Hayeswater Pipeline, Braesteads to Grisedale Section, Cumbria

Topographic Survey, Walkover Survey, Evaluation and Watching Brief

Oxford Archaeology North

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SUMMARY

Oxford Archaeology North (OA North) was requested by United Utilities to examine the archaeological implications of the construction of the section of the proposed Hayeswater pipeline route through Braesteads and Grisedale in central Cumbria (NY 3907 1613 – 3767 1563). This area contains a number of sites of post-medieval date, including a group of charcoal burning platforms, or pitsteads, at Glenamara Park identified in an appraisal and walkover survey carried out in June 2004 (OA North 2004).

During September and October 2004 OA North carried out a topographic survey, an evaluation consisting of three trenches, a walkover survey on a small stretch of new route, and a watching brief during the pipe trench excavation. The topographic survey examined four sites, highlighted by the earlier appraisal as being in the area of the route of the pipeline. These were a lynchet (Site **252**), and three pitsteads (Sites **239**, **246** and **247**). This survey characterised and accurately located these features, which showed that Sites **252**, **239** and **247** were likely to be directly impacted upon by the pipeline, whilst pitstead **246** was found to be outside of the pipeline route.

The evaluation targeted sites **252**, **239** and **247**. The lynchet (Site **252**) was found to be present in Trench 1 but was more prominent up-slope to the north-east of the pipeline easement. The pitstead (Site **247**) excavated in Trench 2 was evidenced only by the presence of a slight raised area seen prior to excavation, which was found to consist of a charcoal-rich subsoil. This was sampled in order to characterise the materials and methods employed in the charcoal burning. Trench 3, excavated to examine the second pitstead (Site **239**), revealed only a slight natural slope, suggesting the pitstead survives to the south of the trench, and would not be affected by the route of the pipeline

A walkover survey took place in two fields towards the western end of the pipeline, where proposals for changes to the route had been made. No new sites were added to the gazetteer as a result of this survey. These fields were also investigated for geological purposes by the excavation of seven test pits, which were monitored by a watching brief, but no archaeological features were discovered in them.

The pipe-trench watching brief identified three post-medieval features along the route of the pipeline. These were a road (beneath the existing road) at Kennel's Bridge, towards the western end of the route, and a culvert to the west of the road. A culvert was also discovered to the east of pitstead **239** in Glenamara Park. No finds were recovered from any of these features. The watching brief was also carried out during the excavation of the pipe trench in Glenamara Park to ensure that the pitsteads were not impacted upon.

Positive results from the environmental assessment carried out on the samples of charcoal from the subsoil around pitstead **247** indicate that further analysis of the samples could yield more information about the techniques employed for charcoal burning at Glenamara Park, and may also provide a date for this industry. It is, therefore, recommended that further analysis of the samples should take place. It is also recommended that any further work, either in Glenamara Park or across the Lynchet at Braesteads Farm, be subject to a programme of archaeological work.

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The topographic survey was carried out by Andy Bates. The evaluation was undertaken by Paul Clark and Kathryn Blythe. The walkover survey was carried out by Matthew Town and the watching brief was carried out by Martin Sowerby and Matthew Town. The report was prepared by Kathryn Blythe and the drawings were produced by Mark Tidmarsh. The project was managed by Alison Plummer, who also edited the report along with Stephen Rowland and Alan Lupton.

1. INTRODUCTION

1.1 CIRCUMSTANCES OF THE PROJECT

1.1.1 As part of the Hayeswater Pipeline United Utilities proposed the construction of a new length of pipeline between Braesteads and Grisedale within the Lake District National Park, and passing through The National Trust Estate of Glenamara Park. A verbal brief was issued by The Lake District National Park Authority in consultation with the National Trust. In accordance with the brief, an appraisal and walkover survey were carried out by OA North in June 2004, which made recommendations for the evaluation of three sites which would be directly affected by the proposed route of the pipeline.

1.1.2 During September and October 2004 Oxford Archaeology North carried out a topographic survey, an evaluation, a walkover survey and a watching brief on the route of the proposed pipeline.

1.2 LOCATION, GEOLOGY AND TOPOGRAPHY

1.2.1 The site is situated to the west of the village of Patterdale, south of Ullswater in the North Lake District (Fig 1). The pipeline runs west/east from Braesteads (NY 3767 1563) to Grisedale (NY 3907 1613) along the valley of Grisedale Beck.

1.2.2 The solid geology comprises volcanic rocks of the Ordovician age made up of lavas and volcanic sediments (Countryside Commission 1998). The overlying drift geology comprises typical alluvial gley soils of the Enborne Series (OS 1983).

1.2.3 Topographically, the east end of the site (Trenches 2 and 3, Fig 4b) was situated between 230 and 240m above sea level, south of Grisedale Beck on the lowest part of Thornhow Crag. The west end of the site (Trench 1, Fig 4a) was located between 210 and 220m above sea level and to the north of Grisedale Beck.

1.2.4 Currently this land is within the Lake District National Park. At Braesteads the land is used for sheep grazing, at Grisedale the land is part of the National trust estate of Glenamara Park, and is bordered to the north by a pine plantation at Patterdale Hall. A public footpath crosses this part of the proposed pipeline just to the south of the plantation at Patterdale Hall.

1.3 HISTORICAL BACKGROUND

1.3.1 The following background augments that presented in the OA North 2004 report.

1.3.2 ***Neolithic:*** the marginal uplands and valleys of Martindale and Patterdale have been occupied and exploited since at least the Neolithic period and potentially

even earlier. There is a broad context for archaeological remains of the Late Neolithic/Early Bronze Age period within the vicinity, notably on the nearby Askham Fell, where there is an early stone circle linked to communication routes and a stone avenue (OA North 2003).

1.3.3 ***Bronze Age:*** extensive Bronze Age remains exist for much of the area across the Haweswater Estate of United Utilities as demonstrated by a recent survey (LUAU 1997b; Quartermaine and Leech forthcoming). These comprise variously funerary round cairns or ring cairns as found on Askham Fell, or more commonly small areas of cairnfield representing localised improvement of agricultural ground, which occurred in some instances immediately following forest clearance. Bronze Age activity is confirmed by the finding of a bronze spearhead on the edge of Ullswater near Swarthfield (Site **222** from the walk-over survey – OA North 2004).

1.3.4 ***Iron Age/Romano British:*** although the Iron Age and Roman periods are not represented within the immediate study area, there are a number of monuments within the environs of the pipeline route that demonstrate activity during these periods. Definitive Iron Age monuments, such as hillforts, have been identified from the surrounding region. These consist of defended settlements enclosed by one or more ditches, often with evidence of house-platforms within the enclosures, located in good defensible positions such as the tops and sides of low-lying hills. Within the vicinity of the study area are hillforts at Castle Crags, on the north side of Haweswater, Castlesteads in Lowther Park (LUAU 1997a), Dunmallard Hill at the north end of Ullswater and north-west of Pooley Bridge, and Maiden Castle at Matterdale, north of Ullswater.

1.3.5 In addition, there are a number of enclosed settlements from the region which could be of either Iron Age or Roman date. These settlements typically consist of small groups of stone hut circles within a low enclosing wall, often with associated field boundaries, paddocks and clearance cairns. Sites have been recorded at Hartsop Hall and Dovedale in Patterdale, Deepdale Hall and Deepdale Bridge in Deepdale (2km east of the pipeline), Broomhill Plantation in Grisedale (0.5km north of the pipeline), Heck Beck in Martindale (4km east of the pipeline), and two settlements at Glencoyne Park in Matterdale (4km north of the pipeline) (Quartermaine and Leech forthcoming). An unenclosed settlement has also been excavated at Baldhowend in Matterdale (7km north of the pipeline), which was dated to the late first millennium BC (Loney and Hoaen 2000).

1.3.6 No sites dating definitively from the Roman period are known in the area; however, a Roman road (High Street) runs between Ambleside and Brougham (Margary 1973), east of and close to the proposed pipeline. The route appears to have continued in use until the post-medieval period, and can be detected from the variety of finds found at well-established sites along it.

1.3.7 ***Early Medieval / Medieval:*** no sites dating to the early medieval or medieval periods are known from the immediate area; however, there are some sites of early medieval date from the wider environs. Most significant of these is the early medieval monastic site at Dacre, which is documented from the early

eighth century, with activity from then through to the present day. At nearby Lowther, to the east of Ullswater, and associated with St Michael's Church is a series of three decorated hog back tombstones of late tenth or early eleventh century date, and inside Lowther Castle there used to be two cross shafts which were probably of eighth century date (LUAU 1997a).

1.3.8 ***Post-medieval:*** the post-medieval period is well represented in the area. The majority of sites focus on industrial activities including mining, quarrying, charcoal production and fulling. Nine pitsteads were identified around the area of the Braesteads to Grisedale proposed pipeline (Fig 4b). These were concentrated within the National Trust Estate of Glenamara Park where an extensive landscape of charcoal production sites and associate features are found (Jamie Lund pers comm).

1.3.9 ***Charcoal burning:*** charcoal burning was one of a number of related woodland industries that were important aspects of the rural economy in Cumbria, many of which were practiced by a skilled, itinerant workforce. Because charcoal burns at temperatures up to 1100°C, it is a much more efficient fuel source than wood and, until the introduction of coke fuel and cheaper imports during the nineteenth century, the demand for charcoal increased with that of iron. The industry was dependent upon areas of well-maintained, coppiced ash, oak, hazel, birch or alder woodland, of which the latter was most esteemed for charcoal production. Cutting tree trunks diagonally to form low 'stools' encourages vigorous, straight upward growth of between ten and twenty poles of a very uniform thickness. Trees were planted at 10 foot intervals and, because there was little shade-causing lateral growth, sheep could be grazed on the grass growing between them. After about 14-16 years (although some charcoal burners recommended 18 years), the poles, which had reached a length of about 15 feet, were harvested by itinerant workers, stripped of their bark (which could be dried and was a vital ingredient in the tanning process), and cut into rough lengths of four feet. The workers, who arrived in the autumn, might expect to spend a year in any one location in order to complete cutting and processing, and accordingly built temporary dwellings in which they lived with their families (Marshall and Davies-Shiel 1977; Walker 2001).

