



HAYESWATER CONTRACT III, POOLEY BRIDGE TO DACRE TO PENRUDDOCK, CUMBRIA

Archaeological Evaluation, Excavation and Watching Brief Report



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SUMMARY

The general area in the vicinity of the proposed United Utilities pipeline between Pooley Bridge (NY 4791 2505) and Penruddock (NY 4311 2754), via Dacre (NY 5485 2654) in Cumbria has numerous known sites of archaeological interest. The desk-based assessment and walkover survey undertaken by OA North (OA North 2004a) identified 46 sites of archaeological interest. Of these, 15 were considered likely to be affected by the proposed development. Because of this the Lake District National Park Authority (LDNPA) Archaeologist recommended a programme of archaeological work comprising archaeological evaluation, and watching brief to be undertaken prior to the groundworks for the pipeline.

The programme of evaluation required the trial trenching of a minimum of 5% of the off-road sections of the pipeline easement to determine the presence or absence of any previously undiscovered archaeological deposits. In this way it would adequately sample the threatened available area. The evaluation was to comprise 20 linear trenches measuring 25m x 1.6m, dependent upon the topographical conditions and the results of the desk-based assessment and walkover survey. In the event, only 16 trenches could be excavated; three were cancelled by United Utilities (one due to a likely re-route, and two due the presence of newts), and one further trench was cancelled due to denial of access by the landowner. The trenches were excavated during March 2005.

The evaluation trenches illustrated fairly uniform stratigraphy, with post-medieval topsoil deposits directly overlying the natural geology, and occasional deposits of shallow subsoil being located between the two. Only one trench (Trench 8) contained a significant archaeological feature, and this took form of an early field wall. Deposits of quarried limestone were also identified in Trenches 1, 5 and 6, relating to the adjacent lime kilns. A further wall was also noted north of Trench 7, and earthworks adjacent to a lime kiln were noted to the south of Trench 6.

Following discussions with the LDNPA, it was recommended that further excavation be undertaken on the early field wall in Trench 8. The excavation of two trenches across the line of the field wall followed in July 2005. Little information such as dating material was recovered from the excavation, although evidence of a buried soil rich with charcoal survived directly below the wall.

A watching brief was also maintained during ground disturbance adjacent to the lime kiln sites. The aim of the watching brief was to establish the existence and location of any surviving archaeological remains during the course of any topsoil stripping associated with the pipeline. No archaeological features were observed during the watching brief. A brief visual inspection of the stripped areas also failed to observe any archaeological features.

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The evaluation was undertaken by Jason Clarke, Pascal Eloy and Matthew Town, and the excavation by Sean McPhillips and Alistair Vannen. The watching brief was undertaken by Dave McNicol. The report was written by Sean McPhillips, Matthew Town and Dave McNicol. The palaeoenvironmental results were compiled by Elizabeth Huckerby and the illustrations by Mark Tidmarsh. Alison Plummer managed the project and edited the report.

1. INTRODUCTION

1.1 CIRCUMSTANCES OF PROJECT

- 1.1.1 United Utilities proposed to carry out the installation of a pipeline from Pooley Bridge (NY 4791 2505) to Penruddock (NY 4311 2754) via Dacre (NY 4485 2654), as part of a major infrastructure project in the Hayeswater area. The initial phases of this, the Hayeswater pipeline, are already in progress, including the phase linking to the south-east end of the Pooley bridge to Penruddock pipeline (OA North 2003).
- 1.1.2 As a consequence of the proposal, a verbal brief for a programme of archaeological work comprising a desk-based assessment, walkover survey and programme of evaluation along the pipeline was provided by the LDNPA archaeologist. In response to this Oxford Archaeology North (OA North) produced a Project Design (*Appendix 1*). Following the acceptance of the Project Design by the LDNPA Archaeologist, OA North was commissioned by United Utilities to undertake the work.
- 1.1.3 The initial desk-based assessment and walkover survey were carried out in June and July 2004, and form the subject of a separate report (OA North 2004a). The combined results of the desk-based assessment and walkover survey identified a total of 41 sites of archaeological interest. Of these, 15 sites (Sites **5, 6, 8, 10-13, 15-18, 25, 31, 33** and **37**) were considered likely to be affected by the proposed development. Following the completion of this report, discussions were held with the LDNPA in order to establish a programme of evaluation based on the results. The evaluation was designed to implement a programme of trial trenching and watching briefs, examining a number of sites identified by the desk-based assessment. Four of these sites (Sites **6, 13, 32** and **33**) were within the easement, and, therefore were likely to be directly affected. In addition to the trenches placed across the aforementioned sites, eleven trenches were excavated in close proximity to all targeted sites along the proposed route. Further to the results of the evaluations, the LDNPA specified a programme of archaeological excavation across the site of a wall that had possible Medieval origins (Site **33**).
- 1.1.4 This document combines three elements of the work undertaken, forming a report for the areas designated for evaluation, excavation and watching brief. It is not envisaged that any further archaeological reports will be issued for this particular section of pipeline. Site numbers refer to the desk-based assessment and walkover survey report (OA North 2004a).

1.2 SITE LOCATION, TOPOGRAPHY AND GEOLOGY

- 1.2.1 The solid geology of the immediate area is dominated by carboniferous limestone (Moseley (ed) 1978), hence the large numbers of quarries and lime kilns. The solid landscape has been extensively modified by the action of the last glaciation, which has not only formed the typical U-shaped valleys of the higher fells, but has left thick deposits of boulder clay (Countryside

Commission 1998, 33). These deposits have in turn formed Cambic stagnogley soils of the Cegin and Brickfield 2 associations (Ordnance Survey 1983).

- 1.2.2 The study area is between 6 and 8km south-west of Penrith, bounded by the A66 to the north (although it partially crosses this) and Ullswater to the south. Its position on the edge of the Cumbrian mountains means that it is at a relatively high position above sea level, varying between 170m OD at the south-east end and 270m OD at the north-west (Ordnance Survey 1995).
- 1.2.3 The topography in this region is typified by rugged mountains and steep glacial valleys, with exposed outcrops of rock and areas of peat (Countryside Commission 1998, 31). The study area, which is on the edge of the mountainous area is generally less extreme, with more gentle sloping valleys and flat valley floors incorporating more improved ground (*op cit*, 32).

1.3 HISTORICAL AND ARCHAEOLOGICAL BACKGROUND

- 1.3.1 The historical background is derived from research undertaken by Oxford Archaeology North (OA North 2004a) during the preparation of the desk-based assessment completed in 2004.
- 1.3.2 **Prehistory:** although evidence for immediately post-glacial activity in the area is severely lacking, discoveries of Late Upper Palaeolithic sites in the south-west of the county demonstrate that the area was not deserted at that time (Young 2002). Similarly, sites dating to the Late Mesolithic are known from the Cumbrian west coast, Eden Valley and Shap area (Cherry and Cherry 2002) suggesting that further discoveries are likely to be made in other areas. Evidence for Neolithic and Bronze Age activity is far more common in Cumbria, although settlement sites that can be identified with any certainty are rare (Hodgkinson *et al* 2000, 111). Finds such as stone axes and metal objects are, however, relatively common across the county. Some structural remains such as the possible stone circle do exist. There is also a possible stone circle at Yamonside (SMR 2934), and the nationally important Neolithic and Bronze Age henges of Mayburgh and King Arthur's Round Table are only 5km to the north-east.
- 1.3.3 Sites considered likely to be settlements probably dating to the later prehistoric period have been identified in a number of places in the general area. These include the hillfort at Dunmallard (SMR 1164) and another, known as Maiden Castle, on Soulby Fell. A number of sites identified in aerial photographs are also likely to date to this period, although they may have been used into and beyond the Roman period (Higham and Jones 1975). A number of these are situated within the study area although the exact nature of all of these is unknown as little investigative work has ever been carried out.
- 1.3.4 While the general area can therefore be seen to be rich in prehistoric remains, these are understood in little detail. Many of these sites have survived in areas where there has been little disturbance from agriculture or building and there

is a great deal of potential for further discoveries to be made and further information to be gained.

