

# Aberford to Pannal Pipeline

North and West  
Yorkshire

## Archaeological Excavation, Evaluation and Watching Brief - Post - Excavation Assessment



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## SUMMARY

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Reinforcement of the National Transmission System for natural gas required the installation of a pipeline from Asselby (NGR 469959 427294, *ie* SE 699 272) to Pannal (NGR 425260 450602, *ie* SE 252 506) in North Yorkshire. In its design stage, the pipeline was treated as a single entity; consequently, all early archaeological investigations reference the 'Asselby to Pannal pipeline'. The construction stage contract was subsequently let in two halves, however, with the division occurring at the 35km mark, near Aberford in West Yorkshire. Laing O'Rourke was awarded the contract for the construction of the eastern half of the pipeline, which came to be known as the 'Asselby to Aberford pipeline' (see OA North 2010), while Murphy Pipelines Ltd constructed the western half, the 'Aberford to Pannal pipeline'. The results of the archaeological works undertaken along the line of the Aberford to Pannal pipeline form the focus of this report.

Installation of the Asselby to Pannal Pipeline was preceded by below-ground archaeological investigation, which in turn drew on the results of desk-based research and field survey. The investigation, by Oxford Archaeology North (OA North), was organised in a carefully managed sequence. The first stage, the Phase 1 Evaluation trenching, in the summer of 2007, allowed refinement of the areas to be targeted, and was succeeded by the Phase 2 Evaluation trenching of February–April 2008, the area excavation of specific sites, during the period November 2007–May 2008, and a Watching Brief over the course of September 2007–July 2008.

The results of the Phase 2 Evaluation, area excavations and Watching Brief are presented here. The eight area excavations were undertaken where the Phase 1 Evaluation had suggested significant concentrations of archaeological remains, while watching briefs were recommended on the basis of both the desk-based studies and the results of evaluation and excavation. The Phase 2 Evaluation comprised 39 trenches spread throughout the length of the pipeline, although the majority lay at the eastern end, towards Aberford. There were five area excavations. Assessment of the results from these below-ground investigations has suggested that there would be a beneficial return from post-excavation analysis of all the area excavations, together with two of the locations investigated during the Evaluation. These are presented in the main body of the report, while the remainder of the below-ground investigations appears in two appendices, covering the Phase 2 Evaluation and the Watching Brief.

The results reveal that the Aberford to Pannal Pipeline traverses a landscape with extensive, extant, archaeological remains, dating from the early prehistoric period through to the early post-Roman period. Stratigraphical and artefactual evidence have been recovered for field systems, and enclosures for habitation and its associated activities. Earlier, prehistoric remains were also encountered, including a roundhouse, and other, more enigmatic features, along with remains representing the medieval and post-medieval organisation of the agricultural landscape.

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The Excavation was undertaken by Paul Clark, Marc Storey, Caroline Bulcock, Andrew Frudd, Dave Bonner, Clare Burke, Ged Callaghan, Liz Collinson, Martyn Cooper, Paul Dunn, Vicky Fackrell, Fiona Gordon, John Griffiths, Sam Grimmer, Annie Hamilton Gibney, Nate Jepson, Gemma Jones, Dave Maron, Sam Oates, Aidan Parker, Kieran Power, Rebekah Pressler, Jennifer Salter, Rachel Stebbings, Steve Tamberello, Stuart Thomas, Julian Thorley, Becky Wegiel and Matthew Weightman. The Evaluation staff were Jeremy Bradley, Andrew Frudd, Vickie Jamieson, Gemma Jones, Jennifer Salter and Matthew Weightman. The Watching Brief was undertaken by Dave Bonner, Liz Collison, Fiona Gordon, Sam Grimmer, Anthony Haskins, Christina Robinson, Rachel Stebbings, Julian Thorley, Becky Wegiel and Matthew Weightman.

The palaeoenvironmental samples from all the archaeological work were processed and assessed by Sandra Bonsall, Denise Druce, Rachel Fosberry and Elizabeth Huckerby. The flint was examined by Caroline Bulcock, the prehistoric pottery by Chris Cumberpatch, the Romano-British pottery by Ruth Leary, the medieval and post-medieval pottery by Jane Young, the human bone by John Griffiths, the animal bone by Andy Bates, and the remainder of the finds by Chris Howard-Davis. This report was written by Christina Robinson, illustrated by Anne Stewardson, and edited by Nick Johnson and Fraser Brown, who managed the project.

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# 1 INTRODUCTION

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## 1.1 STRUCTURE OF THIS REPORT

- 1.1.1 This report has been organised to reflect a division between those aspects of the project where additional work has been recommended, and the remainder where the assessment marks a conclusion to investigation and reporting. The main body of the report, therefore, details the results from the most significant excavation sites and the assemblages of finds, and provides recommendations for post-excavation analysis. Work on the Watching Brief and the majority of the Phase 2 Evaluation trenches is complete at this stage, and the results are reported in two appendices.

## 1.2 CIRCUMSTANCES OF THE PROJECT

- 1.2.1 Forecasted increases in natural gas imports entering the UK via Easington, on the north-east coast of England, led National Grid to conclude that reinforcement of its National Transmission System would be required. National Grid was granted permission by the Department of Trade and Industry to construct a new 1220mm (48") diameter pipeline for the transportation of natural gas between existing Above Ground Installations (AGIs) at Asselby in the East Riding of Yorkshire (NGR 469959 427294; SE 9959 27294) and near Pannal in North Yorkshire (NGR 425260 450602; SE 25260 50602). During the design stage of the project, the pipeline was treated as a single entity, the 'Asselby to Pannal pipeline'. Thereafter, to ensure that the 62km-long pipeline could be built in one construction season, it was divided into two discrete pipeline projects, with the split occurring at the 35km mark, on high ground overlooking the Cock Beck to the east of Aberford. Laing O'Rourke was awarded the contract to construct the eastern half of the pipeline, which came to be known as the 'Asselby to Aberford pipeline' (see OA North 2010), and the pipeline's western half (the 'Aberford to Pannal pipeline') was built by Murphy Pipelines Ltd.
- 1.2.2 This report presents the results of the archaeological Excavation, Evaluation and Watching Brief undertaken along the line of the Aberford to Pannal Pipeline (Fig 1), over the period 2007–8 by Oxford Archaeology North (OA North). The work was commissioned by the National Grid and Murphy Pipelines Ltd (MPL) to mitigate any adverse effect construction of the pipeline might have on cultural heritage along the route.
- 1.2.3 Previous work on the cultural heritage of the route has included desk-based assessment (NAL 2006a), geophysical survey (Bartlett 2006), field reconnaissance survey (NAL 2006b; 2007a), a review of local sources (NAL 2007b), fieldwalking survey (NAL 2007c; 2007d), topographical survey (NAL 2007e), palaeoenvironmental assessment (Headland Archaeology 2007), the production of a document synthesising the results of these surveys and providing recommendations for mitigation (NAL 2006–7), and Phase 1 of archaeological evaluation trenching (OA North 2007a).

### 1.3 SITE LOCATION, TOPOGRAPHY AND GEOLOGY

- 1.3.1 The Aberford to Pannal Pipeline follows a generally south-east/north-west alignment, commencing near Aberford and ending at Pannal AGI. It passes near the towns and villages of Aberford, Wothersome, Collingham, East Keswick, Kirby Overblow, North Rigton and Briscoerrig (Fig 1).
- 1.3.2 The Aberford to Pannal Pipeline crosses two landscape zones. The pipeline passes through the mildly undulating landscape of the Elmet District to, approximately, the A659 Otley-Tadcaster road. This area, at *c* 70m above sea level, is predominantly under arable agriculture. To the west the altitude of the route gradually increases, passing through a gently undulating zone, characterised by pastoral agriculture and wooded vales. The land then rises rapidly, to around 200m above sea level at Pannal. There the landscape is a typical Pennine upland, characterised by gritstone outcrops, poor drainage and groups of pastoral fields reclaimed from the moorland.
- 1.3.3 Details of the topography, geology, pedology, hydrology and land-use of the route can be found in Section 3 of the *Archaeological Desk-based Assessment* (NAL 2006a). The solid geology along the Aberford to Pannal Pipeline route ranges from Permian Magnesian Limestone to Namurian Millstone Grit and Lower Westphalia productive coal measures. The pipeline crosses three forms of drift geology and 14 soil associations (*ibid*).

### 1.4 PREVIOUS WORK

- 1.4.1 The programme of archaeological works undertaken in conjunction with the construction of the pipeline progressed incrementally in discrete phases, outlined below. The scope of the initial phases encompassed the entire route from Asselby to Pannal, and this is reflected in the outline. For the purposes of clarity and brevity, work previously published elsewhere has not been reproduced in this document. However, reference has been made to earlier survey and mitigation operations, to help place the results of the below-ground archaeological investigations within their broader landscape and research context. The *Recommendations Document* (NAL 2006–7) provides the research framework for this study.
- 1.4.2 **Desk-Based Assessment:** an *Archaeological Desk-Based Assessment* (ADBA) was carried out by Network Archaeology during 2006 (NAL 2006a). Information was collated for a 1km-wide study corridor centred upon the pipeline. Searches of national and county databases identified 477 sites of archaeological importance. The ADBA identified a direct impact upon two statutorily protected sites, both of which are Scheduled Monuments (part of the Aberford Dyke complex; SM 31519 and SM 31520), and uncertain impacts upon two Listed milestones/mileposts. General recommendations were made for a range of field surveys, including field reconnaissance along the entire route, fieldwalking of all arable land, and the appropriate use and deployment of geophysical survey. Specific recommendations were also made, to liaise with English Heritage over the Scheduled Monuments and the Listed features, and to consider widening the field survey corridor across two regionally important sites.
- 1.4.3 **Geophysical Survey:** a geophysical survey was carried out by Bartlett-Clark Consultancy

on behalf of Network Archaeology, in October 2006. A 30m-wide sample strip of ground was surveyed along all accessible areas of the pipeline route, and was supplemented by surveys of seven potential reroutes (Bartlett 2006). Initially, some areas were omitted, because of access restrictions and crops, but most of these were subsequently surveyed (in 2007) and have been reported in two separate *Addenda* (Bartlett 2007a; 2007b). In the central and western part of the pipeline route, the soils were particularly conducive to geophysical survey. The Magnesian Limestone geology in the centre of the route gives rise to strongly magnetic soils, which responded well to magnetometer survey. Numerous archaeological features and other ground disturbances were detected, both there, and on the Millstone Grit at the north-western end of the route. Features detected by the survey included a number of enclosures, some of which may indicate settlement sites; others may form parts of field systems. Various scatters of small magnetic anomalies, which may be of non-anthropogenic origin, were also identified, along with examples of ridge and furrow and former field boundaries.

- 1.4.4 **Field Reconnaissance Survey:** the Field Reconnaissance Survey undertaken in 2006 investigated 272 fields crossed by the pipeline (NAL 2006b). A further 37 fields were not surveyed, because of access restrictions. Most (32) of these fields were then surveyed in 2007, however, and have been reported upon in a separate *Addendum* (NAL 2007a). Thirty-nine of the 165 sites recorded had been documented in the ADBA; these included the Aberford Dykes Scheduled Monuments (SM 31519 and SM 31520). The field survey clarified the extent to which these Scheduled Monuments survived as upstanding earthworks (identified as FSU:66, FSU:68, FSU:69, and FSU:71 in the report). Field observations on three sites classified as locally important in the ADBA led to them being upgraded to regionally important (*ie* Category C), because of their rarity and their good state of preservation. These three sites (FSU:107, FSU:108, FSU:109), which would all be directly affected by the pipeline, lie in a single field, south of the village of Gateforth, North Yorkshire. Potential impact from the pipeline was also identified at a further site (FSU: 156), a stone scatter that possibly represented the bank of the South Dyke of the complex, in the parish of Saxton with Scarthingwell (NAL 2007a). The survey also identified 156 sites of local importance. Of these, 50 were sufficiently distant from the pipeline that they were unlikely to suffer any impact. Of the remaining 106, the potential impacts on all but 13 were judged to be minor.
- 1.4.5 **Review of Local Sources:** a review of local sources (NAL 2007b) was carried out to supplement the ADBA, drawing on additional data sources not available when it was prepared. This identified a further 71 sites of archaeological importance. Potential direct impact on four additional sites of local importance was identified, along with uncertain impact on 16 others. This study also reviewed the sources of evidence relating to the Aberford Dykes, supplying a preliminary archaeological background to help inform a proposed programme of investigation.
- 1.4.6 **Fieldwalking Survey:** just less than 50% of the pipeline was systematically fieldwalked in October 2006 (NAL 2007c). The other half was permanent pasture, set-aside, arable with standing crops or unploughed stubble, and/or fields for which access was not available. Most (47) of the outstanding 62 arable fields were surveyed in 2007 and reported in a separate *Addendum* (NAL 2007d). Several minor concentrations of medieval or early

modern artefacts were identified, but these were considered to be the result of agricultural manuring or plough spread and, therefore, of little archaeological significance. Some 25 pieces of struck flint were recovered, indicating a low level of human activity in the area in prehistoric times. Several pieces of post-medieval kiln furniture were found that may be related to the manufacture of clay tobacco pipes. A possible sherd of Anglo-Saxon pottery was identified and recommended for thin-section analysis. Further analysis of the kiln furniture, along with clay pipe fragments, has been recommended. Otherwise, no significant concentrations of material were found, and no artefacts of intrinsic archaeological importance were identified.

- 1.4.7 **Topographical Survey:** the field reconnaissance survey report recommended the topographical survey of six earthwork sites; these are also listed in the *Recommendations Document* (Section 1.4.10; NAL 2006–7). Two of these comprised the Aberford Dykes Scheduled Monuments (Section 1.4.9). Other sites investigated included two mounds and two areas of ridge and furrow (NAL 2007e), which were, respectively, recommended for monitoring by watching brief during pipeline construction, and investigation by trench evaluation.
- 1.4.8 **Palaeoenvironmental Assessment:** a desk-based assessment of palaeoenvironmental potential was also commissioned (Headland Archaeology 2007). The deposit model developed by this assessment, which outlined four broad geomorphological zones along the route of the pipeline, was used to select areas of archaeological potential coinciding with areas of colluvium and/or palaeoenvironmental deposits (eg palaeochannels).
- 1.4.9 **Aberford Dykes Document:** this document (NAL 2007f) was issued in support of an application for Scheduled Monument Consent, required to construct the pipeline through the Aberford Dykes earthworks. It placed the monuments in their historical and archaeological contexts, explored the relevant research priorities and outlined a strategy for further investigation. Area excavation, rather than evaluation, was recommended for the monuments themselves, although trenching was planned for the adjacent areas.
- 1.4.10 **Recommendations Document:** a document setting out the recommendations for archaeological investigations along the route of the pipeline was commissioned by Entrepouse Industrial Services in November 2006. Version 2 of this document was submitted to the various statutory consultees, by Network Archaeology, in January 2007, and a subsequent version in April 2007 (NAL 2006–7). Its specific objectives were to assess the need for further evaluation and mitigation prior to, and during, construction. The *Recommendations Document* includes a working deposit model, the result of an analysis of all the available archaeological, geotechnical and topographical data for the route. The deposit model was used to predict the likely location, character, and extent of archaeological remains along the pipeline route, as well as the likely impact of the pipeline construction process upon them, and informed the general strategy of the programme of archaeological work, starting with the choice of additional areas for evaluation.
- 1.4.11 **Phase 1 Archaeological Evaluation Trenching:** this phase of evaluation targeted geophysical anomalies, cropmarks, and a number of documented sites highlighted in the surveys and assessments outlined above. In total, 87 trenches were excavated along the route of the pipeline, 49 of which lay within the western section. The report (OA North

2007a) recommended further work in the western section, including seven limited excavations and nine watching brief areas.



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## 2 METHODOLOGY

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### 2.1 WRITTEN SCHEME OF INVESTIGATION

2.1.1 Following a request from Murphy Pipelines Ltd, Written Schemes of Investigation (WSI), outlining methodologies designed to mitigate the impact on archaeological remains arising from the construction of the pipeline, were produced for differing elements of the below-ground archaeological works. Some were specific to a particular location, while others dealt with global investigations, such as the area excavations (OA North 2007b), and Watching Brief (OA North 2008a). The Phase 2 Evaluation was covered under the terms of the WSI for the area excavations and the Phase 1 Evaluation (OA North 2007a). All works undertaken complied with the terms of the relevant WSI.

2.1.2 The overall aim of the mitigating works was to provide an appropriate, specialist response to known or newly discovered archaeological remains during the course of the construction of the pipeline, in order to assist the client in the planning and construction of the pipeline. Specific objectives were as follows:

- to gather sufficient information to establish the extent, condition, character and date, as far as circumstances permit, of any archaeological features and deposits within the areas of investigation;
- to locate, sample excavate and record any archaeological remains revealed;
- to locate, recover, identify, and conserve, as appropriate, any archaeological artefacts revealed;
- to locate, recover, assess and analyse, as appropriate, any palaeoenvironmental, palaeoeconomic and organic remains revealed;
- to recommend measures for preservation *in situ* of archaeological, palaeoenvironmental, palaeoeconomic and organic remains, where revealed, wherever feasible and desirable;
- to test the results of previous, non-intrusive surveys (including the results of geophysical survey, plotting of aerial photographs, fieldwalking, field reconnaissance, desk-based assessment and palaeoenvironmental assessment);
- to compile an appropriate report/publication; and
- to produce a paper and digital archive, for deposition in the appropriate repositories.

### 2.2 METHODOLOGY

2.2.1 The prerequisite for any below-ground archaeological work, including the Watching Brief, was a topsoil strip, under archaeological supervision. During the Watching Brief the strip was monitored in all plots of high and medium archaeological potential, and in some plots of low archaeological potential (*Appendix 2*).

- 2.2.2 The excavation of the pipe trench itself was not monitored, as there was no archaeological benefit. The methodology used to cut the pipe trench did not leave clean sections, and permission for an archaeologist to enter the cutting to clean the sections was not forthcoming from the Main Works Contractor, on Health and Safety grounds.
- 2.2.3 The normal working methodology for the topsoil strip involved the removal of topsoil, to subsoil depth, using back-acting, tracked excavators fitted with smooth-faced ditching buckets. The main strip, during the Watching Brief, occupied approximately one third of the easement. Bulldozers were then used across the remaining width to push the topsoil into a continuous bund up to 3m in height and occupying approximately 10m of one side of the working width. In total, the area stripped in this manner comprised around 33m of the 43m-wide easement, as that under the bund was not stripped.
- 2.2.4 Where mitigation by archaeological excavation was required, the detailed strategy for this was determined in consultation with WYAAS/NYHET (as appropriate). Examination of features concentrated on recovering the plan and any structural sequences. A sampling policy was instigated, with the phasing of the site the principal objective. All discrete features (postholes, pits) were sampled by hand excavation, except where their common, or repetitious, character suggested that they were unlikely to yield significant new information. At least 10% of each linear features (ditches *etc*) was excavated within the bounds of an open-area excavation undertaken in North Yorkshire, whereas 20% of each such feature was excavated in West Yorkshire, as required by WYAAS. In both areas, each section was typically 1m in length. The same amounts were excavated of the more important features revealed during the Watching Brief, although a smaller percentage (at least one slot) was excavated of linear features of lesser value revealed by the Watching Brief, such as post-medieval field boundaries. A tenth of the total area of bulk horizontal deposits was normally excavated by hand, after which the remainder was removed by machine.
- 2.2.5 All artefacts were retained for processing and analysis. Samples for environmental analysis and scientific dating were taken where suitable material was encountered.
- 2.2.6 Recording took place according to the normal principles of stratigraphic excavation. The stratigraphy was always recorded, even when no archaeological deposits were identified.
- 2.2.7 Context record sheets approved by the county archaeological curators were used for written field records; these were in a format acceptable to the *Institute for Archaeologists*. A unique alpha-numeric project code was applied to all records. All archaeological features were accurately located on a site plan and recorded by photographs, scale drawings and written descriptions sufficient to permit the preparation of a detailed archive and report on the material. The trench location, as excavated, was accurately surveyed, tied into the WGS84 GPS co-ordinates datum and located on an up-to-date 1:1250 Ordnance Survey (OS) map base.

## 2.3 ARCHIVE

- 2.3.1 A full archive, produced to professional standards, will be prepared, in accordance with

current English Heritage guidelines (English Heritage 1991) and the *Guidelines for the Preparation of Excavation Archives for Long Term Storage* (Walker 1990) upon completion of the project. The project archive represents the collation and indexing of all the data and material gathered during the course of the project. The deposition of a properly ordered and indexed project archive in an appropriate repository is considered an essential and integral element of all archaeological projects by the IfA in that organisation's code of conduct. The archive for the archaeological work undertaken at the site will be deposited with the nearest museums (West Yorkshire: Leeds Museum; North Yorkshire: York Museum) which meet the Museums and Galleries Commission's criteria for the long-term storage of archaeological material (MGC 1992). This archive can be provided in the format recommended by English Heritage's Centre for Archaeology, both as a printed document and on computer disks as ASCII files (as appropriate). Except for items subject to the Treasure Act and to landowner consent, all artefacts found during the course of the project will be donated to the receiving museum.

- 2.3.2 A synthesis (in the form of the index to the archive and a copy of the publication report) will be deposited with the appropriate Historic Environment Record. A copy of the index to the archive will also be available for deposition in the National Monument Record in Swindon.

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### 3 SUMMARY OF RESULTS

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#### 3.1 INTRODUCTION

3.1.1 The following section of the report provides details of the results of all those sites and excavations where further analysis has been recommended. This includes all the area excavations, together with two sites, 20-4 and 26-2, where the outcome of the fieldwork and post-excavation assessments following the Evaluation and the Watching Brief have shown a level of significance warranting analysis. The sites are described in geographical order, from east to west.

#### 3.2 SITE 20-4

3.2.1 Site 20-4 straddled the division of the pipeline between the Asselby to Aberford Pipeline and the continuation to Pannal (Fig 1), and was entirely within North Yorkshire. The archaeological features would appear to be elements of a coherent landscape and thus have been treated as a single entity, despite their technical separation between the two pipelines. The majority of the site lay in the Aberford to Pannal pipeline, but the information relating to both pipelines is included here in a single narrative. For clarity, however, the same information is repeated in the reports for each element (see OA North 2010, *Section 3.12* and fig 11). The Aberford to Pannal section of Site 20-4, in the parish of Saxton with Scarthingwell, was centred on NGR 444423 437610 (SE 44423 37610). Prior to intrusive works, the desk-based assessment had identified a series of cropmarks suggesting enclosures and field boundaries (WSMR 1094; NAL 2006a), that were also recorded by the geophysical survey (Bartlett 2006). Prehistoric pottery was recovered there during the fieldwalking survey (NAL 2007d). Three phases of intrusive works contributed to the final results: five trenches were excavated during the Phase 2 Evaluation, one (AA6) on the Asselby to Aberford Pipeline (OA North 2010), and four (AP15–AP18) on the Aberford to Pannal continuation; a watching brief was maintained across the entire site; and additionally, at the double-ditched enclosure defining the western limit of the site, a set-piece excavation was undertaken.

3.2.2 The cropmarks (WSMR 1094; NAL 2006a) were confirmed by Trenches AA6 (OA North 2010) and AP15–AP18 and the Watching Brief, which also uncovered features not identified by cropmarks. Two enclosures were exposed, at opposing ends of Plot 20-4, with several field boundaries between them. The enclosure at the eastern end was D-shaped, while the western example appeared to be double-ditched; the D-shaped enclosure has been discussed within the report for the Asselby to Aberford section of the pipeline (OA North 2010). Nineteen sherds of pottery, a piece of flint (*Section 4.3*), a fragment of quern stone (*Section 4.13.4*) and an iron nail (*Section 4.9*) were recovered. The pottery has been dated to the Iron Age/Romano-British period (*Sections 4.4* and *4.5*), while the stone artefacts are broadly prehistoric in date.

