

5.3.4 Trench 4

This 12.4 x 1.5m trench linked Trenches 2 and 3 and was cut almost entirely through tarmac, except for c1.5m of grass cover at each end. Archaeological deposits in the eastern 6.5m of the trench had been entirely destroyed by modern disturbances, including gravel-filled pits which do not need to be described in detail here. To the west of this, the uppermost archaeological horizons sloped upwards towards the western end of the trench by c0.30m, probably indicating the extent of truncation in those areas which had been excavated to take levelling for tarmac.

Immediately west of the modern disturbance, the southern two-thirds of the trench were occupied by natural clay subsoil [71], but the northern c0.50m contained a grey-brown silty clay-loam [74]. A 1.5m wide sondage across the width of Trench 4, excavated by machine to a depth of 0.65m below the top of the archaeological

horizon, indicated that a V-profile feature [cut 79] lay parallel to the north-eastern margin of the trench. Although this feature was difficult to follow on the surface in the rainy conditions, it appeared to cut a browner clay-loam [12], which occupied the full width of the trench for the western 4m of its length. This was taken to be the fill of a ditch [cut 80]. No western margin was found for this feature, whose fill bore close resemblance to the linear feature in Trench 3, since there was considerable accumulation of ploughsoil [8] overlying the western half of its area. Cobbles [75] within or underlying this ploughsoil may be analogous to those at the eastern end of Trench 2, from which they were separated by *c*1m of disturbed sandy-loam [62].

5.3.5 Trench 5

This 8 x 1.5m trench was situated parallel to the A66 fence boundary, 10m north-west of Trench 2 and 13.5m south-east of Trench 1. The northern one third of the trench - for the eastern half of its length at least - was found to have been disturbed by a linear pit or trench, of post-medieval or modern date. This was orientated approximately parallel to the length of Trench 5, and was filled with dark-brown loam [32], overlain by a mixture of red clay and brown sandy loam [33]. The southern margin of this linear feature exhibited a shallow sloping cut [76], in places overlain by cobbles [34].

The undisturbed area to the south of this was occupied, in the south-eastern half of the trench, by an old ground surface of red-brown sandy gravel [30], with areas of harder, ironpanned, gravel. In the north-western half of the trench, this gave way to a clayier horizon [35] and, in the northern 2m, a grey sandy clay [40].

Four features cut the above ground surface horizons, three of them continuing below the southern baulk of the trench. Two semi-circular areas of cobbles in fairly loose brown loam [36, 37] may be of modern date, while a larger, rectilinear feature, measuring at least 1.20 x 0.70m, whose dark brown loamy fill with clay mottles produced Roman ceramic, is of greater potential interest. A small rectangular feature with similar fill [41] lay to the north of the above. Patches of carbon were present overlying the ground surface to the north of the two semi-circular features, and occasional fragments of burnt bone were recovered from Trench 5. An electricity cable, and the deeply-set concrete kerb for the grassed area, cut the north-east corner of the trench.

6. THE FINDS

By Susan Wieclawska

| Record No. | Code | Context No. | Comments |
|-------------|----------------|-------------|--|
| 0001 | Sample | 10 | Burnt animal bone |
| 0002 | Sample | 6 | Soil |
| 0003 | Sample | 7 | Burnt animal bone / ceramic |
| 0004 | Stone | 5 | Broken quernstone (1/6th ?) |
| 0005 | Ceramic | 1 | 1 sherd of coarseware -Roman |
| 0006 | Ceramic | 1 | 1 sherd of green-glazed ware -Medieval |
| 0007 | Copper alloy | 1 | Possible hinge fragment -Roman ? |
| 0008 | Lead | 2 | Folded sheet of lead (no markings evident) |
| 0009 | Ferrous | 3 | 2 ferrous objects |
| 0010 | Ceramic | 6 | 1 Samian sherd |
| 0011 | " | 6 | 1 sherd - modern |
| 0012 | Stone | 6 | |
| 0013 | Ceramic | 6 | 1 sherd of orange coarseware -Roman |
| 0014 | " | 6 | 1 sherd of orange coarseware -Roman |
| 0015 | " | 6 | 1 sherd of Amphora |
| 0016 | " | 6 | 1 sherd of coarseware -Roman |
| 0017 | " | 6 | 1 sherd of orange coarseware -Roman |
| 0018 | " | 6 | 1 sherd of orange coarseware -Roman |
| 0019 | " | 6 | 1 sherd of orange coarseware -Roman |
| 0020 | " | 6 | 1 rim-herd of Black Burnished Ware (mid/late 2nd C.) |
| 0021 | " | 6 | 1 sherd of orange coarseware -Roman |
| 0022 | " | 6 | 1 sherd of orange coarseware -Roman |
| 0023 | " | 6 | 1 sherd of grey coarseware -Roman |
| 0024 | " | 6 | 1 sherd of orange coarseware -Roman |
| 0025 | " | 6 | 1 sherd of coarseware -Roman |
| 0026 | Bone | 6 | Several fragments of animal bone |
| 0027 | Coal ? | 6 | |
| 0028 | Mortar | 14 | Several fragments of mortar |
| 0029 | Brick/Tile | 15 | 1 fragments of daub + 1 of tile |
| 0030 | Ceramic | 7 | Stamped Mortarium rim sherd (DINV or WIC ?) Hartshill/Mancetter form of mid 2nd C., with small bead rim and hooked flange. |
| 0031 | " | 7 | 2 sherds of Black Burnished Ware |
| 0032 | " | 7 | 1 base-herd of grey coarseware - Roman |
| 0033 | " | 7 | 1 sherd of orange coarseware -Roman |
| 0034 | Daub | 7 | 1 fragment of daub -Roman |
| 0035 | Ferrous | 7 | |
| 0036 | Bone | 7 | 1 piece of animal bone |
| 0037 | Glass | 8 | 1 sherd of green glass (probably modern, but ??Roman) |
| 0038 | Ferrous | 9 | 1 hook-shaped ferrous object |
| 0039 | Ceramic | 9 | 1 rim-herd of Black Burnished Ware (late 2nd C.) |
| 0040 | " | 9 | 1 sherd of Black Burnished Ware |
| 0041 | " | 9 | 1 sherd of Black Burnished Ware |
| 0042 | " | 9 | 1 sherd of Black Burnished Ware |
| 0043 | Bone | 9 | Animal bone |
| 0044 | Ceramic | 13 | 1 sherd of orange coarseware -Roman |
| 0045 | " | 13 | 1 sherd of orange coarseware -Roman |