- 1.3.5 **Romano-British:** as has already been mentioned, a number of the sites of possible prehistoric date have been described as ‘Romano-British’ (Higham and Jones 1975), and it is likely that many were occupied through various different periods. The Roman influence on the area is, however, notable. The area is within a few kilometres of a fort at Brougham to the north-east and camps at Troutbeck to the north-west. Two major Roman roads are situated either side of the study area (north and south), one running parallel to part of the line of the current A66, the other (High Street) crossing the fells to the south (Margary 1973, 387-93). A further possible road, which could potentially be of Roman date, was identified within the study area (Site 18); a Roman *sesterius* of Trajan (AD 103-111 was found near Dacre church in 1993 (Shotter 1996, 30), perhaps adding further weight to the idea of a Roman presence in the area. A few artefacts of Roman date were also recovered from the excavations, also near the church, at Dacre (Newman and Leech forthcoming). Details of how the native population and the Roman military forces interacted in this area are not clear, and little work has been done in detail examining the period. Recent survey and excavation around the south-west end of Ullswater has revealed extensive settlement and clear evidence of the native population acquiring Roman artefacts (Hoaen and Loney 2000, pers comm; Hoaen and Loney 2003).
- 1.3.6 Again it is evident that the area was a focus of considerable activity during the Roman period, although detailed study of this is still at an early stage. There is, however, a high potential for further discoveries to be made.
- 1.3.7 **Early Medieval:** while much of the area has little evidence for activity in the early medieval period the study area is fortunate in having one large, and significant site dating to this period within it. Bede refers to a monastic site at Dacre as early as the eighth century AD (Newman and Leech forthcoming, 2). Fragments of several pieces of carved early medieval cross have been found in the area around the church and castle in the nineteenth and early twentieth centuries (Collingwood 1912; Bailey and Cramp 1988). Excavations in the late 1920s near to the church revealed a large stone-built drain or culvert, apparently reusing dressed blocks from a large stone building (Hudleston 1932). Excavations in the early 1980s in land adjoining the church uncovered over 200 burials and other structures probably relating to the monastic site. Indeed, Dacre also has evidence of Anglian and Anglo-Scandinavian crosses (Bailey 1988). Metal artefacts and coins recovered from the site demonstrate an early medieval date of origin, although there are also possible prehistoric remains (Newman and Leech forthcoming). It is noticeable that the site of the monastery lies adjacent to the possible Roman road identified during the desk-based assessment (Site 18), perhaps suggesting that an existing road was an obvious point on which to position such a site.
- 1.3.8 Elsewhere in the study area there is less conclusive evidence for early medieval activity. A number of place-names in the area do, however, suggest a mix of influences including native Britons, Old English and Norse (Armstrong

et al 1950). Finds of numerous silver brooches from Flusco (*c* 2km north of Dacre) have been recorded since the eighteenth century (Whellan 1860, 529; Richardson 1996, 36), and more recent examples have been shown to be Norse in style and probably ninth century in date (Richardson 1996, 42). These too give a tantalising clue as to the presence of further early medieval settlement in the area. The identification of such a large and significant early medieval site at Dacre might suggest that other sites, probably smaller and less significant, exist in the surrounding area. The proximity of the proposed pipeline to the monastic site at Dacre might suggest that some of these could be affected.

1.3.9 **Medieval:** as has already been outlined the area was relatively well-inhabited throughout the late prehistoric, the Roman and the early medieval periods. The place-names of most of the settlements in the general area suggest at least medieval origins, if not earlier (*ibid*). Dacre and Hutton John are known to have been associated with major landed families from the post-Conquest period onwards (Nicolson and Burn 1777, 377-81; Whellan 1860, 528-31). The villages of Dacre (Site **16**) and Penruddock are considered to have a medieval form (SMR 6775 and 6761 respectively), and it is probable that Soulby does too. A number of fortified sites are present within the general area, including a moated site and pele tower at Hutton John (SMR 1142 and 3785 respectively). Within the study area there is a substantial castle with a chapel at Dacre as well as the church of St Andrews. All of these sites are known to have been or are likely to have been extensively modified during their lifetimes, but their origins lie in the medieval period. Other sites of medieval origin within the study area include mills and possibly field systems (Sites **01** and **15**). Other undatable features may also belong to this period (Sites **10** and **12** both bank and ditch sites).

1.3.10 **Post-medieval:** during the post-medieval period the general area remained rural and relatively undeveloped. During the mid 19th century, the population of most of the villages in or around the study area is recorded as less than a few hundred in most cases, and as low as 61 in Soulby (Whellan 1860). The Industrial Revolution would appear to have had little affect on the area, although limestone quarrying and burning was evidently a major industry (*ibid*, 529). There are a large number related sites within the study area and this was undoubtedly a significant factor in the post-medieval development of the landscape. The coming of the railway to the area, linking Penrith to Cockermouth via Keswick in 1864 (Marshall and Davies-Shiel 1969, 187 and 190) would have allowed greater access to the area, although most of the villages in and around the study area were not directly connected to it.

2. METHODOLOGY

2.1 PROJECT DESIGN

2.1.1 A project design (*Appendix 1*) was submitted by OA North in response to a request from United Utilities for an archaeological evaluation on a number of sites along a proposed pipeline route from Pooley Bridge to Penruddock via Dacre, as part of a major infrastructure project in the Hayeswater area (Fig 1). 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 practice.

2.2 EVALUATION

2.2.1 In total, twenty trenches were to be excavated along the pipeline route; in the event, only sixteen could be excavated due to access restrictions, pipeline re-route considerations, and the presence of newts on Mill Moor. The location of three trenches was changed; Trenches 8 and 9 were excavated further south than specified, due to a slight deviation in the route of the pipeline, and Trench 16 was moved eastwards due to a request by the farmer at Barton Hall Farm to avoid his turnip crop. The latter trench was also shortened to avoid services that were known to run along the north-western side of the lane to Barton Hall Farm.

2.2.2 The topsoil was removed by a mechanical excavator (fitted with a toothless ditching bucket, 1.5m in width) under archaeological supervision to the surface of the first significant archaeological deposit. This deposit was cleaned by hand, using either hoes, shovel scraping, and/or trowels depending on the subsoil conditions, and inspected for archaeological features. All features of archaeological interest were investigated and recorded.

2.2.3 All trenches were excavated in a stratigraphical manner, whether by machine or by hand. All investigation of intact archaeological deposits was exclusively manual. In terms of the vertical stratigraphy, maximum information retrieval was achieved through the examination of sections of cut features. All excavation, whether by machine or by hand, was undertaken with a view to avoiding damage to any archaeological features, which appear worthy of preservation *in situ*. The evaluation trenches were backfilled, with no further reinstatement taking place.

2.3 EXCAVATION

2.3.1 Two trenches (Fig 5) were excavated across the site of a possible walled enclosure (Site 33). A single trench (Trench A) was placed north/south across the western end of the earthwork in order to assess the survival and extent of the wall along the western side of the field. The second trench (Trench B) was placed east/west across the same line as the original evaluation trench (Trench 8) in the location where the proposed pipeline crossed the site.

2.3.2 Both trenches were excavated in a stratigraphical manner, whether by machine or by hand. All investigation of intact archaeological deposits was exclusively manual and were recorded entirely as the methodology used on the trial trenches.

2.4 WATCHING BRIEF

2.4.1 A targeted programme of field observation was undertaken in order to accurately record the location, extent, and character of any surviving archaeological features and/or deposits within any new excavations for the pipe trench and/or launch and reception pits. This work comprised 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. Putative archaeological features and/or deposits identified by the machining process, together with the immediate vicinity of and/or trowels depending on the subsoil conditions. Further areas were subject to a visual inspection rather than a permanent presence watching brief.

2.5 RECORDING

2.5.1 The recording methods employed by OA North accord with those recommended by English Heritage's Centre for Archaeology (CFA). Recording was principally in the form of *pro forma* Trench Sheets for each trench, which recorded the orientation, length, and depth of each trench, and described the nature of the topsoil, subsoil (where applicable), and geological deposits. Where archaeological features were identified, the features and deposits were recorded using *pro forma* context sheets based on those designed by MoLAS and English Heritage's Centre for Archaeology (CFA). A full textual, drawn, and photographic record was maintained for all deposits and features.

2.6 PALAEOENVIRONMENTAL SAMPLES

2.6.1 A single 8 litre environmental bulk sample was taken during the archaeological excavation of the wall within Trench B at Site 33, for the assessment of charred plant remains and the recovery of material suitable for radiocarbon dating. The sample was taken from a possible buried topsoil (2) beneath wall 1 in Trench 8/B.

2.6.2 The sample was hand-floated, the flots were collected on 250 micron mesh and air-dried. The flots were scanned with a Leitz/Wild stereo binocular microscope and plant material was recorded and provisionally identified. The data are shown on Table 1. Botanical nomenclature follows Stace (1991). Plant remains were 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). The components of the matrix were also noted.

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 current IFA and English Heritage guidelines (English Heritage 1991). The paper and digital archive will be deposited with the Cumbria County Record Office (Carlisle). A copy of the report will be deposited with the Cumbria SMR in Kendal.
- 2.7.2 The Arts and Humanities Data Service (AHDS) online database *Online Access to index of Archaeological Investigations* (OASIS) will be completed as part of the archiving phase of the project.