3.2.3 **Results:** a listing of the archive of material and data collected from all the excavations of Site 20-4 (both those elements within the Asselby to Aberford Pipeline and within the

Aberford to Pannal continuation) appears in Table 1. The stratigraphy of the site generally consisted of 0.3m of topsoil over relict ploughsoil, which overlay Magnesian Limestone. Two main periods were observed on the western half of this site, *ie* Iron Age/Romano-British and medieval/post-medieval.

<b>Contexts by Context Type</b>	
Deposits	106
Cuts	59
Groups	15
Total no of contexts issued	180
<b>Contexts by Feature Type</b>	
Pits	2
Ditches	13
Layers	15
Natural features/deposits	5
Postholes	1
Furrows	1
<b>Finds</b>	Iron Age and Romano-British pottery, bone, flint, iron nail and a fragment of a quern stone
<b>Environmental Samples</b>	25 (bulk)
<b>Graphic Archive</b>	
Digital photographs	47 images (c 65MB)
Number of plans	55
Number of sections	51

Table 1: Quantification of the total archive for Site 20-4 (both Asselby to Aberford and Aberford to Pannal Pipelines)

- 3.2.4 **Early Prehistoric Period:** the only indication of this period was a single flint scraper recovered from the westernmost enclosure, which is probably a residual find.
- 3.2.5 **Iron Age/Romano-British Period:** both the eastern and western enclosures within Plot 20-4 contained Iron Age/Romano-British pottery sherds (*Sections 4.4* and *4.5*) and were thus probably of this date. The enclosure at the eastern end is described within the Asselby to Aberford Assessment report (Fig 2; OA North 2010). The westernmost enclosure was constructed with inner (**8662**, **8663** and **8666**) and outer (**8661** and **8665**) ditches, with an entrance between **8662** and **8666**, matched by the outer ditches (Fig 3). A fragment of quern stone (*Section 4.13.4*) was recovered from outer ditch **8665**, and a flint scraper (*Section 4.3*) from inner ditch **8663**.

- 3.2.6 Several boundary ditches were associated with both the enclosures. Midway between the two enclosures was a single field boundary (**12069**; Fig 2), with several recuts at its southern end. Closer to the enclosure at the western end of the site was another handful of field boundaries, including a T-shaped junction between ditches **12036** and **12037**, and a single north-west/south-east ditch (**8562**) south-west of the enclosure (Fig 3).
- 3.2.7 Ditches **8665** and **8666** of the western double-ditched enclosure (*Section 3.2.5*) yielded Iron Age/Romano-British pottery sherds (*Sections 4.4* and *4.5*). Within the enclosure there were several pits, and more Iron Age/Romano-British pottery was recovered from pit **8653**.
- 3.2.8 *Medieval/post-medieval Period*: a single shallow furrow was identified in the north-east corner of the site, with only 1.3m of it surviving in plan. Although this may have a medieval origin, no artefacts were recovered to date it absolutely.
- 3.2.9 *Archaeological Potential*: this site was not stratigraphically complex, but is regionally significant and a more concise chronology can be gained from studying the finds and environmental samples in conjunction with the stratigraphic sequence.
- 3.3 **SITE 20-8**
- 3.3.1 The features in Plot 20-8, in the parish of Aberford, West Yorkshire (Fig 1), were investigated during the Phase 2 Evaluation. Two large trenches (AP32 and AP33; Fig 4), centred on NGR 444105 438254 (SE 44105 38254), were opened to examine cropmarks, indicating enclosures, field boundaries and trackways, reported by the desk-based assessment (WSMR 1083; NAL 2006a), and shown by the geophysical survey (Bartlett 2007c).
- 3.3.2 The results from both trenches confirmed the cropmarks and geophysical anomalies, with a possible trackway, consisting of two ditches (**12023** and **12020**), and the ditches of a field system in Trench AP32, and the corner of an enclosure (**1890**) that truncated an earlier boundary ditch (**1889**) in Trench AP33. Both trenches contained Romano-British pottery (*Section 4.5*), and Iron Age pottery (*Section 4.4*) was discovered in AP33. Trench AP33 contained the crouched burial of an adult (**1888**, *Section 4.13.7*) of probable Iron Age or Romano-British date. Furrows, and two small pits (**1807** and **1848**) in Trench AP32, containing fragments of clay pipe (*Section 4.7*), indicate post-medieval activity.
- 3.3.3 *Results*: a listing of the archive of material and data collected from the excavations in Plot 20-8 appears in Table 2. The overburden covering the site consisted of 0.25-0.4m of topsoil, which overlay Magnesian Limestone. Iron Age/Romano-British and post-medieval activity have been identified on this site.

Contexts by Context Type	
Deposits	64
Cuts	36
Groups	8
Total no of contexts issued	108

<b>Contexts by Feature Type</b>	
Pits	4
Ditches	8
Grave	1
Natural features/deposits	2
Layer	5
Palaeochannel	2
<b>Finds</b>	Iron Age and Romano-British pottery, bone, and an iron object
<b>Environmental Samples</b>	10 (bulk)
<b>Graphic Archive</b>	
Number of colour slide films and approximate number of images	4/136
Number of black-and-white films and approximate number of images	4/136
Number of plans	24
Number of sections	27

Table 2: Quantification of the archive for Site 20-8

- 3.3.4 **Iron Age/Romano-British Period:** there are two obvious phases of Iron Age/Romano-British activity. The first is represented in Trench AP33, where a ditch (**1889**) was identified, aligned north/south, together with three other ditches on the same alignment (**1832**, **1834**, and **1836**) at the eastern end of the trench, and a single crouched burial of an adult male (**1888**; Section 4.13.7; Plate 1) within a grave cut into ditch **1832**. The second phase consists of the corner of an enclosure, in the form of ditch **1890**, which cut all of the early features, and contained Iron Age and Romano-British pottery.
- 3.3.5 In Trench AP32, there appeared to be only one phase of early activity, in ditch **12020**, which contained Romano-British pottery. This feature formed the eastern side of a probable trackway, aligned north-east/south-west, with a second ditch (**12023**), parallel and 5.5m to the west. Two other ditches (**12021** and **12024**) suggested field boundaries associated with the trackway.
- 3.3.6 **Medieval/Post-medieval Period:** two furrows, aligned north-west/south-east, cut the trackway ditches in Trench AP32. A small ditch terminus (**12022**), on the same alignment as the furrows, would also appear to belong to this period.
- 3.3.7 **Archaeological Potential:** the stratigraphy of these features is fairly straightforward and will require only limited further analysis in association with the finds and environmental

samples. Radiocarbon dating of the more significant features will be dependent on careful selection of appropriate environmental samples in conjunction with the stratigraphic analysis.

### 3.4 A64 YARD

3.4.1 This area of open excavation, in the parish of Aberford, near Becca Moor, West Yorkshire (Fig 1), was centred on NGR 442976 439866 (SE 42976 39866). The site covered an area of 1.1ha, outside the footprint of the pipeline easement, approximately 500m north-east of Plot 22-3, and had been earmarked to provide the compound and storage facilities for the construction of the Aberford to Pannal Pipeline. The desk-based assessment had identified a series of cropmarks (MON 1401372; NAL 2006a) indicating enclosures, field boundaries and pits, which also appeared in the results of the geophysical survey (Bartlett 2006). The agreed strategy of the intrusive investigations on site was to strip and excavate the north-western quarter of the development area (where the cropmarks and geophysical anomalies had been strongest and most coherent) and to excavate 11 evaluation trenches elsewhere within its bounds, with a view to extending the southern limit of excavation southward, or to opening up additional, discrete excavation areas, should positive results be encountered. In the event, each of the evaluation trenches was either sterile or contained only natural features (see *Section A1.2*). Thereafter, any residual impacts upon the archaeological resource potentially present within the south-eastern three-quarters of the development area were mitigated by means of a watching brief.

3.4.2 All of the features indicated by the cropmarks (MON 1401372; NAL 2006a) and the geophysical survey (Bartlett 2006) were confirmed following the topsoil strip, along with several additional linear features (Fig 5). A circular feature, 15m in diameter, previously recorded as a cropmark, once exposed, was interpreted as natural, perhaps glacial, in origin. The absence of artefacts from the excavated segments of the linear features potentially implies that some of these may also be of natural origin. The layout, organisation and stratigraphy of others, however, makes it clear that they represent the remnants of former agricultural or settlement boundaries.

3.4.3 **Results:** a listing of the archive of material and data collected from the excavation of the A64 Yard appears in Table 3. The overburden consisted of 0.3m of topsoil, over 0.1m of relict ploughsoil, which in turn overlay Magnesian Limestone. Because no artefacts were recovered, it has proved impossible to provide precise dates for the archaeological features, but there are two distinct phases of human activity, and analogy with other sites in the landscape suggests an Iron Age/Romano-British date for this.

Contexts by Context Type	
Deposits	169
Cuts	93
Groups	19
Total no of contexts issued	281



<b>Contexts by Feature Type</b>	
Pits	8
Ditches	14
Postholes	1
Natural features/deposits	26
Layers	3
<b>Finds</b>	No finds
<b>Environmental Samples</b>	21 (bulk)
<b>Graphic Archive</b>	
Digital photographs	102 images (298MB)
Number of colour slide films and approximate number of images	7/238
Number of black-and-white films and approximate number of images	7/238
Number of plans	52
Number of sections	60

Table 3: Quantification of the archive for A64 Yard

- 3.4.4 This site consisted mainly of linear features forming field boundaries and enclosure ditches, with a considerable number of natural features. The first phase of human activity is indicated by a substantial ditch (**4519**), aligned north-east/south-west, which could either be a field boundary or the western side of an enclosure. An entrance was indicated by the termini of ditch **4519** and ditch **4645** towards the western edge of the excavated area. Ditch **4645** was aligned north/south and was massive in construction.
- 3.4.5 The second phase of activity consists of another enclosure, made up of two ditches (**4503** and **4633**), which together formed the north-east side and corner, and the south-west side of the enclosure. The north-west corner was not exposed. The north-east side truncated ditch **4519**. Neither enclosure appeared to have any internal archaeological remains, but in the northern corner of the excavated area there were several features which cannot at present be placed in either of these two phases, or related to either of the enclosures.
- 3.4.6 **Archaeological Potential:** although the stratigraphical sequence of this site is simple, the lack of datable material places a significant interpretive burden on the stratigraphy and, therefore, further analysis will be required.
- 3.5 **SITE 3**
- 3.5.1 Site 3 (Fig 1), in Plot 23-10, in the parish of Thorner, West Yorkshire, was centred on NGR 439623 441034 (SE 39623 41034), and covered an area measuring 75 x 32m. In advance

of excavation the desk-based assessment had suggested the existence of a Roman road (WSMR 620; NAL 2006a), for which partial confirmation was available from the geophysical survey (Bartlett 2006). Trench 43 from the Phase 1 Evaluation (OA North 2007a) had revealed a pair of linear ditches, which reinforced the possibility of a Roman road.

3.5.2 Excavation aimed to characterise and date the features. The Roman road was not confirmed, although the irregular ditches (**4035** and **4036**; Fig 6) did correspond to the position of a ‘Roman road’ marked on the 1893 OS map. These ditches are considered likely to be drainage ditches for a medieval/post-medieval track. Other irregular features revealed by the excavation were thoroughly investigated and have been interpreted as natural features and quarries.

3.5.3 **Results:** a listing of the material and data collected from the excavation of Site 3 appears in Table 4. The general overburden which covered the site was 0.22m of topsoil over 0.4m of relict ploughsoil, which overlay Magnesian Limestone. Two definite periods of activity were identified, *ie* early prehistoric and medieval/post-medieval, but there was insufficient evidence to allocate a number of the features to a specific period.

<b>Contexts by Context Type</b>	
Deposits	22
Cuts	13
Groups	3
Total no of contexts issued	38
<b>Contexts by Feature Type</b>	
Ditches	2
Natural features/deposits	18
<b>Finds</b>	
	Clay pipe, iron object and a flint scraper
<b>Environmental Samples</b>	
	0
<b>Graphic Archive</b>	
Digital photographs	77 images (218MB)
Number of colour slide films and approximate number of images	2/68
Number of black-and-white films and approximate number of images	2/68
Number of plans	9
Number of sections	12

Table 4: Quantification of the archive from Site 3

- 3.5.4 Along the southern edge of the excavated area, several irregularly sized and shaped features were exposed: these appeared to be natural in origin. Two large irregular features (**4034** and **12028**) in the centre of the site produced no datable evidence, but are likely to have been quarries.
- 3.5.5 **Early Prehistoric Period:** the only indication of activity in this period was a single flint scraper recovered from the subsoil (*Section 4.3*).
- 3.5.6 **Medieval/Post-medieval Period:** given the lack of additional supporting evidence for a Roman road, the irregular ditches (**4035** and **4036**; Plate 2), 7.5m apart and aligned east/west, suggest a less substantial track, which may have had medieval origins, although the artefactual evidence, fragments of clay pipe (*Section 4.7*), is post-medieval.
- 3.5.7 **Archaeological Potential:** although little stratigraphic analysis is required for this site, it forms the basis of the chronological interpretation, in the absence of a substantial assemblage of finds or environmental samples with datable material.
- 3.6 **SITE 26-2**
- 3.6.1 The open-area excavation, Site 26-2 (Fig 1), in the parish of Bardsey cum Rigton, West Yorkshire, in Plot 26-2, was centred on NGR 438558 443999 (SE 38558 43999), and covered an area measuring 100 x 50m. Before the excavation, cropmarks, interpreted as ring ditches, enclosures, tracks and field boundaries by the desk-based assessment (WSMR 4139; NAL 2006a), had also been recognised in the results of the geophysical survey (Bartlett 2006), and were verified by the excavation of Trenches 60 and 61, of the Phase 1 Evaluation (OA North 2007a).
- 3.6.2 The area excavation revealed more of the field system indicated by the geophysical survey, represented by a number of substantial linear ditches, which appeared to form part of a larger field system or ladder settlement of Iron Age/Romano-British date. Features included a segmented ring ditch (Plate 3) and a well (Plate 4). Towards the south-eastern end of the excavated area, the fragmentary remains were revealed of a metallised surface and associated flanking ditches, running approximately north/south, which probably date to a similar period. Additional elements of this landscape were revealed during the Watching Brief (*Section A2.3.11*). Fragments of animal bone (*Section 4.15*), 26 sherds of pottery (*Section 4.4-7*), two stone objects (*Section 4.13*), two copper-alloy objects (*Section 4.8*), a worked flint (*Section 4.3*) and an iron strap hinge (*Section 4.9*) were recovered from the excavated segments of the features on this site. The varied dates suggested by the finds assemblage imply long-lived or repeated agricultural and/or domestic activity in the immediate area during the Iron Age/Romano-British period.
- 3.6.3 **Results:** a listing of the archive of material and data collected from the excavation of Site 26-2 appears in Table 5. The overburden removed by the excavation consisted of topsoil and relict ploughsoil, which overlay Magnesian Limestone. Two principal phases of activity were apparent, *ie* Iron Age/Romano-British and medieval/post-medieval.

<b>Contexts by context Type</b>	
Deposits	139
Cuts	83
Groups	20
Total no of contexts issued	242
<b>Contexts by Feature Type</b>	
Pits	7
Ditches	15
Furrows	10
Postholes	4
Roundhouse	1
Track/road	1
Layers	7
Natural features	7
<b>Finds</b>	Prehistoric, Iron Age and Romano-British pottery, bone, ceramic building material, stone, flint, copper-alloy objects and an iron object
<b>Environmental Samples</b>	29 (bulk); 2 (monoliths)
<b>Graphic Archive</b>	
Digital photographs	102 images (268MB)
Number of colour slide films and approximate number of images	7/238

Table 5: Quantification of the archive for Site 26-2

3.6.4 **Iron Age/Romano-British Period:** the majority of the artefacts retrieved from this site are of this period, and were recovered mainly from the features making up the field system/ladder settlement, and the road/track (5218). Although, at present, only one phase of activity belonging to this period has been identified, this probably belies a more complex sequence of development, starting in the Iron Age and continuing into the Romano-British period. It is possible that ditches 5221/5251, 5219, 12014 and 5225, forming a rectangular enclosure that continued beyond the site to the north, were the earliest elements of the settlement, despite the fact that they seemingly remained in use for a prolonged duration. Sherds of Iron Age and Romano-British pottery were recovered from ditch 5221/5251 (Sections 4.4 and 4.5). The enclosure was laterally subdivided into two cells by a north-west/south-east ditch (5220). Within the northernmost cell was the segmented ring ditch of a roundhouse (5230), from which three sherds of Iron Age pottery were recovered. The ditch, with a diameter of 10m, was divided into four segments, with gaps at the four cardinal compass points, and an entrance on the east, with a ‘porch’, indicated by four postholes (Plate 3). A

possible watering hole/well (**5233**; Plate 4) was identified, west of the roundhouse, and also contained sherds of Iron Age pottery.

3.6.5 Two ditches (**5222** and **5223**; Fig 7), coinciding with features identified by the geophysical survey (Bartlett 2006), continued north-westwards from the enclosure and out of the site. These latter were probably part of a greater system of trackways and fields continuing in this direction. Extending from the south-east corner of the enclosure, and beyond the excavated area, a 4.5m wide road/track (**5218**) comprised two parallel ditches (**5217** and **5215**), and a metallised surface (**5216**; Plate 5). Recovered from the make up of this surface was a Romano-British trumpet brooch (*Section 4.8*).

3.6.6 **Medieval/Post-medieval Period:** this period is represented by 11 furrows, all aligned approximately north-west/south-east, a similar alignment to the features of the earlier phase.

3.6.7 **Archaeological Potential:** this site is of regional significance. The stratigraphy is relatively simple, however, but would warrant further analysis, linking groups and referring dating through analysis of the associated finds.

### 3.7 SITE 26-3

3.7.1 Site 26-3 (Fig 1), an area excavation, in Plot 26-3, in the parish of Bardsey cum Rigton, West Yorkshire, was centred on NGR 438483 444377 (SE 38483 44377), and covered an area measuring 32 x 100m. The desk-based assessment had identified cropmarks suggesting ring ditches, enclosures, trackways and field boundaries (WSMR 4139; NAL 2006a), which were also apparent from the results of the geophysical survey (Bartlett 2006). During the Phase 1 Evaluation, two trenches (64 and 65) were excavated in this area, revealing five ditches (OA North 2007a).

3.7.2 The cropmarks and geophysical survey results were confirmed by the discovery of a series of linear and curvilinear ditches, forming a field system and indicating a track. The metallised surface (**6658**; Fig 8) of the track, although patchily preserved, shared some characteristics with the track at Site 26-2 (*Section 3.6*). Several beehive quern fragments were recovered from it, suggesting an Iron Age or Romano-British date (*Section 4.13.3*). Other finds recovered included fragments of animal bone (*Section 4.15*), two iron objects (*Section 4.9*) and two pieces of worked flint (*Section 4.3*). An isolated sub-circular feature, 2m from one of the roadside ditches, contained the crouched burial of a single adult (**6504**, *Section 4.13.7*).

3.7.3 **Results:** a listing of the material and data recovered during the excavation of Site 26-3 appears in Table 6. The overburden removed by the excavation consisted of topsoil, over relict ploughsoil, which overlay Magnesian Limestone. Two periods of archaeological activity were apparent, *ie* Iron Age/Romano-British and medieval/post-medieval. The Iron Age/Romano-British period was divided into two phases.

<b>Contexts by Context Type</b>	
Deposits	109
Cuts	54
Structure	2
Groups	11
Total no of contexts issued	176
<b>Contexts by Feature Type</b>	
Ditches	6
Furrows	5
Grave	1
Layer	6
Natural features	5
Postholes	3
Surface	3
<b>Finds</b>	Animal bone, iron objects and worked flint
<b>Environmental Samples</b>	18 (bulk)
<b>Graphic Archive</b>	
Digital photographs	76 images (50MB)
Number of colour slide films and approximate number of images	5/170

Table 6: Quantification of the archive for Site 26-3

3.7.4 **Iron Age/Romano-British Period:** the earlier phase consists of two large ditches (**6649** and **6650**) forming an entrance (unshaded on Figure 8). These were aligned, respectively, north/south (with a bend to the north-east), and north-east/south-west. A later recut (**6684**) to ditch **6649** was apparent in its north/south section and just around the bend. To the west, another, narrower, ditch (**6558**), similarly aligned, was cut by the trackway ditches, and probably also dates to this earlier phase of activity. No artefacts from this phase were recovered, but there is some potential for radiocarbon dates from the environmental samples.

3.7.5 The second phase consists of the Y-shaped track, marked out by roadside ditches and metalling (shaded on Figure 8). It appears to have reused the north-east/south-west section of ditch **6649**, which was cut by ditch **6660**, to form the northern edge of the track. Ditches **6648** and **6526** marked the east and west sides of the track, with ditch **6648** cutting ditches **6650** and **6558**. Between these three ditches, an intermittent metalled surface (**6658**) was revealed, which overlay the north/south section of ditch **6649** and recut **6684**. The northern side of the trackway was later slightly re-aligned, indicated by another ditch (**6651**),

aligned north-west/south-east. The artefact assemblage recovered from the track's surface mainly consisted of fragments of beehive quern (*Section 4.13.3*), with a few pieces of worked flint (*Section 4.3*) and a single piece of iron slag (*Section 4.10*). These finds suggest an Iron Age date, although the track may well have had a lifespan extending into later periods.

- 3.7.6 Associated with the track was the crouched burial of an adult male (**6504**; *Section 4.14.3*), 2.6m south of ditch **6648**. No artefacts were recovered, but the location of the burial, and its association with the trackway, are typical for the region and period (see, for instance Roberts *et al* 2001; Brown *et al* 2007).
- 3.7.7 **Medieval/Post-medieval Period:** six furrows were revealed, on different alignments, indicating several phases of ploughing. A single, larger furrow may, however, represent a headland, dividing areas ploughed separately, which would explain the different alignments on either side of it.
- 3.7.8 **Archaeological Potential:** while the stratigraphy of this site is relatively straightforward, analysis in conjunction with the artefacts and the environmental samples will provide more detailed chronological phasing. Some of the environmental samples should be selected for radiocarbon dating of the more significant features.

### 3.8 SITE 35-4

- 3.8.1 The area excavation, Site 35-4 (Fig 1), in Plot 35-4, in the parish of North Rigton, North Yorkshire, was centred on NGR 428732 449997 (SE 28732 49997) and occupied an area measuring 92 x 35m, with a later extension to the south-east measuring 15 x 15m. The geophysical survey, in advance of the excavation, had revealed linear and curvilinear features (Bartlett 2006), the significance of which was confirmed by the Phase 1 Evaluation (Trenches 82 and 83) (OA North 2007a).
- 3.8.2 Following the removal of the overburden across the excavated area, the results of the geophysical survey were confirmed by the discovery of a large curvilinear feature (**6003**), and two intersecting linear features (**6004** and **6005**; Fig 9). Other features, not apparent from the geophysical survey, were also exposed, consisting of a small circular feature (**6085**) and four small pits (**6032**, **6035**, **6062** and **6091**). No datable artefacts were recovered from the curvilinear feature (**6003**), or ditch **6004**, but post-medieval pottery (*Section 4.6*), ceramic building material (*Section 4.12*) and an iron nail (*Section 4.9*) were found in the pits.
- 3.8.3 **Results:** a listing of the material and data collected from the excavation at Site 35-4 appears in Table 7. The overburden removed by the excavation consisted of topsoil over relict ploughsoil, which overlay Millstone Grit.