| | | | |
|-------------|---------|-----------|---|
| 0046 | " | 13 | 1 sherd of orange coarseware -Roman |
| 0047 | " | 13 | 1 rim-sherd of Black Burnished Ware (mid/late 2nd C.) |
| 0048 | " | 13 | 1 sherd of orange coarseware -Roman |
| 0049 | " | 13 | 1 rim-sherd of Black Burnished Ware (mid/late 2nd C.) |
| 0050 | " | 13 | 1 sherd of grey coarseware - Roman |
| 0051 | " | 13 | 1 sherd of orange coarseware -Roman |
| 0052 | " | 13 | 1 sherd of orange coarseware -Roman |
| 0053 | Bone | | Animal teeth |
| | | 13 | |
| 0054 | Ceramic | 7 | 1 sherd of Samian |
| 0055 | " | 7 | 1 sherd of Samian |
| 0056 | " | 7 | 2 sherds of Samian |
| 0057 | " | 7 | 1 sherd of decorated Samian -see below |
| 0058 | " | 7 | Mortarium rim sherd of mid 2nd C., with level flange and small bead. |
| 0059 | " | 7 | 2 sherds of Black Burnished Ware + 1 of daub |
| 0060 | " | 7 | 1 sherd of Black Burnished Ware |
| 0061 | " | 7 | 1 sherd of orange coarseware + 1 of BB |
| 0062 | " | 7 | 1 sherd of grey coarseware - Roman |
| 0063 | Stone | 7 | |
| 0064 | Ceramic | 7 | 1 sherd of white slip ware - Roman |
| 0065 | " | 7 | 1 fragment of tile |
| 0066 | " | 7 | 1 rim-sherd of Black Burnished Ware - Roman (mid/late 2nd C.) |
| 0067 | " | 7 | 1 sherd of orange coarseware -Roman |
| 0068 | " | 7 | 1 sherd of cream coarseware -Roman |
| 0069 | " | 7 | 1 sherd of Black Burnished Ware -Roman |
| 0070 | " | 7 | 1 sherd of decorated orange coarseware - Roman |
| 0071 | Bone | 7 | Animal bone |
| 0072 | Ceramic | 7 | 1 sherd of slipware -Roman? |
| 0073 | " | 7 | 1 rim-sherd of Greyware -Roman |
| 0074 | " | 7 | 2 sherds of Black Burnished Ware -Roman |
| 0075 | " | 7 | 1 fragment of tile |
| 0076 | Bone | 7 | Animal bone |
| 0077 | All | 7 | Animal bone, teeth, 1 Samian rim-sherd, 1 decorated Samian sherd (see below), 1 sherd of orange coarseware |
| 0078 | All | 12 | Mixed horizon |
| 0079 | All | 7 | " |
| 0080 | All | 3 | " |
| 0081 | All | 1 | " |
| 0082 | All | topsoil | " |

There are a large quantity of sherds attributable to the Roman period, but only those in bold type can be more precisely dated, most of these being attributable to the second half of the second century AD.

The fairly upright rims with small diameters are typical of Black Burnished Ware vessels from the North West, during the mid-late second century (Greene 1992).

The sherd of decorated Samian with large whorl markings (0057), could be attributed to Form Dr 29 (Neronian - early Flavian.) or Form Dr 37 (cAD 150-175) (Oswald 1936-7), however from such a small fragment, classification is extremely difficult. The other sherd, within 0077, is probably Form Dr 29, and is similar in decoration to one decorated sherd noted by Wild (1989) from previous excavations at Kirkby Thore.

The variety of grey, orange, white-slip and Black Burnished wares is typical of the mid to late second century, and amongst this was a considerable amount of oxidised ware, possibly of local production (Webster 1976). Although the mortarium stamp has not been identified, the form is also standard for this period.

7. IMPACT AND MITIGATION

7.1 Discussion

As has been stated in the Methodology section (Paragraph 2.1) and elsewhere in this report, the purpose of the evaluation was primarily to establish the presence or absence of archaeology in various parts of the site, together with an estimate of the level of disturbance already existing. This having been done, an assessment of the potential impact of the proposed development may be made, and appropriate mitigation measures recommended. It should, at the outset be made clear that, in the event of the development proceeding, the level of archaeological investigation and recording so far carried out on the site should not be considered sufficient in its own right. Detailed recommendations for the handling of the archaeological hazard in this scenario, and also in the event of other future uses of the site, are given in Paragraph 7.2 below.

The evaluation has shown clearly that archaeological deposits, apparently all of Roman date, exist in the north of the site (the grassed area sampled by Trench 1), and much of the length of the site for at least c3.5m from its A66 boundary. All the archaeological features recorded are soil-cut and filled, as opposed to built, and it is unlikely that structures standing nearer to the surface are present elsewhere on the site. It should be noted, however, that earthworks exist c150m north-west of the site at the Piper Lane junction. While there appears to be little or no truncation of deposits in the north-west of the site, those in the south-east corner (Trench 3) and in the ridge at the south end of Trench 2 have undoubtedly suffered surface denudation.