3. EVALUATION RESULTS

3.1 INTRODUCTION

- 3.1.1 The pipeline route formed two distinct sections: the first section ran west to east, and extended from the eastern access road to Penruddock, along the line of a lane, which originally formed the western approach to the village before the construction of the dual carriageway. This section then followed the northern side of the A66 dual carriageway to Highgate Farm (Trenches 1-11). The trenches along this first section targeted three sites (Sites **31**, **32**, and **33**). Sites **34** to **37** were also targeted, but the evaluation trenches did not extend beyond the limitations of the easement. The entire section is shown graphically as Figure 2. The second section ran south of the village of Dacre, crossing Dacre Beck and followed the minor road from Dacre to its intersection with the A592. The pipeline route then followed the A592 for a short distance before turning south-eastwards, crossing the river Eamont and passing Barton Hall Farm to join the A5320 (Trenches 12-16). The trenches in this section targeted two sites likely to be affected (Sites **6** and **13**). The trench locations along this section are shown graphically as Figure 3.
- 3.1.2 The dimensions of all trenches measured 25m by 1.6m and were generally aligned east/west. None of the trenches produced any archaeological artefacts, and the only significant archaeology observed was within Trench 8.

3.2 TRIAL TRENCHES

- 3.2.1 **Trench 1:** this was located east of a 19th century kiln (Site **37**). The trench was excavated to a maximum depth of 1m exposing natural clay. The natural was observed within the eastern half of the trench, comprising reddish-brown boulder clay containing occasional limestone boulders. A deposit of limestone rubble up to 0.7m thick obscured the natural in the western half of the trench. A 0.3m deep sondage was machined through this deposit and exposed the natural boulder clay below.
- 3.2.2 Sealing the natural was 0.1m thick deposit of reddish-brown sandy-clay subsoil. The subsoil in turn was overlain by a 0.3m thick deposit of topsoil comprising mid-grey/brown sandy-clay. Both deposits contained abundant limestone rubble inclusions.
- 3.2.3 The limestone inclusions probably derived from a dump of quarried limestone in the field. This dump was probably associated with the kiln site in the adjacent field.
- 3.2.4 **Trench 2:** natural boulder clay with outcrops of limestone was encountered at a depth of 0.5m below the turf. The natural was sealed by identical deposits to those encountered in Trench 1, with little variation.
- 3.2.5 **Trenches 3 and 4:** both trenches yielded similar glacial subsoils and topsoil deposits to those encountered in Trenches 1 and 2. Variations to the geology

- included limestone outcrops exposed at a depth of 0.35m above natural clay, seemingly representing a natural ridge in the landscape. The natural boulder clay gradually coloured to a pinkish/yellow along the east edge of Trench 4.
- 3.2.6 The land to the south of Trenches 2, 3, and 4, was known to have been used for quarrying limestone in the post-medieval period (Sites 35 and 36, OA North 2004a). The relatively shallow depth of the outcrops of limestone encountered in the trenches suggests why this particular area was targeted.
- 3.2.7 **Trenches 5 and 6:** the trenches were located in close proximity to a 19th century lime kiln and quarry (Site 34). Both trenches were excavated to a maximum depth of 0.4m. The natural clay in both trenches was obscured by substantial deposits of limestone rubble (Plate 1), which could not be excavated due to its firm compaction. The rubble was also identified within a mound comprising a dump of quarried limestone; this seemingly ran across the bottom of both fields and through the field boundary wall (Plate 2). The limestone probably related to the adjacent limekiln (Plate 3).
- 3.2.8 **Trench 7:** the trench was excavated to a maximum depth of 0.3m and was situated adjacent to a large limestone outcrop. Patches of disturbed natural clay sealed fractured limestone rubble. This disturbance was sealed by 0.3m of thick reddish-brown sandy-clay subsoil, containing frequent loose rock fragments. None of the rocks appeared to be worked.
- 3.2.9 **Trench 8:** the trench was excavated to a maximum depth of 0.5m. The position and alignment of the trench allowed the examination of a linear earth-fast wall that was probably associated with a clearance cairn or walled enclosure (Site 33).
- 3.2.10 The wall was observed extending from the A66 northwards for 16.5m, before turning westwards for 35m. Remnants of the wall within the trench measured 1.6m in length by 0.8m in width and survived to a height of 0.25m. The construction of the wall appeared to cut the boulder clay natural (Plate 4). The components of the wall comprised rough limestone blocks, crudely faced on the east and west sides, with a rubble core centre. No artefacts were recovered from the wall, but it was felt it could be of medieval or early post-medieval date, possibly representing an enclosure. The wall was sealed by 0.3m thick deposit of reddish-brown sandy-clay topsoil.
- 3.2.11 The archaeology demonstrated that considerable remains of a possible medieval wall survived *in situ*. These remains were considered worthy of further investigation and detailed recording in advance of their destruction (see Section 4.2 below).
- 3.2.12 **Trench 9:** this trench was positioned close to a sheepfold and guidepost (Site 32) and was excavated to a maximum depth of 0.7m. A north/south-aligned raised bank was observed across the central part of the trench, resembling a remnant of an old hedge line. The bank comprised orange/brown sandy-clay subsoil along the base, sealed by mid-brown sandy-clay topsoil which measured 0.4m in thickness. The thickness of the topsoil in the middle of the bank was probably caused by accumulation as a result of continual ploughing.

It was not possible to determine whether or not the bank was contemporary with the sheep fold.

- 3.2.13 **Trenches 10:** this trench was positioned within a field, which was thought to have contained ridge and furrow of possible medieval origin (Site 31). The trench was excavated to a maximum depth of 0.25m. No evidence of agricultural activity was encountered, although further evidence of limestone outcrops and fractured limestone rubble overlain by patches of brownish-red boulder clay were observed. The outcrops were sealed by thin deposits of topsoil.
- 3.2.14 **Trench 11:** this trench was excavated to a maximum depth of 0.35m. The natural clay and topsoil were the same as the deposits encountered in Trench 10.
- 3.2.15 **Trench 12:** this trench was positioned in close proximity to the site of two post-medieval buildings within Dacre Park (Site 13). The trench was excavated to a maximum depth of 0.4m. A pinkish-yellow boulder clay natural, with outcrops of limestone, was encountered at the south-eastern end of the trench. The remainder of the trench comprised a mixture of cobbles and small pebbles, and clay alluvial deposits exposed at the same depth.
- 3.2.16 **Trench 13:** this trench was excavated to a maximum depth of 0.4m. Orange/brown pebbly boulder clay natural was exposed throughout the trench and sealed by subsoil and topsoil deposits.
- 3.2.17 **Trench 14:** this trench was located in close proximity to two gateposts (Site 06), which probably represented the entrance into the field. The trench was aligned north-west/south-east, on sloping terrain falling away north-westwards. The trench was excavated to a maximum depth of 0.35m and contained identical deposits to those exposed in Trench 13.
- 3.2.18 **Trench 15:** this trench was aligned north-west/south-east and was excavated to a maximum depth of 0.30m. Orange/brown pebbly boulder clay natural was exposed throughout the trench and sealed by subsoil and topsoil deposits.
- 3.2.19 **Trench 16:** this trench was located in the field to the west of Barton Hall Farm. At the request of the farmer, the trench was shortened and moved, due to concern of crop damage and impact on services. The trench was excavated to a maximum depth of 0.30m and contained similar deposits to those encountered in Trench 15.

4. EXCAVATION RESULTS

4.1 INTRODUCTION

4.1.1 As a result of the findings within evaluation Trench 8 (*Section 3.2.9*), and following discussions with the LDNPA Archaeologist, two further trenches (Trenches A and B) were excavated across the area of Site 33 (Fig 5). Both trenches were excavated to a maximum depth of 0.8m and measured a total of 30m. No dating evidence was produced from either trench.

4.2 EXCAVATION TRENCHES

4.2.1 **Trench A:** natural clay (5) was observed at a depth of 0.8m below the turf ground surface. This comprised sticky and firm boulder clay running beneath the base of a wall (7, Plate 5). The remains of the wall, 07, were represented by an alignment of loose, random angular and sub-angular pieces of sandstone observed slumping to the south (Plate 6). The wall had a maximum width of 1m and depth of 0.3m.

4.2.2 The wall was sealed by 0.65m thick deposit of reddish-brown silty-clay topsoil (6). The deposit bore few inclusions, with the exception of sub-rounded and angular stones that represented <10% of the overall deposit. The topsoil had seemingly accumulated over a long period of time, although this could not be proven due to the lack of datable evidence.

4.2.3 Cutting natural clay along the southern edge of the trench was an east/west-aligned ceramic field drain (8) of probable late 19th century date. The drain was probably installed as a response to persistent flooding within the southern edge of the field.