1.3.10 Once the wood cutters had moved on, they were replaced by the charcoal burner, or collier, who dug, built, or terraced himself a series of circular platforms (or pitsteads) 7-30 feet in diameter. Within the pitstead, the cut poles were placed upright around a central strut, building a low, circular mound. This was covered with bracken and then with soil and sods to make an airtight cap, leaving a low vent, or *flipe*, around the base of the pile. The central pole was removed, and hot coals poured into the resulting gap, which was then blocked and the collier retired to his temporary shelter. Day and night the collier maintained several pitsteads, controlling the airflow with hurdles, repairing damaged caps and putting out any flames with water or soil to ensure that the burning was as anaerobic as possible, therefore maximising the yield. Timing the procedure was important, as closing down the fire too early could result in 'brown ends' – only partial burning, and the collier tended to be guided by the colour of the smoke. Once the smoke changed from white to blue, or a sample gave a characteristically metallic ring, the collier doused the

burning charcoal with water, allowed the mound to cool off over several days and then bagged up the charcoal, which was taken away by pack-donkeys (Marshall and Davies-Shiel 1977; Walker 2001; Carew 2005).

2. METHODOLOGY

2.1 PROJECT DESIGN

2.1.1 The Lake District National Park Authority, in consultation with the National Trust, issued a verbal brief in response to plans for the proposed pipeline by United Utilities. OA North submitted a Project Design (*Appendix 1*) for a topographic survey, evaluation and watching brief on the line of the proposed pipeline between Braesteads and Grisedale. Following its acceptance OA North was commissioned by United Utilities to carry out the work. The Project Design was adhered to in full and the work was consistent with the relevant standards and procedures of the Institute of Field Archaeologists, and generally accepted best practise.

2.2 TOPOGRAPHIC SURVEY

2.2.1 The topographic survey of Sites **239**, **246**, **247** (pitsteads) and **252** (a lynchet) was completed using a Differential Global Positioning System (GPS). GPS instrumentation uses electronic distance measurement along radio frequencies to satellites to enable a positional fix in latitude and longitude, which can be converted mathematically to the National Grid. It uses a post-processed system by comparing a roving station with a similar station on a fixed known point in order to achieve high levels of accuracy, which are typically between ±0.25m.

2.3 EVALUATION TRENCHING

2.3.1 The uppermost levels were excavated with a mini-mechanical excavator (due to access constraints) fitted with a toothless bucket 1.2m wide. Following mechanical excavation the floor of the trenches were cleaned by hoe and manual excavation techniques were used to evaluate sensitive deposits, to enable an assessment of the nature, date, survival and depth of deposits.

2.3.2 Recording was primarily in the form of OA North *pro forma* sheets which detailed the orientation, length and depth of the machining, and described the nature of the overburden and the underlying geological deposits. Any horizons or features of archaeological significance were also recorded. A full textural, drawn, and photographic record in monochrome and colour formats was compiled for each trench.

2.4 WALKOVER SURVEY

2.4.1 A walkover survey was conducted at the western end of the pipeline where proposals suggested a change to the route since the original walkover was undertaken in June 2004. The survey was conducted by walking 20m wide transects within the easement corridor of the new route. The survey was undertaken as an enhanced Level 1 type survey (OA North 2002). The survey aimed to identify, locate and record archaeological sites and features on the

ground and involved four elements: reconnaissance, mapping, description and photography.

2.5 WATCHING BRIEF

2.5.1 Two different methods of laying the pipe were employed during the ground works; mole-ploughing, which is not suitable for archaeological observation, and open-trench excavation.

2.5.2 The open-trench excavation was carried out in the areas targeted by the evaluation, and an area south of Kennel's Bridge where the pipeline passed beneath the existing road. In addition, seven test pits were excavated, and monitored by watching brief, towards the west end of the pipeline in an area which was then decided to be suitable for mole-ploughing (see Fig 4a).

2.5.3 The watching brief comprised observation during the excavation of the trenches and test pits and the systematic examination of any subsoil horizons exposed during the course of the work. Recording comprised a full description of features or materials revealed, and their accurate location (either on plan and/or section, and as grid co-ordinates where appropriate). A photographic record was undertaken simultaneously.

2.6 ENVIRONMENTAL ASSESSMENT

2.6.1 Two environmental samples (bulk samples of 40 litres volume) were collected from stratified undisturbed deposits. These samples were processed for the assessment of charcoal.

2.7 ARCHIVE

2.7.1 A full professional archive has been compiled in accordance with the project design (*Appendix 1*), and in accordance with the current IFA and English Heritage guidelines (English Heritage 1991). The paper and digital archive will be deposited in the appropriate County Record Office within six months of the completion of the project.

3. TOPOGRAPHIC SURVEY RESULTS

3.1 INTRODUCTION

3.1.1 Four sites were included within the topographic survey, including three post-medieval pitsteads, Sites **239** (NY 38566 15674), **246** (NY 38451 15646) and **247** (NY 38495 15666), and one undated lynchet, Site **252** (NY 37786 156852 - NY 37759 15639). Below is presented a brief description of the sites, with the survey results presented in Figures 2 and 3.

3.2 DESCRIPTION

3.2.1 ***Pitsteads:*** all three pitsteads subject to the topographic survey are located to the south of woodland owned by Patterdale Hall. In total, nine pitsteads have been recorded within this area of Glenamara Park (Fig 4b).

3.2.2 ***Site 239, Pitstead****:* this is the best preserved of the three pitsteads examined by topographic survey. The natural slope has been excavated back 2.0m to form a working platform, the spoil from which has been deposited down slope to extend the levelled platform into a roughly circular platform, which measured 7.7m by 6.42m. It is upon this platform that the charcoal burning took place (Fig 3).

3.2.3 ***Site 246, Pitstead****:* a roughly circular levelled platform, which measured 6.85m by 5.0m, was formed by excavating 2.60m back into the natural slope (Fig 3). Very little of this spoil was used in the same way as Site **239**, and must therefore have been eroded or moved from the site. This pitstead appears to have been truncated slightly by the current field boundary (Fig 3).

3.2.4 ***Site 247, Pitstead****:* this pitstead appeared to have been heavily eroded by a rough track running parallel to the boundary wall. The surviving oval platform measured 4.8m by 4.0m, formed by excavating 2.12m back into the natural slope. Some of the spoil from these excavations had evidently been used to increase the size of the levelled area to the north (Fig 3), but appears to have been greatly effected by erosion.

3.2.5 ***Site 252, lynchet:*** site **252** is located north-east of Braesteads Farm, in Field A. It forms an earthwork 61.81m in length orientated in a north-east/south-west direction (Fig 4a). Its steep slope to the south-east falls at a gradient of approximately 2:1, over a maximum distance of 3.67m. Behind the lynchet, to the north-west, is a roughly level area, which has been enhanced by the drainage of ground water. It measured a maximum of 7.4m wide along the length of the lynchet (Fig 2).

4. EVALUATION RESULTS

4.1 INTRODUCTION

4.1.1 In total, three targeted evaluation trenches were excavated along the route of the proposed pipeline (Figs 4a, 4b and 4c). These were all located over sites identified during the walkover survey (OA North 2004) as being directly affected by the route of the pipeline. Trench 1 examined site **252**, a lynchet north of Braesteads Farm, Trench 2 examined pitstead **247** and Trench 3 examined pitstead **239**, both located in Glenamara Park.

4.2 RESULTS

4.2.1 ***Trench 1:*** (Figs 4a and 5, Plates 1 and 2) this trench was aligned east/west and excavated through the lynchet (**252**) in Field A. The trench, measuring 18.1m x 1.2m, was excavated down to the natural, ***102***, at a maximum depth of 0.34m. The lynchet was clearly visible, aligned north-east/south-west, as a raised bank with occasional large boulders on or against it, becoming more prominent as an earthwork as it progressed up slope. The lynchet was visible in section as a slight earthwork (Fig 5), but no distinction could be made between the soil, from which the lynchet was comprised, and the topsoil ***101***.

4.2.2 ***Trench 2:*** (Fig 4b, plate 3) this trench was aligned east/west and excavated through pitstead **247**. The trench measured 13.7m x 1.2m and had a maximum depth of 0.47m. The pitstead appeared as a slight raised area of ground with several large stones in and around it. Excavation of topsoil ***201*** (maximum depth 0.28m) revealed two distinct areas of charcoal-rich subsoil ***203*** and ***204***, which overlay the natural ***202***. Subsoil ***204*** was situated on the west side of the mound area and sloped down from east to west. It measured 0.86m by 0.92m and extended into the north baulk of the trench. It comprised a blackish-brown clay, 0.2m thick with 5-10% charcoal inclusions. On the east side of the mound a thin band of clean yellow sand, ***205***, was located overlying subsoil ***203***, which sloped down from west to east. This was a more extensive layer of subsoil, which extended beyond the eastern limit of the trench, and measured up to 0.17m in thickness. A distinct charcoal-rich area of this layer could be seen to the immediate east of the mound area, measuring 1.0m x 0.36m x 0.24m thick and extending into the north baulk of the trench. Both of these layers of subsoil can be interpreted as remnants of charcoal burning, which have accumulated in the subsoil. Both subsoils were environmentally sampled (see *Section 7*).