7.1.1 Modern disturbance

Before proceeding to discuss the archaeological deposits, it may be considered more critical to quantify the level of disturbance revealed by the evaluation, and to extrapolate the boundaries of the area thought to contain few, if any, surviving deposits. The sand and gravel-filled pit at the northern end of Trench 3 gave the only certain northern limit to the archaeological deposits. The disturbance [66] at the east corner of Trench 2 could be a re-appearance of that in Trench 3, but they are too widely separated for this deduction to be conclusive. However, if it is correct, then the disturbance does not continue westwards, but must bear north at the east end of Trench 2. The disturbances in the northern end of Trench 2 [55] and along the north-east side of Trench 5 [32, 33, 34] may be more restricted, though their extent was not determined during the evaluation. It may be fairly safe to assume that the boundary of the major disturbance extends from c5.5m east of the south corner of the site, across Trench 3 to the east corner of Trench 2 and then across the tarmac a maximum of 4m from the petrol pump island. The areas occupied by the island itself, the petrol tanks to the north-east of it, and everything between the island and the WC/Office building (including under the building), are very probably devoid of archaeological deposits.

Trench 4 showed that levelling and ballasting has removed most of the ploughsoil and topsoil overburden below the tarmac surfaces, but that archaeological deposits do survive in the area and may be present under tarmac elsewhere. It is possible,

therefore, that archaeological deposits exist throughout the areas of grass and tarmac north-west of the pump island, across the whole width of the site.

7.1.2 Archaeological deposits

Although the dating evidence obtained from the evaluation in the form of finds confirms the occupation span obtained in previous campaigns of archaeological exploration of Kirkby Thore - the ceramics being predominantly of second century AD date - discussion of the results of the Greenacres evaluation can only point tentatively at interpretation of this part of the Roman site. No evidence was found to confirm the supposed line of embankment defences parallel to the A66 (Gibbons *et al* 1989, 114-19), or Birley's (1958, 54) contention that Kirkby Thore was a walled town, rather than simply a *vicus*. However, substantial negative features are present on the Greenacres site, and these are discussed below.

There being only one sherd of medieval pottery (ORN 0006) in the finds assemblage, it is probable that there was no re-occupation of the site during that period. However, Gibbons *et al* (1989, 109) rightly warn that post-Roman and early medieval (pre-twelfth century AD) populations in most of Cumbria were largely aceramic, with the result that features of these periods are likely to contain only residual (ie re-deposited) Roman sherds. A number of the Roman sherds found during the evaluation were undoubtedly abraded, but were retrieved only from the old ground surfaces, ploughsoil, and topsoil, from where such material would be expected.

Post-medieval finds and features are present on the site, but are not numerous, and are not easily identified with the small building, which seems to be shown on the OS first edition 6": 1 mile map of 1853. The trial trenching confirmed the assertion from the desk-based assessment that there were no permanent structures on the site between the Roman period and the construction of the filling station, to which all disturbance except the dump of rubble within the topsoil of Trench 1 may be related. It was expected that the field boundary shown on the OS 6": 1 mile maps of 1853 and 1957, and 1:2500 sheet (1898), might be encountered mid-way along Trench 5, running at right angles to the A66, but no trace was seen of it, perhaps indicating an insubstantial boundary.

The deposits which most easily lend themselves to interpretation are the linear features in (working north to south) Trench 1 [cut 73, fill 16], Trench 4 [fill 12], and Trench 3 [fill 9]. Although a relatively short length of each of these was exposed, it is worth noting that the fills were very similar, and that they share a south-west - north-east orientation. There is insufficient evidence to indicate whether the three are contemporary with one another, since finds only indicate a common disuse date. However, as a working hypothesis, it is possible to consider the possibility of an enclosure, with a width of c59.5m, measured between the outer margins of the ditches (cut/fill [73/23] in Trench 1 and [81/9] in Trench 3). The ditches in Trenches 3 and 4 may form parallel boundaries (c10m apart) to the south-east, while the location of the ditch in Trench 1 is such that a parallel feature could lie to either the north-west or the south-east and have escaped evaluation. The wide feature [18/19] further south-east in Trench 1 could be a ditch terminal, but is more safely interpreted as a large pit. Since the linear features in Trenches 1

and 3 lie at the extremities of those trenches, nothing can be deduced about the relationship of these to the surrounding landscape.

The approximate alignment of post-holes in Trench 1 [20 - 22] and the adjacent larger [23 and 24] and smaller [26, 29, 74, and 75] features are acceptable candidates for parts of a timber structure or structures. To these may be added the possible stone setting [27] in the eastern corner of the trench. The sub-circular feature [10] containing quantities of burnt bone and carbon is convincing as a hearth while, as stated above, the large feature [18/19] is best interpreted as a pit.

The two mortar horizons [57 and 65] in Trench 2, interpreted as floors, suggest the presence of at least one room of a building, but none of the adjacent horizons are obvious as the locations of timber or stone wall alignments, although the c1.4m wide area [69] between the floors could perhaps be a robber trench for a wall. No clues to function of the mortar floors are present. Despite difficult excavation conditions, many possible small stakeholes were seen cutting the sandy loam [44], supposed old ground surface, in the north-west of Trench 2, but no stratigraphic relationship between them and the mortar was seen during the evaluation.