<b>Contexts by Context Type</b>	
Deposits	63
Cuts	28
Groups	6
Total no of contexts issued	97
<b>Contexts by Feature Type</b>	
Pits	4
Ditches	4
Layer	3
Ring gully	2
<b>Finds</b>	Medieval/post-medieval pottery, fired clay, ceramic building material, clay pipe, animal bone and an iron nail
<b>Environmental Samples</b>	13 (bulk)
<b>Graphic Archive</b>	
Digital photographs	54 images (112MB)
Number of colour slide films and approximate number of images	2/68
Number of black-and-white films and approximate number of images	3/102
Number of plans	18
Number of sections	21

Table 7: Quantification of the archive for Site 35-4

- 3.8.4 A few features could not be allocated to a specific period, but are likely to be early prehistoric or Iron Age/Romano-British in date, on the basis of their typology. Such features are the curvilinear ditch (**6003**) (Plate 6); its recut (**6055**); a long ditch (**6004**), aligned north/south; and a circular feature (**6085**) at the southern limit of the excavated area. The only artefact recovered from these features was an oxidised scrap of burnt clay, or ceramic building material, which cannot be closely dated.
- 3.8.5 *Medieval/Post-medieval Period:* a narrow ditch (**6005**) crossed the site from north-east to south-west, truncating ditch **6004**. It probably represents a post-medieval field boundary. There were also four pits (**6032**, **6035**, **6062** and **6091**) spread across the excavated area, with pit **6062** truncating the top of the recut of the curvilinear feature (**6055**). Pits **6032** and **6062** contained post-medieval finds, suggesting a date for all of the pits, and it is probable that they had an agricultural origin. The numerous furrows extending across the excavation, aligned north-west/south-east, were not excavated, but may be medieval.



- 3.8.6 ***Archaeological Potential:*** the relatively uncomplicated stratigraphy of this excavation will warrant only limited analysis, in conjunction with the radiocarbon dating of selected environmental samples.

## 4 ASSESSMENT

### 4.1 SUMMARY OF THE STRATIGRAPHY

4.1.1 In total, seven archaeological sites (Table 8) were investigated and recorded by open-area excavations during the course of pipeline construction, one of these (Site 20-8), strictly speaking, being formed by two, more than usually extensive, Phase 2 evaluation trenches. Of the remaining sites, four were identified by the Phase 1 Evaluation (OA North 2007a), one (Site 20-4) by geophysical survey (Bartlett 2008), and the A64 Yard site was known from cropmarks and was investigated by a mixed programme of trenching and strip, map and sample. The results of the excavations are reported in detail within *Section 3*, although the quantification of contexts, listed in Table 8, provides an approximate index to relative archaeological complexity (more comprehensive quantifications for each site are given in Tables 1-7, *Section 3*). These sites are primarily characteristic of an agricultural landscape of probable Iron Age/Romano-British date, comprising enclosures and systems of land allotment, associated with the evidence for settlement and other activity. The stratigraphy almost entirely comprises cut features (ditches, pits, structural ring gullies *etc*), the only positive features being the fragmentary remnants of metalling layers for trackways. Many of the ditches, being of massive construction, were well preserved, despite truncation. These sites are of regional significance, both individually and collectively, as components of a greater landscape (see site-specific statements of potential within *Section 3* and the over-arching consideration set out in *Section 5*).

Site	Date of Features	Number of Contexts
Site 20-4	Iron Age/Romano-British; medieval/post-medieval	180
Site 20-8	Iron Age/Romano-British; medieval/post-medieval	108
A64 Yard	Not closely dated (possibly Iron Age/Romano-British)	281
Site 3	Medieval/post-medieval	38
Site 26-2	Iron Age/Romano-British; medieval/post-medieval	242
Site 26-3	Iron Age/Romano-British; medieval/post-medieval	176
Site 35-4	Not closely dated (possibly early prehistoric Iron Age/Romano-British); medieval/post-medieval	97

Table 8: Summary of stratigraphy

4.1.2 No stratigraphic evidence for activity dating to the earlier prehistoric period has been certainly identified by the Assessment, although a sparse background scatter of struck lithics (*Section 4.3*) demonstrates that the landscape was, to some degree, inhabited at this time, and the ring-ditch at Site 35-4 has the potential to be an early prehistoric monument. The stratigraphic evidence from the medieval and post-medieval periods is restricted to agricultural features (ridge and furrow, field drains and field boundaries), accompanied by the occasional intrusive find in the top of earlier features or residual finds within the ploughsoil (*Sections 4.1–14*). Whilst this evidence is not without some significance, the

vast majority of the archaeological features identified by the Assessment seemingly date to the Iron Age/Romano-British period, and this will form the focus of any future programme of Analysis (Sections 5 and 6).

## 4.2 ARTEFACTS

4.2.1 In total, 174 artefacts were recovered from the site, the majority being Romano-British and prehistoric pottery, and industrial residues. Other material consisted of flint, worked stone, post-Roman pottery, clay tobacco pipes, metalwork, glass, and ceramic building material (Table 9). In addition, two human skeletons were recovered, and an assemblage of animal bone, weighing 5.5kg, and representing 771 individual specimens. Although the artefacts occupy a lengthy date range, from the prehistoric to the late post-medieval period, the majority were recovered from Romano-British deposits.

Type	Total
Flint	5
Worked stone	10
Prehistoric pottery	29
Romano-British pottery	42
Post-Roman pottery	6
Clay tobacco pipe	9
Copper alloy	5
Iron	16
Industrial residues	43
Glass	2
Ceramic building material	7
<b>Total</b>	<b>174</b>

Table 9: Artefact fragments, by type

## 4.3 FLINT

4.3.1 **Quantification:** in total, five pieces of worked flint were recovered from the Aberford to Pannal Pipeline. They derived from four different sites (Sites 20-4, 3, 26-2 and 26-3). The assemblage comprised one flake, a broken flake, a blade, a blade fragment, and an end scraper.

4.3.2 **Assessment:** few of the lithic artefacts are closely datable. The flakes could feasibly date from any time between the Mesolithic period (Butler 2005, 86) and the early Bronze Age (Waddington 2004, 41). Blades were produced from the early Mesolithic to the end of the Neolithic period and so are similarly difficult to date with precision, particularly if entirely unmodified. End scrapers were produced throughout later prehistory in Britain, from the Mesolithic period through to the Bronze Age, and are the most commonly found type of scraper (Young 1987, 54).

4.3.3 Although two of the artefacts (**8626/16027** and **6594/6014**) were found in well-sealed archaeological deposits (respectively within ditch **8663**, Site 20-4, and ditch **6526**, Site 26-3) and may be of some significance in their dating and interpretation, their wide date range limits their utility. The blade and blade fragment are both effectively unstratified, being recovered from topsoil and the relict ploughsoil, and contribute very little to the understanding of the sites from which they were recovered, other than to indicate a background of prehistoric activity.

4.3.4 **Potential:** the flint assemblage from the excavations is very small, and generally undiagnostic of any specific prehistoric period. It therefore offers little potential for any further interpretative work, although it is worthy of publication.

#### 4.4 PREHISTORIC POTTERY

4.4.1 **Quantification:** in total, 29 sherds of hand-made pottery were assessed (from Sites 20-4, 20-8, and 26-2), representing an estimated 26 vessels. In general terms, the fabric groups reflect the characteristics seen more widely in later prehistoric and Roman period hand-made pottery assemblages, with well-defined and distinctive inclusions in moderate to common or dense proportions within fine clay bodies.

4.4.2 The classification adopted was based on that devised by Didsbury (2006). In the present case, the basic distinction between sherds tempered with calcareous inclusions (types H1 and H4), those with quartz, quartzite and rock fragments (type H2), and those with mixed inclusions (H3) has been enhanced by identifying the principal constituents of the temper (calcite, quartz, rock fragments *etc*). Basic details of the character of the fabrics are lodged in the project archive.

4.4.3 **Assessment:** the number of diagnostic sherds in the assemblage was very low, with datable forms (as identified by Rigby 2004) particularly scarce. One sherd (*unstratified/16032*) may date to around the time of the Roman Conquest (R Leary *pers comm*) but others were of forms with a broad date range.

4.4.4 **Potential:** the small size of the assemblage and the limited number of diagnostic sherds has restricted the potential of this group of material to contribute to the research aims of the project. Reviewed alongside other classes of ceramic vessel, however, it has some potential to contribute to any overall discussion of pottery use, and the extent to which this reflects changes in the relationships between users of hand-made 'native'-type pottery and the users of more conventionally Romanized wheel-thrown types, over time. In addition, it will contribute to any discussion of perceived variations through time in sources of supply.

#### 4.5 ROMANO-BRITISH POTTERY

4.5.1 **Quantification:** in total, 42 sherds of Romano-British pottery were recovered from the Aberford to Pannal Pipeline during the excavations (eight from the area excavations, all from Site 26-2), Phase 2 Evaluation, and the Watching Brief (all from Site 20-4).

4.5.2 The pottery was examined in context groups and a basic archive catalogue prepared in

accordance with the *Guidelines* of the Study Group for Romano-British Pottery (Darling 2004). The fabrics were recorded in broad groups and their source suggested where appropriate; reference was also made to the National Fabric Collection where appropriate (Tomber and Dore 1998), and details of fabric variations were recorded. Forms were described and details of decoration noted. The pottery has been assessed in terms of the fabrics and forms present, evidence for chronology, trade and status, and its potential for further study. Where possible, spot dates were provided for individual vessels and for the contexts in which they occurred.

- 4.5.3 **Assessment:** of the Romano-British grey wares (GRB) from Site 26-2, four GRB2 sherds, from a jar found in fill **5102** (ditch **5221/5251**), probably belong to the middle of the Roman period, around the second or early third century, as the fabric resembles the earlier South Yorkshire products. A GRB4 base, from fill **5127** (ditch **5222**), and a GRB3 sherd, from deposit **5160** (ditch **5221/5251**), cannot be closely dated. A GRB4 lug, from fill **5173** (ditch **5221/5251**), is similar to late third- to fourth-century products from the Holme-on-Spalding industries of East Yorkshire (Corder 1930, fig 14).
- 4.5.4 In total, 21 sherds of Romano-British pottery were recovered from trenches excavated for the Phase 2 Evaluation, along with four sherds of samian. Twenty sherds from a late Black Burnished ware (1) jar, from Trench 32, date to the late third or early fourth century (Gillam 1970, nos 10 or 11). In Trench 33, two samian sherds and one of undiagnostic coarseware were recovered. These can be broadly dated from the mid-first to the mid-third century and indicate individuals with a taste for Roman fine tableware, and the means to obtain it. A further tiny scrap of samian came from Trench 35, with a small scrap of medium quartz-tempered oxidised ware. These were too small for precise dating, although specialist identification may be possible for the samian.
- 4.5.5 Twelve Romano-British sherds were found during the course of the Watching Brief. Four GRB1 sherds from a Roman jar were found in Plot 20-4, but could not be closely dated. A further group of small abraded sherds, also from Plot 20-4, included a scrap of Roman grey ware and seven hand-made sherds, probably of prehistoric date, but possibly Romano-British. One further sherd from this group was similar to the late B18 fabric dating to the fourth century or later (Monaghan 1997). This bodysherd was undiagnostic and could not be dated with certainty on the basis of its fabric alone.
- 4.5.6 **Potential:** this material would warrant comparison with that from other Romano-British rural settlements in the area, allowing the sites to be viewed within their regional context. The smaller assemblages from the sites and trenches along the pipeline can play some part within any stratigraphic discussion.

## 4.6 POST-ROMAN POTTERY

- 4.6.1 **Quantification:** 11 sherds of pottery, including five from the Phase 1 Evaluation (for comparative purposes), were submitted for assessment. The assemblage represents a maximum of 11 vessels in four identifiable ware-types.
- 4.6.2 Recording of the assemblage was in accordance with the guidelines laid out in

Slowikowski *et al* (2001). The assemblage was quantified by three measures: number of sherds; weight; and vessel count, within each context. The ceramic data were entered on an *Access* database using fabric code names.

- 4.6.3 **Assessment:** the pottery is in a slightly abraded to abraded condition, and apart from one sherd, sizes were below 16g. It ranges in date from the medieval to the post-medieval period (see Table 10) and was recovered from seven separate sites. The range of form types present is narrow: most vessels are various types of jugs and jars.

Ceramic period	Total sherds	Total vessels
Medieval (twelfth–fifteenth century)	8	8
Post-medieval (late fifteenth–eighteenth century)	3	3
Totals	11	11

Table 10: Pottery by ceramic period with total quantities by sherd and vessel count

Codename	Full name	Earliest date	Latest date	Total sherds	Total vessels
BERTH	Brown-glazed earthenware	1550	1800	1	1
BL	Black-glazed wares	1550	1750	2	2
HUM	Humberware	1250	1550	1	1
NGR	Northern Gritty ware	1170	1450	7	7

Table 11: Pottery types with total quantities by sherd and vessel count

- 4.6.4 The medieval assemblage, which derives from the area excavations, Sites 26-2, 26-3, and 35-4, along with one sherd from the Phase 1 Evaluation Trench 26, consists almost entirely of seven vessels in Northern Gritty ware (Table 11). In addition, there is a single Humberware sherd from Phase 1 Evaluation Trench 40. Post-medieval material was recovered from the Phase 1 Evaluation, Trenches 50 and 63, and consists of four vessels, two in black-glazed earthenware, and one in brown-glazed earthenware.

- 4.6.5 **Potential:** this is a small group of pottery from seven different findspots. All of the pottery recovered is typical of the area in which it was found and none of the vessels are of note. There is, therefore, no potential for further analysis.

#### 4.7 CLAY TOBACCO PIPES

- 4.7.1 **Quantification:** nine fragments of clay tobacco pipe were recovered in the course of the project, from six contexts, all of which were stratified.

- 4.7.2 **Assessment:** all are small and undiagnostic fragments of narrow-bore stem. Although none can be dated with any precision, it is likely that all are of later eighteenth-century or nineteenth-century date.

- 4.7.3 **Potential:** there is no potential for further analysis.

## 4.8 COPPER ALLOY

4.8.1 **Quantification:** stratified material was recovered from only two contexts on the Aberford to Pannal Pipeline. This material, along with the unstratified finds, is listed in Table 12.

Site	Context	OR	Category
Site 26-2	<b>5037</b> (surface <b>5216</b> )	5020	Trumpet brooch
Site 26-2	<i>unstratified</i>	5021	Coin
Site 26-3	<i>unstratified</i>	6019	Button
Site 26-3	<i>unstratified</i>	16018	Coin
AP WB	surface <b>8517</b>	16023	Stud

Table 12: Copper-alloy artefacts by site and context

4.8.2 **Assessment:** the stratified material was in fair to poor condition, and most of the surviving fragments were rather small. It has not been examined by x-radiography. One of the unstratified coins is likely to be of Romano-British date. In addition, there is part of a Romano-British bow brooch (probably a trumpet brooch) from Site 26-2.

4.8.3 **Potential:** these objects have some demonstrable potential to contribute to the dating of the contexts from which they derive, or at a less precise level, of the sites on which they were found. It is, however, too small and disparate a group to add significantly to any discussion of activity on any of the sites.

## 4.9 IRON

4.9.1 **Quantification:** in all, 16 fragments of ironwork were recovered from the Aberford to Pannal Pipeline, and of these, all but two were stratified (Table 13).

Site	Context	OR	Quantity	Category
AP21	Top of natural deposit <b>1662</b>	15013	1	Iron fragment
AP33	<b>1829</b> (ditch <b>1830</b> )	15014	1	Iron fragment
Site 20-4	<b>8603</b> (ditch <b>8662</b> )	16015	1	Iron nail
Site 20-8	<b>1901</b> (ditch <b>1890</b> )	15015	1	Iron fragment
A64 Yard	<b>4751</b> (ditch <b>4503</b> )	9004	1	Iron nail
Site 3	<b>4017</b> (ditch <b>4035</b> )	3002	5	Iron fragment
Site 26-2	<b>5114</b> (ditch <b>5223</b> )	5011	1	Large hinge
Site 26-3	<b>6540</b> (posthole <b>6541</b> )	6017	1	Iron nail
Site 26-3	<b>6594</b> (ditch <b>6526</b> )	6009	1	Iron fragment
Site 35-4	<b>6031</b> (pit <b>6032</b> )	6012	1	Iron nail
	<i>unstratified</i>	16019	1	Iron fragment
	<i>unstratified</i>	17001	1	Latch lifter

Table 13: Iron artefacts by site and context

4.9.2 **Assessment:** the stratified material was characterised by its poor condition, and the small size of most of the surviving fragments. It has not been examined by x-radiography, as it was not thought that, in the circumstances, this would be a particular aid to identification.

Part of a very large strap hinge from Site AP 26-2 is probably of recent date, but an earlier date is not impossible, as such simple artefacts have not changed significantly through time.

4.9.3 **Potential:** the poor condition and fragmentary nature of the ironwork means that there is no potential for further analysis.

#### 4.10 INDUSTRIAL RESIDUES

4.10.1 **Quantification:** in all, 43 fragments of industrial residue were recovered from stratified contexts on the Aberford to Pannal section of the pipeline (Table 14).

Site	Context	OR	Quantity	Material
AP32	<b>1860</b> (pit <b>1861</b> )	19001	7	Slag
AP32	<b>1860</b> (pit <b>1861</b> )	19088	18	Slag
AP34	<b>1794</b> (pit <b>1795</b> )	19086	5	Slag
A64 Yard	<b>4615</b> (ditch <b>4633</b> )	19022	5	Slag
A64 Yard	<b>4619</b> (ditch <b>4519</b> )	19025	1	Slag
A64 Yard	<b>4620</b> (ditch <b>4519</b> )	19027	3	Slag
A64 Yard	<b>4623</b> (ditch <b>4519</b> )	19026	4	Slag

Table 14: Industrial residues by site and context

4.10.2 **Assessment:** it is likely that most of the material recovered derives from ironworking. The assemblage is, however, too small for any valid comment.

4.10.3 **Potential:** there is no potential for further analysis.

#### 4.11 GLASS

4.11.1 **Quantification and Assessment:** two fragments of glass were recovered, one during the Phase 1 Evaluation, the other from Site 26-3. Both are small body fragments and late in date.

4.11.2 **Potential:** there is no potential for further analysis.

#### 4.12 CERAMIC BUILDING MATERIAL

4.12.1 **Quantification and Assessment:** seven fragments of ceramic building material (CBM) were recovered from the Aberford to Pannal Pipeline, six pieces of daub from fill **1829** (ditch **1890**) in Trench 33, Site 20-8, and a piece of tile from Site 26-2, fill **5109** (ditch **5222**).

4.12.2 **Assessment:** the daub is very fragmentary, and there is little evidence for the preservation of impressions, for instance, of the wattle or lath framework onto which it might have been plastered. Few, if any, of the fragments carry impressions of grain, or other organic material, which might contribute to the palaeoecological understanding of the site.



4.12.3 **Potential:** the poor preservation of the assemblage suggests that it has no potential for further analysis, and cannot contribute to the further understanding of the sites from which it was recovered.

#### 4.13 WORKED STONE

4.13.1 **Quantification:** in all, ten fragments of worked stone were recovered from the Aberford to Pannal Pipeline, along with a fragment of fossilised coralline limestone, and an ironstone pebble (Table 15). Stratified material was recovered from eight contexts, and two items were unstratified. The assemblage comprised a narrow range of object types, from a whetstone, to complete beehive quern stones, and in order to assess their potential for further study, they are grouped by function.

Site	Context	OR	Category
AP21	1683 (natural feature 1682)	15023	Fossil coral fragment
AP38	1880 (pit 1881)	19007	Worked stone
Site 26-2	5142 (ditch 5219)	10870	Worked stone
Site 26-2	5186 (ditch 5225)	5014	Small disc
Site 26-2	unstratified	5019	Ironstone pebble
Site 26-3	6572 (ditch 6526)	6008	Small quern fragment
Site 26-3	6597 (ditch 6658)	6022	Quern fragment
Site 26-3	6597 (ditch 6658)	6020	Beehive quern, upper stone
Site 26-3	6597 (ditch 6658)	6021	Beehive quern, lower stone
Site 26-3	unstratified	6023	Saddle quern
AP WB	8573 (ditch 8570)	16016	Whetstone
AP WB	8617 (ditch 8616)	16026	Beehive quern, upper stone

Table 15: Worked stone artefacts by site and context

4.13.2 **Assessment:** quern stones formed the largest and most cohesive group, with a total of six examples recovered. Among these, potentially, but not necessarily, the oldest, is a sandstone saddle quern, although it was unstratified. The grinding surface is well-worn, suggesting some considerable use before it was discarded. Saddle querns have an extremely long date-range, extending from the Neolithic to the Romano-British period (Buckley and Major 1990, 105-6).

4.13.3 The majority of the stones were beehive querns, a common native type, with its origins lying in the Iron Age. Again, these have a long date range, in the North, coming into use probably in the second century BC, and continuing in use to at least the fourth century AD (Buckley and Major 1990). Indeed, in the northern counties of Northumberland, Durham, and Yorkshire, they are widespread finds in the second to fourth centuries AD (*ibid*). The geological source of the stones is yet to be established, but all are of a similar coarse, greyish sandstone.

4.13.4 An upper and lower stone were recovered from the same deposit (6597) at Site 26-3, and could well be a pair, deposited at the same time. Two other small fragments from the same site, one from 6597, the other from 6572, are most likely to have come from beehive querns. This concentration can probably be associated with domestic activity in the

close vicinity.

4.13.5 The well-worn whetstone, found during the Watching Brief (*Appendix 2*), has glossy patches, suggesting its use for polishing a relatively fine material. An ironstone pebble, again unstratified, seems to have been deliberately modified, and a smooth flat surface suggests it might have been used for polishing.

4.13.6 The small fragment of coralline limestone, from a natural feature investigated during the Phase 1 Evaluation, is in no way modified, and its position in the fill of a geomorphological feature seems to rule out the possibility that it reached the site via human agency.

4.13.7 **Potential:** the potential of the material is largely confined to the querns and the whetstone. The millstones may be placed in a regional context, thus enhancing their contribution to the interpretation of the site from which they were recovered, and the regional trade networks that brought them to the site. Similarly, identification of the geological origins of the whetstone should enhance the understanding of regional, and perhaps even international, trade patterns.

#### 4.14 HUMAN BONE

4.14.1 **Quantification:** two inhumations from separate sites were discovered during the course of work on the Aberford to Pannal Pipeline, *ie* an Iron Age burial in Trench AP33, Site 20-8 and a shallow Roman burial from Site 26-3. Both underwent macroscopic osteological analysis. The poor condition and lack of completeness of the skeletons, and the very small sample size, precluded any palaeodemographical analysis.

4.14.2 Examination of the skeleton was conducted in accordance with national accepted guidelines (Mays *et al* 2004). This involved assessing the completeness and condition of the skeletons with particular reference to certain landmarks that may be used to establish biological parameters and explore health status.

4.14.3 **Assessment:** inhumation **1888** was found within a grave cut into ditch **1832** in Phase 2 Evaluation Trench AP33 (*Section 3.3.2*). This individual was in a crouched position, with the legs moderately flexed towards the torso. Such a position is unlikely to have been possible without binding the body, although no direct evidence of this was found within the grave. The style suggests an Iron Age date, as does its proximity to the Aberford Dykes, although this would need to be confirmed by radiocarbon dating.