4.2.4 **Trench B:** the dimensions of the original evaluation trench (Trench 8) were widened to 2.7m (Plate 7) in order to gain a profile through the extant remains. Natural light grey clay (3) was exposed at a depth of 0.59m below the turf.

4.2.5 The clay was sealed by 0.30m thick deposit of topsoil (2) identical in composition to the topsoil in Trench A, except for a thin charcoal-rich lens, which may represent a residue of buried topsoil. This was observed directly below wall (1). The topsoil throughout the rest of the trench had a much more damp texture, perhaps reflecting a degree of water retention at this end of the field.

4.2.6 Wall 1 (Fig 4) was observed aligned across the central part of the trench on a north/south alignment, and encountered immediately below the turf line. The dimensions of the wall measured 1m wide and survived to a height of 0.3m. It comprised a dry-stone construction of faced, roughly-hewn rectangular blocks measuring an average of 0.35m by 0.20m by 0.15m (Plate 8). The core of the wall was filled with angular rocks similar to those encountered in Trench A. It is likely that much of the upper courses of the wall had been lost as a result of continual ploughing activity. The function of the wall could not be determined, although it almost certainly represented the remains of an enclosure or field

boundary, probably used subsequently as a sheep fold during the 19th and 20th centuries.

- 4.2.7 Cutting the clay along the western edge of the trench, were the remains of a 0.3m wide stone-filled drain (4). The east/west-aligned drain was encountered at a depth of 0.2m below the turf and was positioned 2m west of wall 1. It was observed for a distance of 1m before returning sharply to the north for a further 2m. The drain was probably installed during the same time as drain 8 in Trench A in order to reduce flooding in the field.

5. WATCHING BRIEF RESULTS

5.1 INTRODUCTION

5.1.1 A watching brief was maintained along a 350m strip of gently sloping pasture land, adjacent to Highgate Farm, Penrith (Fig 7), which is located close to a Romano-British field system (Site 27, OA North 2004a). The watching brief was undertaken prior to the proposed creation of an access track, running from the A66 to a reservoir, east of the farm.

5.2 RESULTS

5.2.1 A 2.5m wide strip of topsoil was removed down to a maximum depth of 0.25m (Plate 9). Underneath the topsoil the natural bedrock was visible at a depth of between 0.1m and 0.2m from ground level. Although the access track was located in close vicinity to Site 27, no features of archaeological interest were observed.

5.2.2 In addition to the watching brief, a visual inspection was maintained along the easement following topsoil stripping activities. No features of archaeological interest were observed.

6. PALAEOENVIRONMENTAL RESULTS

6.1 RESULTS OF ASSESSMENT OF CHARRED PLANT REMAINS

- 6.1.1 The results of the assessment for charred plant remains are shown in Table 1 below. There were very few charred plant remains recorded in the flot. Abundant small fragments of charcoal (less than 2mm) and occasional pieces of oat (*Avena*) awns, (the thin hairs found on ears of oats), were recorded.
- 6.1.2 The flot also contained some waterlogged plant remains including seeds of rushes (*Juncus*) and buttercup (*Ranunculus repens*-type). Modern roots, insect remains and grains of sand were also recorded in the sample.

6.2 DISCUSSION AND POTENTIAL

- 6.2.1 There were very few charred or waterlogged plant remains in the sample from a possible buried soil sample (context 2) beneath wall 1 within Trench 8/B, and no information can be gleaned about the environment or the economy of the site. Although charcoal fragments were abundant these were too small for further analysis. No material suitable for radiocarbon assay was recorded in the sample. There is no potential for environmental analysis of this sample or for dating the feature.

Sample	Context	Sample vol. (litres)	Flot description	Plant remains CPR	Plant remains WPR	Potential
1	2	8	75ml. Charcoal <2mm (4), insect remains, modern roots and sand	<i>Avena</i> (oats) awns (1).	Weed seeds (2) <i>Ranunculus repens</i> -type (buttercups) and <i>Juncus</i> (sedges) seeds	None

Table 1: Assessment of Charred and Waterlogged Plant Remains.

CPR = charred plant remains; WPR = waterlogged plant remains. Plant remains are recorded on a scale of 1-4, where 1 is rare (less than 5 items) and 4 is abundant (more than 100 items).

7. DISCUSSION

7.1 INTRODUCTION

- 7.1.1 The programme of archaeological investigation across the study area demonstrated the existence of two possible phases of activity. In the absence of datable material being retrieved, the phases are based on stratigraphic formations recorded during the archaeological evaluation and excavation. No evidence of prehistoric, or Roman remains was encountered.
- 7.1.2 **Medieval/Post-Medieval:** it is not possible to state with any degree of certainty whether wall (*I*) is of medieval or post-medieval origins. However, there is little question as to its function as a field boundary. Detail captured by the recent Ordnance Survey suggests that a reconfiguration of the landscape took place in the mid 19th century. This is demonstrated by the remains of a field boundary depicted within the north-eastern area of the field, which was subsequently truncated by the 1864 Cockermouth, Keswick and Penrith railway. This field boundary corresponds with excavated wall (*I*).
- 7.1.3 **Post-medieval:** the practise of lime burning to improve acidic soils was common across much of the Lake District during the 17th and 18th centuries (OA North 2004b). The occurrence of lime burning across the study area was represented by the mound seen in the vicinity of Trench 6 near the remains of a lime kiln (Site 29). The mound was probably formed by a dump of quarried fragments intended for the limekiln or from kiln waste.
- 7.1.4 A modified bank recorded in Trench 9, retained the remains of a field boundary, which is thought likely to have early post-medieval origins.

7.2 CONCLUSION

- 7.2.1 There is little evidence to suggest that this land was intensively farmed prior to the 20th century. The distinct lack of artefacts from the soil would suggest that ploughing did not occur on a regular basis in the local area. There is, however, evidence for local industry such as quarrying and lime production. Quarrying seemingly eradicated evidence of a probable Romano-British settlement south-west of Highgate Farm (Site 30, OA North 2004a). The limekilns would appear to have been abandoned during the 20th century and the land returned to predominantly pasture.

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9. ILLUSTRATIONS

9.1 FIGURES

Figure 1: Location map

Figure 2: Trench location plan-Penruddock section

Figure 3: Trench location plan-Dacre section

Figure 4: Plan of Evaluation Trench 8

Figure 5: Plan of wall *I* in Trench B

Figure 6: Section through wall *I* in Trench B

Figure 7: Location of Watching Brief

9.2 PLATES

Plate 1: Limestone rubble in Trench 5, looking west

Plate 2: Mound of limestone near lime kiln (Site 34)

Plate 3: South elevation of lime kiln (Site 34)