Evidence of later features is present in the form of a large pit [fill 58], which cuts the mortar [57]. The area of large cobbles [54] north-west of the mortar is convincing as the fill of another large pit, also probably cutting the mortar floor, and extending beyond the trench to the north-east, while the smaller cobbles [63] in the south of the trench are better seen as a possible road or yard surface. The possible building (not named) shown on the OS first edition 6": 1 mile map (1853) was expected to cut the north-east corner of Trench 2, but cannot be identified with certainty.

Nothing further need be said about the features in Trench 3, besides the comments about ditch [cut81, fill 9], above. The feature cross-sectioned in the sondage in Trench 4, and aligned north-west - south-east, was shown to be V-profiled and over 0.5m deep, but its relationship to the (approximately) north-south ditch to its west was not recovered.

The archaeological deposits in Trench 5 include at least three cut features [fills 36-38], which appear to be Roman but could be later, but all of these continue under the west baulk, making interpretation difficult. Apart from the old ground surface [30, 31, 35] in the south of the trench, other features were either modern (the clay covered intrusion [32/33], or were not fully investigated.

In summary, the archaeological features recorded during the evaluation are difficult to interpret from superficial inspection, but it can be confirmed that Roman deposits survive over perhaps 50% of the site.

for the work. In such a case, it might be appropriate to make an approach to them for grant aid, though the success of this would be dependent on a number of aspects of EH policy.

In the case of a decision by BP Oil UK Ltd. not to pursue the development of the site, for whatever reason, LUAU recommend a limited amount of further post-excavation analysis (including processing of the small number of environmental samples), followed by publication of a brief report, based on the present document, in an appropriate journal, by preference *Transactions of the Cumberland and Westmorland Antiquarian and Archaeological Society*. Project design and funding for such a report should be subject to further discussions between the client, LUAU, the County Archaeologist for Cumbria, and English Heritage.

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ILLUSTRATIONS

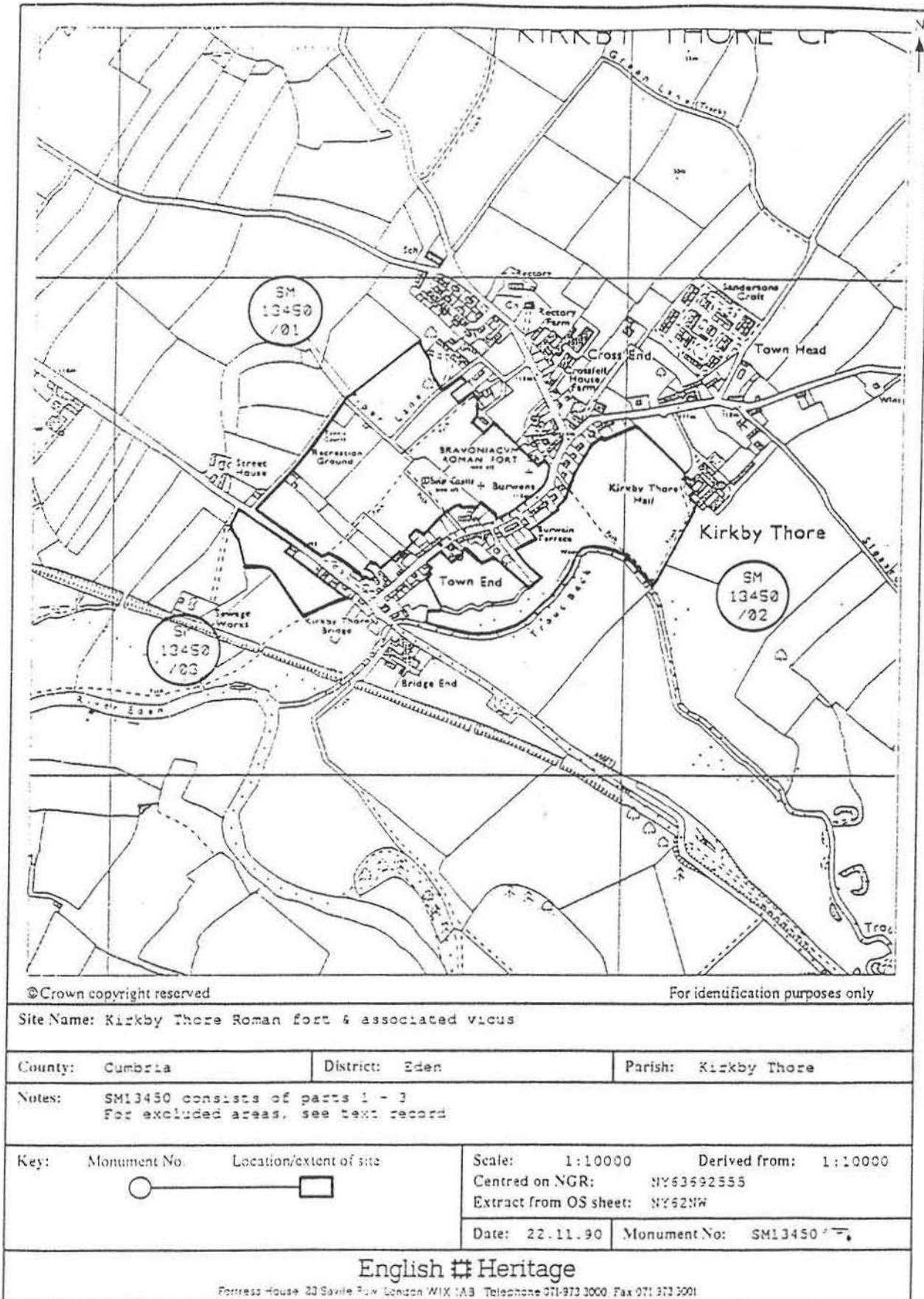


Figure 1 Kirkby Thore Roman fort and vicus: extent of Scheduled Ancient Monument, slightly reduced from 1:10,000 scale