4.14.4 The second burial (**6504**), found on Site 26-3, was in a shallow grave (*Section 3.7.6*). It had been heavily disturbed by both ploughing and animal burrowing, and the majority of the skeleton did not survive. The grave was situated adjacent to a possible roadside ditch and associated trackway. No dating evidence was found but it is most probable that this burial belongs to the Roman period, although, again, this would need to be confirmed by scientific dating.

4.14.5 The overall preservation of the skeletons was poor (Table 16). Considerable destruction of the cortical bone, a consequence of burial in limestone, limited the potential for metrical

analysis and the identification of pathology. Root damage and, in the case of skeleton **6504**, animal burrowing, ploughing and topsoil stripping, further compromised the integrity of the bone. These taphonomic processes greatly affected the completeness of the skeletons.

Site	Skeleton	Preservation	Completeness	Age (years)	Sex	Time Period
AP33	<b>1888</b>	Poor–fair	50–60%	30–40	?male	Iron Age
Site 26-3	<b>6504</b>	Poor	25–35%	adult	?male	Roman

Table 16: Completeness, preservation, and antiquity of inhumations

- 4.14.6 Both bodies were of adults. Given the poor preservation, age estimation was not possible for skeleton **6504**. The age-at-death of skeleton **1888** was estimated to be 30–40 years, on the basis of tooth wear (Brothwell 1981). Both adults were sexed as probable males, based on cranial and pelvic morphology.
- 4.14.7 **Potential:** these burials, from two different sites, cannot be used to comment on the wider settlement and environment. However, they may usefully be compared with others of the same date in the region.

#### 4.15 ANIMAL BONE

- 4.15.1 **Quantification:** a very small collection of animal bone, weighing *c* 5.5kg, was recovered from five sites on the pipeline route (Table 17), not including any bone from soil samples. All of the bone is grouped into the general phase of the sites from which they were recovered, and does not take into account any phasing by context. This material was rapidly scanned in order to assess its condition and potential for further analysis.

Species	AP 20-4		AP 20-8	AP 26-2	AP 26-3	AP 35-4	Total
	Not closely dated	Prehistoric	Romano-British	Iron Age/Romano-British	Iron Age/Romano-British	Prehistoric	
Horse			20				<b>20</b>
Cattle	8	2		3	1	2	<b>16</b>
Sheep/Goat	5						<b>5</b>
Cattle/Red Deer	2	13					<b>15</b>
Medium Mammal	3		1		1		<b>5</b>
Large Mammal	14	433	66	6			<b>519</b>
Unidentified Mammal	23	113	41	4	9		<b>190</b>
Human?	1						<b>1</b>
<b>Total</b>	<b>56</b>	<b>561</b>	<b>128</b>	<b>13</b>	<b>11</b>	<b>2</b>	<b>771</b>

Table 17: Number of Individual Specimens (NISP) by species

- 4.15.2 The material was identified using the reference collection held by the author. All parts of the skeleton were identified where possible, including long bone shafts, skull fragments, all teeth, and fairly complete vertebrae. Sheep/goat distinctions were attempted using reference material and Boessneck (1969), Kratochvil (1969), and Prummel and Frisch (1986).
- 4.15.3 For each species or species group the following were recorded: the number of individual specimens (NISP); total number of fragments; preservation category; the number of measurable bones; the number of butchered bones; the number of mandibles or mandibular loose teeth from which the wear pattern could be described; and the number of bones from which the epiphyseal fusion state could be identified. NISP and total number of fragments differ in that a NISP count joins archaeological breaks of the same bone and counts the bones as one NISP; total number of fragments counts the number of bone fragments regardless of archaeological breaks. Tooth wear and fusion data are used to assess the age of death of the principal stock animals (cattle, sheep/goat and pig). Biometrical data are used to assess the size, and in some instance, the sex ratio of the principal stock animals. The preservation categories provide a useful indicator to the general condition of the assemblage. These categories are as follows:
- *very poor*: very fragmented bone with a highly eroded surface;
  - *poor*: bone with an eroded surface and with less than half the anatomical part present;
  - *moderate*: bone with approximately half the anatomical part present and with some erosion to the surface;
  - *good*: bone with an uneroded surface and with half or more than half the anatomical part present;
  - *very good*: a complete, or near complete, bone with little or no erosion.
- 4.15.4 **Assessment:** the total number of prehistoric and Romano-British bones identifiable to a species level is extremely small (Table 17), with varying degrees of fragmentation and surface erosion (Table 18). Included within this material is a prehistoric cow burial from pit **8653** of Site 20-4, comprising 459 fragments. This is given a value of one in counts of NISP (Table 17), but accounts for most of the moderately well-preserved bone in the Site 20-4 assemblage in Table 18. Excluding this burial, bone preservation varies from very poor to moderate, with the exception of a small number of bones from Site 20-8, which are in a good to very good condition (Table 18). The quantity of potential tooth wear, fusion, butchery and biometric data from each site is either small or non-existent.

Site	Preservation category					Total
	Very Poor	Poor	Moderate	Good	Very Good	
AP 20-4	2	5	462	1		<b>470</b>
AP 20-8	4		5	6	10	<b>25</b>
AP 26-2	1	2				<b>3</b>
AP 26-3	1					<b>1</b>
AP 35-4			2			

Table 18: NISP by preservation category (excluding loose teeth)

4.15.5 **Potential:** each site has produced only very small quantities of animal bone, with little potential for further analysis. Fully recording will, however, make the animal bone data from the sites accessible for regional studies.

#### 4.16 CHARCOAL AND PLANT REMAINS

4.16.1 **Quantification:** 29 bulk samples were taken during the Phase 2 Evaluation trenching of the Aberford to Pannal Pipeline (*Appendix 1*); a further 99 samples came from the area excavations (*Section 3*); and a single sample was retrieved during the Watching Brief (*Appendix 2*). All were assessed for their waterlogged plant remains (WPR), charred plant remains (CPR) and charcoal potential. The samples came mainly from ditch/field systems, postholes, and pits, together with two samples from grave fills, and encompassed a fairly diverse range of soil types and landscapes. The plant and charcoal remains can provide information on activities and economic practices at the sampling site, as well as an insight into the local agricultural environment and woodland resources, and how these may have changed over time. Many have been provisionally dated to the Romano-British period.

4.16.2 An on-site programme of systematic sampling of all securely stratified contexts was implemented to eliminate the biases inherent in a strategy based on judgement alone, and to ensure that significant contexts were more reliably identified. Where dating by artefacts was insecure and/or where dating was likely to be a significant issue for the interpretation of the site, samples were also taken to allow the use of scientific methods, such as radiocarbon (C14) dating.

4.16.3 In accordance with accepted professional guidelines (English Heritage 2002), bulk, 40-litre samples were taken, or entire contexts when the total volume was less than this. Ten litres of each sample (or the whole context if less than this volume) were processed initially, and assessed using hand flotation. The flots were collected on a 250µm mesh, air-dried and examined under a binocular microscope. The contents of each flot, such as cereal grains, cereal chaff, weed seeds and molluscs, were quantified, as was material such as coal, clinker, bone, mortar, and ceramic building material (CBM). The presence of modern contaminants, such as roots, insect eggs and modern seeds, was noted and a catalogue prepared. The remains were quantified on a scale of 1–4 where 1 is rare (one to five items), 2 is frequent (under 50 items), 3 is common (51–100 items) and 4 is abundant (greater than 100 items).

4.16.4 Following the initial assessment, the remaining volume was processed of all those samples where the potential for CPR/WPR, charcoal analysis, mollusc analysis and radiocarbon dating had been identified. The remainder of those samples with the potential for containing finds was also processed at this stage.

4.16.5 Any charcoal fragments within the bulk samples were quantified and provisionally identified where possible. In particular, the presence of any short-lived wood species, such as *Alnus glutinosa* (alder), *Corylus avellana* (hazel) or *Betula nana* (birch) (diffuse porous wood), was noted, as was the presence of other charred material, such as Poaceae (grass family) stems or tuber fragments, for the purpose of providing suitable material for dating.

- 4.16.6 **Assessment:** 32 samples from the open-area excavations contained some charred plant material, but only one, fill **8583**, from posthole **8584** at Site 20-4, contained frequent to abundant remains. The preliminary results from this sample suggest that it is likely to represent crop-processing waste. Fill **8630** (ditch **8661**, Site 20-4) also contained a few cereal grains, including a possible naked (and therefore early) variety of barley. Fill **6061** (pit **6062**, Site 35-4) appeared markedly different and contained abundant charred *Erica/Calluna* (heath/heather) leaves and roundwood and rhizome fragments, which may represent burnt turf. While a number of the samples contained WPR, the assemblages were either very small or were likely to represent modern material.
- 4.16.7 Eight samples contained abundant well-preserved charcoal remains, sufficient for further charcoal analysis. Twenty-five of the samples contained material suitable for radiocarbon dating, such as bone fragments, charred plant material and/or short-lived charcoal wood. Seventeen samples contained abundant mollusc shells, which may provide useful information about local environmental conditions.
- 4.16.8 Fifteen samples from the Phase 2 Evaluation contained CPR, although frequent to abundant cereal remains and/or charred weed seeds were present in only three of these. All three samples came from pit fills, and they contained, between them, a variety of cereal types. One other sample, fill **1746** from ditch **1748** (Trench AP30), contained abundant weed seeds and heathland remains, including possible *Calluna* (heather) charcoal, which may represent the remains of burnt turf. Eleven samples contained some WPR, but the material may be modern. One sample, fill **1592** of ditch **1591** (Trench AP14), contained abundant mollusc shells, which may provide environmental data. Two samples contained sufficient quantities of charcoal fragments to allow for further analysis, while five samples showed some potential for radiocarbon dating.
- 4.16.9 The single sample retained during the Watching Brief, from fill **8564** of pit **8566** (Plot 30-6), contained a few waterlogged weed seeds, which are likely to be modern, but no charred plant remains. It did, however, contain abundant fragments of diffuse porous and *Fraxinus excelsior* (ash) charcoal, which would be sufficient for further analysis and as material for radiocarbon dating.
- 4.16.10 **Potential:** three of the samples from the open-area excavations contained frequent to abundant CPR, which would provide information on local agrarian practices, and eight contained well-preserved charcoal assemblages, which may provide information on the selection of species and/or the nature and availability of local woodland. There is also suitable material for dating in a quarter of the samples assessed.
- 4.16.11 Although the excavations revealed only a limited number of different types of feature, the scale of the sampling regime allowed for the recovery of material from ditch/field systems over a significantly large geographical area, and from several different types of soil. The palaeoenvironmental evidence, together with any dating evidence, should provide very important data on the nature of these landscapes and how they evolved and were utilised over time. Some analysis of the Phase 2 Evaluation samples would be beneficial, in addition to the work allocated for the material from the Phase 1 Evaluation (OA North 2007a). No further work, however, is warranted on the single sample collected during the Watching Brief. It does, however, contain material suitable for charcoal analysis and

radiocarbon dating.

#### 4.17 CONSERVATION

4.17.1 Most of the assemblage is well-preserved and in good condition.

#### 4.18 STORAGE

4.18.1 Once the post-excavation analysis is complete, the whole project archive, which will include records, plans, both black and white and colour photographs, artefacts, ecofacts and sieved residues, will be prepared following the guidelines set out in *Environmental standards for the permanent storage of excavated material from archaeological sites* (UKIC 1984, Conservation Guidelines 3) and *Guidelines for the preparation of excavation archive for long-term storage* (Walker 1990).

#### 4.19 PACKAGING

4.19.1 The finds assemblage is currently well-packed, and will require no specialist packaging. Box lists are prepared and will be updated from the database when the identification and analysis of objects is complete.

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## 5 STATEMENT OF POTENTIAL

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### 5.1 INTRODUCTION

5.1.1 Assessment of the individual sites along the length of the pipeline has made it clear that many of them will not only sustain further analysis to the benefit of the local archaeological record, but that two of them will individually add to the body of knowledge at a regional level: Sites 20-4 (*Section 3.2*), and 26-2 (*Section 3.6*). A redeeming feature of large-scale linear investigations such as this is their potential to produce a relatively non-judgemental transect through the local landscape, its parameters defined by criteria other than prospecting for sites of enhanced archaeological potential. This probably produces a more representative landscape sample on which to draw conclusions regarding a wide number of questions, from the survival and visibility of ancient activity within the modern landscape, to a realistic assessment of the nature and density of settlement at certain specific periods in the past (a caveat to this being that modern settlements are avoided by pipelines and, as a result, any earlier precursors they may have will be absent from the archaeological record generated by pipeline construction. Likewise, if boundaries remain in continuous usage, the earliest evidence for them might have been removed by later phases of activity, and only these later phases will be archaeologically identifiable.) Thus, while of little archaeological value if considered alone, the cumulative value of the minor sites investigated during the project can contribute significantly to one or more of the research themes detailed below, much enhancing their value, contributing especially to an understanding of the history of the development of the landscape.

### 5.2 POTENTIAL OF THE MATERIAL ASSEMBLAGE

5.2.1 Very few artefacts were recovered from this tranche of the project, despite the investigation of seven relatively well-defined archaeological sites (*Table 8, Section 4.2.1*). Finds were also sparse in the eastern, Asselby to Aberford Pipeline (OA North 2010), although less so, suggesting a topographical or environmental control. In both sections, the density of finds probably reflects the markedly rural nature of the sites investigated. A wide date-range for the material, from the Mesolithic period until the present day, with the main focus of activity in the later Iron Age and/or Romano-British periods, is directly comparable with other investigations in the area (Roberts *et al* 2001), and is presumably an indication of historic trends in local land-use.

5.2.2 The assessments of the differing types of artefact (*Sections 4.3-13*) make it clear that, with the exception of those from Sites 26-2 and 26-3, the finds bear limited potential to add to the interpretation and understanding of the sites examined. Although pottery of all dates comprises 44% of the total assemblage (excluding ecofacts) by fragment count, and all but six fragments can be attributed to late Iron Age and Romano-British activity, the lack of diagnostic sherds amongst the Iron Age pottery, and the limited range of the Romano-British material, has reduced its potential to contribute to the dating of specific archaeological features. Other classes of material appear in only small quantities (*Table 9*),



and although two coins were recovered, they were unstratified and can add little to the dating.

### 5.3 EARLY PREHISTORY

5.3.1 No early prehistoric features were certainly identified, although the curvilinear ditch at Site 35-4 could be part of a monument such as a barrow, and a background of activity in the period was apparent at others sites, such as Sites 20-4 and 3. Populations during this period were probably peripatetic, so that the markers of their presence are exiguous, widespread and sparsely distributed, except where concentrated at enduring sites of long-term significance, such as henge monuments.

### 5.4 LATER PREHISTORY: THE IRON AGE

5.4.1 The pottery finds at Sites 20-4, 20-8, and 26-2, along with the quern found at Site 26-3, belong to a broad date range covering the pre-Roman Iron Age through to the Roman period. Given the nature of the features from which these finds were recovered, it is reasonable to suggest that these results coincide with the interpretive model already developed for this region (Haselgrove *et al* 2001), *ie* that there was extensive, more permanent settlement and organisation of the landscape at this time, implying a considerable density of population. The economy was agrarian, and more wide-ranging and persistent trading networks seem to have developed at the time. The division between the Iron Age and the Romano-British period is substantially artificial in cultural terms, with many settlement sites persisting unchanged throughout this timespan (*op cit*, 28). Site 26-2 is a strong candidate for such continuity, with features suggestive of the earlier period, and artefacts which are culturally Romano-British.

### 5.5 THE ROMANO-BRITISH PERIOD

5.5.1 Although Roman strategic and settlement centres lie nearby, the character of all the sites excavated is entirely rural. In common with other known sites, the artefact assemblages do not compare with the rich suites recovered from Roman military and trading sites.

5.5.2 It is of particular interest that Romano-British activity dated to the later third and fourth centuries often exactly overlies apparently abandoned Iron Age settlement, both in the wider region and at the sites excavated on the pipeline route. It is unclear whether sites were abandoned and reoccupied, or continued in occupation with an ostensibly unchanged cultural assemblage. Few Romano-British settlements have been investigated in this region (Ottaway 2003, 143), so even limited study will contribute to this debate.

### 5.6 MEDIEVAL AND POST-MEDIEVAL PERIODS

5.6.1 The evidence recovered from the excavations for activity during these periods was meagre (although note the comments in parentheses in *Section 5.1.1*). While the plough furrows, and some of the field boundaries and trackways almost certainly date from this period, no evidence has been found to confirm this. No concentrations of pottery were apparent, and

the isolated pottery finds are consistent with the use of domestic waste to fertilise the fields. These characteristics concord entirely with the rural nature of the modern landscape through which the pipeline passes.

## 5.7 CONCLUSIONS

- 5.7.1 The project has examined a rich palimpsest landscape, which owes its genesis to the end of the last Ice Age, *c* 10,000 BC, but has since then undergone a slow process of modification by both natural and man-made agents in order to become the landscape seen today. Inevitably, the evidence of such change has been localised and inconsistent in its survival, and data gathered by this project do not represent the full series of chronological periods from the end of the last glaciation to the present day. Nonetheless, it has the potential to elucidate many facets of the past use of the area, especially in the Iron Age/Romano-British period. Archaeologists have a strong tendency to forget that the remains which they investigate and record were created by rational, thinking human beings who made a successful life within this evolving landscape. Their needs and aspirations must have governed the manner in which they interacted with and modified the world around them, and are thus revealed to some degree by a structured analysis of that landscape.
- 5.7.2 Such knowledge can make a significant contribution towards strengthening a sense of place and possession among a mixed and changing, and often disaffected, modern population. It can also help those who influence the growth and development of that landscape today to understand the importance of their ancestors' contribution to the past, and their own to the future (English Heritage 2000).

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## 6 UPDATED PROJECT DESIGN

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### 6.1 AIMS AND OBJECTIVES OF THE PROGRAMME OF ANALYSIS

6.1.1 This section follows the guidance of English Heritage regarding the formulation of updated research aims (English Heritage 1991, 2–3). The original aims for the project remain valid, but can be updated with new aims and objectives derived from the statement of potential set out in *Section 5*, as follows.

6.1.2 **Updated research aim 1:** What is the evidence for Iron Age peoples living and farming in this area? Can continuity into the Romano-British period be discerned?

*Objective 1:* What is the evidence for Iron Age settlements in this area? Were the settlements enclosed or unenclosed? What is the nature of the houses?

*Objective 2:* What is the evidence for Iron Age field systems and trackways in these areas? Were the systems contemporaneous or sequential?

*Objective 3:* How do settlements relate to the wider landscape?

*Objective 4:* What does analysis of the artefactual data contribute towards the understanding of the nature, chronology and trading links of this period?

*Objective 5:* What further information on farming practices and management of the landscape can be determined from the environmental analyses?

*Objective 6:* What is the evidence for continuity within the settlements and landscape into the Romano-British period?

6.1.3 **Updated research aim 2:** What can be learnt about Iron Age society from the burials found in this region?

*Objective 1:* What are the dates of the burials found?

*Objective 2:* What does study of these skeletons and the associated artefacts and ecofacts tell us about Iron Age people?

*Objective 3:* Are the burials and settlements of similar or differing dates?

*Objective 4:* What was the origin of those buried?

6.1.4 **Updated research aim 3:** What is the nature of the Romano-British activity seen on these sites? Is there any evidence for transition from the Iron Age or into the early medieval period?

*Objective 1:* What is the character of the field systems which overlie those of the Iron Age?

*Objective 2:* What is the material culture of the people living in this area in the third and fourth centuries AD?

*Objective 3:* Is there evidence for continuity into this period from the Iron Age?

*Objective 4:* Did the people have access to the Romanised culture in the vicinity? What is the evidence for trading links?

*Objective 5:* What is the date of each of the Iron Age/Romano-British burials and field systems?

*Objective 6:* Is there any evidence, dating, artefactual, ecofactual or stratigraphical, for a transition to the early medieval period?

6.1.5 **Updated research aim 4:** What is the evidence for settlement and farming in the medieval period in this area?

*Objective 1:* What is the evidence for land division and field systems in this area? Can environmental analysis add to data on the management of the landscape in this period?

*Objective 2:* Are there any property boundaries apparent and what is the implication of their presence?

*Objective 3:* What is the date of the settlement and agricultural evidence found? Is the occupation continuous or intermittent? Is there any continuity from the preceding period or into the post-medieval period?

*Objective 4:* To what extent were the medieval land divisions a continuation of earlier boundaries?

6.1.6 **Updated research aim 5:** What is the evidence for activity in the post-medieval period?

*Objective 1:* What is the nature of the evidence found for post-medieval land management?

*Objective 2:* Is it possible to date the post-medieval activity, from the stratigraphical and artefactual evidence or from cartographical and documentary investigation?

6.1.7 **Updated research aim 6:** How has the topography and geomorphology of the area affected our understanding of the past landscape?

*Objective 1:* How does site visibility affect the understanding of landscape features through time?

*Objective 2:* What effect has the geomorphology of the area had upon settlement and agriculture through time, and what have been the resulting activities?

*Objective 3:* How has the topography of the area affected trade through time?

*Objective 4:* Can study of mapping and documentary evidence assist with the analysis of the landscape through time?

*Objective 5:* Is there any persistence in landscape features in this area? How much continuity is apparent from the Iron Age to modern times?

*Objective 6:* Has the solid and drift geology affected the survival of environmental evidence on these sites?

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## 7 METHOD STATEMENT

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### 7.1 PROGRAMME STRUCTURE

7.1.1 The following methodology is necessary to fulfil the revised research aims outlined in *Section 6*. The post-excavation programme will be divided into the following stages:

- full cataloguing of any data representatively sampled
- further investigation
- analysis
- synthesis
- preparation of draft text and illustrative material
- issuing of final report
- archive deposition.

### 7.2 MANAGEMENT

7.2.1 Management and monitoring of the project will include advice and co-ordination, problem solving, and meetings with project staff and all interested external parties. The aim will be to ensure continued achievement of the research objectives, and intelligent adaptation of strategy in order to meet these. A full review of the project will be carried out every six months during its lifetime.

### 7.3 TASKS

7.3.1 The tasks necessary to complete the archaeological work are listed below and, together with the revised research aims (*Section 6*), constitute an Updated Project Design for Analysis. To summarise, these consist of a final phase of stratigraphic analysis, in combination with the results now available from the assessments of the finds and palaeoenvironmental data, and any other results that derive from the further analysis of these assemblages; preparation of comprehensive digital catalogues of the finds and palaeoenvironmental remains; and preparation of a final report. In the course of these tasks, the interpretation of the chronological development of the sites will be completed (augmented by the results of a programme of scientific dating), and the digital archive will be updated and enhanced. The paper and digital archive will be prepared for deposition at nominated receiving museums, in accordance with standard practices and protocols (see *Sections 4.18* and *7.24*), and in negotiation with the museums' curatorial staff, to meet their deposition policies.

7.3.2 As stated in the *Outline Proposal for Post-excavation Assessment* (OA North 2008b), WYAAS and NYHET will be invited to review the proposed Updated Project Design for Analysis and comment on a) the ability of the available data to fulfil the stated aims and

objectives of the project and, therefore, the analysis to be undertaken; b) the likely form of any publication or any other means of dissemination. In the interim, following discussions with NG's Archaeological Advisor, OA North proposes that the appropriate dissemination of the results of the archaeological analysis should, as a minimum, include the production of a full archaeological publication (see *Section 7.23*).