Plate 4: Wall *I* in Trench 8, looking west

Plate 5: General view of Trench A, looking south

Plate 6: Residue of wall 1 in Trench A, looking west

Plate 7: General view of Trench B, looking east

Plate 8: General view of wall *I* in Trench B, looking north-east

Plate 9: Topsoil stripping at Highgate Farm Access Track



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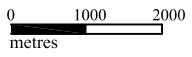
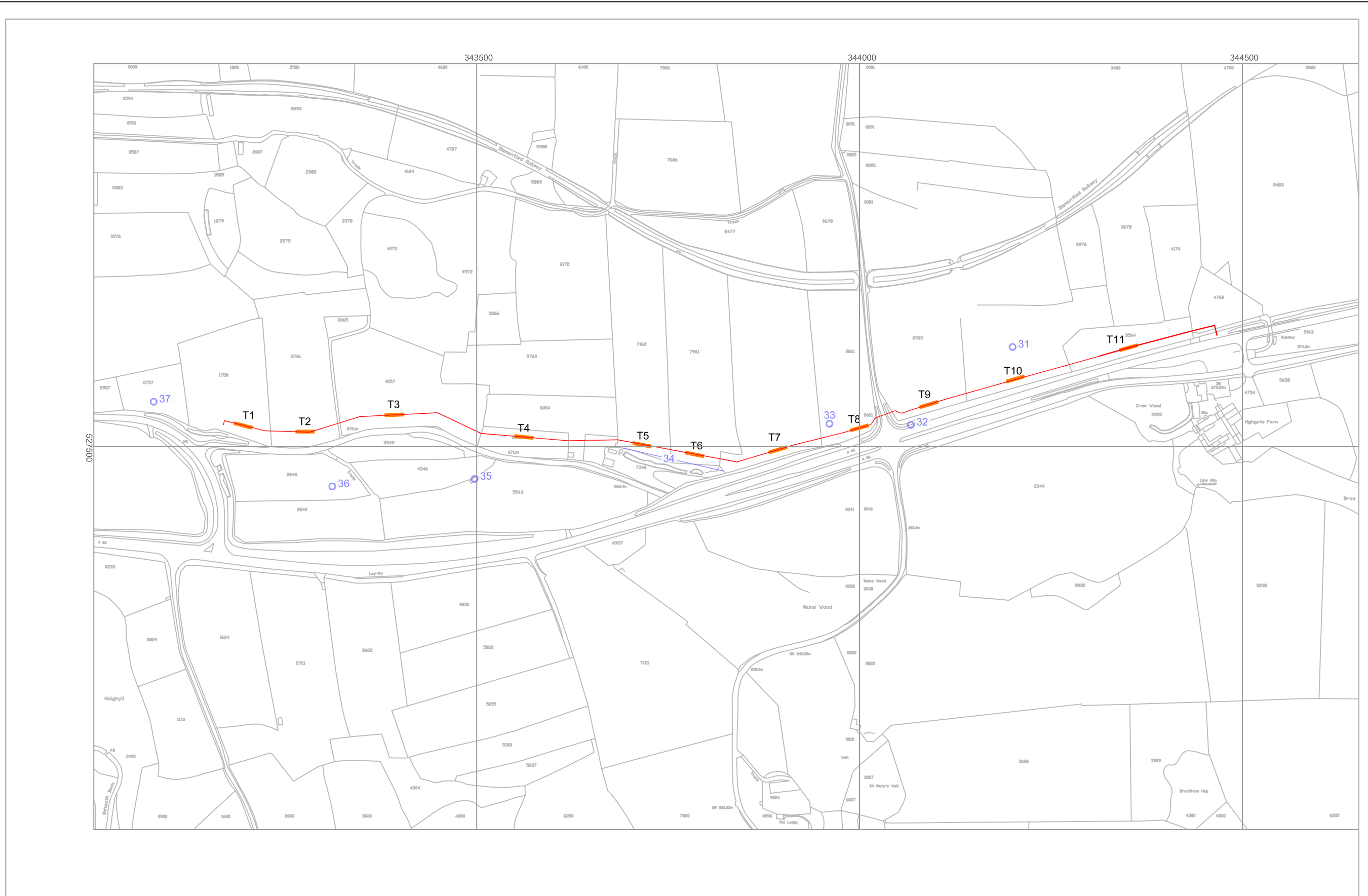


Figure 1: Location Map



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○ 36 Gazetteer sites
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Figure 2 : Evaluation trench location plan - Penruddock section