4.2.3 ***Trench 3:*** (Fig 4b, plates 4 and 5) this trench was aligned east/west, measured 15.5m x 1.2m and was located to target pitstead **239**. This pitstead survives as a mound approximately 7m in diameter and 2m in height. A footpath runs along the north side of this feature. The trench was located immediately to the south of the footpath, on the northern edge of the sloping area initially identified as the pitstead. However, excavation of the trench revealed a shallow deposit of topsoil, ***301***, (0.1m thick) directly overlying the natural

geology, ***302***, which sloped upwards to the south. The trench illustrated that the remains of pitstead **239** are located further up the slope, to the south of the proposed pipeline, and therefore would not be impacted upon by it.

4.3 FINDS

4.3.1 One sherd of pottery was recovered from the topsoil in Trench 1 (***101***). This was a creamy-pink earthernware body sherd with a light brown glaze. It was dated to the late seventeenth/early eighteenth century.

5. WALKOVER SURVEY RESULTS

5.1 RESULTS

5.1.1 This walkover survey targeted two fields at the west end of the proposed pipeline (Fig 4a) and represented a new route (the pipeline was previously proposed to run further to the south-west). The first of these fields (Field B) was to the immediate east of the westernmost field of the original route (Field A, containing the lynchet), and the second (Field C) was directly south-east of Field B. Fields B and C were later targeted by Test Pits 4-7 and 1-3 respectively (see *Section 6* and Fig 4a). Owing to the proximity of this new route to the original proposed route this area had already been covered by the rapid appraisal compiled by OA North (2004). The walkover survey added no new sites to the gazetteer collated and presented following the walkover survey in June 2004.

6. WATCHING BRIEF RESULTS

6.1 INTRODUCTION

6.1.1 The watching brief was carried out in September and October 2004, and involved monitoring the excavation of seven test pits and the open excavation of the pipe trench at various points along the route (Plate 8).

6.2 THE TEST PITS

6.2.1 Seven test pits were excavated at the Braesteads end of the pipeline in Fields B and C, on the north side of the Grisedale Beck (Fig 4a). Test Pits 1-3 (Plate 6) were situated in Field C, and Test Pits 4-7 in Field B. The test pits were excavated by a mini-mechanical excavator with a toothed bucket (0.4m wide) down to a maximum depth of 1m. No archaeological remains were present in any of the test pits.

6.2.2 ***Test Pit 1:*** (Plate 7) this test pit measured 1.4m x 0.8m, was 1m deep, and aligned north/south. Topsoil was recorded in the test pit for the first 0.2m as a mid-dark greyish-brown soft humic silty-clay. Below this was a subsoil, consisting of a soft light brownish orange clay/silt with rare inclusions of sub-rounded stones.

6.2.3 ***Test Pit 2:*** this test pit measured 1.4m x 0.8m, was 0.9m deep, and aligned north/south. Topsoil (as described in Test Pit 1) was recorded for the first 0.34m. Between 0.34m and 0.59m deep a natural bright orange slightly sandy clay/silt was observed, and below this was a compacted gritty pale greyish-white limestone in a sandy-clay matrix.

6.2.4 ***Test Pit 3:*** this test pit measured 1.6m x 0.8m, was 0.9m deep, and aligned north/south. Topsoil (as described in Test Pit 1) was recorded for the first 0.2m. Between 0.2m and 0.4m deep was a pale brown silty-clay subsoil and beneath this was the natural limestone (as seen in Test Pit 2).

6.2.5 ***Test Pit 4:*** this test pit measured 1.4m x 0.8m, was 0.98m deep, and aligned east/west. Topsoil (as described in Test Pit 1) was recorded for the first 0.26m. Beneath this was a sticky pale orange-brown silty-clay subsoil.

6.2.6 ***Test Pit 5:*** this test pit measured 1.54m x 0.88m, was 1.08m deep, and aligned east/west. Topsoil (as described in Test Pit 1) was recorded for the first 0.25m. Between 0.25 and 0.57m deep was the subsoil as described for Test Pit 4, and beneath this was the limestone natural as described for Test Pits 2 and 3.

6.2.7 ***Test Pit 6:*** this test pit measured 1.4m x 0.8m, was 1m deep, and aligned north/south. Topsoil (as described in Test Pit 1) was recorded for the first 0.2m. Subsoil (as described for Test Pit 4) was seen between 0.2m and 0.9m deep. Beneath this was the bedrock consisting of large limestone boulders.

6.2.8 ***Test Pit 7:*** this test pit measured 1.4m x 0.8m, was 0.2m deep, and aligned north/south. Topsoil (as described in Test Pit 1) was recorded for the first 0.05m. Between 0.05m and 0.2m deep was a pale orange-brown silty-sand and beneath this was the limestone bedrock.

EXCAVATION

6.3 Field A, at the west end of the route and in which lynchet **252** was recorded, was subject to a watching brief during the excavation of the pipe trench (Fig 4a). The trench was aligned approximately east/west, was between 0.5m-0.8m wide and had a maximum depth of 1.2m. The topsoil consisted of a light brown sandy clay, becoming darker towards the east end of the field, containing occasional small/medium sub-rounded stones. Beneath this was a sandy-clay with small sub-angular stones, which became larger towards the base of the trench. Apart from the lynchet (investigated by evaluation Trench 1) no archaeological remains were present in this field.

6.3.1 Further east along the route, 50m south of Kennel's Bridge, a watching brief was carried out where the pipeline was to pass beneath the existing road. The trench observed by the watching brief extended from 10m to the north of the road, to 5m to the south of it, then turned to the east for a further 25m.

6.3.2 To the north of the road the topsoil was between 0.3m-0.5m deep and consisted of a mid-dark greyish-brown clay-silt. Beneath this were natural laminated bands of gravel and sand, pale yellowish-brown and pink in colour and fairly firm in consistency.

6.3.3 Beneath the road were 0.5m of large cobbles in a gritty-sand matrix, which probably were remnants of an earlier track. A stone-capped culvert 0.6m wide and 0.35m deep was exposed for a length of 2m about 5m to the west of the road and appeared to be taking a stream, seen to the south, beneath the road and the field. The culvert was thought to be post-medieval in date. A modern pipe was observed beneath the culvert and was assumed to post-date this feature.

6.3.4 To the south of the road the topsoil was between 0.2m-0.3m in depth, and directly overlay a natural compacted gritty, silty-sand which contained bands of gravel.

6.3.5 Further east again, a watching brief was carried out to the south of the plantation, in Field F, in the area of the pitsteads, and also in Field G, to the east of the footpath, which rises up to the top of a hill (Figs 4b and 4c). Beyond this, the pipeline was to be mole-ploughed and, therefore, did not require a watching brief. The area to the immediate south of the wall demarcating the boundary of the plantation was at the base of a steep slope rising up to the south, and therefore the work comprised terracing as well as excavating the pipe trench. The terracing was 2m-3m wide and consisted of cutting into the slope to the south and re-distributing this material to the north. The pipe trench, 0.6m wide and 1m deep, was then excavated. No archaeological remains were found during this work, and the pitsteads in the

immediate vicinity, **246** and **239**, were not impacted upon by the route. Pitstead **247**, also on the route, had already been investigated by evaluation Trench 2.

6.3.6 Topsoil was recorded in the first 0.15m of the pipe trench, consisting of a dark blackish-grey clay-silt. Beneath this was a light brownish-orange silt containing frequent sub-angular limestone fragments. At the base of the trench a gritty grey sandy-silt with frequent limestone rocks and some boulders was observed. To the east of evaluation Trench 3, a dry-stone culvert, 0.45m wide and aligned north/south was recorded.

6.3.7 Towards the eastern end of Field F, the deposit beneath the topsoil became much less stony, and was replaced by a bright reddish-brown silt laminated with a stony light brown clay/silt. This was interpreted as hill wash and was also seen in the lower part of the Field G, on the east side of the footpath. The footpath was 0.8m deep and made up of various dumps of flattish stones.

7 ENVIRONMENTAL ASSESSMENT

7.1 QUANTIFICATION

7.1.1 Two environmental bulk samples (20 to 40 litres in volume) were taken during the evaluation of pitstead ***247*** from the charcoal-rich subsoil (contexts ***203*** and ***204***) for the assessment of charcoal. Ten litres of each sample were processed and assessed.

7.2 MATERIALS AND METHODS

7.2.1 The samples were hand floated, the flots were collected on 250 micron mesh and air-dried. The flots were scanned with a Meiji EMT stereo dissecting microscope and charcoal was recorded and provisionally identified. The data is shown on Table 1. Botanical nomenclature follows Stace (1991). Charcoal was recorded on a scale of abundance of 1-4, where 1 is rare (less than 5 items) and 4 is abundant (more than 100 items). Fifty charcoal fragments were provisionally identified. The components of the matrix were also noted.

7.3 RESULTS

7.3.1 Charcoal was recorded as abundant in both samples. Both diffuse porous (e.g. Alder/Hazel/ Birch-type) and ring porous (e.g. Ash) taxa were recorded. Both samples were dominated by Alder/Hazel/Birch-type (*Alnus/Corylus/Betula*) charcoal though it is thought that at least two other diffuse porous taxa were also present. Ring porous charcoal was scarce, although ash (*Fraxinus*) was identified in Subsoil ***203*** and an unidentified ring porous taxon was recorded in Subsoil **204**. Round wood, which was generally well-preserved, was identified in both samples and recorded as present in Subsoil ***203*** and abundant in Subsoil ***204***. Some charred bark material was present in small quantities. In general, charcoal preservation was good and would allow further analysis to be undertaken.

7.3.2 The samples from both contexts contained some modern contamination. Modern roots were recorded in both, but modern leaf material and bryophytes were also noted in subsoil ***203***.

7.4 DISCUSSION

7.4.1 The assessment of the charcoal-rich clay subsoil of the undated pitstead ***247*** at Glenamara Park has demonstrated that charcoal has been preserved. Charcoal fragments were abundant and their preservation was good. It has demonstrated that although Alder/Hazel/Birch-type was the dominant wood-type used, other taxa were also selected for the production of charcoal. Both larger branches or trunks and roundwood were being used to produce charcoal.