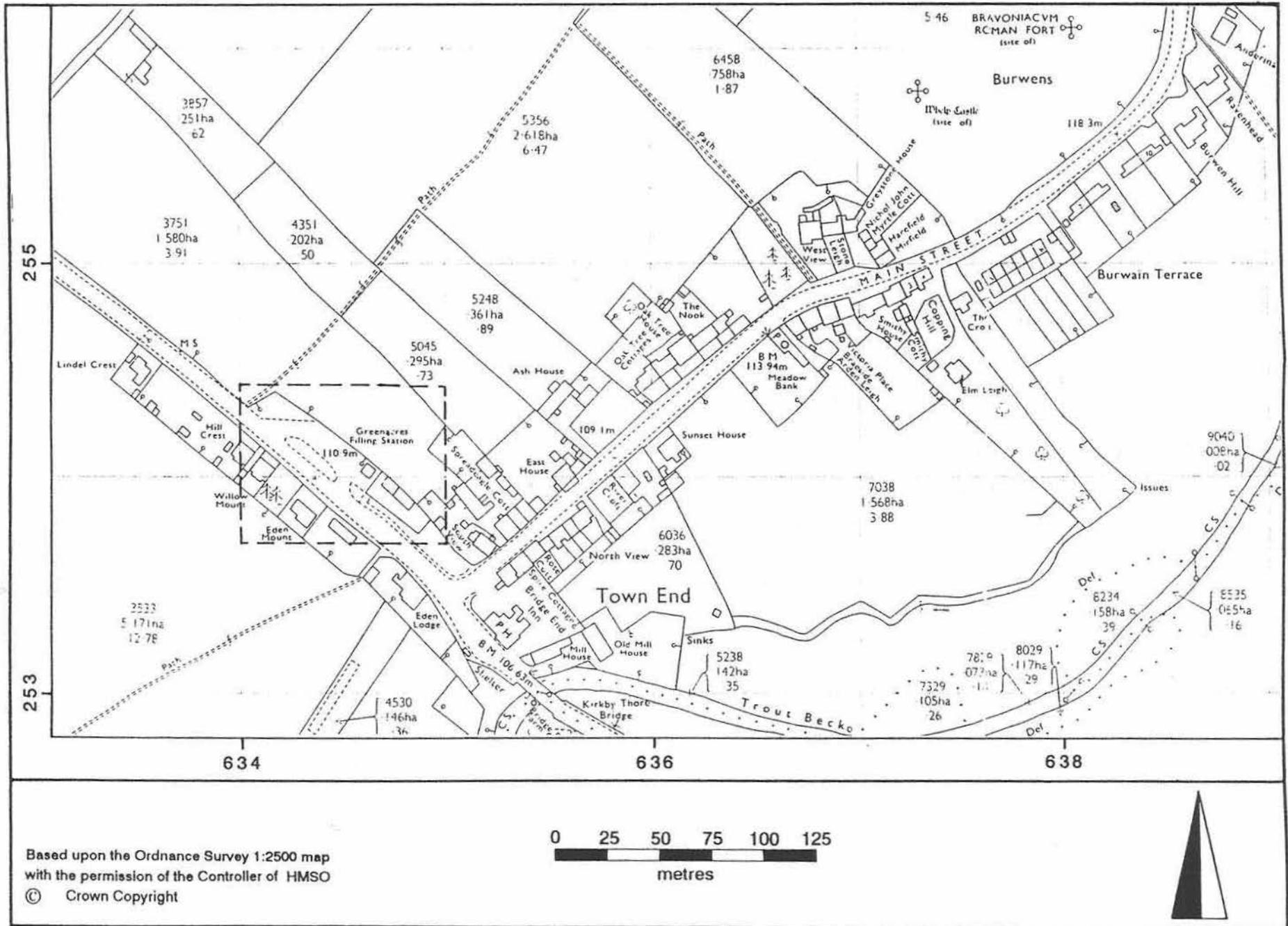


Fig.2 Site location plan (1:2500)