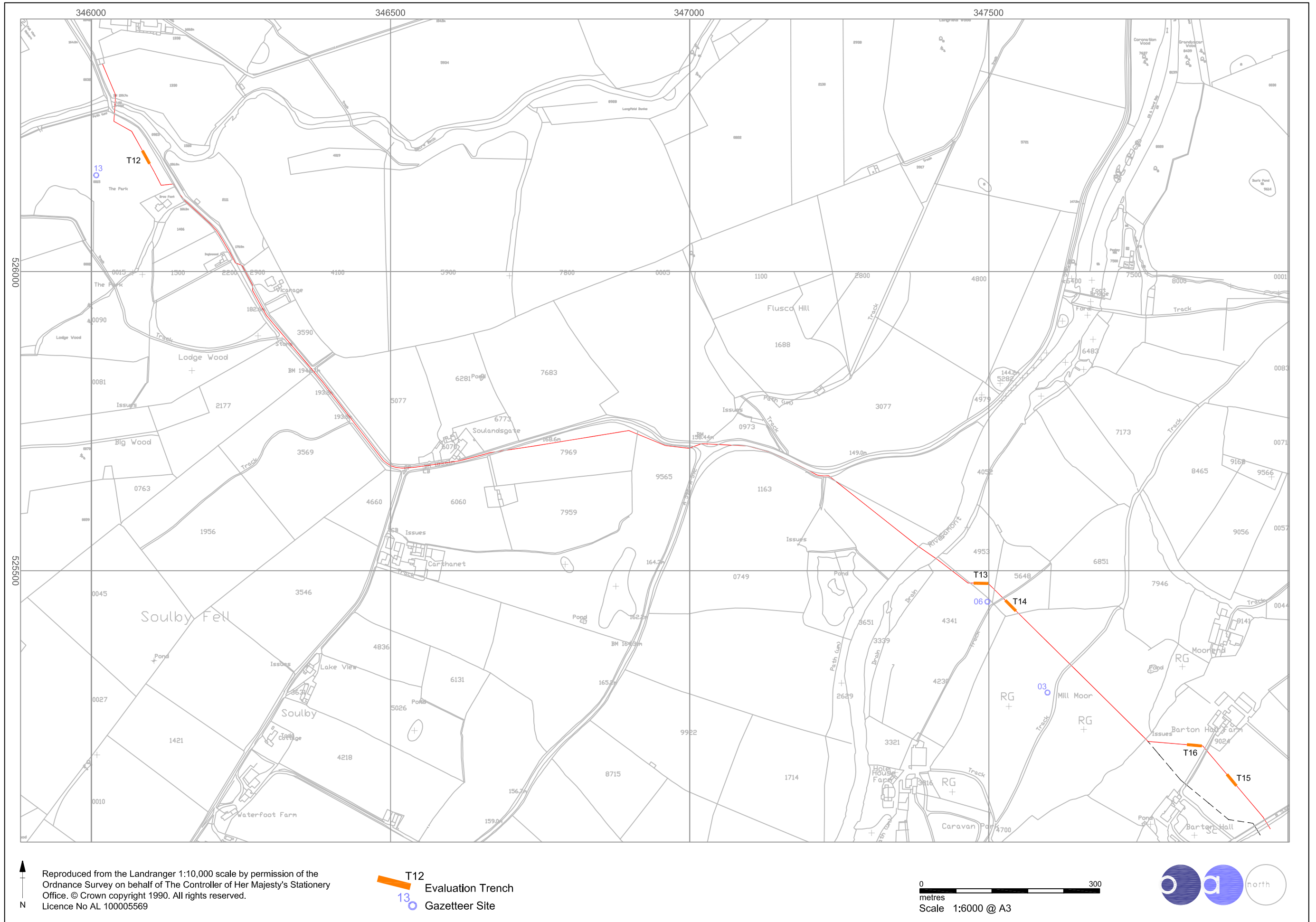


Figure 3 : Evaluation trench location plan - Dacre section

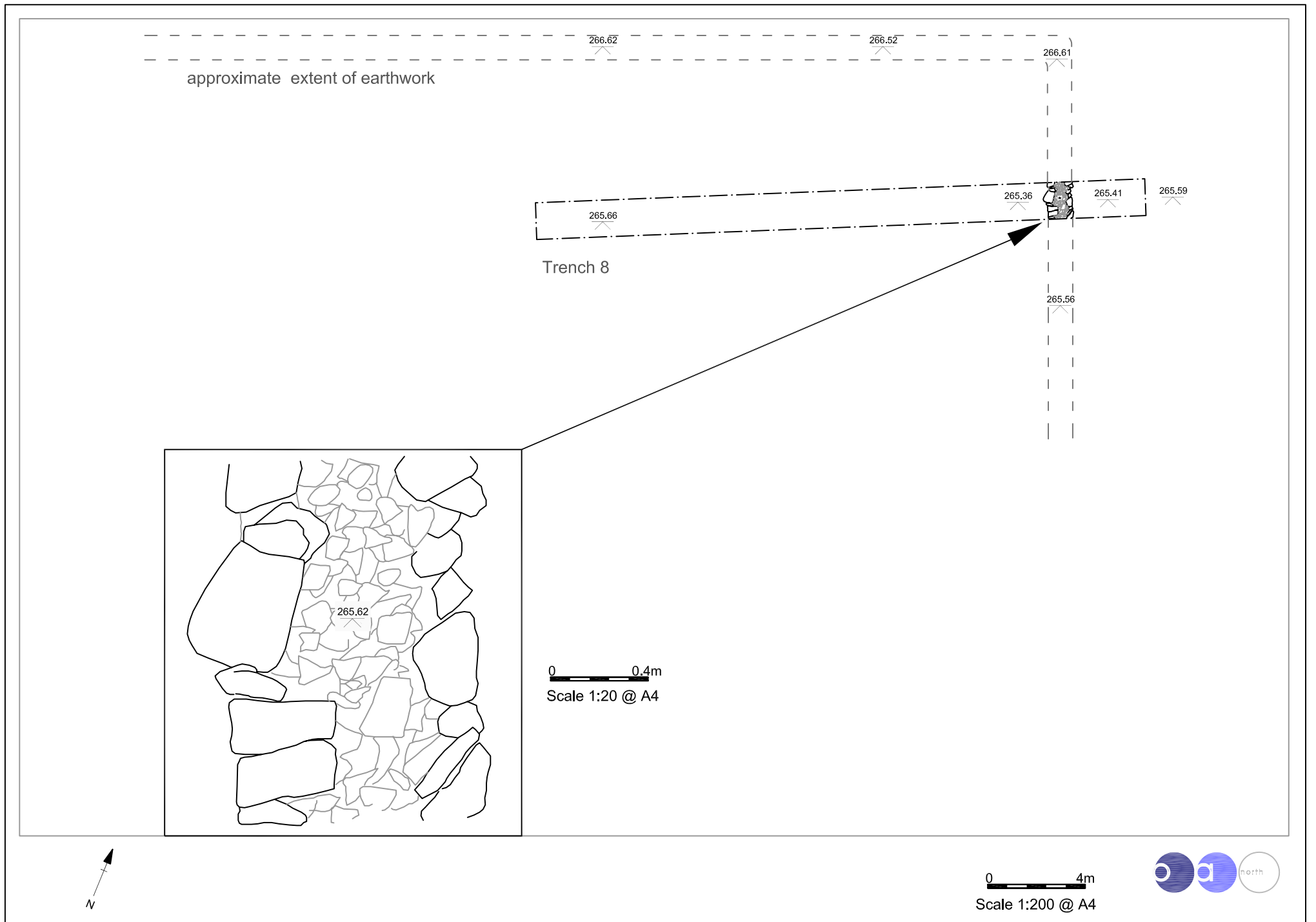


Figure 4 : Plan of Evaluation Trench 8

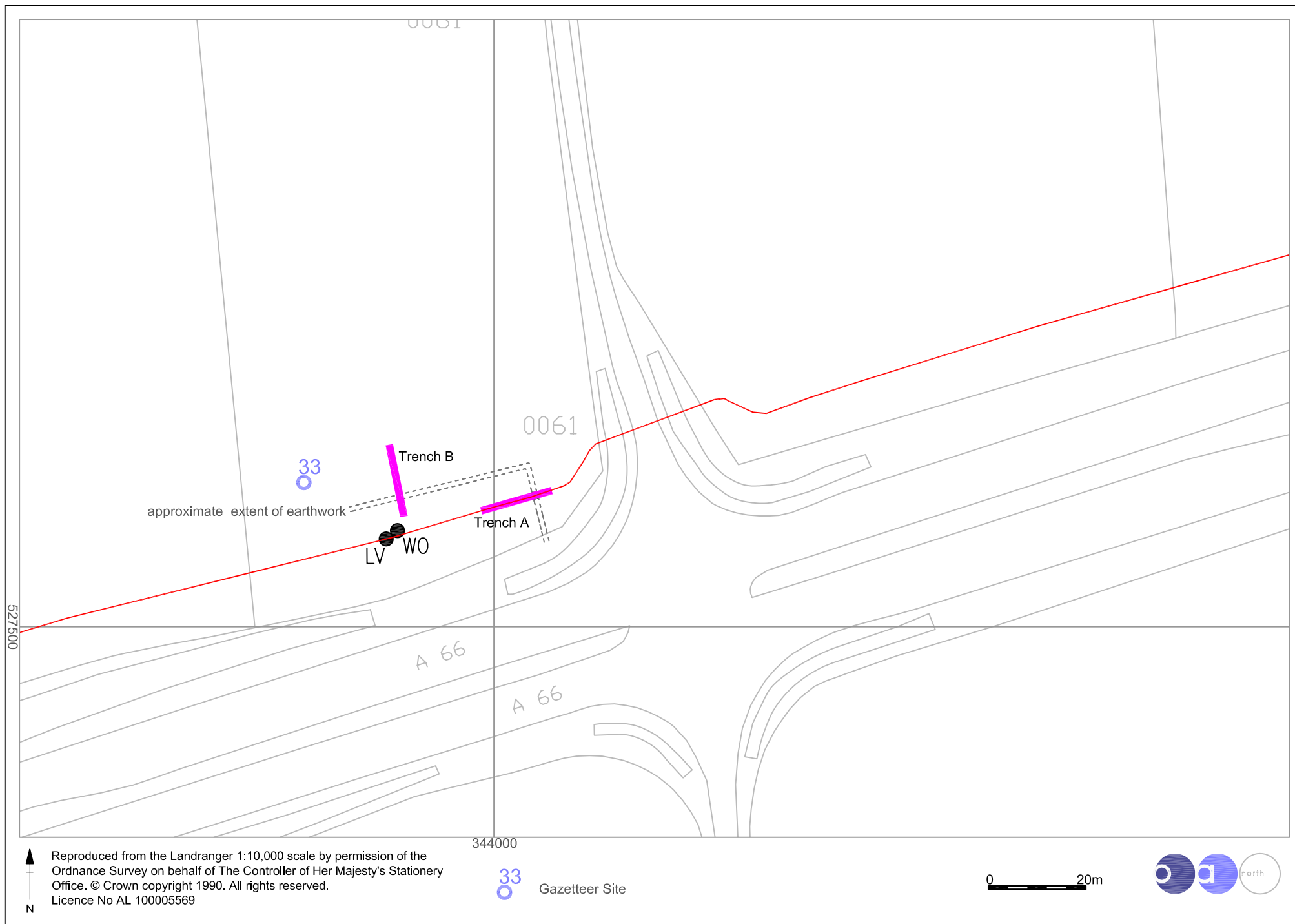


Figure 5 : Location of Excavation Trenches A and B

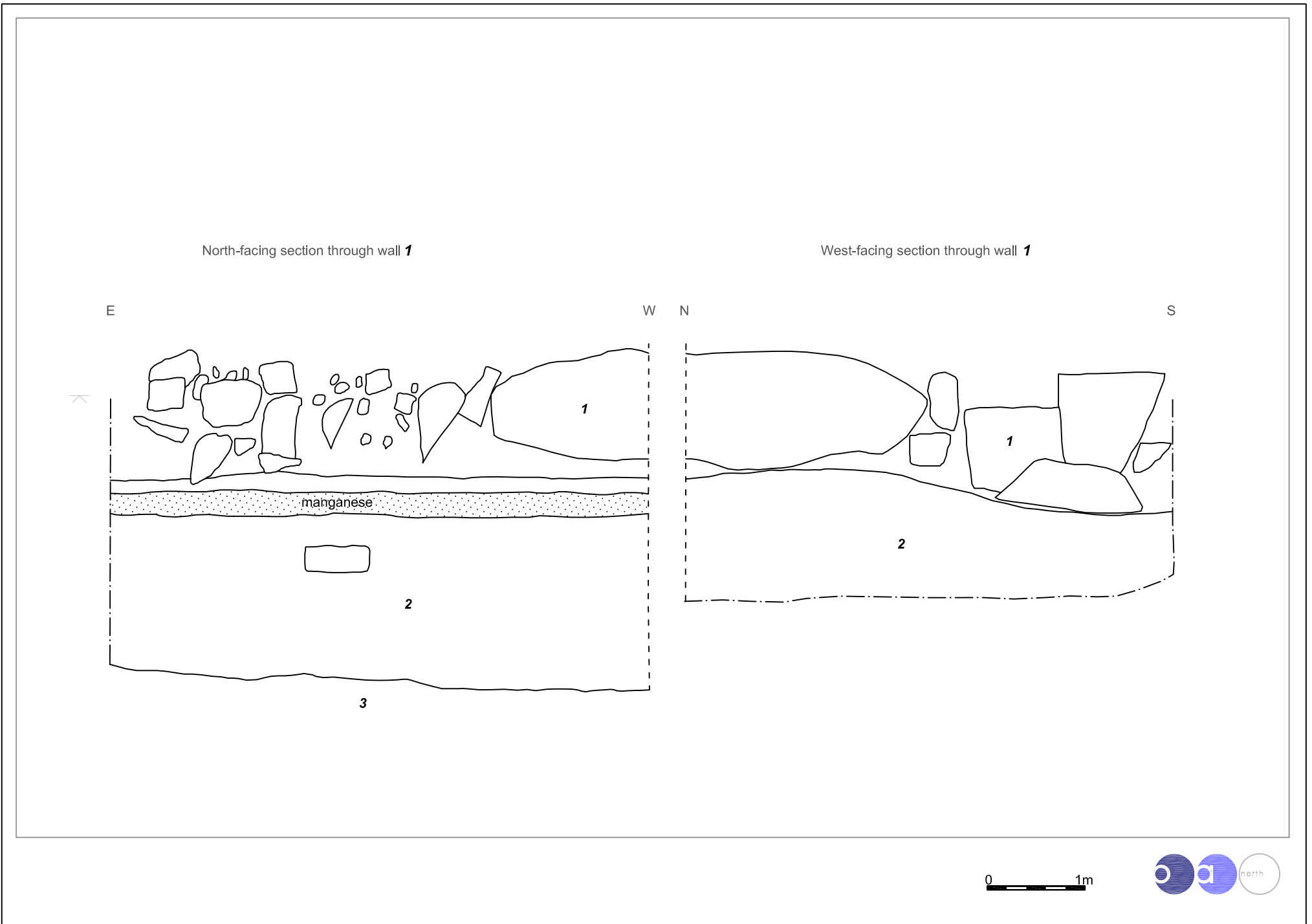
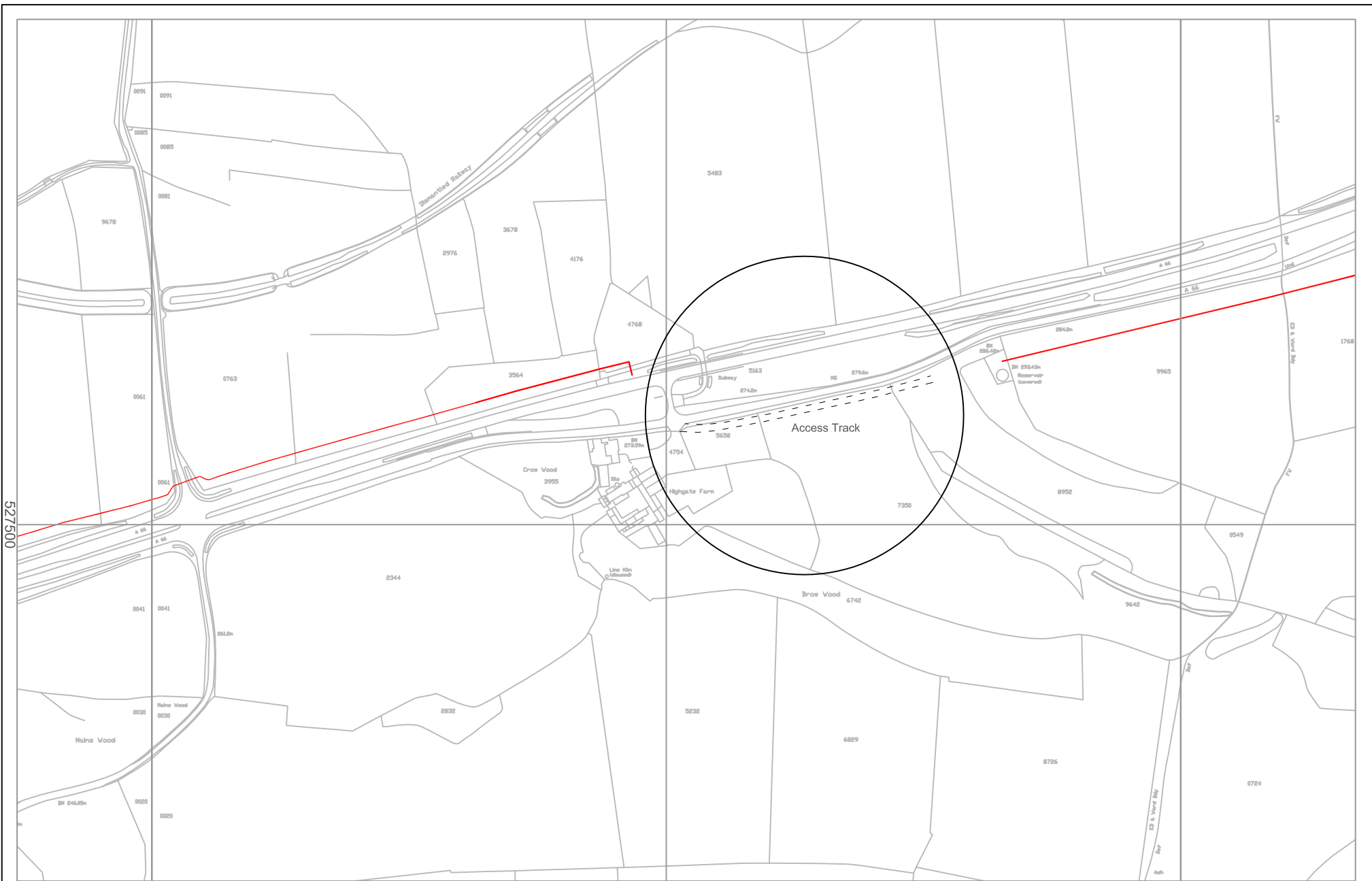


Figure 6: Sections through wall **1** in Excavation Trench B (Evaluation Trench 8)



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Figure 7 : Location of Watching Brief



Plate 1: Limestone rubble in Trench 5, looking west



Plate 2: Mound of limestone near lime kiln (Site 34)



Plate 3: South elevation of lime kiln (Site 34)

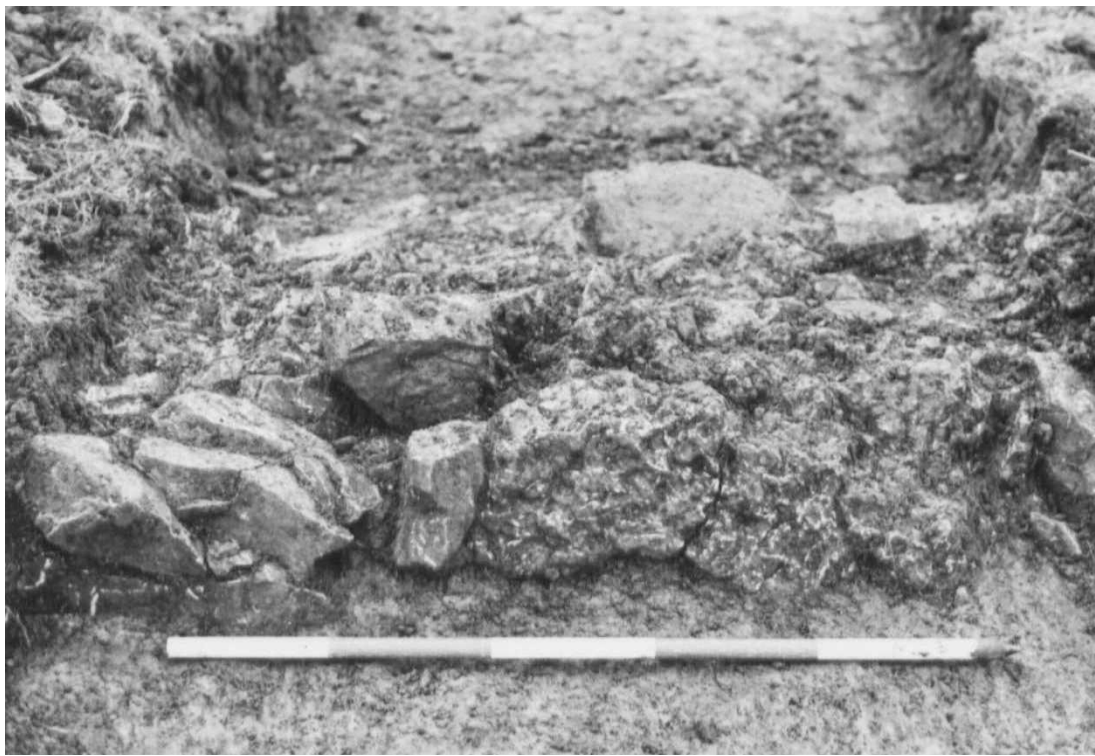


Plate 4: Wall 1 in Trench 8, looking west



Plate 5: General view of Trench A, looking south



Plate 6: Residue of wall *I* in Trench A, looking west



Plate 7: General view of Trench B, looking east



Plate 8: General view of wall *I* in Trench B, looking north-east



Plate 9: Topsoil stripping at Highgate Farm Access Track

APPENDIX 1: PROJECT DESIGN

1. INTRODUCTION

- 1.1 United Utilities (hereafter the client) propose to undertake the construction of a new pipeline from Pooley Bridge to Penruddock, Cumbria. The site lies within the Lake District National Park, in an area of undisturbed ground.
- 1.2 As a result the LDNPA Archaeologist has issued a brief for a desk-based assessment, walkover survey and evaluation to be undertaken for the proposed development. The following document represents a project design for this task.
- 1.3 Oxford Archaeology North (OA North) has considerable experience of the assessment and excavation of sites of all periods, having undertaken a great number of small and large scale projects during the past 20 years. Evaluations and assessment have taken place within the planning process, to fulfil the requirements of clients and planning authorities, to very rigorous timetables. OA North has the professional expertise and resources to undertake the project detailed below to a high level of quality and efficiency.
- 1.4 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 to provide an accurate archaeological assessment of the designated area within its broader context. The required stages to achieve these ends are as follows:
- 2.2 ***Desk-Based Assessment***
The first stage will involve a desk-based assessment of a 0.5km study area centred on the route of the pipeline.
- 2.3 ***Walkover Survey***
The second stage will be the undertaking of a walkover survey of all parts of the route that are not within the existing highway.
- 2.4 ***Evaluation***
A programme of trial trenching will be undertaken for the off road sections of the pipeline.
- 2.5 ***Assessment Report***
A written assessment report will assess the significance of the data generated by this programme within a local and regional context. The report will appraise the archaeological impact of the development proposal.