#### 7.4 PROCESSING AND TRANSPORT OF ARTEFACT ASSEMBLAGES

7.4.1 The finds will be marked, where appropriate, to allow complete integration into the site database. At an early stage in the analytical programme, where required, arrangements will be made to transport all relevant assemblages to the designated external specialists, if they are not already in possession, to facilitate analysis and reporting of the material. Conversely, on the completion of this work, material will need to be received from the specialists, sorted and checked against database records.

#### 7.5 DIGITAL DATA IN THE ANALYSIS PHASE

7.5.1 During fieldwork and Assessment, databases were compiled containing the stratigraphical, finds and palaeoenvironmental information from the project; they also include indices to the digital photographs and primary graphical sources. These databases will be audited and augmented throughout Analysis. Ultimately, the information in the databases, in addition to the digital photographs and scans of the textual and graphic archive, will be included in the permanent site archive deposited with the receiving museums (*Section 7.24*), and some or all of the data may be presented in a digital format to accompany the final publication.

7.5.2 The survey and graphical data have been digitised, cross-referenced with the stratigraphic databases, and incorporated into a GIS (Geographical Information System). The GIS will be updated throughout Analysis and it may be desirable to incorporate mapping data from previous phases of work (*Section 1.4*). Digital mapping data may be provided as an accompaniment to the final publication. On the completion of Analysis, metadata will be compiled on the digital mapping data and will be provided to the relevant HERs, along with databases and GIS shape files as Event data.

#### 7.6 STRATIGRAPHICAL ANALYSIS

7.6.1 The stratigraphic data recovered from certain of the excavations (as indicated in *Section 3* above) will need to be analysed in greater detail in order to refine the provisional phasing and resolve problems highlighted by the assessment. A broad stratigraphic framework has been produced for the assessment, but it is clear from this work that there are some areas where further detailed work is required. This broad stratigraphic framework will therefore be reviewed and refined, and it will also be essential to compile detailed sub-phasing, which will require careful analysis of the primary records, all contexts, and site plans and sections.

7.6.2 All contexts need to be attributed to these phases and sub-phases once established, and the site database will then require updating and amending. In the course of this analysis, the site matrices will require redrawing to conform to the amended periods and sub-phasing,

and to include those contexts which could not be resolved at the assessment stage.

7.6.3 A detailed analytical document of the stratigraphic information for all sites, accompanied by phase drawings, sections and other relevant line illustrations, as required, will be drafted. This will provide detailed information on the periods and sub-phases for all the sites. The draft text and phase drawings will form the basis both of the summary information to be supplied to specialists and of the stratigraphic section of the final report, as well as the publication.

7.6.4 The sites will be considered together and in relation to other known archaeological sites in the study area, and to their wider landscape and regional context. This will involve an element of library-based research and cartographic regression analysis.

## 7.7 **FLINT**

7.7.1 A small number of objects identified may require illustration, and a report will be compiled for incorporation in the publication.

## 7.8 **PREHISTORIC POTTERY**

7.8.1 The principal task will be to integrate the analysis of the prehistoric pottery with the stratigraphy to help stratigraphic phasing. This will also enable an examination of the associations between wares of the native tradition, and those of Romano-British type, to establish the chronology, although the effects of residuality will have to be taken into consideration. The following work will be required to produce a final report:

- a review of the fabric groups identified during the assessment phase with a view to linking them with those proposed by Rigby (2004) and, if possible, Didsbury and Vince (in prep);
- enhancement of statistical data to bring the presentation into line with that of the Roman and Romano-British wares;
- close integration of the report on the hand-made wares with that on the wheel-thrown Roman and Romano-British wares, with the twin aims of identifying the date ranges for diagnostic hand-made sherds and vessels using the Roman and Romano-British pottery data, and of commenting on the implications of the data for the further understanding of Romanisation and acculturation during the period of Roman occupation;
- discussion of the relationships between the hand-made pottery and the details of the contexts of deposition (including associated human burials, artefacts, animal bone, organic food waste and environmental data), in the light of the possibility that there was structured or non-random deposition in pits, ditches and other cut features.

## 7.9 **ROMANO-BRITISH POTTERY**

7.9.1 The principal task will be to integrate the preliminary analysis of the Romano-British pottery with the stratigraphic data, in order to refine understanding of, and add dating to,

the stratigraphic succession. As part of this task, the data gained from analysis of the hand-made wares (*Section 7.8*) will be fully integrated with that of the Roman and Romano-British wares, in order to refine the dating of both, and increase understanding of the manner in which both ware types were used in tandem, and how this might reflect changing socio-economic strategies and focus.

- 7.9.2 Changes in the range and distribution of vessel types and fabrics through time will be considered, in order to build a picture of differences in activity on the sites and, at a greater scale, in sources of supply. Some comparison will be made with other sites in the region, in order to provide a better understanding of these changes. Specific vessels of intrinsic interest will be considered in a wider, regional context. The analysis will be drawn together in a brief illustrated synthesis for publication, primarily addressing those of the stated research themes relevant to the pottery.

#### 7.10 **POST-ROMAN POTTERY**

- 7.10.1 An archive catalogue of this assemblage should be prepared, and its presence or absence noted in any stratigraphic discussion. Following discussions with the receiving museums, some of the material may be discarded.

#### 7.11 **CLAY TOBACCO PIPES**

- 7.11.1 An archive catalogue of the pipes should be prepared, and note made of their presence or absence within any stratigraphic discussion. Following discussions with the receiving museums, some or all of the material may be discarded.

#### 7.12 **METALWORK**

- 7.12.1 It is recommended that the coins be x-rayed, to confirm their identification. It is suggested that the copper-alloy, iron and lead finds be fully described, recorded photographically and drawn, where appropriate, to provide an archive catalogue. A brief summary report should be prepared for publication.

#### 7.13 **INDUSTRIAL RESIDUES**

- 7.13.1 An archive catalogue of this assemblage should be prepared, and its presence or absence noted in any stratigraphic discussion. Following discussions with the receiving museums, some or all of the material may be discarded.

#### 7.14 **GLASS**

- 7.14.1 An archive catalogue of the vessel glass should be prepared, and a note made of its presence or absence within any stratigraphic discussion. Following discussions with the receiving museums, some or all of the material may be discarded.



### 7.15 CERAMIC BUILDING MATERIAL (CBM)

- 7.15.1 An archive catalogue of the CBM should be prepared, and note made of its presence or absence within any stratigraphic discussion. Following discussions with the receiving museums, some or all of the material may be discarded.

### 7.16 WORKED STONE

- 7.16.1 Specialist analysis will be required to gain a better understanding of the geological provenance and wider regional context of the quern stones and the whetstones. A small number of objects identified may require illustration, and a report will be compiled for incorporation in the publication.

### 7.17 HUMAN BONE

- 7.17.1 Radiocarbon assay is recommended for both skeletons. Additional scientific investigation should include analysis of the carbon and nitrogen, and oxygen and strontium stable isotopes. Even though the preservation of the bone is poor, it has been shown in previous work that protein survival in this geographical region is very good. Full macroscopic osteological analysis will contribute to the wider record of burials excavated and analysed under modern conditions, especially those discovered recently on the A1(M) excavations (Boston 2007). As such, a wider-ranging discussion of these inhumations in the context of others recovered from the pipeline route and from other recent archaeological work in the vicinity will be included within the publication.

### 7.18 ANIMAL BONE

- 7.18.1 A short report will be compiled for inclusion in the publication. This report will concentrate on a basic quantification of the material, with some further discussion of the cow burial, and of bone deposits from specific features where processing activities may be identified.

### 7.19 CHARCOAL AND CHARRED PLANT REMAINS

- 7.19.1 Material will be selected and isolated for radiocarbon dating purposes (*Section 7.20*). Those assemblages deemed worthy of further analysis (*Section 4.16.1-7*) will be characterised and considered in detail with regard to the information they can provide concerning their stratigraphic context and the wider interpretation of the archaeological sites where they occur, as well as the environment and economy of the period they date to. The results will be incorporated within the stratigraphic narrative and a report prepared for the publication.

### 7.20 RADIOCARBON DATING

- 7.20.1 Following reconsideration of the stratigraphy and the available resource (*Section 4.16.7-10*), samples will be selected for radiocarbon assay. Certificates will be prepared for these samples and submitted along with them to an appropriate laboratory. The results will be

incorporated within the stratigraphic narrative and a over-arching summary report prepared for the publication.

## 7.21 INTEGRATION OF DATASETS AND SYNTHESIS

7.21.1 The information gathered from analysis of the finds will be reviewed and integrated into the stratigraphic narrative. This will allow reinterpretation of the site using a thematic approach. The GIS will allow detailed interrogation of the data and the testing of hypotheses and phasing.

## 7.22 ILLUSTRATIONS

7.22.1 During each part of the analytical programme, a selection will be made of appropriate material for illustration. This will include general plans and sections, phase plans, and artefacts, as well as site photographs. Illustrations will be produced by experienced illustrators, using standard conventions.

## 7.23 PRODUCTION OF TEXT AND PUBLICATION

7.23.1 Following the completion of the analysis of the stratigraphic and artefactual evidence, a comprehensive final report will be produced for publication as a monograph (*Lancaster Imprints Series*). This will target both an academic and informed audience and will be written in an accessible style. It is possible that the publication will be accompanied by digital media, such as a website or CD containing digital plans, catalogues and specialist reports. All media will integrate the results of work undertaken on the Aberford to Pannal section of the pipeline with those from the Asselby to Aberford section of the pipeline (OA North 2010) and, probably, the excavation of the Aberford Dykes (NAL 2010). Prior to publication, the draft publication text will be submitted for internal revision and peer review, and will be passed to all specialists after editing, for their comments.

## 7.24 ARCHIVE DEPOSITION

7.24.1 OA North undertakes to liaise throughout the project with the receiving museums (probably The Yorkshire Museum, York, and the Leeds Museum, for North and West Yorkshire respectively) to meet their deposition policies (see also *Section 4.18*). On completion of the analysis, a discard policy will be implemented. On submission of the completed text for publication, the archive will be updated as necessary and the receiving museums will be contacted to obtain the latest information on its deposition arrangements. Material in files and boxes will be checked, and indices and box lists will be compiled and appended.

7.24.2 The digital archive will be checked and indexed, and hard copies made of the data if required by the recipient museums. The digital data will be accompanied by metadata, which will explain origin and accuracy.

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## APPENDIX 1: PHASE 2 EVALUATION

### A1.1 INTRODUCTION

A1.1.1 The length of the Aberford to Pannal Pipeline, and the varied terrain through which it runs, preclude the drawing of all-encompassing conclusions about the results of the evaluation exercise. It is therefore helpful to break the route down into a number of smaller packages to enable relevant and meaningful discussion at a more local scale (Table 19; Fig 10).

Package	Landscape Unit	Plot	Trenches
<b>GG</b>	<b>High-relief calcareous</b>	<b>A64 Yard</b>	<b>AP1-AP11</b>
<b>HH</b>	<b>High-relief calcareous</b>	<b>24-1</b>	<b>AP12-AP13</b>
		<b>24-2</b>	<b>AP14</b>
II	High-relief calcareous	20-4	AP15-AP18
<b>JJ</b>	<b>High-relief calcareous</b>	<b>24-5</b>	<b>AP19-AP23</b>
<b>KK</b>	<b>High-relief calcareous</b>	<b>22-4</b>	<b>AP24-AP25</b>
LL	High-relief non-calcareous	31-9	AP26
		31-10	AP27-AP28
MM	High-relief non-calcareous	30-9	AP29
NN	High-relief non-calcareous	36-4	AP30
<b>OO</b>	<b>High-relief non-calcareous</b>	<b>30-3</b>	<b>AP31</b>
PP	High-relief calcareous	20-8	AP32-AP37
<b>QQ</b>	<b>High-relief non-calcareous</b>	<b>28-8</b>	<b>AP38-AP39</b>

Packages in bold italics are in West Yorkshire, the remainder in North Yorkshire

Table 19: Concordance of packages

A1.1.2 The starting point for deciding the extent of the packages was the two geotopographical landscape units identified in the palaeoenvironmental assessment for this section of the scheme (Headland Archaeology 2007). The guiding principle was that the nature of the geology and topography would be likely to affect the character and visibility of the archaeological remains. The resulting packages vary widely in terms of their size and the number of trenches they contain. Table 19 is a concordance between the trenches, pipeline plots, landscape units and packages, while Table 20 presents a summary of the results of the Evaluation.

A1.1.3 Of the 39 trenches, 12 contained no archaeological features of any kind, 11 revealed features believed to be natural in origin, two contained post-medieval field drains and plough scars; archaeological features of potential significance were uncovered in the remaining 14.

Trench	Trench Area	Figure numbers	Results
AP1	20 x 8m	11	No archaeology
AP2	20 x 2m	11	Natural features
AP3	20 x 3.5m	11	Natural features
AP4	25 x 4m	11	Natural features
AP5	25 x 4m	11	Natural features
AP6	25 x 4m	11	Natural features
AP7	62 x 2m	11	No archaeology
AP8	30 x 2m	11	No archaeology
AP9	91 x 4.5m	11	Natural features
AP10	48.5 x 2.5m	11	Natural features
AP11	30 x 2.5m	11	Natural features
AP12	22 x 1.5m	12	No archaeology
AP13	30 x 1.5m	12	No archaeology
AP14	30 x 2m	12, 13	Ditches; not closely datable
AP15	30 x 1.5m	2, 14	Ditch and pit; not closely datable. Romano-British pottery recovered
AP16	20 x 4m	2, 14	Ditch; not closely datable
AP17	10 x 10m	3, 14	Ditches; not closely datable
AP18	20 x 4m	3, 14	Ditches; not closely datable. Natural feature
AP19	20 x 2m	15, 16	Ditch and pit; not closely datable
AP20	20 x 1.5m	15, 17	Ditches and posthole; not closely datable. Natural feature
AP21	50 x 4m	15, 21	Ditches and pits; not closely datable. Natural features
AP22	40 x 4m	15, 22	Ditch; and natural feature not closely datable
AP23	15 x 15m	15	Natural features
AP24	40 x 4m	20	No archaeology
AP25	40 x 5m	20	No archaeology
AP26	30 x 2m	21, 22	Pits and natural feature; not closely datable
AP27	30 x 2m	21	No archaeology
AP28	30 x 2m	21	No archaeology
AP29	30 x 2m	23	No archaeology
AP30	50 x 4m	24, 25	Field drains, probably post-medieval, and natural features
AP31	30 x 2m	26	No archaeology
AP32	19.5 x 19m	4, 27	Ditches and pits; not closely datable. Romano-British pottery recovered
AP33	28 x 20m	4, 27	Ditches; not closely datable. Romano-British and Iron Age pottery recovered
AP34	20 x 4m	27, 28	Ditch and pits; not closely datable. Natural features
AP35	20 x 4m	27, 29	Ditch and natural feature; not closely datable. Post-medieval pottery recovered
AP36	30 x 4m	27	Natural feature
AP37	20 x 5m	27, 30	Pit and natural features; not closely datable
AP38	30 x 3m	31	Natural feature
AP39	15 x 15m	31	No archaeology

Table 20: Summary of results

A1.1.4 The results are arranged by package, with a description and summary of the location and terrain of each package, followed by detailed descriptions of the trenches, and recommendations for further work.

## A1.2 PACKAGE GG

A1.2.1 Package GG (Fig 10; West Yorkshire; Aberford Parish; A64 Yard) lay at 78–79m aOD, in a high-relief calcareous area (Magnesian Limestone), to the south-west of the junction of

the A64 and the A1M and to the north of Aberford. Eleven trenches were excavated (Fig 11).

- A1.2.2 With three exceptions, the trenches were randomly positioned to sample 4% of the surface area. Trenches AP1–AP3 focused on a cropmark. None of the trenches revealed any archaeologically significant features.
- A1.2.3 **Trench AP1:** this trench revealed 0.29m of topsoil, over 0.48m of relict ploughsoil, sealing natural deposits of Magnesian Limestone. No archaeological features were observed.
- A1.2.4 **Trench AP2:** the geology revealed in this trench consisted of 0.35m of topsoil, over 0.15m of relict ploughsoil, sealing natural deposits of Magnesian Limestone. No archaeological features were revealed, but natural features were detected.
- A1.2.5 **Trench AP3:** the geology revealed in this trench consisted of 0.3m of topsoil, over 0.09m of relict ploughsoil, sealing natural deposits of Magnesian Limestone. No archaeological features were observed, but natural features were identified.
- A1.2.6 **Trench AP4:** this trench revealed 0.26m of topsoil, over 0.34m of relict ploughsoil, sealing natural deposits of Magnesian Limestone. No archaeological features were observed, but a natural feature was detected.
- A1.2.7 **Trench AP5:** the general stratigraphy in this trench comprised 0.2m of topsoil, over 0.2m of relict ploughsoil, sealing natural deposits of Magnesian Limestone. No archaeological features were observed, but a natural feature was detected.
- A1.2.8 **Trench AP6:** this trench revealed 0.38m of topsoil, sealing natural deposits of Magnesian Limestone. No archaeological features were observed.
- A1.2.9 **Trench AP7:** this trench revealed 0.46m of topsoil, over 0.39m of relict ploughsoil, sealing natural deposits of Magnesian Limestone. No archaeological features were observed.
- A1.2.10 **Trench AP8:** this trench revealed 0.3m of topsoil, over 0.1m of relict ploughsoil, sealing natural deposits of Magnesian Limestone. No archaeological features were observed.
- A1.2.11 **Trench AP9:** the general stratigraphy in this trench comprised 0.4m of topsoil, over 0.2m of relict ploughsoil, sealing natural deposits of Magnesian Limestone. No archaeological features were observed, but natural features were detected.
- A1.2.12 **Trench AP10:** the geology revealed in this trench consisted of 0.34m of topsoil, over 0.35m of relict ploughsoil, sealing natural deposits of Magnesian Limestone. No archaeological features were observed, but natural features were detected.
- A1.2.13 **Trench AP11:** the geology revealed in this trench consisted of 0.32m of topsoil, over 0.26m of relict ploughsoil, sealing natural deposits of Magnesian Limestone. No archaeological features were observed, but natural features were detected.
- A1.2.14 **Further works:** no further works were recommended.



### A1.3 PACKAGE HH

- A1.3.1 Package HH (Fig 10; West Yorkshire; Thorner Parish; Plots 24-1 and 24-2) occupied an area of high-relief calcareous geology (Magnesian Limestone). The trenches lay at approximately 75–86m aOD, to the north of Bramham Road, north-east of Thorner and south of Milner Beck.
- A1.3.2 The three trenches within this package (Fig 12) were positioned over geophysical anomalies and cropmarks (WSMR 4166; NAL 2006a) identified in the desk-based assessment. Only one of the trenches, AP14, confirmed these results.
- A1.3.3 **Trench AP12:** the geology revealed in this trench consisted of 0.3m of topsoil, over 0.1m of relict ploughsoil, sealing natural deposits of Magnesian Limestone. No archaeological features were observed.
- A1.3.4 **Trench AP13:** this trench revealed 0.4m of topsoil, over 0.55m of relict ploughsoil, sealing natural deposits of Magnesian Limestone. No archaeological features were observed.
- A1.3.5 **Trench AP14:** the geology in this trench consisted of 0.5m of topsoil, over 0.1m of relict ploughsoil, sealing natural deposits of Magnesian Limestone. This trench targeted a curvilinear geophysical anomaly, which was confirmed by two elements (**1591** and **1595**) of the feature at opposing ends of the trench. Ditch **1591** measured 1.4m wide and 0.7m deep, while ditch **1595** was 1.35m wide and 0.63m deep. The Watching Brief encountered additional remains potentially associated with these features (*Section A2.3.5*).
- A1.3.6 **Further works:** a watching brief was recommended to ascertain the limits of the feature in Trench AP14 and to identify any associated features.

### A1.4 PACKAGE II

- A1.4.1 Package II (Fig 10; North Yorkshire; Saxton with Scarthingwell Parish; Plot 20-4) lay on high-relief calcareous geology (Magnesian Limestone), at 49–53m aOD, west of Wothersome Grange and north of Kennels Lane.
- A1.4.2 Prehistoric pottery was collected there during the fieldwalking survey (NAL 2007d). Four trenches were excavated (Fig 14), all placed over cropmarks (WSMR 1094; NAL 2006a) identified by the desk-based assessment (NAL 2006a). Features in all of the trenches confirmed the cropmarks (WSMR 1094; NAL 2006a).
- A1.4.3 **Trench AP15:** the general stratigraphy comprised 0.3m of topsoil, over 0.15m of relict ploughsoil, sealing Magnesian Limestone. This trench focused on a cropmark (WSMR 1094; NAL 2006a), which was confirmed by a ditch (**1608**; Fig 2), aligned north-west/south-east and measuring 1.60m wide and 0.6m deep. This trench also contained a pit (**1602**), measuring 1.75 x 1.20m, and 0.3m deep, the single fill of which contained two small pieces of Iron Age pottery (*Section 3.2.5*).
- A1.4.4 **Trench AP16:** the geology consisted of 0.24m of topsoil, over 0.13m of relict ploughsoil, sealing Magnesian Limestone. A ditch (**1605**; Fig 2) was revealed, measuring 1.86m wide and 0.71m deep, and confirming a cropmark identified by the desk-based assessment

(WSMR 1094; NAL 2006a).

- A1.4.5 **Trench AP17:** in this trench, topsoil 0.3m deep sealed Magnesian Limestone. Ditches, forming a T-shaped junction, corroborated cropmarks (WSMR 1094; NAL 2006a) identified in the desk-based assessment (NAL 2006a). This junction consisted of a north-west/south-east ditch (**12036**; Fig 3), with another ditch (**12037**) at right-angles to it. Ditch **12036** truncated ditch **12037** and had an average width of 1.62m and a depth of 0.76m. Ditch **12037** was exposed over a length of 4.07m, and measured 1.5m wide on average, and 0.54m deep.
- A1.4.6 **Trench AP18:** the general stratigraphy comprised 0.2m of topsoil, over 0.05m of relict ploughsoil, sealing Magnesian Limestone. Two parallel ditches were exposed, aligned east/west. The northern ditch (**1634**; Fig 3) measured 2.05m wide and 0.8m deep, while the other (**1628**) measured 2.3m wide and 1.2m deep. Their discovery corroborated cropmarks identified by the desk-based assessment (WSMR 1094; NAL 2006a).
- A1.4.7 **Further works:** given the good preservation of the archaeology and lack of datable evidence, a watching brief was recommended to find the extent of these features, to characterise them further, and to attempt to recover datable evidence (*Section A2.2*).