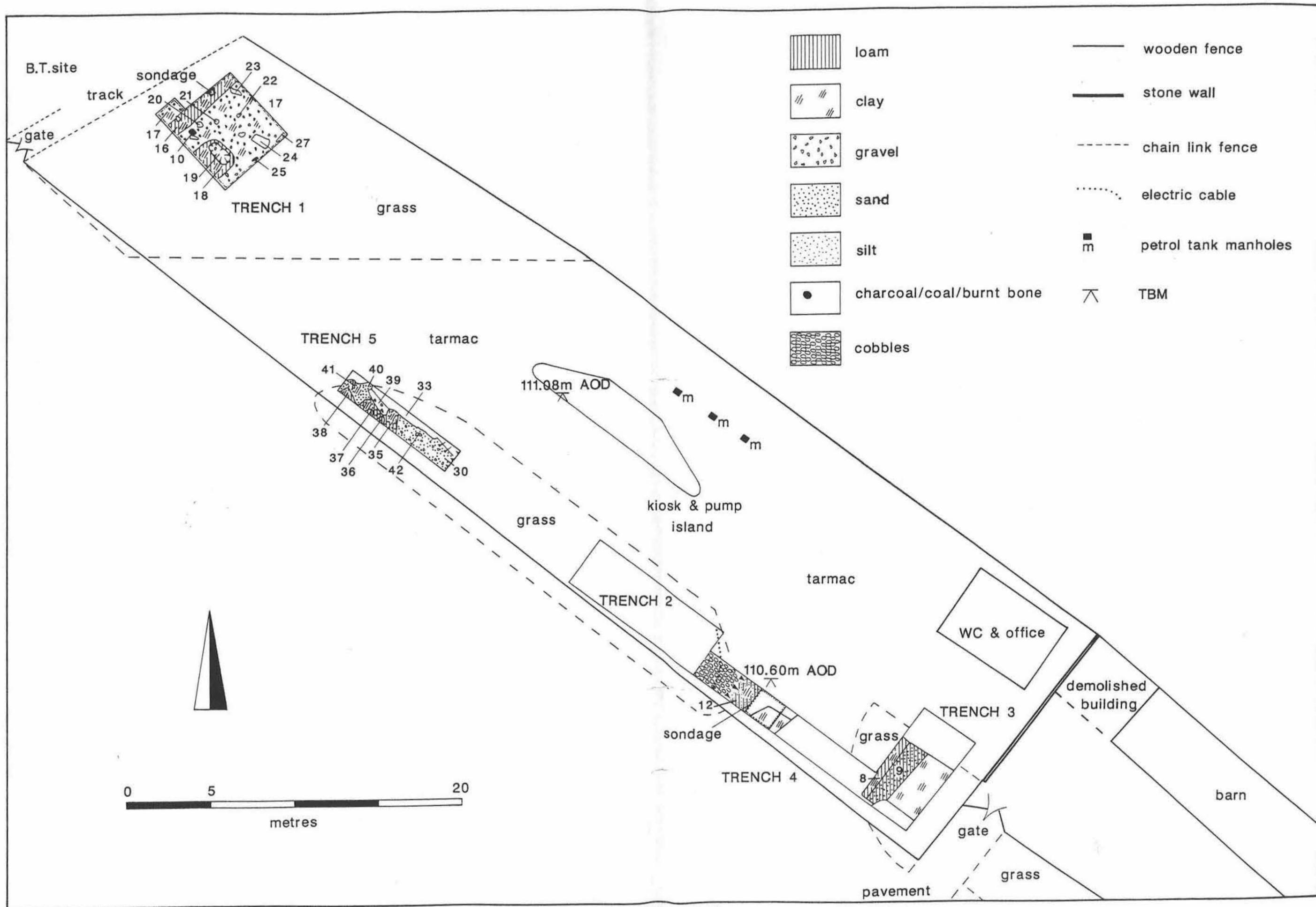


Fig.3 Trench location plan (1:200)