3. METHODS STATEMENT

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

3.2 DESK-BASED ASSESSMENT

- 3.2.1 The following outline assessment will be undertaken as appropriate, depending on the availability of source material.
- 3.2.2 **Documentary and cartographic Material:** this will rapidly appraise the data in the LDNPA Historic Environment Record (HER). Cartographic sources held in the Kendal Record office will also be consulted. Early maps (printed and manuscript), and such primary documentation (tithe and estate plans etc.) as may be reasonably available will be inspected. Particular attention will be paid to field and place names recorded on early cartographic sources relating to estate and parish boundaries, field boundaries, woodlands and routes, as these often provide important evidence of archaeological activity and transformation of the historic landscape. All available published and unpublished documentary sources will also be examined and assessed. The relevant local studies library will be consulted as appropriate.
- 3.2.3 **Aerial Photography:** any relevant photographic material held by the LDNPA will be studied. This may indicate the range and survival of archaeological and structural features in the designated area no longer visible at ground level.
- 3.2.4 **Physical Environment:** a rapid desk-based compilation of geological (both solid and drift), pedological, topographical and palaeoenvironmental information 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 visit. Any engineering and/or borehole data relating to the site will also be examined.

3.3 WALKOVER SURVEY

- 3.3.1 Following the desk-based assessment a level I walkover survey (*Appendix 1*) will be undertaken to relate the existing landscape to research findings. This will encompass a one hundred metre corridor along either side of the pipeline, walked in a systematic fashion. Archaeological features identified within the landscape will be recorded using the relevant OA North pro forma, and the features accurately positioned with the use of either a GPS, which can achieve accuracies of $\pm 0.1\text{m}$ with respect to the OS national grid, or by manual survey techniques which will tie in new features to features already shown on the relevant OS map.

3.4 EVALUATION

- 3.4.1 The programme of evaluation will require trenching to 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 this way, it will adequately sample the threatened available area
- 3.4.2 The evaluation is required to evaluate a minimum of 5% of the off-road sections of the easement for the pipeline. This is likely to take the form of

twenty linear trenches 25m x 1.6m or the equivalent, dependent upon the topographical conditions and the results of the desk-based assessment and walkover survey.

- 3.4.3 The topsoil will be removed by machine (fitted with a toothless ditching bucket, approximately 1.6m in width) under archaeological supervision to the surface of the first significant archaeological deposit. This deposit will be cleaned by hand, using either hoes, shovel scraping, and/or trowels depending on the subsoil conditions, and inspected for archaeological features. All features of archaeological interest must be investigated and recorded unless otherwise agreed by the County Archaeology Service. 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.
- 3.4.4 All trenches will be excavated in a stratigraphical manner, whether by machine or by hand. Any investigation of intact archaeological deposits will be exclusively manual. A minimum sample of 50% of archaeological features must be examined by excavation. Selected pits and postholes will normally only be half-sectioned, linear features will be subject to no less than a 25% sample, and extensive layers will, where possible, be sampled by partial rather than complete removal. It is hoped that in terms of the vertical stratigraphy, maximum information retrieval will be achieved through the examination of sections of cut features. All excavation, whether by machine or by hand, will be undertaken with a view to avoiding damage to any archaeological features, which appear worthy of preservation *in situ*.
- 3.4.5 **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 evaluation 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 Archaeologist and the Client.
- 3.4.6 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.
- 3.4.7 **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. LDNPA Archaeologist 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.

- 3.4.8 **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.
- 3.4.9 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). Levels will be tied into the Ordnance Datum. 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.
- 3.4.10 **Treatment of finds:** all finds will be exposed, lifted, cleaned, conserved, marked, bagged and boxed in accordance with the United Kingdom Institute for Conservation (UKIC) *First Aid For Finds*, 1998 (new edition) and the recipient museum's guidelines.
- 3.4.11 **Treasure:** any gold and silver artefacts recovered during the course of the excavation will be removed to a safe place and reported to the local Coroner according to the procedures relating to the Treasure Act, 1996. Where removal cannot take place on the same working day as discovery, suitable security will be employed to protect the finds from theft.
- 3.4.12 All identified finds and artefacts will be retained, although certain classes of building material can sometimes be discarded after recording if an appropriate sample is retained on advice from the recipient museum's archive curator.
- 3.4.13 **Contingency plan:** in the event of significant archaeological features being encountered during the evaluation, discussions will take place with the Archaeological Officer, as to the extent of further works to be carried out, and in agreement with the Client. All further works would be subject to a variation to this project design. In addition, a contingency costing may also be employed for unseen delays caused by prolonged periods of bad weather, vandalism, discovery of unforeseen complex deposits and/or artefacts which require specialist removal, use of shoring to excavate important features close to the excavation sections etc. This has been included in the costing and would be in agreement with the client.

3.5 ASSESSMENT REPORT

- 3.5.1 **Archive:** the results of Stage 3.2 to 3.4 will form the basis of a full archive to professional standards, in accordance with current English Heritage

guidelines (*Management of Archaeological Projects*, 2nd edition, 1991). The project archive represents the collation and indexing of all the data gathered during the course of the project. The deposition of a properly ordered and indexed project archive in an appropriate repository is considered an essential and integral element of all archaeological projects by the IFA in that organisation's code of conduct.

3.5.2 This archive can be provided in the English Heritage Centre for Archaeology Service format, both as a printed document and on computer disks as ASCII files (as appropriate), and a synthesis (in the form of the index to the archive and the report) will be deposited with the LDNPA (HER) the original record archive of projects (paper, magnetic, and plastic media) with the appropriate County Record Office, and, where appropriate the material archive (artefacts, ecofacts, and samples) with the County Museums Service. In this instance, the record archive will be sent to the LDNPA.

3.5.3 **Collation of data:** the data generated by 3.2 will be collated and analysed in order to provide an assessment of the nature and significance of the known surface and subsurface remains within the designated area. It will also serve as a guide to the archaeological potential of the area to be investigated, and the basis for the formulation of any detailed field programme and associated sampling strategy, should these be required in the future.

3.5.4 **Assessment Report:** two copies of a written synthetic report will be submitted to the Client, and four copies to the LDNPA. The final report will include:

- 1 a concise, non-technical summary of the project results
- 2 an introduction to the circumstances of the project and the aims and objectives of the study
- 3 a summary of the methodology and an indication of any departure from the agreed project design
- 4 a copy of the agreed project design
- 5 an outline of past and present land-use
- 6 a summary of the archaeological/historical background
- 7 a plan and gazetteer of areas of known or potential archaeological significance within the study area
- 8 an assessment of the likely archaeological implications of the proposed development
- 9 appropriate figures and plates
- 10 a full list of references to and bibliography of primary and secondary sources consulted and a list of any further sources identified but not consulted
- 11 an index of the project archive.

3.5.5 The report will be in the same basic format as this project design; a copy of the report can be provided on CDROM.

3.5.6 **Proposals:** recommendations for any further evaluation of the identified archaeological resource will, if required, be presented in the report.

- 3.5.7 **Confidentiality:** the assessment report is designed as a document for the specific use of the client, for the particular purpose as defined in the project brief and 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 brief and project design, or for any other explicit purpose, can be fulfilled, but will require separate discussion and funding.
- 3.5.8 **Publication:** a summary report will be submitted to a suitable regional or national archaeological journal within twelve months of completion of the fieldwork.

4. OUTLINE RESOURCES

- 4.1 The project will be under the management of **Alison Plummer** (OA North Senior Project Manager) to whom all correspondence should be addressed.
- 4.2 Present timetabling constraints preclude detailing exactly who will be carrying out the fieldwork, 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.

5. PROJECT MONITORING

- 5.1 The project will be monitored by the LDNPA Archaeologist, or his representative.

APPENDIX 2: CONTEXT LIST

Context	Trench	Description
01	8 and B	Limestone wall (?Medieval/Post-Medieval)
02	8 and B	Buried topsoil
03	B	Natural clay
04	B	Drain across the west edge of the trench
05	A	Natural clay
06	A	Topsoil
08	A	Field drain cutting the edge of the trench
07	A	Limestone wall (?Medieval/Post-Medieval)