## A1.5 PACKAGE JJ

- A1.5.1 Package JJ (Fig 10; West Yorkshire; Wothersome Parish; Plot 24-5) was situated on high-relief calcareous geology (Magnesian Limestone), at 88–89m aOD, north of Kennels Lane and west of Wothersome Grange.
- A1.5.2 The five trenches in this package (Fig 15) were all placed over geophysical anomalies and cropmarks (WSMR 4168; NAL 2006a). Several scatters of flint tools (MON 905364; WSMR 3457; WSMR 5266; NAL 2006a) had been identified by the desk-based assessment (NAL 2006a) in this area. With the exception of Trench AP23, the trenches confirmed the geophysical anomalies.
- A1.5.3 **Trench AP19:** the general stratigraphy comprised 0.3m of topsoil, over 0.25m of relict ploughsoil, sealing Magnesian Limestone. A single ditch (**1641**; Fig 16) extended north-west/south-east across the width of the trench, and was 1m wide and 1.6m deep. A small pit (**1681**), at the south-west end of the trench, was not fully exposed, but measured 1.1m wide and 0.42m deep.
- A1.5.4 **Trench AP20:** the broad stratigraphy in this trench consisted of 0.2m of topsoil, sealing Magnesian Limestone. Two ditches (**1647** and **1651**; Fig 17) were revealed, aligned north-west/south-east. Ditch **1647** measured 0.85m wide and 0.28m deep, while ditch **1651** was 1.12m wide and 0.34m deep, with a recut (**1649**), 0.53m wide and 0.25m deep. At the south-west end of the trench, a large natural feature (**1655**) was exposed, within which there was a posthole (**1653**), measuring 0.45m wide and 0.03m deep.
- A1.5.5 **Trench AP21:** the broad stratigraphy in this trench consisted of 0.32m of topsoil, sealing Magnesian Limestone. Three ditches (**1658**, **1660** and **1670**; Fig 18) were revealed, all aligned north-east/south-west. Ditch **1658**, the smallest, measured 0.28m wide and 0.25m deep. Ditch **1660** was 1.46m wide and 0.4m deep, and ditch **1670**, which cut a natural

feature (**1682**), measured 1.2m wide and 0.7m deep. A rootcast from a possible hedgerow (**1669**) was identified at the south-east end of the trench, 0.42m wide and 0.19m deep. Two other natural features (**1664** and **1685**) were also exposed.

- A1.5.6 **Trench AP22:** the general stratigraphy comprised 0.3m of topsoil, sealing Magnesian Limestone. Two features were revealed, one natural (**1675**; Fig 19), the other a ditch (**12038**), measuring 0.47m wide and 0.21m deep.
- A1.5.7 **Trench AP23:** the general stratigraphy was 0.3m of topsoil, over 0.1m of relict ploughsoil, sealing Magnesian Limestone. No archaeological features were apparent, although a large area was occupied by a natural feature.
- A1.5.8 **Further work:** given the number of features in this package with no datable evidence, a watching brief was recommended (*Section A2.3.6*).

## A1.6 PACKAGE KK

- A1.6.1 Package KK (Fig 10; West Yorkshire; Aberford Parish; Plot 22-4) lay at 87m aOD, on high-relief calcareous geology (Magnesian Limestone), north-west of Aberford, north-east of Becca Hall, and south of the A64.
- A1.6.2 The two trenches in this package focused on geophysical anomalies (Fig 20). These were not confirmed, and both trenches proved to be completely void of features.
- A1.6.3 **Trench AP24:** the general stratigraphy in this trench consisted of 0.4m of topsoil, over 0.05m of relict ploughsoil, sealing Magnesian Limestone. No archaeological features were revealed.
- A1.6.4 **Trench AP25:** the general stratigraphy was 0.4m of topsoil, over 0.05m of relict ploughsoil, sealing Magnesian Limestone. No archaeological features were exposed.
- A1.6.5 **Further work:** no further work was recommended for this package.

## A1.7 PACKAGE LL

- A1.7.1 Package LL (Fig 10; North Yorkshire; Kirkby Overblow Parish; Plots 31-9 and 31-10) lay on high-relief non-calcareous geology (Millstone Grit), at 94–99m aOD, south-east of Kirkby Overblow and north of Lund Head.
- A1.7.2 The three trenches in this package (Fig 21) were not targeted on any specific features, but were excavated to test for the presence of any remains of the lost medieval village of Tidover, which studies by the Kirkby Overblow Local History Group and the Boston Spa and District Community Archaeology Group suggested may have been present at that location (NAL 2007b, 24-5). Two trenches were devoid of archaeological features, but two pits were revealed in the third.
- A1.7.3 **Trench AP26:** the stratigraphy revealed in this trench comprised 0.4m of topsoil, sealing Millstone Grit. Two small circular pits (**1725** and **1727**; Fig 22) were uncovered, one of which (**1725**) was fully exposed, proving to be 0.9m wide and 0.16m deep. Pit **1727**

measured 0.65m wide and 0.1m deep. At the western end of the trench, a natural feature (*1730*) was revealed.

A1.7.4 **Trench AP27:** the general stratigraphy in this trench comprised 0.2m of topsoil, over 0.1m of relict ploughsoil, sealing Millstone Grit. No archaeological features were observed.

A1.7.5 **Trench AP28:** the general stratigraphy in this trench comprised 0.3m of topsoil, sealing Millstone Grit. No archaeological features were observed.

A1.7.6 **Further work:** no further works were recommended.

## A1.8 PACKAGE MM

A1.8.1 Package MM (Fig 10; North Yorkshire; Sicklinghall Parish; Plot 30-9) was sited on high-relief non-calcareous geology (Millstone Grit), and consisted of a single trench at approximately 31m aOD, north-east of the River Wharfe, north-west of Carlston Hill Farm, and south-west of Paddock House Farm.

A1.8.2 **Trench AP29:** the position of this trench (Fig 23) was determined by geophysical anomalies. The general stratigraphy consisted of 0.3m of topsoil, unexpectedly sealing natural deposits of alluvium, which were excavated to a depth of 1.7m. The presence of the alluvium is probably accounted for by the position of the trench in the floor of a valley. Nothing of archaeological significance was observed.

A1.8.3 **Further work:** no further work was recommended.

## A1.9 PACKAGE NN

A1.9.1 Package NN (Fig 10; North Yorkshire; North Rigton Parish; Plot 36-4) was sited on high-relief non-calcareous geology (Millstone Grit), and consisted of a single trench (Fig 24) at approximately 189m aOD, north-east of North Rigton, west of High Moor Road, and south of Briscoe Ridge Lane.

A1.9.2 **Trench AP30:** a number of sites (DBA:CC; DBA:GB; DBA:BO; NAL 2006a) had been identified by the desk-based assessment (NAL 2006a) in this locality, near the route of the pipeline. This trench was excavated with the aim of discovering whether any archaeological remains associated with these sites extended as far as the easement of the pipeline itself. The stratigraphy in the trench consisted of 0.1m of topsoil, sealing natural deposits of alluvium. The presence of the alluvium, in an area of Millstone Grit, may be accounted for by a palaeochannel, identified by the palaeoenvironmental assessment (Headland Archaeology 2007). The trench exposed two parallel ditches (*1744* and *1748*; Fig 25), 11.45m apart, both 1.36m wide and 0.21m deep. To the south-west of these ditches, a natural feature (*1739*) was also located.

A1.9.3 **Further work:** no further work was recommended.

## A1.10 PACKAGE OO

A1.10.1 Package OO (Fig 10; West Yorkshire; East Keswick Parish; Plot 30-3) was sited on high-

relief non-calcareous geology (Millstone Grit), and consisted of a single trench at approximately 35m aOD, south of the River Wharfe, west of Collingham and north of East Keswick.

A1.10.2 **Trench AP31:** this trench (Fig 26) was positioned to test geophysical anomalies and an area of ridge and furrow (DBA:AM; NAL 2006a) identified by the desk-based assessment (NAL 2006a). The general stratigraphy consisted of 0.3m of topsoil, over 0.45m of relict ploughsoil, sealing natural deposits of colluvium. The post-glacial development of the River Wharfe is likely to be the origin of the deposits of colluvium in this Millstone Grit area. No features of an archaeological nature were observed.

A1.10.3 **Further work:** no further work was recommended.

## A1.11 PACKAGE PP

A1.11.1 Package PP (Fig 10; West Yorkshire; Aberford Parish; Plot 20-8) was situated on high-relief calcareous geology (Magnesian Limestone), at approximately 52–65m aOD, east of Aberford, north of Cock Beck, and south-east of Black Horse Farm.

A1.11.2 This package contained six trenches (Fig 27) located over geophysical anomalies and cropmarks (WSMR 1083; MON 54607; NAL 2006a), in close proximity to the Aberford Dykes (SM 31519). Several flint tools have been recovered in the vicinity (WSMR 2801; WSMR 2802; NAL 2006a). The majority of the trenches confirmed the geophysical anomalies and cropmarks (WSMR 1083; MON 54607; NAL 2006a), and revealed some additional archaeological features. The results from Trenches AP32 and AP33 in this package have been discussed in the main body of this report (*Section 3.3.2*).

A1.11.3 **Trench AP34:** the general stratigraphy in this trench comprised 0.34m of topsoil, sealing Magnesian Limestone. Two ditches (*1770* and *1773*; Fig 28) were exposed. Ditch *1770*, aligned north-east/south-west, had been truncated by a modern plough scar, but measured 0.42m long, 0.55m wide and 0.25m deep. Ditch *1773*, aligned north-east/south-west, extended across the whole width of the trench, and was 1.32m wide and 0.5m deep. A natural feature (*1775*) was identified between these ditches. A roughly circular pit (*1795*), at the south-east end of the trench, measured 0.81m wide and 0.17m deep.

A1.11.4 **Trench AP35:** the stratigraphy in this trench consisted of 0.4m of topsoil, sealing Magnesian Limestone. A single ditch (*1762*; Fig 29), aligned north-east/south-west, and measuring 0.75m wide and 0.28m deep, was revealed in the centre of the trench, with a single fill which contained two sherds of Romano-British pottery (*Section 4*). A natural feature (*1764*) was also identified.

A1.11.5 **Trench AP36:** the stratigraphy consisted of 0.35m of topsoil, over 0.1m of relict ploughsoil, sealing Magnesian Limestone. A single natural feature was revealed.

A1.11.6 **Trench AP37:** the general stratigraphy in this trench was 0.4m of topsoil, over 0.3m of relict ploughsoil, sealing Magnesian Limestone. A single pit (*1787*; Fig 30) was exposed, measuring 0.55m wide and 0.05m deep. Three natural features (*1781*, *1783* and *1785*) were also exposed.

A1.11.7 **Further work:** given the good preservation of archaeological remains, a watching brief was recommended, but did not recover any additional data.

## A1.12 PACKAGE QQ

A1.12.1 Package QQ (Fig 10; West Yorkshire; East Keswick Parish; Plot 28-8) was sited on high-relief non-calcareous geology (Millstone Grit), at approximately 75m aOD, west of Collingham, north-east of East Keswick, and south of Harewood Road.

A1.12.2 This package contained two trenches focused on geophysical anomalies (Fig 31). The trenches found no evidence for archaeological features corresponding to the anomalies, although a single pit was found.

A1.12.3 **Trench AP38:** the general stratigraphy consisted of 0.38m of topsoil, over 0.35m of relict ploughsoil, sealing glacial deposits of sandy clay. A single pit (**1881**; Fig 32) was exposed, containing a small amount of animal bone (*Section 4.15*) and a worked stone (*Section 4.13*), but could not be closely dated.

A1.12.4 **Trench AP39:** the general stratigraphy consisted of 0.35m of topsoil, over 0.25m of relict ploughsoil, sealing glacial deposits of sandy clay. There were no archaeological features.

A1.12.5 **Further work:** a watching brief was recommended (*Appendix 2*) in the area covered by this package because pit **1881** and the geophysical anomalies recorded by the geophysical survey (Bartlett 2006) showed there was potential for further archaeological features.

## A1.13 INTRODUCTION

A1.13.1 The results of the evaluation have been considered by landscape unit, using the definitions provided by the *Palaeoenvironmental Assessment* (Headland Archaeology 2007), and paying particular attention to the archaeological sites discovered and the efficacy of the prospecting methods employed. The effectiveness of the geophysical survey and cropmark data at identifying archaeological sites has been assessed, with particular regard to the geology. The other non-intrusive methodologies have also been considered.

A1.13.2 **High-Relief Calcareous Geology:** in total, 31 trenches (Trench AP1–AP11, Package GG; Trenches AP12–AP14, Package HH; Trenches AP15–AP18, Package II; Trenches AP19–AP23, Package JJ; Trenches AP24 and AP25, Package KK; Trenches AP32–AP37, Package PP) were placed within the high-relief calcareous landscape unit (Magnesian Limestone), at six separate locations (Fig 10). The archaeological features discovered in the majority of these trenches corresponded well to the predictions of the geophysical survey and the cropmark information plotted from aerial photographs.

A1.13.3 The trenches predominantly revealed evidence of field systems and enclosures. The soils and hydrology deriving from the underlying solid geology, Magnesian Limestone, facilitated excellent results from the geophysical survey. The cropmark evidence was generally confirmed by the survey, and it is unlikely that further significant linear features were present that have not been identified. However, there remains a possibility that discrete features were not detected, and this may have biased the results.

- A1.13.4 **High Relief Non-Calcareous Geology:** 8 trenches (Trenches AP26-AP28, Package LL; Trench AP29, Package MM; Trenches AP30, Package NN; Trench AP31, Package OO; Trenches AP38 and AP39, Package QQ) were located on the high-relief non-calcareous landscape unit (Millstone Grit), at five separate locations (Fig 10). Of the five packages, four were targeted on geophysical anomalies and cropmarks. None of these were confirmed on the ground.
- A1.13.5 Although there was a widespread lack of good cropmark evidence and the geophysical survey did not generally identify archaeological sites within this landscape unit, two of the trenches (AP26 and AP30) did reveal archaeological features.
- A1.13.6 **Assessment of the Other Non-Intrusive Methodologies:** the following considers the effectiveness of non-intrusive methodologies only in regard to the Evaluation, and is not intended to be a critique of the overall value of this work in respect of the project as a whole. The desk-based assessment, and the cropmark evidence in particular, on present evidence, have provided a successful and reliable foundation for determining the position of the trial trenches. The field reconnaissance survey, fieldwalking and palaeoenvironmental assessment have, so far, proved to be of more limited use.
- A1.13.7 Generally, the desk-based assessment and the field reconnaissance survey have been useful in helping to discern a viable route for the pipeline and, as far as possible, the route has avoided archaeological sites of known importance. The Evaluation trenches did not reveal any sites that should have been identified by the preceding studies, so there is no reason to doubt the efficacy of these.
- A1.13.8 On the other hand, the fieldwalking survey has been of little help in identifying archaeological sites. This survey was only useful in respect of Trenches AP15–AP18, which were located where geophysical anomalies and cropmarks (WSMR 1094, NAL 2006a) had been identified by the desk-based assessment (NAL 2006a), and a small quantity of prehistoric pottery was found during the fieldwalking survey (NAL 2007d).
- A1.13.9 Although the palaeoenvironmental assessment provided important contextual information, and advised of the presence of colluvial or alluvial deposits which could have post-dated and obscured some archaeological stratigraphy, in practice such deposits were very rarely encountered in the Evaluation trenches.

## A1.14 CONCLUSIONS

- A1.14.1 The results from the Evaluation trenches suggest that the early phase non-intrusive works seem to have been largely successful in identifying sites of archaeological potential and characterising the likely nature of the archaeology along the route. Where present, the evidence provided by geophysical survey and cropmark plotting from aerial photographs appears to have been a good indicator of the likely presence of archaeological sites and features. The fieldwalking survey seems to have been less reliable, but may yet prove its worth.
- A1.14.2 In general, the Evaluation substantiated the validity of the research questions posed by the *Recommendations Document* (NAL 2006–7). For all periods, the archaeology was in keeping with the pre-existing models developed for the region (*ibid*).

- A1.14.3 **Early prehistoric period:** the Evaluation identified no evidence of surviving organic remains from the Palaeolithic period to early Iron Age. There were no features identified that certainly date to this era, but some of those that have not yet been closely dated could prove to be of great antiquity. The curvilinear ditch in Trench AP14 is a possible candidate for an early prehistoric monument. If this proves to be the case, then it may be of great significance for many of the research objectives for this period.
- A1.14.4 The results of the Evaluation are typical of what might be expected regionally. Palaeolithic evidence is absent, Mesolithic evidence in the form of flint tools might have been expected, but its absence is unsurprising (Manby 2003). No evidence of Neolithic or Bronze Age habitation was evident within any of the trenches, but in view of the small number of trenches this is not surprising.
- A1.14.5 **Later prehistoric period:** the evidence for this period is slightly better than for its predecessor but, at the moment, only Trenches AP15 and AP33 have yielded pottery of an Iron Age date. Despite the dearth of good dating evidence, it remains possible that some of the other trackways, enclosures and boundary features sampled in Trenches AP16–AP22, AP26, AP30, AP33, AP34, AP35 and AP37 will also date to the mid-late Iron Age. Previous investigations of the many cropmark features revealed on the Magnesian Limestone have demonstrated that they often originate at this time, and remain in use into much later periods (Roberts *et al* 2001; Roberts 2005; Brown *et al* 2007). The palaeoenvironmental assemblages retrieved from these features by the Evaluation were not particularly informative. However, there is some potential for dating several of the features, from their samples, by means of radiocarbon assay.
- A1.14.6 The evidence from other studies (Roberts *et al* 2001; Roberts 2005; Brown *et al* 2007) suggests that the landscape was settled on a more permanent basis from at least the middle of the Iron Age onwards. The enclosed settlements of this time are much more visible archaeologically than those of earlier periods, and are more commonly encountered. Funerary monuments generally ceased to be as important as previously, with the dead usually buried within settlements, although there are exceptions, such as the chariot burial at Ferry Fryston (Boyle *et al* 2007). Finds are rare, but they point to wide trading networks and contact with distant areas. The economy was agrarian, and both arable agriculture and animal husbandry were important. Sub-division of the landscape with visible boundaries began at this time, a practice which intensified in later periods. The evidence from the Evaluation, although exiguous, is consistent with these earlier studies.
- A1.14.7 The close dating of Iron Age settlement and agricultural features is of crucial importance in reconstructing the development of the landscape and the history of those who lived in it. Any artefactual or palaeoenvironmental material retrieved from dated contexts has the potential to be very informative.
- A1.14.8 **Romano-British period:** this period has been represented during this phase of Evaluation, but only scantily, by two sherds of Romano-British pottery in Trench AP35. There is, however, a possibility that the palaeoenvironmental data may provide datable material for this period.
- A1.14.9 The Romano-British features in this landscape are comparable with those of the Iron Age, and are largely those associated with agriculture. Predominantly, it is evidence for what



were probably ‘native’ societies that has been detected, and previous studies (Roberts *et al* 2001; Roberts 2005; Brown *et al* 2007) have repeatedly established continuity between the Iron Age settlements, and their associated field systems, and those of Romano-British date. The extension of Roman administrative control over this landscape, the Roman military, and a Romanised infrastructure and economy, is evident from the forts and urban centres in the area, linked by roads.

A1.14.10 The results of the Evaluation have only limited potential to address the research objectives of the Recommendations Document (NAL 2006–7) for the prehistoric and Roman periods. They do, however, contribute in a very general way to an understanding of the landscape at this time, if only through negative evidence.

A1.14.11 **Medieval period:** the lack of evidence for medieval activity is probably a combination of the widespread landscape reorganisation taking place after the Romano-British period and the methodology influencing the positioning of the archaeological trenches. Previous projects in the region (Roberts *et al* 2001; Roberts 2005; Brown *et al* 2007) have found evidence that some boundaries established in the Iron Age or Romano-British period remained in use during the medieval period, whereas others fell into disuse, to be replaced by new regimes of land allotment. Many of the medieval enclosures are likely to have continued in use into modern times, and survive as extant hedgerows today. These were not targeted by the evaluation, which instead focused on cropmark and geophysical evidence of relict enclosures belonging to earlier periods.

A1.14.12 Many of today’s settlements have medieval roots and, as the pipeline deliberately avoided settlement centres, it is perhaps unsurprising that medieval finds were few in number. No concentrations of medieval pottery were detected during the fieldwalking survey (NAL 2007c; 2007d). Those few finds that were recovered from the topsoil can be explained by the practice of fertilising the fields with domestic waste, and do not necessarily indicate settlement in the immediate vicinity.

A1.14.13 The results of the Evaluation have only limited potential to address the research objectives of the Recommendations Document (NAL 2006–7) for these periods. They do, however, contribute in a very general way to our understanding of the landscape at this time, if only through negative evidence.

A1.14.14 **Post-medieval and modern periods:** the evidence for the post-medieval and modern periods from the Evaluation is similarly scanty, with no artefacts recovered. As with the medieval period, the lack of evidence for post-medieval and modern activity can largely be explained by the sampling strategy employed and the fact that the pipeline was built through farmland. The areas of ridge and furrow along the pipeline route are evidence of the widespread changes in farming practices from the medieval period, and some of the modern-day boundaries are contiguous with post-medieval enclosures. The land drains indicate agricultural improvement, which was probably contemporary with the enclosure of the medieval commons by Acts of Parliament in the eighteenth and nineteenth centuries (Whyte 2003).

A1.14.15 The evidence from the pipeline for this period is of only limited relevance to the research objectives presented in the Recommendations Document (NAL 2006–7). It does, however, demonstrate that, although there have been other significant changes in the targeted areas,

the patterns of rural settlement and land-use have not fundamentally changed since the medieval period.

## A1.15 RECOMMENDATIONS FOR FURTHER WORK

A1.15.1 **Fieldwork:** Table 21 collates the fieldwork strategies employed following the Evaluation.

Trench	Plot	Package	Recommendations for further work
AP1-11	A64 Yard	GG	No further recommendations
AP12-13	24-1	HH	Careful watching brief on immediate surroundings
AP14	24-2	HH	Watching brief on immediate surroundings
AP15-17	20-4	II	Careful watching brief on immediate surroundings
AP18	20-4	II	Careful watching brief on immediate surroundings
AP19-23	24-5	JJ	Watching brief on immediate surroundings
AP24-25	22-4	KK	No further recommendations
AP26	31-9	LL	No further recommendations
AP27-28	31-10	LL	No further recommendations
AP29	30-9	MM	No further recommendations
AP30	36-4	NN	No further recommendations
AP31	30-3	OO	No further recommendations
AP32-37	20-8	PP	Careful watching brief on immediate surroundings
AP38-39	28-8	QQ	Watching brief on immediate surroundings

Table 21: Summary of the recommendations for further fieldwork

A1.15.2 **Stratigraphy:** no further stratigraphic analysis is required. The results of the Evaluation should be integrated with the results of any further excavation at sites along the pipeline and included in the final report.

A1.15.3 **Finds:** no further analysis is recommended for the finds recovered by the Evaluation, and they do not require conservation. The artefacts have been considered alongside others recovered by the archaeological works along the pipeline route (*Section 4*).

A1.15.4 **Palaeoenvironmental material:** full analysis should be undertaken on four of the 29 samples collected during the Evaluation, and further analysis is provisionally recommended on at least one of the two charcoal-rich samples, if it can be shown to fill a spatial or chronological gap. Otherwise, no further analysis of the palaeoenvironmental assemblages is recommended.

A1.15.5 Radiocarbon dating: five samples showed potential for radiocarbon dating. These derived from pit fills in Trench AP26, a ditch fill in Trench AP30, and pit fills in Trench AP38.

## APPENDIX 2: WATCHING BRIEF

### A2.1 INTRODUCTION

A2.1.1 The length of the Aberford to Pannal Pipeline, and the varied terrain it traverses, preclude all-encompassing conclusions about the results of the Watching Brief. It is helpful, therefore, to break the route down into a number of smaller packages to enable relevant and meaningful discussion at a more local scale (Table 22; Fig 33). None of the watching brief features described (with one or two exceptions) have been depicted in this report but their outlines will be supplied to the SMRs, in the form of shape files comprising map objects and attribute data.