7.5 RECOMMENDATIONS

7.5.1 The Cumbrian pitsteads are generally thought to be post-medieval in date but are largely undated. It is recommended, therefore, that charcoal from both contexts should be scientifically dated either by radiocarbon dating or by other techniques more appropriate for more recent samples. It is also recommended that the charcoal should be analysed to provide information about the charcoal industry in Grisedale and possible woodland management.

Key : charcoal in the flot description is recorded on a scale of 1-4 where 1 is rare (less than 5 fragments) and 4 is abundant (more than 100 fragments)

Sample	**Context**	**Feature**	**Description**	**Sample vol processed (1)**	**Flot description**	**Charcoal (50 pieces provisionally identified)**	**Potential**
1	***203***	Pitstead **247**	Charcoal rich clay subsoil	10	500ml. Charcoal (4), modern contamination (4) including roots, leaf material and bryophytes. Some charcoal also present in flotation residues.	Ring porous taxon (*Fraxinus*), 2 fragments. 2 diffuse porous taxa, including *Corylus/Alnus/Betula*-type, 40 fragments, Roundwood present, 6 fragments. Bark present.	Good
2	***204***	Pitstead **247**	Charcoal rich clay subsoil	10	1280ml. Charcoal (4), modern contamination (2/3) including roots. Some charcoal also present in flotation residues.	An undifferentiated ring porous taxon, 2 fragments. 2 diffuse porous taxa, including *Corylus/Alnus/Betula*-type, 48 fragments, Roundwood present, 28 fragments. Bark present.	Good

Table 1: Braesteads pitstead **247**: assessment of charcoal.

8. DISCUSSION

8.1 DISCUSSION

8.1.1 The programme of archaeological work, comprising topographic survey, walkover survey, evaluation and watching brief stages has been of value in defining the location and extent of activity along the proposed route of the Braesteads to Grisedale pipeline, particularly at Glenamara Park. Each stage of the study has contributed to a much broader understanding of activity in the area than would have been possible had only one stage taken place. Results from the evaluation of pitsteads **239** and **247**, which lay within the pipeline easement, can be used to understand the unevaluated features, the topographic survey of which places all the features within the wider context of a local woodland industrial activity indicated by the walkover survey. The greatest impediment is that no dating evidence has been recovered from any of the features during evaluation, test-pitting or the watching brief. However, if desired, suitable radiocarbon samples could be taken from the sampled pitstead deposits.

8.1.2 The excavated evidence and environmental samples indicate that the recorded pitstead features are highly likely to relate to charcoal production; there is clear evidence for localised burning of charcoal, while the platforms are of the correct shape, and fall within the size range of such features as known. both historically and from other sites (Marshall and Davies-Shiel 1977; Walker 2001). On the basis of the current data from the evaluation and topographic survey, the scale of charcoal burning at Glenamara Park is hard to assess. An example of an established industrial woodland in Cumbria was located near Coniston Water, which comprised 68 pitsteads and various hutments (Marshall and Davies-Shiel 1977, 49). Certainly, there are less pitsteads at Glenamara Park, but it is possible that it is the organisation of the local charcoal industry that differs, rather than the overall scale. The steep nature of the local terrain would have made it difficult to transport large bundles of poles over any distance, and the fact that four tons of wood are required for every ton of charcoal, would mean that charcoal burning next to the wood source would have been much more efficient.

8.1.3 It is possible to interpret the pitsteads as separating into two groups, roughly 75m apart, each group of four and five features falling within a radius of 50m. It is known historically that a single collier would maintain a number of separate pitsteads, inspecting each at intervals (Marshall and Davies-Shiel 1977; Walker 2001), and it is tempting to suggest each group of pitsteads represents a single period of burning, with perhaps two colliers working simultaneously. The fact that at Glenamara Park the pitsteads had to be terraced into the valley slope means that their establishment would have been labour intensive, and they were likely to have been reused on a number of occasions.

8.1.4 Other features of the industry include tracks for transporting the charcoal by donkey and access to a water source required for ‘saying’ the burning pitsteads

(Marshall and Davies-Shiel 1977). The location of the pitsteads is of interest in this matter, as, although the relevant features, such as paths, exist within the modern landscape, it is more than likely that they are originally much older. There are a number of modern paths running through the area, including one through the pitsteads; it is possible that this path originated as a donkey track. Most of the pitsteads lie between 100m and 150m from the Grisedale Beck. This seems quite a long way to carry the large volumes of water required, particularly uphill. However, the location of the pitsteads, on the lower edge of the modern deciduous plantation, would suggest that they had been placed in an optimal position as far as transporting wood and water was concerned. They are also positioned opposite a foot bridge over the Grisedale Beck.

8.1.5 Other aspects of the industry are unlikely to leave much trace. Collier's shelters are always described as very temporary in nature, and being constructed in a similar manner to the pitsteads themselves (Marshall and Davies-Shiel 1977; Walker 2001; Carew 2005). It is possible therefore, considering the nature of the local topography, that one of the pitstead platforms could have been used for building the shelter. Alternatively, an ephemeral structure built outside of the coppiced woodland would leave little trace while the very short duration of work associated with the activity would mean that comparatively little waste would have been disposed of.

8.1.6 It is difficult from the excavated evidence to determine how often the pitsteads were used, although if it was more than once, as suspected, then the turf that would have developed over the burnt layer would have been removed before each session, as otherwise, one might expect successive layers of burnt turf. In addition, the intensity of usage cannot necessarily be adjudged from the thickness of charcoal deposits; accounts of stones and leaves found in charcoal sacks would suggest that as much of the charcoal was gathered as possible, leaving little behind (Walker 2001).

8.1.7 The environmental evidence would indicate that ash and, more commonly, hazel/alder/birch-type were burnt at the site, and it is known that alder and birch produce much higher quality charcoal. It would also appear that on occasions the bark was not stripped from the poles before burning, and this may relate to the possibility that such material from these thinner-barked trees was not as desirable for tanning as that of oak. There does not appear to be evidence for a bark house in the immediate vicinity, as one might expect to find a rectangular terrace for it to be built on, but it is possible that this lighter material was taken elsewhere by donkey. Determination of the seasonality of the charcoal burning is an issue that cannot be addressed with the current data, although further analysis of the environmental material may be useful. However, the lack of negative features and of stratified deposits relating to individual burning sessions would make it very difficult to use data from environmental analysis in a refined manner.

8.1.8 It seems probable that a small number of colliers would move over a wide landscape, visiting various areas of coppiced woodland at 14-18 year intervals. Without the evidence from the wider landscape, it is not possible to determine

the overall scale of operations, which individually, at any one location would be rather small scale.

8.2 IMPACT AND RECOMMENDATIONS

8.2.1 The results of the evaluation and watching brief demonstrate that there are archaeological remains surviving in this area. The samples from Pitstead **247** have the potential to yield more information about the techniques employed in the charcoal burning process at Glenamara Park as well as a possible date for this industry.

8.2.2 It is recommended that any further work in the area of the pitsteads in Glenamara Park be subject to an archaeological programme of work. In addition any further work across the lynchet should also be monitored as the feature is quite prominent to the north and may yield some dating evidence.