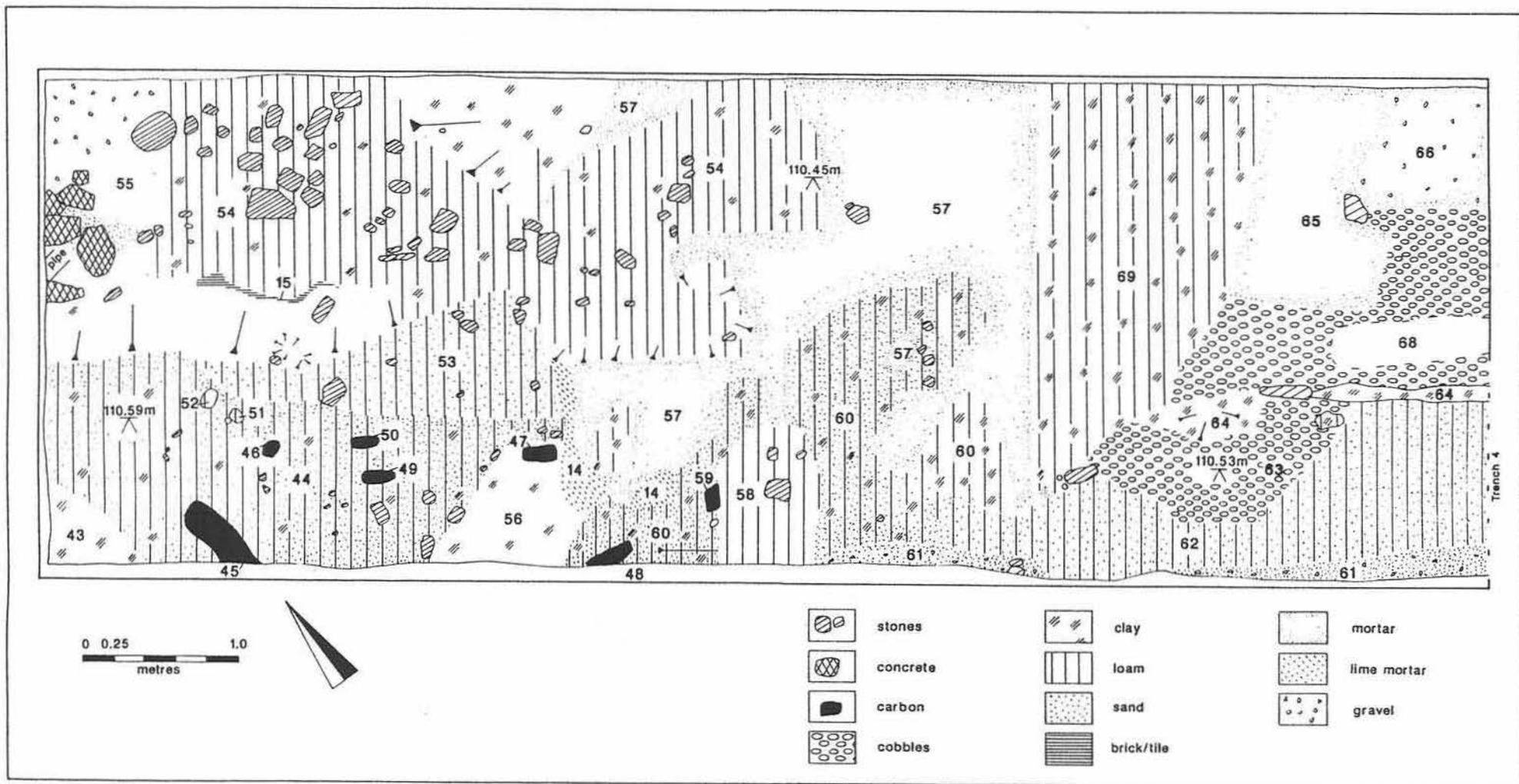


Fig.4 Plan of Trench 2

APPENDIX 1 - PROJECT DESIGN

August 1994

Lancaster
University
Archaeological
Unit

**GREENACRES FILLING STATION
KIRKBY THORE, CUMBRIA
ARCHAEOLOGICAL EVALUATION**

Proposals

The following project design is offered in response to a letter from Mr I Hignett, on behalf of BP Oil UK Limited, dated 29th June 1994, and a subsequent site meeting on 2nd August 1994, which led to a request for an archaeological evaluation in advance of a proposed development at the former Grenadiers Filling Station, Kirkby Thore, near Penrith, Cumbria.

1. INTRODUCTION

The site of the former Greenacres Filling Station at Kirkby Thore, in Cumbria, is known to lie within an area of very high archaeological sensitivity. The well-documented site of a Roman fort lies some 300m to the north-east, and a large civilian settlement is also known to exist on the western, southern and eastern sides of the fort, although the full extent of this has never been identified precisely. The high potential of the area is reflected in the designation of large areas of the village as a Scheduled Monument, including land to the immediate north, and land to the south of, the proposal site. This known interest is considered sufficient to justify an evaluation of the archaeological potential of the proposal site, despite the obvious modern disturbance that will have been caused by the previous garage development.

The Lancaster University Archaeological Unit has considerable experience of the evaluation and excavation of sites of all periods, having undertaken a great number of small and large scale projects during the past 15 years. Evaluations have taken place within the planning process, to fulfil the requirements of clients and planning authorities, to very rigorous timetables. In addition, advice has been supplied to clients for the preparation of Environmental Statements. LUAU has the professional expertise and resource to undertake the project detailed below to a high level of quality and efficiency. LUAU and all its members of staff operate subject to the Institute of Field Archaeologists (IFA) Code of Conduct.

2. OBJECTIVES

The following programme has been designed, following consultation with the Client and the County Archaeologist, Mr M Daniells, to provide an accurate archaeological assessment and evaluation of the designated area, within its broader context. The required stages to achieve these ends are as follows:

2.1 Desk Top Survey

To accrue an organised body of data, which will provide a context for the fieldwork.

2.2 Field Evaluation

Limited trial excavations, following an agreed programme, would be undertaken to establish the nature, extent, chronology, and preservation of any archaeological deposits encountered. These will be recorded to an appropriate level. Suitable samples recovered will be assessed for their palaeoenvironmental potential.

2.3 Evaluation Report

A written evaluation report will assess the significance of the data generated by this programme within a local and regional context. It will advise on any mitigation measures necessary to protect and/or record (to appropriate levels) identified

archaeological features and deposits, including appropriate excavation, recovery, and recording strategies.

3. METHOD STATEMENT

The following work programme is submitted in line with the stages and objectives of the archaeological work summarised above.

3.1 Desk Top Survey

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

3.1.1 Documentary and cartographic material

This work will rapidly assess the range of potential sources of information. It will include an appraisal of the Cumbria Sites and Monuments Record to give an overall view of the density of archaeological sites in the immediate vicinity. In addition, early maps and appropriate sections of County histories will be scanned to give a context for the site. Any photographic material lodged in either the County Sites and Monuments Record or the County Record Office will also be studied.

3.1.2 Physical environment

A desk-based compilation of geological (both solid and drift), pedological, topographical and palaeoenvironmental information, including available engineering and borehole data, and also the pattern of deep modern disturbance from fuel tanks, will be undertaken. This will not only set the archaeological features in context but also serves to provide predictive data, that will increase the efficiency of the field investigation.

3.1.3 Access

Liaison for basic site access has been undertaken with the Client. The precise location of any services within the study area will also be established.

3.1.4 Collation of data

The data generated by 3.1.1-3.1.3 above will be collated and analysed in order to provide an assessment of the nature and significance of any subsurface remains and the extent of post-medieval disturbance. It will also serve as a guide to the archaeological potential of the area to be investigated, and as the basis for the formulation of a detailed field programme, and associated sampling strategy.

3.2 Field Evaluation

A limited programme of trial excavation will be undertaken, in consultation with the County Archaeologist, in order to fulfil the objectives of the evaluation. This will establish the presence or absence of archaeological deposits and, if established, will then briefly test their date, nature, and quality of preservation. Excavation will

normally be limited to the upper surface of significant archaeological deposits, unless further work is regarded by the County Archaeological Curator and ourselves as essential in order to complete the full evaluation.

3.2.1 Methodology

It is proposed that three areas should be examined, the trenches being targeted on areas of grass, rather than tarmac, where possible. The central northern part of the site is considered at this stage to be likely to be archaeologically sterile, due to the presence of concrete-filled fuel tanks, and therefore this area will be avoided. A trench approximately 5m square will be excavated in the western part of the plot. In addition, a trench approximately 3m wide will be excavated along the front of the plot. This may be linked to the third area of excavation, at the south-eastern corner of the plot, where a further small square trench will be excavated (approximately 3m square). Depending on the results from these latter two areas, a further trench at right angles may be considered necessary by the County Archaeologist to establish the full potential of the site with confidence. To maximise the speed and efficiency of the operation the removal of overburden will be undertaken by machine (fitted with a toothless ditching bucket), although in areas where ephemeral remains are encountered elements may be hand dug. All trenches will be excavated in a stratigraphical manner, whether by machine or by hand. Trenches will be accurately located with regard to surrounding features.