Package	Landscape Unit	Plots
B1	High-relief calcareous	20-4
B2	High-relief calcareous	<i>23-8, 24-1, 24-2, 24-5 to 24-8, 25-1 and 26-2</i>
B3	High-relief calcareous	<i>28-3</i>
	High-relief non-calcareous	<i>28-8</i> and 30-6
B4	High-relief non-calcareous	31-3 and 35-10

Plots in bold italics are in West Yorkshire, the remainder are in North Yorkshire

Table 22: Concordance of packages

A2.1.2 The starting point for deciding the extent of these packages was the concentration of archaeology revealed under the Watching Brief; some areas lacked any archaeological features and are, therefore, not addressed here. Some plots contained archaeological remains identified by previous works (evaluation trenches or excavations), but were not stripped to an archaeological horizon during the Watching Brief and, consequently, there are no further results to report.

A2.1.3 Table 23 summarises the results of the Watching Brief, which mainly consist of the ditches of field boundaries and drainage ditches.

Package	Plot	Results
B1	20-4	Ditches forming an enclosure; not closely dated
B2	23-8	Ditch; not closely dated, and natural feature
	23-9	No archaeology
	23-10	No archaeology
	23-11	No archaeology
	24-1	Ditch and hedge line; not closely dated
	24-2	Ditches; not closely dated; one ditch formed an enclosure
	24-3	No archaeology
	24-5	Ditch; not closely dated
	24-6	Road surface; not closely dated
	24-7	Ditch; not closely dated
	24-8	Ditch; not closely dated
	25-1	Ditches; not closely dated
	25-2	No archaeology
	26-1	No archaeology

Package	Plot	Results
B3	26-2	Ditch and gully; not closely dated
	28-3	Dismantled railway; post-medieval
	28-4	No archaeology
	28-5	No archaeology
	28-6	No archaeology
	28-7	No archaeology
	28-8	Ditch, postholes and stakeholes; not closely dated
	30-1	No archaeology
	30-2	No archaeology
	30-3	No archaeology
	30-4	No archaeology
	30-5	No archaeology
	30-6	Pit; not closely dated
	B4	31-3
31-4		No archaeology
31-5		No archaeology
31-6		No archaeology
31-7		No archaeology
31-8		No archaeology
31-9		No archaeology
31-10		No archaeology
31-11		No archaeology
31-12		No archaeology
32-1		No archaeology
32-2		No archaeology
32-3		No archaeology
32-4		No archaeology
32-5		No archaeology
32-6		No archaeology
32-7		No archaeology
32-8		No archaeology
32-9		No archaeology
32-10		No archaeology
32-11		No archaeology
32-12		No archaeology
32-13		No archaeology
33-1		No archaeology
33-2		No archaeology
33-3		No archaeology
33-4		No archaeology
33-5		No archaeology
33-6		No archaeology
34-1		No archaeology
34-2		No archaeology
34-3		No archaeology
34-4		No archaeology
34-5		No archaeology
34-6	No archaeology	
34-7	No archaeology	
34-8	No archaeology	
35-1	No archaeology	
35-2	No archaeology	
35-3	No archaeology	
35-4	No archaeology	
35-5	No archaeology	
35-6	No archaeology	
35-7	No archaeology	
35-8	No archaeology	
35-9	No archaeology	
35-10	Ditch; not closely dated	

Table 23: Summary of results

A2.1.4 The results are arranged by package, with a description and summary of the location and terrain of each package, and the overall results, followed by a detailed description of each plot with archaeological remains. The route is discussed from east to west. Along the entire route, the soil and geological profile generally consisted of 0.3m of topsoil, over relict ploughsoil, sealing Magnesian Limestone or Millstone Grit.

## A2.2 PACKAGE B1

A2.2.1 Package B1 (Fig 33; North Yorkshire; Saxton with Scarthingwell Parish; Plot 20-4) covered a distance of roughly 0.7km, and varied from *c* 36m to *c* 53m aOD. The package was situated on the high-relief calcareous landscape unit (Magnesian Limestone).

A2.2.2 An enclosure complex had been identified within this package during the desk-based assessment (WSMR 1094; NAL 2006a), and prehistoric pottery was collected there during the fieldwalking survey (NAL 2007d). Below-ground archaeological investigation confirmed some of the cropmarks noted by the desk-based assessment, as well as revealing further ditches.

A2.2.3 **Plot 20-4:** at the time of the fieldwalking survey (NAL 2007d), this plot lay under an arable crop. The complex results revealed when it was stripped are discussed in the main body of this report (*Section 3.3*).

## A2.3 PACKAGE B2

A2.3.1 Package B2 (Fig 33; West Yorkshire; Thorner Parish; Plots 23-8 to 24-2; Wothersome Parish; Plots 24-3 to 26-1; Bardsey cum Rigton; Plot 26-2) was situated on the high-relief calcareous landscape unit (Magnesian Limestone), and covered a distance of roughly 4.2km, at 70–103m aOD.

A2.3.2 Archaeological remains were found in nine plots, and had been predicted in eight of these by the desk-based assessment (NAL 2006a). Prehistoric enclosure ditches were revealed, together with field boundaries and trackways.

A2.3.3 **Plot 23-8:** at the time of the fieldwalking survey (NAL 2007d), this plot was in arable use. Towards its centre, a single ditch was exposed, aligned north-east/south-west and measuring 18 x 0.65m and 0.3m deep. To the north-west of this ditch lay a natural feature, 1.8 x 0.7m and 0.25m deep.

A2.3.4 **Plot 24-1:** this plot was in arable use at the time of the fieldwalking survey (NAL 2007d). Two linear features were exposed, one confirming a geophysical anomaly, which may be part of the complex of enclosure ditches identified by the desk-based assessment (WSMR 4166; NAL 2006a). It measured 38 x 1m and was 0.28m deep. The site of a hedgerow was identified at the north-west end of this plot, covering an area 7 x 3.2m, with disturbed ground to a depth of 0.3m.

- A2.3.5 **Plot 24-2:** when the fieldwalking survey (NAL 2007d) was undertaken, the plot was in arable use. Three ditches were revealed, all towards the north-west end of the plot, and perhaps part of the complex of enclosures and ring ditches identified by the desk-based assessment (WSMR 4166; NAL 2006a). Ditch **12035** (Fig 13), 1.37m wide and 0.66m deep, was first exposed in Trench AP14 during the Phase 2 Evaluation (*Section A1.3.5*), when it appeared as two separate features. The Watching Brief showed that these were both part of one whole, which in turn confirmed the results of the geophysical survey. With three sides visible, this ditch may form an enclosure, within which was ditch **8512**, which was aligned east/west, and was exposed over a length of 7m, being 0.7m wide and 0.12m deep. At the north-western end of the plot, a third ditch (**8513**), aligned north-east/south-west, measured 36.5 x 0.85m and was 0.25m deep.
- A2.3.6 **Plot 24-5:** this plot was in arable use at the time of the fieldwalking survey (NAL 2007d). A single ditch was exposed, which may be related to the enclosure ditches and field boundaries (WSMR 4168; NAL 2006a) identified by the desk-based assessment. The ditch was exposed for the full width of the easement, and measured 1.2m wide and 0.7m deep.
- A2.3.7 **Plot 24-6:** this plot was in arable use at the time of the fieldwalking survey (NAL 2007d). Its whole area was covered by cropmarks (WSMR 4226; NAL 2006a), suggesting enclosure ditches, trackways and field boundaries, but the only feature observed during the Watching Brief was a deposit likely to have been part of a road surface. The deposit was made up of burnt, rounded, river cobbles and survived over an area of 1.5 x 0.5m.
- A2.3.8 **Plot 24-7:** at the time of the fieldwalking survey (NAL 2007d), this plot was in arable use. Cropmarks (WSMR 4226; NAL 2006a) had been identified, and the single ditch revealed may represent one of these, while also confirming a geophysical anomaly. The ditch, aligned north-east/south-west, was exposed over a length of 15m and measured 0.88m wide and 0.47m deep.
- A2.3.9 **Plot 24-8:** this plot was in arable use at the time of the fieldwalking survey (NAL 2007d). A single ditch was exposed, in the same area as cropmarks previously identified by the desk-based assessment (WSMR 4226; NAL 2006a). The ditch was aligned north/south, and measured 34 x 1.1m, and 0.34m deep.
- A2.3.10 **Plot 25-1:** this plot was in arable use at the time of the fieldwalking survey (NAL 2007d). The area of cropmarks identified by the desk-based assessment in Plots 24-7 and 24-8 also extended into this plot (WSMR 4226; NAL 2006a). Four ditches were exposed, three on the same north-east/south-west alignment, while the fourth was aligned north/south and measured 57m long, 0.94m wide and 0.19m deep. Two were 0.7–0.8m wide and 0.2–0.3m deep, while the third was 1.8m wide and 0.5m deep; all were exposed over a length of 23m.
- A2.3.11 **Plot 26-2:** this plot was in arable use at the time of the fieldwalking survey (NAL 2007d). Extensive excavations (*Section 3.6*) had confirmed cropmarks identified by the desk-based assessment (WSMR 4139; NAL 2006a). The Watching Brief added two further features to this complex: a ditch and a gully. The gully measured 20 x 0.88m and was 0.15m deep, and the ditch was 16 x 1.2m and 0.6m deep: both were aligned north-west/south-east.

## A2.4 PACKAGE B3

A2.4.1 Package B3 (Fig 33; West Yorkshire; Collingham Parish; Plots 28-3 to 30-4; North Yorkshire; Sicklinghall Parish; Plots 30-5 to 30-6) extended for 7km, and varied from 26m to 77m aOD. The underlying geology was high-relief calcareous (Magnesian Limestone) in Plots 28-3 to 28-7, and high-relief non-calcareous (Millstone Grit) in Plots 28-7 to 30-6. Three plots (28-3, 28-8 and 30-6) were found to contain archaeological remains, including a dismantled railway, a ditch, postholes, a stakehole, and a pit.

A2.4.2 **Plot 28-3:** this plot was in arable use at the time of the fieldwalking survey (NAL 2007d). It contained the remains of the dismantled former North Eastern Railway branch of 1876 between Cross Gates and Wetherby, which is identified on the modern Ordnance Survey map (MON 1375224; NAL 2006a).

A2.4.3 **Plot 28-8:** at the time of the fieldwalking survey (NAL 2007d), this plot was in arable use. At its eastern end, cropmarks (WSMR 5138; NAL 2006a) had been identified by the desk-based assessment, suggesting enclosure ditches and trackways. None of the features recorded by the Watching Brief coincided with these cropmarks, although they may have been related. A single ditch, aligned north/south, was revealed towards the centre of the plot, and measured 5.5 x 0.59m and 0.15m deep. West of it, two postholes and a stakehole were exposed. The postholes were 0.26m in diameter and were 0.04m deep, and 0.6 x 0.39m and 0.18m deep; the stakehole measured 0.3 x 0.14m and was 0.07m deep.

A2.4.4 **Plot 30-6:** this plot was in arable use at the time of the fieldwalking survey (NAL 2007d). Towards its centre, a single pit was revealed, but not fully exposed, measuring 1.65m wide and 0.25m deep, with two fills.

## A2.5 PACKAGE B4

A2.5.1 Package B4 (Fig 33; North Yorkshire; Kearby and Netherby Parish; Plots 31-3 and 31-4; Spofforth Parish; Plots 31-5 to 31-7; Kirkby Overblow Parish; Plots 31-8 to 34-2; North Rigton Parish; Plots 34-3 to 35-10) was sited on high-relief non-calcareous geology (Millstone Grit), and covered approximately 8.4km, at an altitude varying from 60m to 159m aOD. Two of the plots (31-3 and 35-10) contained archaeological features.

A2.5.2 **Plot 31-3:** this plot was in pastoral use at the time of the fieldwalking survey (NAL 2007d). A ditch confirmed a geophysical anomaly, and was aligned north-east/south-west, measuring 15 x 2.2m and 0.65m deep. The ditch had six fills, one of which contained a whetstone (*Section 4.13.5*).

A2.5.3 **Plot 35-10:** when the fieldwalking survey (NAL 2007d) was undertaken, this plot was in pastoral use. A single ditch terminus was revealed, and confirmed a geophysical anomaly. It was on the same alignment as feature **2007** from Trench 86 in the Phase 1 Evaluation (OA North 2007a), and measured 6.6 x 0.53m and 0.26m deep.

## A2.6 DISCUSSION

A2.6.1 The results of the Watching Brief have been considered by landscape unit, using the definitions provided by the Palaeoenvironmental Assessment (Headland Archaeology 2007), and paying particular attention to the archaeological sites discovered and the efficacy of the prospecting methods employed. The effectiveness of the geophysical survey

and cropmark data at identifying archaeological sites have been assessed, with particular regard to the geology. The efficacy of the other non-intrusive methodologies have also been considered.

- A2.6.2 **High Relief Calcareous Geology:** two packages, and part of a third (B1, B2 and B3) were located on the high-relief calcareous landscape unit (Magnesian Limestone). This type of geology generally forms cropmarks well, and responds effectively to geophysical survey. Some of the pipeline route on this landscape unit was not stripped to an archaeological horizon and, therefore, some archaeological remains may have gone unobserved.
- A2.6.3 Package B1 encompassed a single plot (20-4). The extensive cropmarks recorded by the desk-based assessment (NAL 2006a) were mostly confirmed, a full account of the intrusive works in this plot appearing in *Section 3.2*.
- A2.6.4 Archaeological remains were found in nine plots (23-8, 24-1, 24-2, 24-5 to 24-8, 25-1 and 26-2) within package B2. These had mostly been predicted by cropmarks reported in the desk-based assessment (NAL 2006a).
- A2.6.5 One plot (28-3) in Package B3 was within the high-relief calcareous landscape unit (Magnesian Limestone). The only feature exposed during the Watching Brief had been noted by the desk-based assessment (NAL 2006a).
- A2.6.6 **High Relief Non-Calcareous Geology:** one package, and part of a second (B4 and B3), were located on the high-relief non-calcareous landscape unit (Millstone Grit). This unit appeared to lack cropmark evidence and did not respond as well to geophysical survey as the Magnesian Limestone area. Nevertheless, features which had been detected by the geophysical survey were borne out by what was revealed following topsoil stripping. Some of the pipeline route on this landscape unit was not stripped to an archaeological horizon and, therefore, some archaeological remains may have gone unobserved.
- A2.6.7 Package B3 was situated on the high-relief non-calcareous landscape unit (Millstone Grit) in Plots 28-8 and 30-6. Archaeological features were revealed in both plots during the Watching Brief, although the remains in Plot 28-8 did not coincide with the cropmarks recorded there by the desk-based assessment (NAL 2006a).
- A2.6.8 Package B4 encompassed two plots (31-3 and 35-10). Geophysical anomalies in both were confirmed by the archaeological features revealed during the Watching Brief.
- A2.6.9 **Assessment of the Other Non-Intrusive Methodologies:** the effectiveness of non-intrusive methodologies was considered only in regard to the Watching Brief, and is not intended as a critique of the overall value of this work in relation to the project as a whole. Some of the areas were not stripped to an archaeological horizon and, therefore, some archaeological remains may have gone unobserved.
- A2.6.10 The results and predictions of the desk-based assessment were generally confirmed in the field. The fieldwalking survey was a poor predictor of the archaeological sites uncovered during the Watching Brief.
- A2.6.11 **Assessment of the Intrusive Methodologies:** there were two phases of evaluation and several sites of excavation prior to the Watching Brief. These, along with the non-intrusive



works, were used to grade the expected density of archaeological features, per plot, along the route of the pipeline, on a high-medium-low scale, in advance of the Watching Brief.

A2.6.12 The two phases of evaluation found some features, the interpretation of which was confirmed by the Watching Brief. No further features were encountered in the vicinity of any of the excavated sites during the Watching Brief, suggesting that the limits of the site had already been defined. It may be, however, that the areas surrounding the sites were not stripped to an archaeological horizon.

## A2.7 CONCLUSIONS

A2.7.1 The grades allocated to each plot, to predict the density of archaeological remains, were largely borne out during the Watching Brief. The majority of the areas of little potential produced few or no archaeological remains, while the areas graded medium and high generally exposed more archaeological features.

A2.7.2 The majority of the features encountered were ditches; these were mostly located in areas with known cropmarks (NAL 2006a). While some specific cropmarks were confirmed following the topsoil strip, for the most part this type of evidence was useful as a predictor of an environment in which the remains of boundaries, such as these ditches, might be found by intrusive work.

A2.7.3 In general, the Watching Brief substantiated the validity of the research questions posed by the *Recommendations Document* (NAL 2006–7). For all periods, the archaeology was in keeping with the pre-existing models developed for the region (*ibid*).

A2.7.4 **Early prehistoric period:** the Watching Brief identified no evidence of surviving organic remains from the Palaeolithic period to early Iron Age. There were no features identified that certainly date to this period, but some of those that have not yet been closely dated could prove to be of great antiquity. The ditch in Plot 24-2 (*Section A2.3.5*), associated with the features discovered by the Phase 2 Evaluation in Trench AP14 (*Section A1.3.5*), is a possible candidate for a prehistoric monument. If this proves to be the case, then it may be of great significance for many of the research objectives for this period.

A2.7.5 The results of the Watching Brief are typical of what may be expected regionally. Palaeolithic evidence is absent, Mesolithic evidence in the form of flint tools might have been expected, but its absence is unsurprising (Manby 2003). No evidence of Neolithic or Bronze Age habitation was evident within any of the trenches, but in view of the small number of trenches, this is not surprising.

A2.7.6 **Later prehistoric period:** the evidence for this period is slightly better than for its predecessor, with a few features whose typology is appropriate, but no certain dates. Despite the dearth of good dating evidence, it remains possible that some of the other trackways, enclosures and boundary features sampled in Plots 20-4, 24-1, 24-2, 24-5, 25-1 and 26-2 will also date to the mid-late Iron Age, as they may be additional elements of known and dated sites of this period (NAL 2006a). Previous investigations of the many cropmark features revealed on the Magnesian Limestone, for example, have demonstrated that they often originated at this time, and remained in use into much later periods (Roberts *et al* 2001; Roberts 2005; Brown *et al* 2007).

- A2.7.7 The evidence from previous studies (Roberts *et al* 2001; Roberts 2005; Brown *et al* 2007) suggests that the landscape was settled on a more permanent basis from at least the middle of the Iron Age onwards. The enclosed settlements of this time are much more visible archaeologically than those of earlier periods, and are more commonly encountered. Funerary monuments generally ceased to be as important as previously, with the dead usually buried within settlements, although there are exceptions, such as the chariot burial at Ferry Fryston (Boyle *et al* 2007). Finds are rare, but they point to wide trading networks and contact with distant areas. The economy was agrarian, and both arable agriculture and animal husbandry were important. Sub-division of the landscape with visible boundaries began at this time, a practice which intensified in later periods. The evidence from the Watching Brief, although scant, is consistent with that from these earlier studies.
- A2.7.8 **Romano-British period:** the Watching Brief has provided some limited evidence for this period, in Plot 26-2, where the complex of ditches is typical, and has yielded some datable artefacts.
- A2.7.9 The Romano-British features in this landscape are comparable with those of the Iron Age, and are largely those associated with agriculture. Predominantly, it is evidence for what were probably ‘native’ societies that has been detected, and previous studies (Roberts *et al* 2001; Roberts 2005; Brown *et al* 2007) have repeatedly established continuity between the Iron Age settlements, and their associated field systems, and those of Romano-British date. The extension of Roman administrative control over this landscape, the Roman military, and a Romanised infrastructure and economy, is evident from the forts and urban centres in the area, linked by roads.
- A2.7.10 The results of the Watching Brief have only limited potential to address the research objectives of the *Recommendations Document* (NAL 2006–7) for the prehistoric and Roman periods. They do, however, contribute in a very general way to an understanding of the landscape at this time, if only through negative evidence.
- A2.7.11 **Medieval period:** the lack of evidence for medieval activity is probably a combination of the widespread landscape reorganisation taking place after the Romano-British period and the methodology influencing the positioning of the archaeological trenches. Previous projects in the study area (Roberts *et al* 2001; Roberts 2005; Brown *et al* 2007) have found evidence that some boundaries established in the Iron Age or Romano-British period remained in use during the medieval period, whereas others fell into disuse, to be replaced by new regimes of land allotment. Many of the medieval enclosures are likely to have continued in use into modern times, and survive as extant hedgerows today. These were not targeted by the evaluation, which instead focused on cropmark and geophysical evidence of relict enclosures belonging to earlier periods.
- A2.7.12 Many of today’s settlements have medieval roots and, as the pipeline deliberately avoided settlement centres, it is perhaps unsurprising that medieval finds were few in number. No concentrations of medieval pottery were detected during the fieldwalking survey (NAL 2007c; 2007d). Those few finds that were recovered from the topsoil can be explained by the practice of fertilising the fields with domestic waste, and do not necessarily indicate settlement in the immediate vicinity. However, future works on the pipeline may yet show some correspondence between these concentrations of finds and contemporary centres of activity.

A2.7.13 The results of the Watching Brief have only limited potential to address the research objectives of the *Recommendations Document* (NAL 2006–7) for this period. They do, however, contribute in a very general way to an understanding of the landscape at this time, if only through negative evidence.

A2.7.14 **Post-medieval and modern periods:** the evidence from the Watching Brief for the post-medieval and modern periods is similarly scanty, with no artefacts recovered, and only one feature, the railway line in Plot 28-3, certainly of this date. As with the medieval period, the lack of evidence for post-medieval and modern activity can largely be explained by the sampling strategy employed, and the fact that the pipeline was built through farmland.

A2.7.15 The evidence from the pipeline for this period is of only limited relevance to the research objectives presented in the *Recommendations Document* (NAL 2006–7). It does, however, demonstrate that, although there have been other significant changes in the targeted areas, the patterns of rural settlement and land-use have not fundamentally changed since the medieval period.

## A2.8 RECOMMENDATIONS FOR FURTHER WORK

A2.8.1 **Stratigraphy:** no further stratigraphic analysis is required, with the exception of Plots 20-4 and 26-2, which have been discussed in detail in the main body of the assessment report (*Sections 3.3 and 3.6*).

A2.8.2 **Finds:** no further analysis is recommended for the finds recovered during the Watching Brief, and they do not require conservation. The artefacts have been reported alongside others retrieved from the pipeline (*Section 4*).

A2.8.3 **Radiocarbon dating:** a single palaeoenvironmental sample was recovered during the Watching Brief, from a pit in Plot 30-6 (Package B3). This contains material suitable for radiocarbon dating (*Section 4.16.9*).