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ILLUSTRATIONS

LIST OF FIGURES

LIST OF PLATES

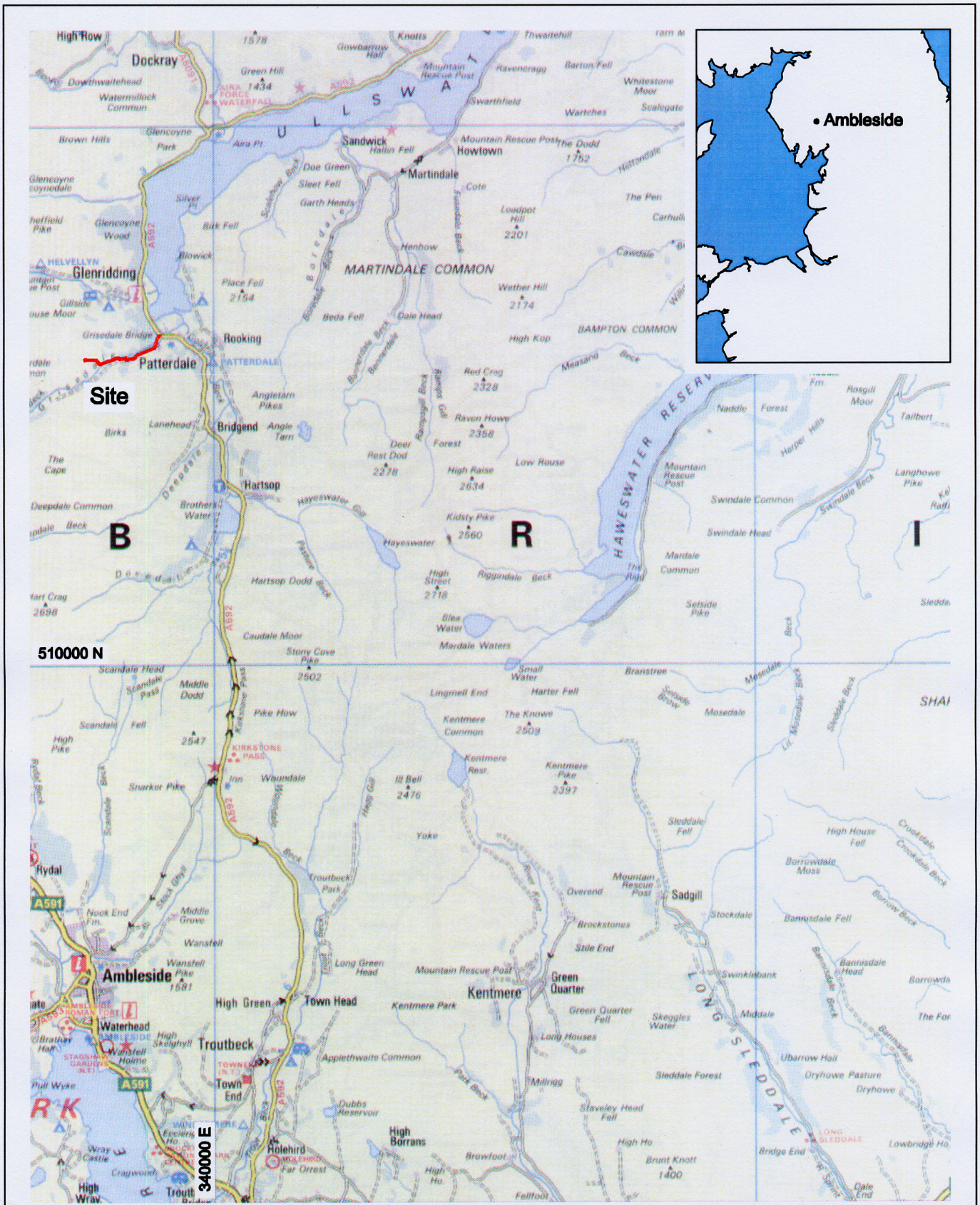


Figure 1: Location Map

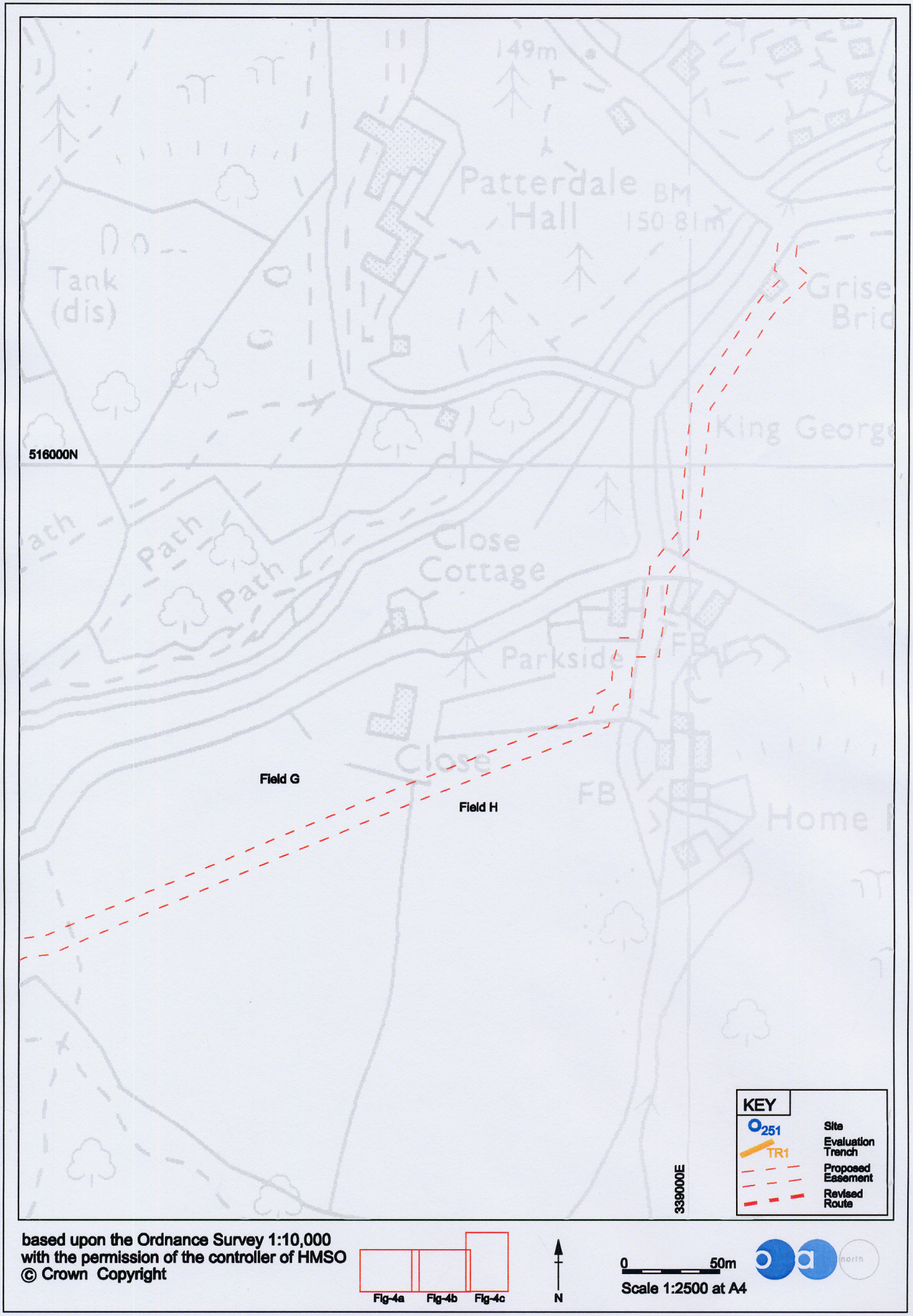


Figure 4c: Route of pipeline, east end

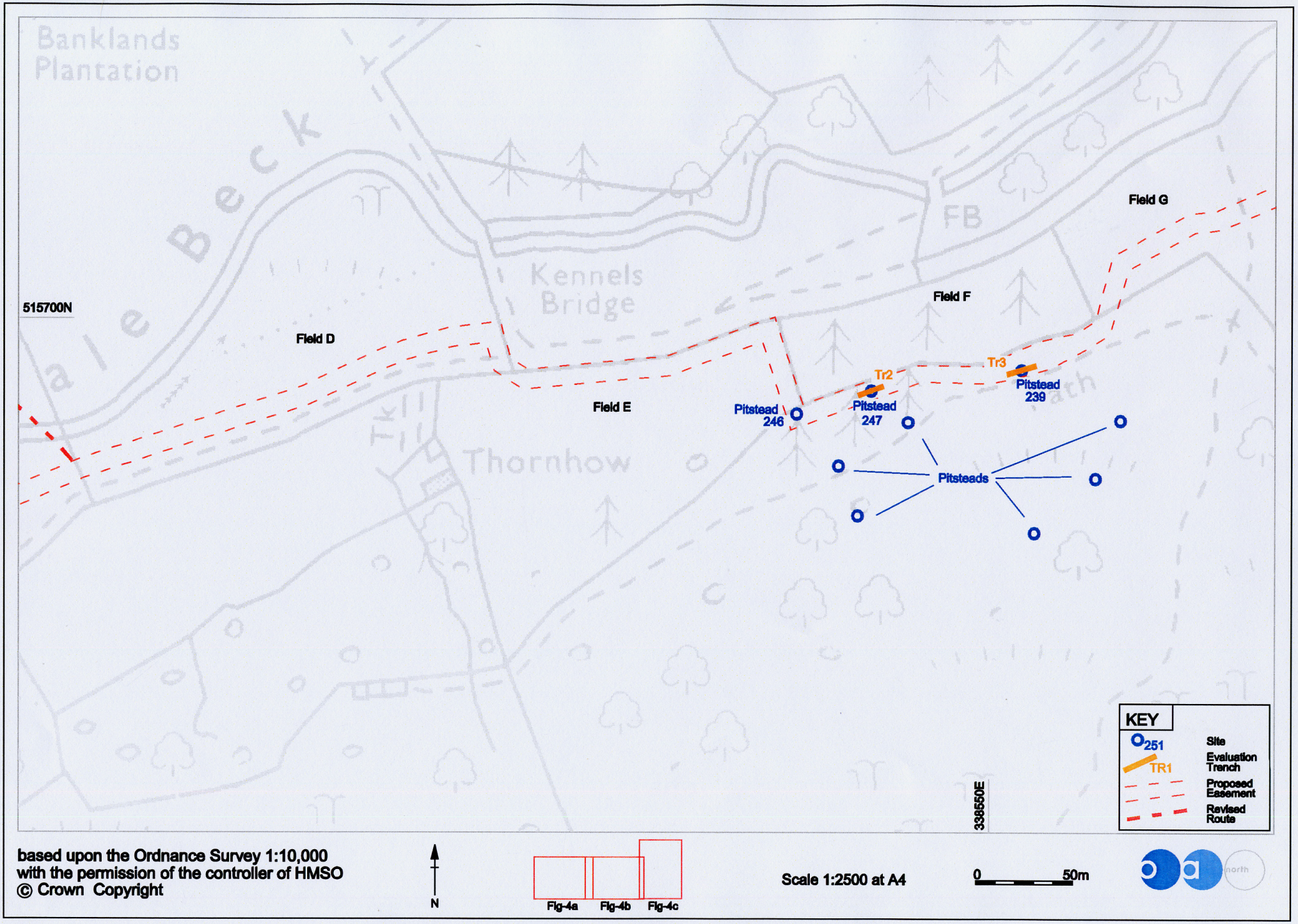


Figure 4b: Route of pipeline showing evaluation Trenches 2 and 3 and test pit locations