Full regard will be given to all constraints (services etc) during the excavation of the trenches, as well as to all Health and Safety considerations. 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 Archaeological Unit Managers (1991) and risk assessments are now being implemented for all projects. As a matter of course the Unit uses a U-Scan device prior to any excavation to test for services.

Land disturbed as a result of this work will be reinstated to the Client's satisfaction, although LUAU as a matter of course replaces material in a stratigraphic manner and relays the surface, if possible. The fencing will have to be removed in part to allow access for the machine, but will be replaced at the end of fieldwork. During fieldwork, movable fencing will be maintained to secure the site.

3.2.2 Timetable

All excavation will be undertaken within constraints agreed with the client. Subject to these constraints, work of this scale and nature can normally be completed within a period of *c* three working days.

3.2.3 Recording

All information identified in the course of the site works will be recorded stratigraphically, with sufficient pictorial record (plans, sections and both black and

white and colour photographs) to identify and illustrate individual features. Primary records will be available for inspection at all times.

Results of the field investigation will be recorded using a system, adapted from that used by Central Archaeological Services of English Heritage. The archive will include both a photographic record and accurate large scale plans and sections at an appropriate scale (1:50, 1:20, and 1:10). All artefacts and ecofacts will be recorded using the same system, and will be handled and stored according to standard practice (following current Institute of Field Archaeologists guidelines) in order to minimise deterioration. Samples will be collected for technological, pedological, palaeoenvironmental 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 Newcastle 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.

3.3 Evaluation Report

3.3.1 Archive

The results of the fieldwork will form the basis of a full archive to professional standards, in accordance with current English Heritage guidelines (*The 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. It will include summary processing and analysis of all features, finds, or palaeoenvironmental data recovered during fieldwork. 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. The expense of preparing such an archive is part of the project cost, but only represents a very small proportion of the total. This archive can be provided in the English Heritage Central Archaeological Services format, both as a printed document and on computer disks as ASCII files, and a synthesis (in the form of the index to the archive and the report) will be deposited with the Cumbria Sites and Monuments Record. A copy of the archive will also be available for deposition with the National Archaeological Record in London. 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. The actual details of the arrangements for the deposition/loan and long term storage of this material will be agreed with the landowner and the receiving institution. 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. The archive costs include a single payment of £11/m³ to the receiving museum as a one-off contribution towards the cost of long term storage and curation.

3.3.2 Evaluation report

One bound and one unbound copy of a written synthetic report will be submitted to the Client, and a further copy submitted to the Cumbria Sites and Monuments Record following any comments from the Client. 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 from the excavations 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, and a list of further sources identified during the programme of work, but not examined in detail.

This report will identify areas of defined archaeology, the location of trenches, and whether the results of the sampling were positive or negative. An assessment and statement of the actual and potential archaeological significance of the site within the broader context of regional and national archaeological priorities will be made. Illustrative material will include a location map, section drawings and plans, if appropriate, and can be tailored to the specific requests of the client (eg particular scales etc), subject to discussion. The 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).

3.3.3 Proposals

The report will make a clear statement of the likely archaeological implications of the intended development. It will highlight where, as a first option, the preservation *in situ* of significant archaeological features should take place, and possible strategies for the mitigation of the impact of the development, including design modification, will be considered. When preservation is neither possible, nor practical, it may be appropriate to suggest a further stage of more intensive archaeological work in order to mitigate the effects of development.

3.3.4 Confidentiality

The evaluation report is designed as a document for the specific use of the Client, for the particular purpose as defined in this project design, and should be treated as such; it is not suitable for publication as an academic report, or otherwise, without amendment or revision. Any requirement to revise or reorder the material for submission or presentation to third parties beyond the project design, or for any other explicit purpose can be fulfilled, but will require separate discussion and funding.

3.4 Project Monitoring

3.4.1 BP Oil UK Limited

If required, an initial meeting between the Client, contractor and County Archaeologist can be arranged. Further consultation will include the attendance of a representative of BP Oil UK Limited (if required) at any meetings convened with the Cumbria County Archaeologist to discuss the progress of the evaluation or the report.

3.4.2 Cumbria County Council

Any proposed changes to the project design will be agreed with the Cumbria County Archaeologist in coordination with the Client. The Cumbria County Archaeologist will be informed in writing at the commencement of the project.

4. WORK TIMETABLE

The phases of work would comprise:

4.1 Desk Top Survey

Two days would be required.

4.2 Field Evaluation

To be undertaken during a one week period.

4.3 Prepare Evaluation Report

To be completed within one week.

LUAU can execute projects at very short notice once an agreement has been signed with the client. The project is scheduled for completion within three weeks from its commencement.

5. OUTLINE RESOURCES

The following resource base will be necessary to achieve the proposals detailed above. The breakdown of the total cost of the project is provided on the accompanying project costing form.

The total cost quoted on the accompanying sheet is a fixed price, inclusive of all management, overheads, and other disbursement costs (travel and expenses), to undertake the programme of work as defined in the project brief and this project design. Any other variations from this programme of work at the clients' direction will require recosting.

5.1 Desk Top Survey

2 man-days Project Officer (Team Leader)

5.2 Field Evaluation

3 man-days Project Officer

3 man-days Project Assistant

Finds and Environmental Specialist consultation as necessary

5.3 Evaluation Report

4 man-days Project Officer

1 man-days Draughtsperson

The project will be under the direct line management of **Rachel Newman, BA** (Unit Assistant Director) to whom all correspondence should be addressed. All Unit staff are experienced, qualified archaeologists, each with several years professional expertise.