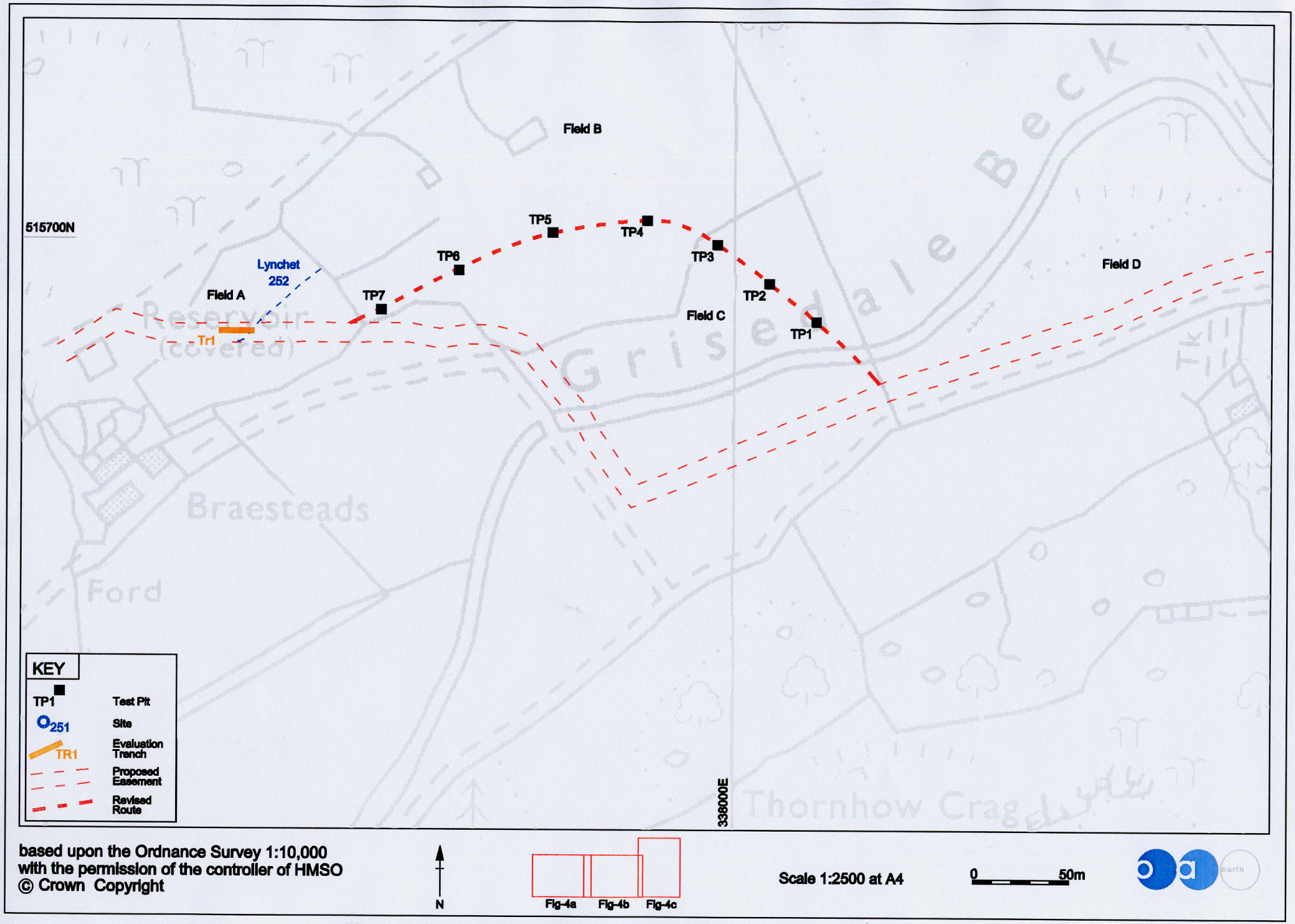


Figure 4a: Route of pipeline showing evaluation Trench 1 and test pit locations

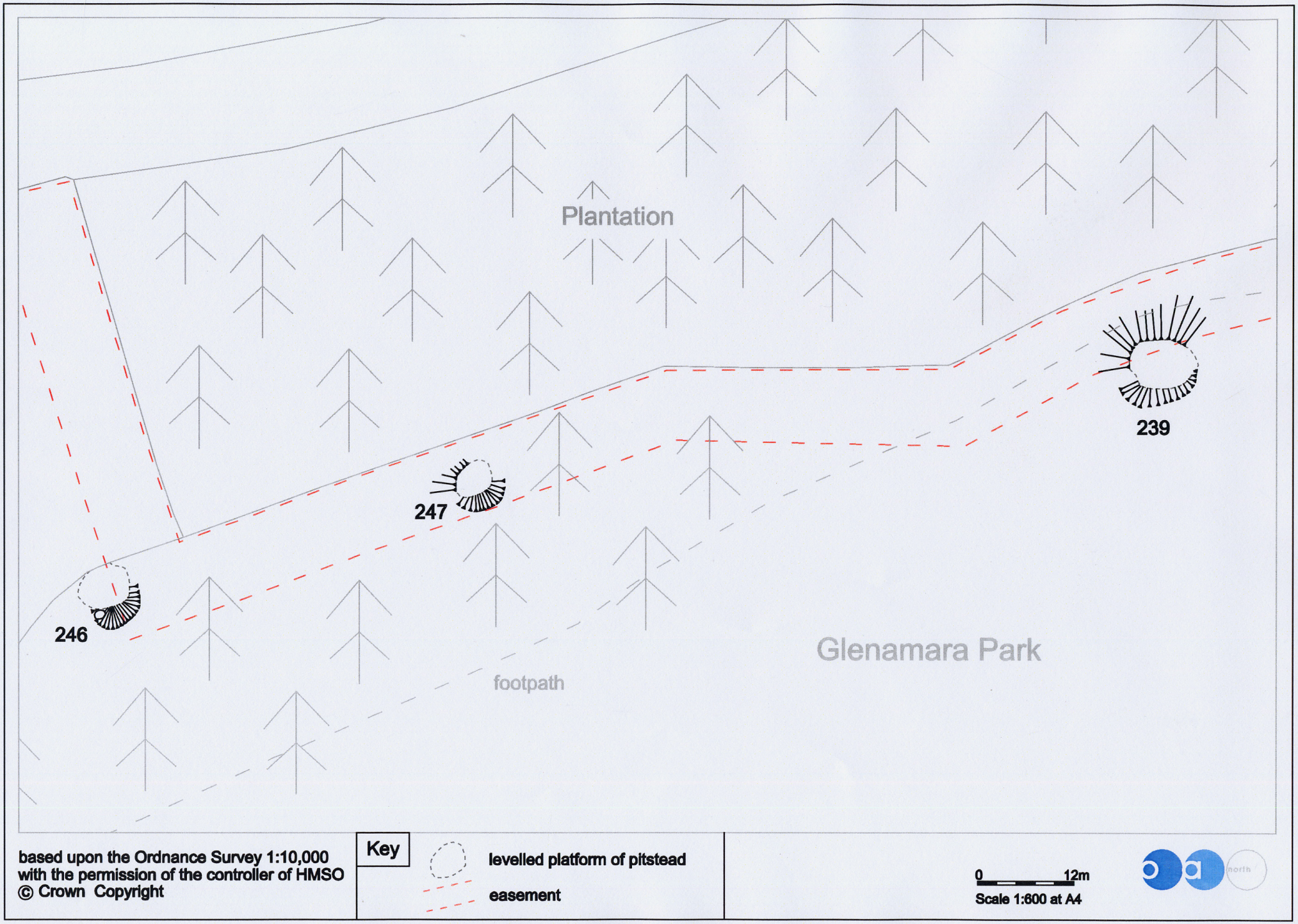


Figure 3: Topographic detail of pitstead Sites *246*, *247* and *239*

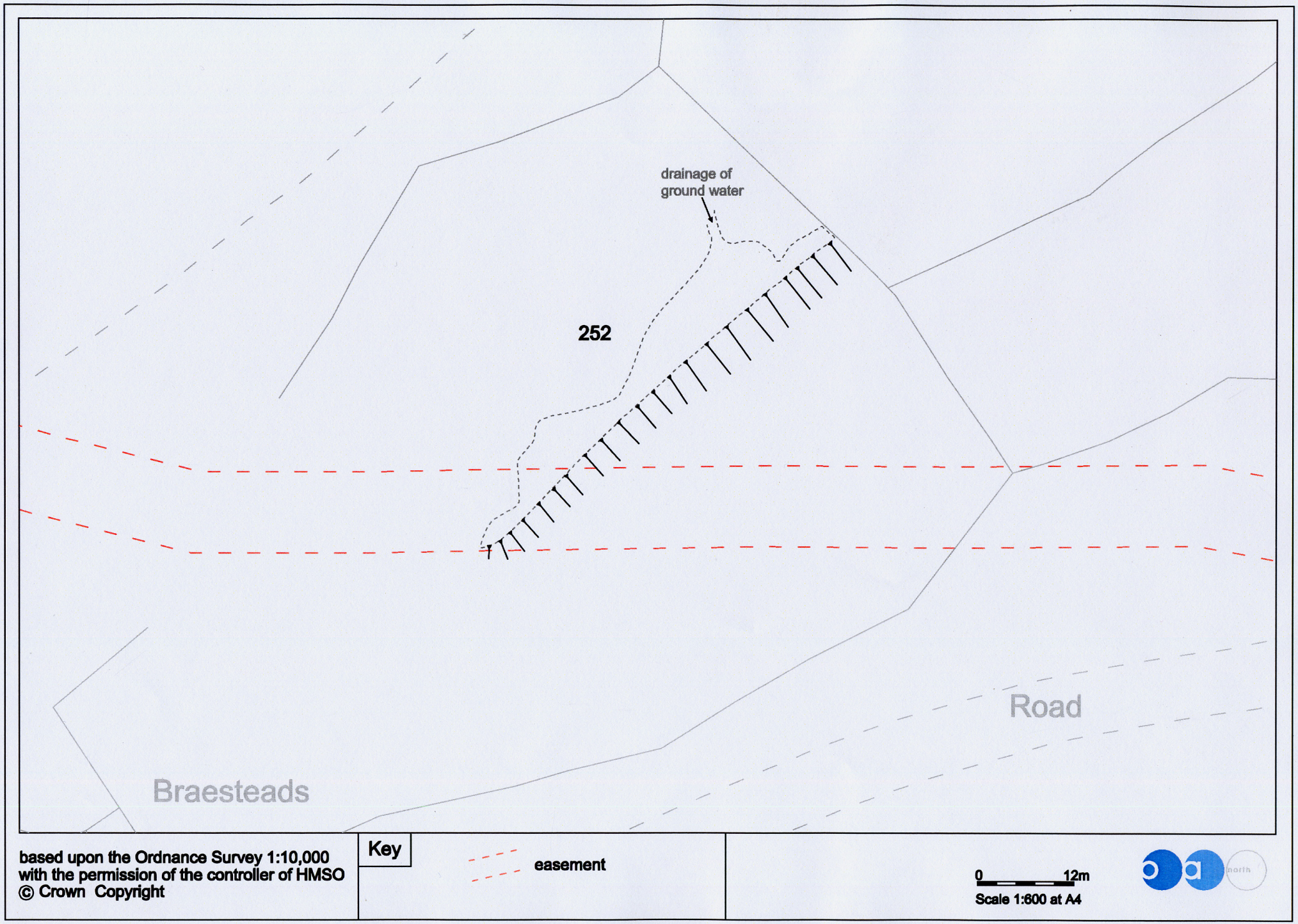
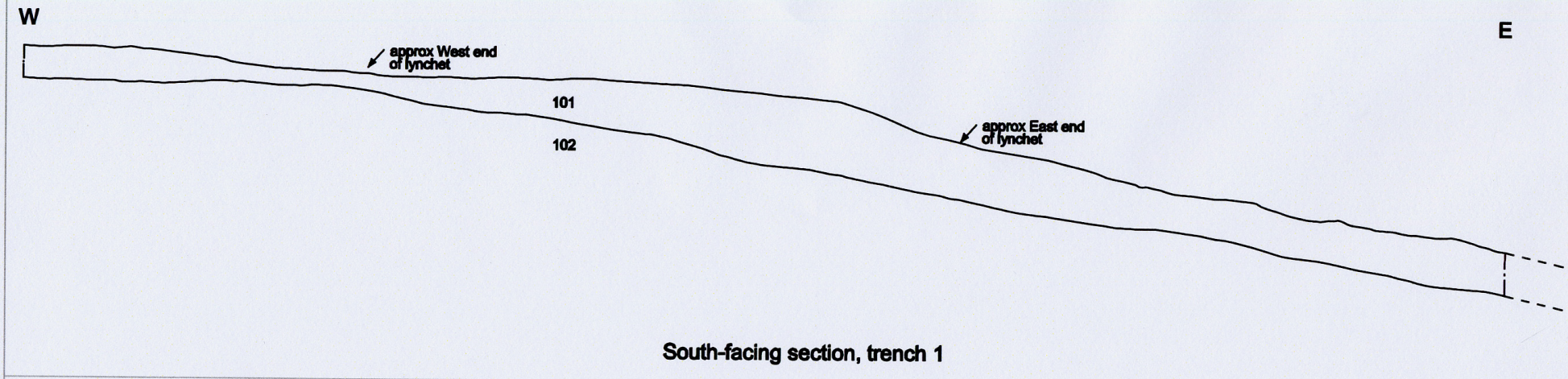
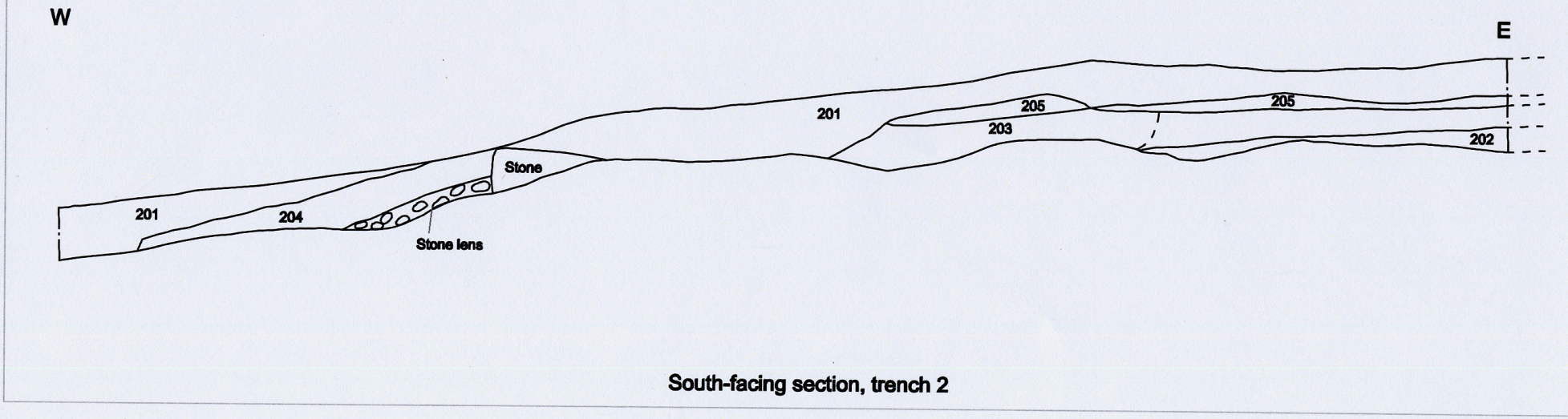


Figure 2: Topographic detail of lynchet (Site *252*)





0 6m

Scale 1:30 @ A4

Figure 5: South-facing section through lynchet in Trench 1 and south-facing section in Trench 2

Plate 1: Trench 1, looking East

Plate 2: Lynchet **252**, looking West

Plate 3: Trench 2, looking east

Plate 4: Trench 3, looking east

Plate 5: Trench 3, with pitstead **239** behind

Plate 6: General view of field covered by Test Pits 1-3, looking north

Plate 7: Test Pit 1, looking north

Plate 8: General view of pipeline, looking east along the easement

APPENDIX 1: PROJECT DESIGN

1. INTRODUCTION

1.1 CONTRACT BACKGROUND

1.1.1 Oxford Archaeology North has been invited by United Utilities and MWH, to submit a project design and costs for an evaluation on the line of a proposed Hayeswater pipeline between Braesteads and Grisedale. This follows on from an earlier appraisal and walk-over survey which made recommendations for the evaluation of selected sites.

1.1.2 The walkover survey identified a total of 22 sites within the study area. The evaluation will be targeted on those sites of the route, which will be directly affected by the proposed pipeline. It will also investigate those areas where there is an absence of archaeological sites.

1.2 OXFORD ARCHAEOLOGY NORTH

1.2.1 Oxford Archaeology North (OA North) has considerable experience of the archaeological survey and evaluation of sites and monuments of all periods, having undertaken a great number of small and large projects during the past 20 years. Projects have been undertaken to fulfil the different requirements of various clients and planning authorities, and to very rigorous timetables. OA North has considerable experience of the recording of historic buildings together with the evaluation and excavation of sites of all periods, having undertaken a great number of small and large-scale projects during the past 20 years. Fieldwork has taken place within the planning process and construction programmes, to fulfil the requirements of clients and planning authorities, to very rigorous timetables.

1.2.2 OA North has the professional expertise and resources to undertake the project detailed below to a high level of quality and efficiency. OA North is an Institute of Field Archaeologists (IFA) registered organisation, registration number 17, and all its members of staff operate subject to the IFA Code of Conduct.

2. OBJECTIVES

2.1 The following programme has been designed, in accordance with a verbal brief by Lake District National Park Authority (LDNPA) and discussions with the National Trust to provide an evaluation, watching brief and topographic of selected sites in advance of the laying of the proposed pipeline. The required stages to achieve these ends are as follows:

2.2 TOPOGRAPHIC SURVEY

2.2.1 To implement a programme of mitigative topographic survey of a series of earthwork sites.

2.3 WATCHING BRIEF

2.3.1 To maintain a permanent presence watching brief during the excavation of trial pits along the proposed route of the new pipeline.

2.4 EVALUATION TRENCHING

2.4.1 At this stage of the project the contractor has not determined the precise method to be employed for the laying of the pipe. The methods proposed are either open-cut or mole-ploughing. The choice of method will affect the amount of evaluation trenching that is required, therefore, two options are presented.

2.4.2 In the event of an open-cut the programme of trial trenching will either exam 5% of a 2m wide corridor centred on the location of selected sites, and in addition to provide an investigation of the background areas where archaeological sites have not yet been investigated.

2.4.3 If mole-ploughing is to be utilised then only the known archaeological sites along the route will be subject to trial trenching.

2.5 REPORT

2.3.1 A written report will assess the significance of the data generated by this programme within a local and regional context. It will present the evaluation and would make an assessment of the archaeological potential of the area, and would make recommendations for further work.

3. METHOD STATEMENT

3.1 TOPOGRAPHIC SURVEY

3.1.1 ***Instrument Survey:*** it is proposed to undertake a level 2b survey (see OA North survey levels, *Appendix 1*) of the sites identified by the assessment, which is equivalent to RCHM(E) level 2. All appropriate topographic detail will be recorded to provide an appropriate context for the archaeological detail. Depending on the character of the site, the survey will either be recorded using a total station or a differential GPS. The sites for survey include 239, 246, 247 Pitsteads, 251 Building Platform, and 252 Lynchet.

3.1.2 ***GPS Survey:*** in lower order sites detail survey will be undertaken using a post-processed differential GPS, which is accurate to 150mm. The data will then be plotted up and will be subject to manual enhancement.

3.1.3 ***Total Station Survey:*** survey control will be established over the site by closed traverse and internally will be accurate to +- 15mm; the control network will be located onto the Ordnance Survey National Grid by the use of Global Positioning Survey (GPS), which will locate to an accuracy of +- 0.5m.

3.1.4 The surface features will be surveyed by EDM tacheometry using a total station linked to a data logger, the accuracy of detail generation being appropriate for a 1:500 output. The digital data will be transferred onto a portable computer for manipulation and later transfer to other digital or hard mediums. Film plots will be output via a plotter. The archaeological detail will be drawn up in the field as a dimensioned drawing on the plots with respect to survey markers. Most topographic detail will also be surveyed, particularly if it is archaeologically significant or is in the vicinity of archaeological features. The survey drawings will be generated within a CAD system and will be merged with existing topographic data, and will also be merged with the results from the earlier survey. The results can be output at any scale.

3.1.5 ***Site Gazetteer:*** the survey would be accompanied by a gazetteer description of individual archaeological features, which will relate directly to the survey mapping.

3.1.6 ***Photographic Survey:*** in conjunction with the archaeological survey a photographic archive will be generated, which will record significant features and general landscapes. It will be undertaken in 35mm black and white and colour slide film.

3.2.1 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 during the excavation of trial pits along the route of the proposed new pipeline. 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 co-ordinates 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 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 OA North 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, but this would only be called into effect in agreement with the Client, the LDNPA Archaeologist and the National Trust and will require a variation to costing.

3.2.6 Full regard will, of course, be given to all constraints (services etc.), as well as to all Health and Safety regulations. OA North 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.

3.2.7 ***Human Remains****:* any human remains uncovered will be left *in situ*, covered and protected. No further investigation will continue beyond that required to establish the date and character of the burial. English Heritage and the local Coroner will be informed immediately. If removal is essential the exhumation of any funerary remains will require the provision of a Home Office license, under section 25 of the Burial Act of 1857. An application will be made by OA North for the study area on discovery of any such remains and the removal will be carried out with due care and sensitivity under the environmental health regulations, and if appropriate, in compliance with the 'Disused Burial Grounds (Amendment) Act, 1981.

3.3 EVALUATION TRENCHING

3.3.1 ***Methods (5% of the easement):*** the programme of trenching will establish the presence or absence of any previously unsuspected archaeological deposits and, if established, will then

test their date, nature, depth and quality of preservation. In addition, the trial trenching will investigate the known sites to determine, where possible their plan, form, function and date. The evaluation will be undertaken within a 2m wide easement corridor which measures approximately 1.7km in length. The evaluation will examine 5% of the easement (with the exception of the playing field) and it is proposed to excavate trenches measuring 10m x 1.5m, which will be excavated in accordance with the recommendation of the assessment report and defined below:

Braesteads to Grisedale

Site No	**Site Type**	**NGR**	**No of Trenches**
239	Pitstead	NY 38566 15674	1
247	Pitstead	NY 38495 15666	1
252	Lynchet	NY 3386 15682 - 37759 15639	2

Table 1: Known Archaeological Sites Targeted for Trial Trenching

3.3.2 In total, for the 5% area of the pipeline, this will entail the excavation of 10 trenches. The layout of the trenches will be configured with predominant trenches along the line of the corridor in conjunction with a series of trenches across the line of the pipeline. The arrangement will be adjusted so as to target surface features of particular significance.

3.3.3 The layout of the trenches not associated with the location of known archaeology is provisionally shown within the attached plan, but this is subject to change following the surveys and in discussions with the LDNPA and the National Trust.

3.3.4 ***Methods (known sites only):*** for Pitstead (Site 247) the equivalent of a 30m x 1.5m trench will be excavated. This pitstead is completely within the easement. A 20m x 1.5m trench will be excavated for Pitstead 239, which will be partially affected by the easement. Two 30m x 1.5 2m trenches will be excavated in the area of Lynchet 252. The length of each trench will be subject to variation as dictated by the local ground conditions.

3.3.5 ***Fieldwork method***: the trenches will be excavated by a combination of mechanised and manual techniques; the topsoil will be removed by mini-mechanical excavator (due to access constraints), fitted with toothless bucket, and archaeological deposits beneath will be first manually cleaned and then any features identified will be manually excavated. The machine excavation will not intrude into any potential archaeological stratigraphy and all machine excavation will be undertaken under careful archaeological supervision. Following mechanical excavation the floor of the trench will be cleaned by hoe and Manual excavation techniques will be used to evaluate any sensitive deposits, and will enable an assessment of the nature, date, survival and depth of deposits and features. The trenches will not be excavated deeper than 1.20m to accommodate health and safety constraints; any requirements to excavate below this depth will involve recosting.

3.3.6 The trenches will be excavated in a stratigraphical manner, whether by machine or by hand. The trench will be located by use of GPS equipment, which is accurate to +/- 0.25m, altitude

information will be established with respect to Ordnance Survey Datum. Archaeological features within the trenches will be planned by manual techniques.

3.3.7 ***Environmental Sampling:*** environmental samples (bulk samples of 30 litres volume, to be sub-sampled at a later stage) will be collected from stratified undisturbed deposits and will particularly target negative features (gullies, pits and ditches). Subject to the results of the excavation an assessment of any environmental samples will be undertaken by the in-house palaeoecological specialist, who will examine the potential for further analysis. The assessment would examine the potential for macrofossil, arthropod, palynological and general biological analysis. The costs for the palaeoecological assessment are defined as a contingency and will only be called into effect if good waterlogged deposits are identified and will be subject to the agreement of the LDNPA, National Trust and the client.

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

3.3.9 ***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.

3.3.10 Results of the field investigation will be recorded using a paper system, adapted from that used by Centre for Archaeology 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.

3.4 REPORT

3.4.1 ***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, which will be catalogued by context. This archive can be provided in the English Heritage Centre for Archaeology format and a synthesis will be included in the Cumbria Sites and Monuments Record. A copy of the archive can also be made available for deposition with the National Archaeological Record. OA North 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.

3.4.2 ***Report:*** one bound and one unbound copy of a written synthetic report will be submitted to the Client, and a further two copies will be submitted to the Lake District National Park Authority SMR and the National Trust. 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 present an assessment of the sites history; the report will include photographs of any significant features. 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. The report will include a description of the methodology and the results. A list of the finds, and a description of the collective assemblage. Details of any environmental work undertaken.

3.4.3 The report will include a frontispiece showing the planning number and the grid reference. It will have a summary and a methodological statement, and it will define any variations to the defined programme. It will include recommendations for further work.

3.4.4 Illustrative material will include a location map, site map, a trench location map, trench plans, and also pertinent photographs. It can be tailored to the specific requests of the client (eg particular scales etc), subject to discussion.

3.4.5 ***Publication:*** a summary report of the results will be submitted to a regional journal, and information from the project will be fed into the OASIS project (On-line Access to Index of Archaeological Investigation).

3.5 OTHER MATTERS

3.5.1 ***Health and Safety:*** OA North conforms to all health and safety guidelines as contained in the Lancaster University Manual of Health and Safety and the safety manual compiled by the Standing Conference of Archaeological Unit Managers. The work will be in accordance with Health and Safety at Work Act (1974), the Council for British Archaeology Handbook No. 6, *Safety in Archaeological Fieldwork* (1989).

3.5.2 Full regard will, of course, be given to all constraints (services etc) during the watching brief and fabric survey, as well as to all Health and Safety considerations. OA North provides a Health and Safety Statement for all projects and maintains a Unit Safety policy. A risk assessment will be completed in advance of the project's commencement. If there is a requirement to excavate trenches deeper than 1.25m the trenches will be stepped out to minimise section collapse. As a matter of course the Unit uses a U-Scan device prior to any excavation to test for services. It is assumed that the client will provide any available information regarding services within the study area, if available.

3.5.3 ***Insurance:*** the insurance in respect of claims for personal injury to or the death of any person under a contract of service with the unit and arising out of an in the course of such person's employment shall comply with the employers' liability (Compulsory Insurance) Act 1969 and any statutory orders made there under. For all other claims to cover the liability of OA North, in respect of personal injury or damage to property by negligence of OA North or any of its employees, there applies the insurance cover of £2m for any one occurrence or series of occurrences arising out of one event.

3.5.4 ***Confidentiality:*** the report is designed as a document for the specific use of the Client, for the particular purpose as defined in the 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 brief and project design, or for any other explicit purpose can be fulfilled, but will require separate discussion and funding.

3.5.5 ***Project Monitoring:*** OA North will consult with the client regarding access to the site. Whilst the work is undertaken for the client, the County Archaeologist will be kept fully informed of the work and its results. Any proposed changes to the project design will be agreed with LDNPA and the National Trust in consultation with the Client.

3.5.6 ***Contingency:*** costs are defined for the provision of a palaeoenvironmental assessment, and faunal remains analysis. The palaeoenvironmental analysis would be subject to an assessment by the OA North palaeoenvironmental specialist (E Huckerby), the faunal remains would be subject to an assessment by the OA North animal bone specialist (A Bates).

4. WORK PROGRAMME

4.1 The following programme is proposed:

Watching Brief

The duration of this element will be dependent upon the progress of the contractor

Evaluation Trenching (5% or easement)

20 days will be required to complete this element

Evaluation trenching (known archaeological sites only)

5 days will be required to complete this element

Topographic Survey

5 days will be required to complete this element

Report

A 7 day period would be to complete this element

4.2 OA North can execute projects at short notice once an agreement has been signed with the client.

4.3 The project will be managed by **Alison Plummer BSc** (Senior Project Manager) to whom all correspondence should be addressed.

4.4 Present timetabling constraints preclude detailing exactly who will be carrying out the fieldowrk, but all elements of the project are likely to be supervised by an OA North project supervisor experienced in this type of project. All OA North supervisors are experienced field archaeologists capable of carrying out projects of all sizes.

APPENDIX 2: CONTEXT LIST

Context no.	Trench	Description
101	1	Topsoil
102	1	Natural
201	2	Topsoil
202	2	Natural
203	2	Layer of charcoal-rich subsoil
204	2	Layer of charcoal-rich subsoil
205	2	Thin band of clean yellow sand above ***203***
301	3	Topsoil
302	3	Natural