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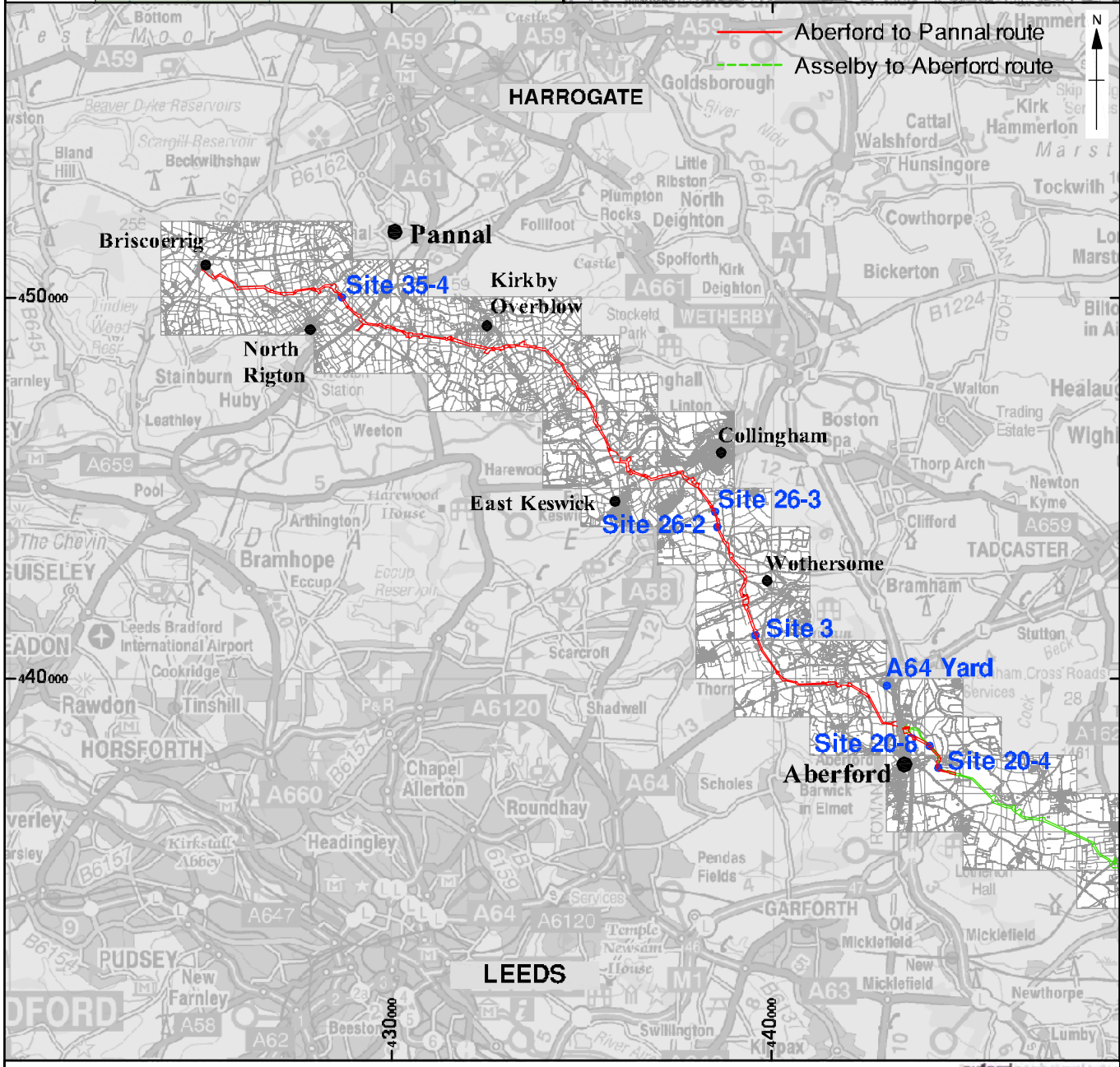
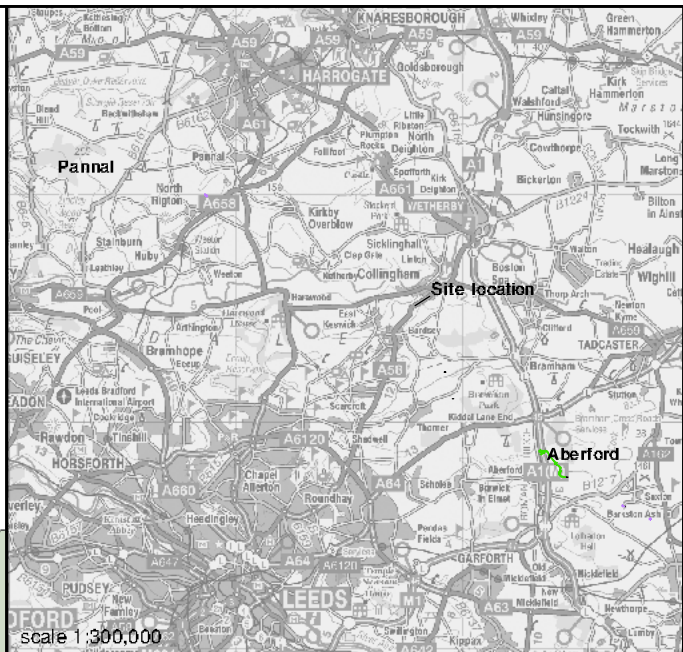
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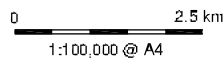


Figure 1: Site location

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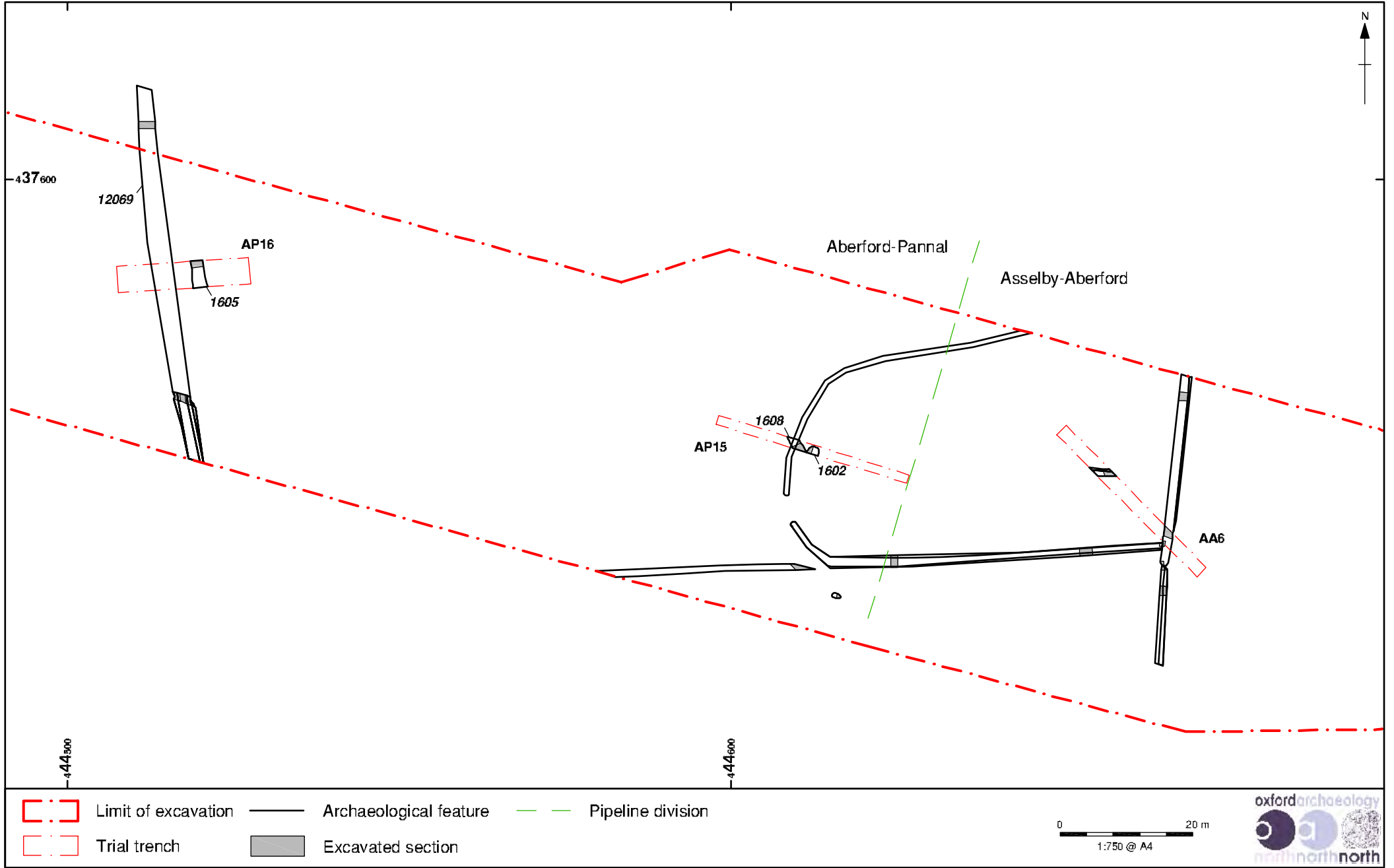


Figure 2: Site 20-4; eastern features

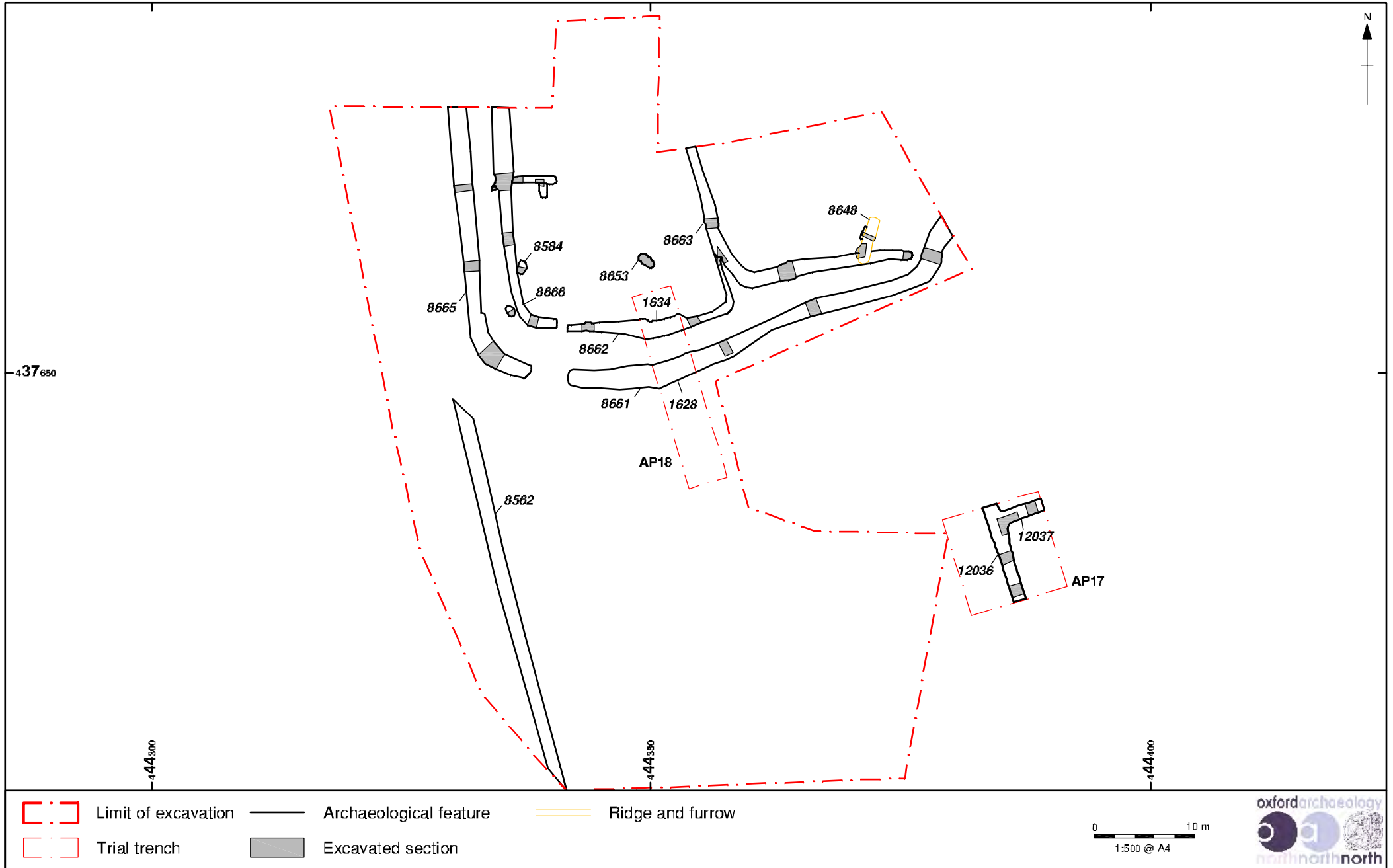


Figure 3: Site 20-4; western features



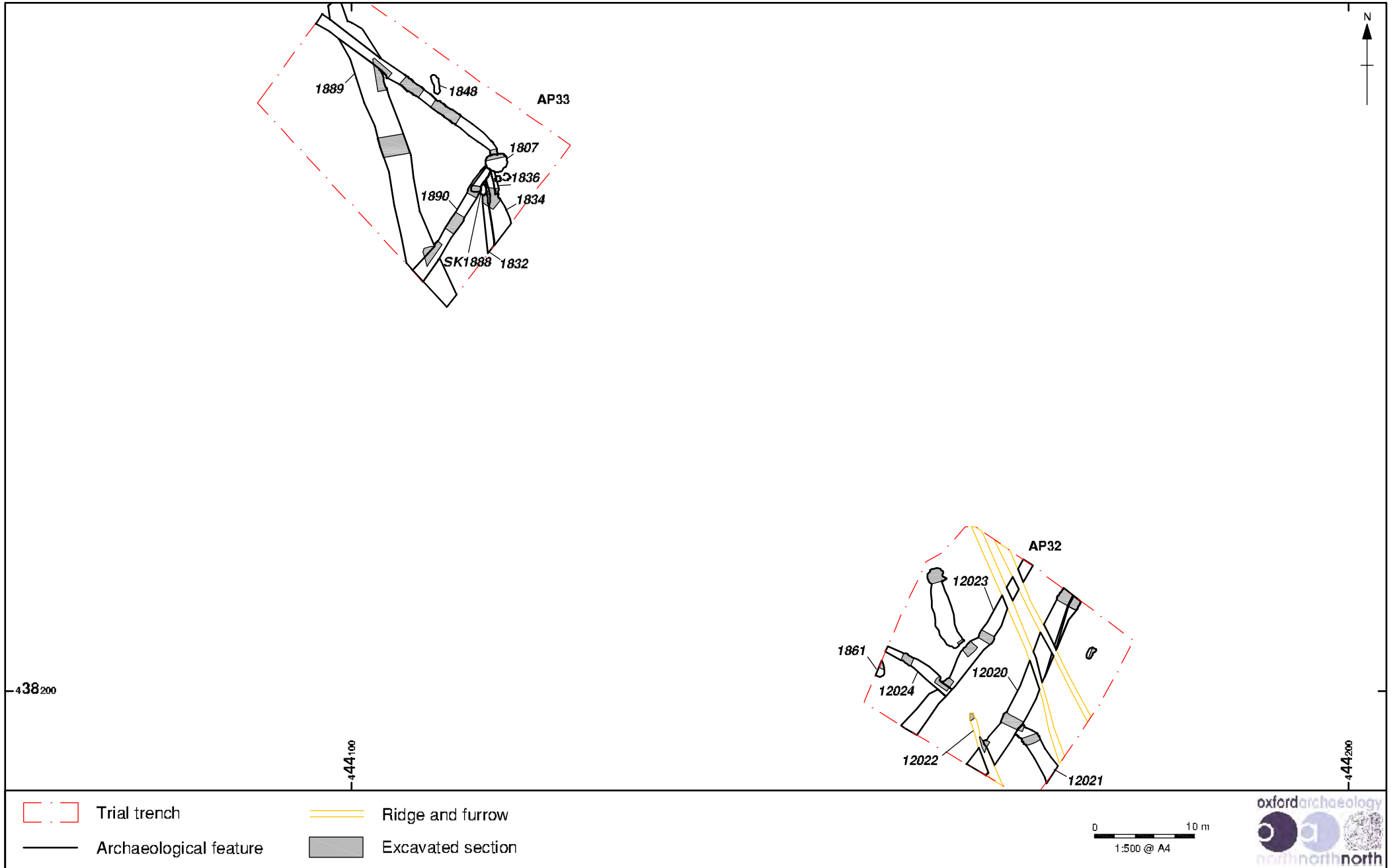
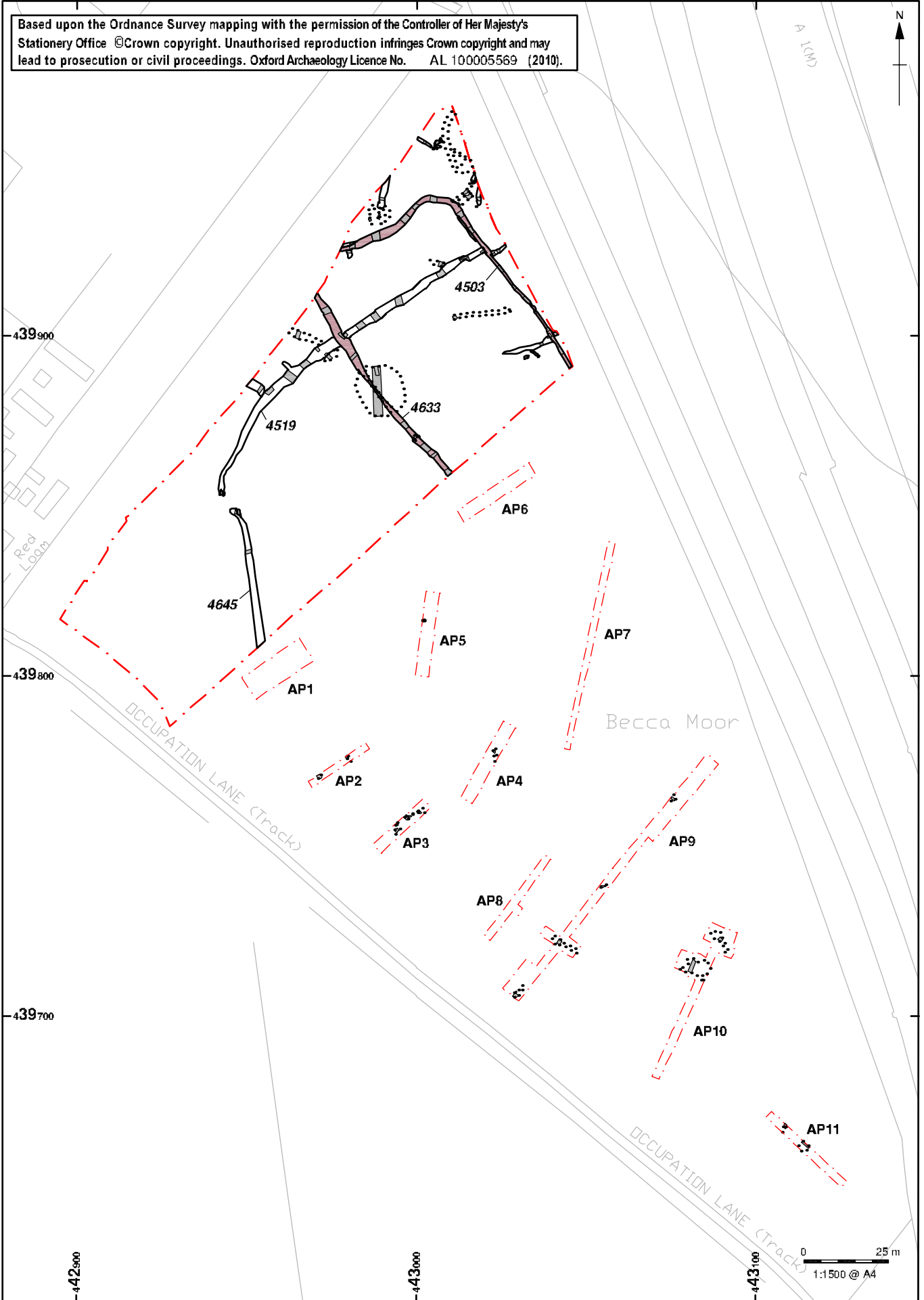


Figure 4: Site 20-8

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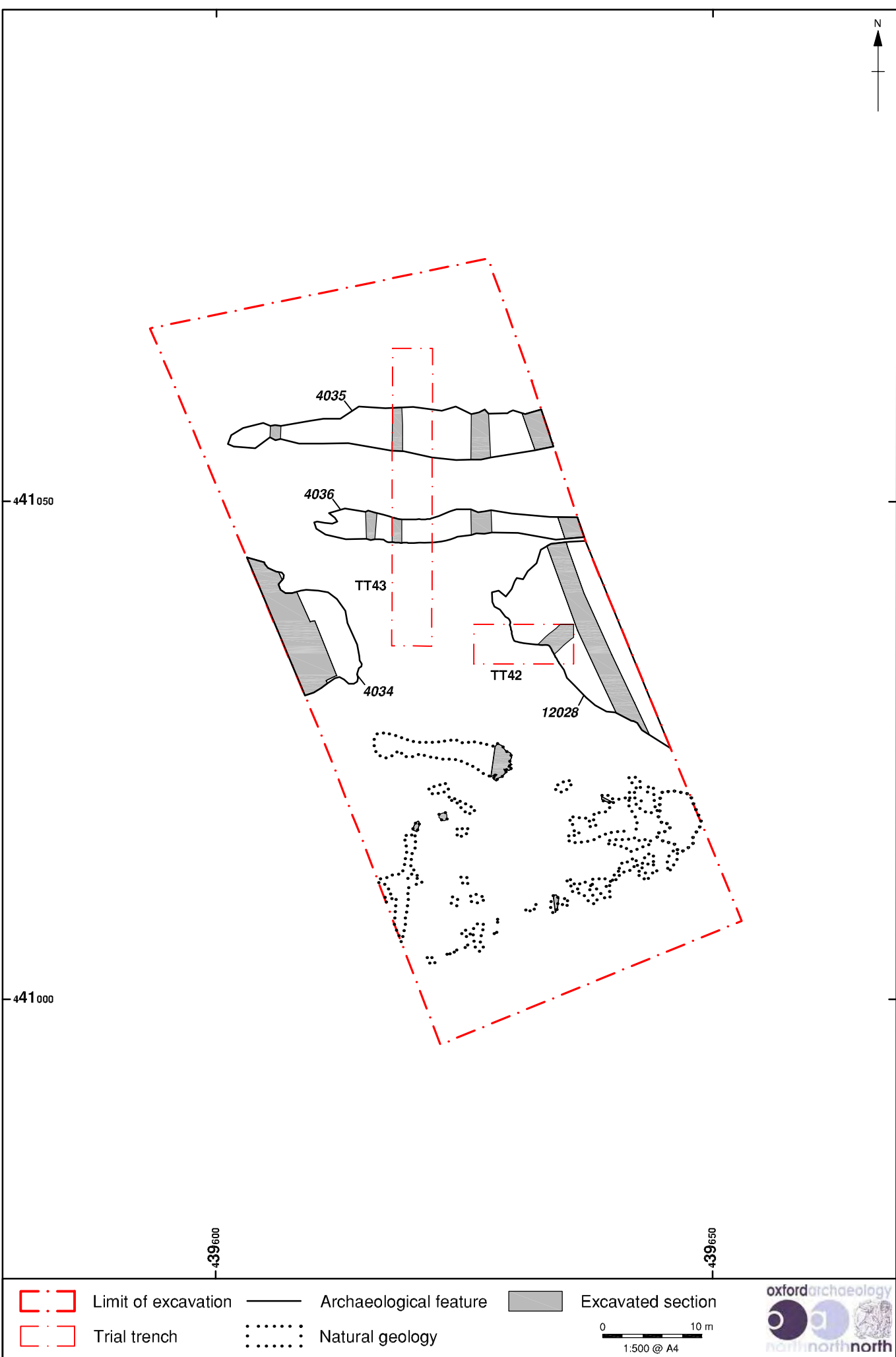


- Limit of excavation
- Trial trench
- Archaeological feature
- Natural geology
- Excavated section



Figure 5: A64 Yard

NJL10068\*AMS\*131009



NJ\*L10068\*AM/S\*131009

- Limit of excavation
- Trial trench
- Archaeological feature
- Natural geology
- Excavated section

0 10 m  
1:500 @ A4



Figure 6: Site 3

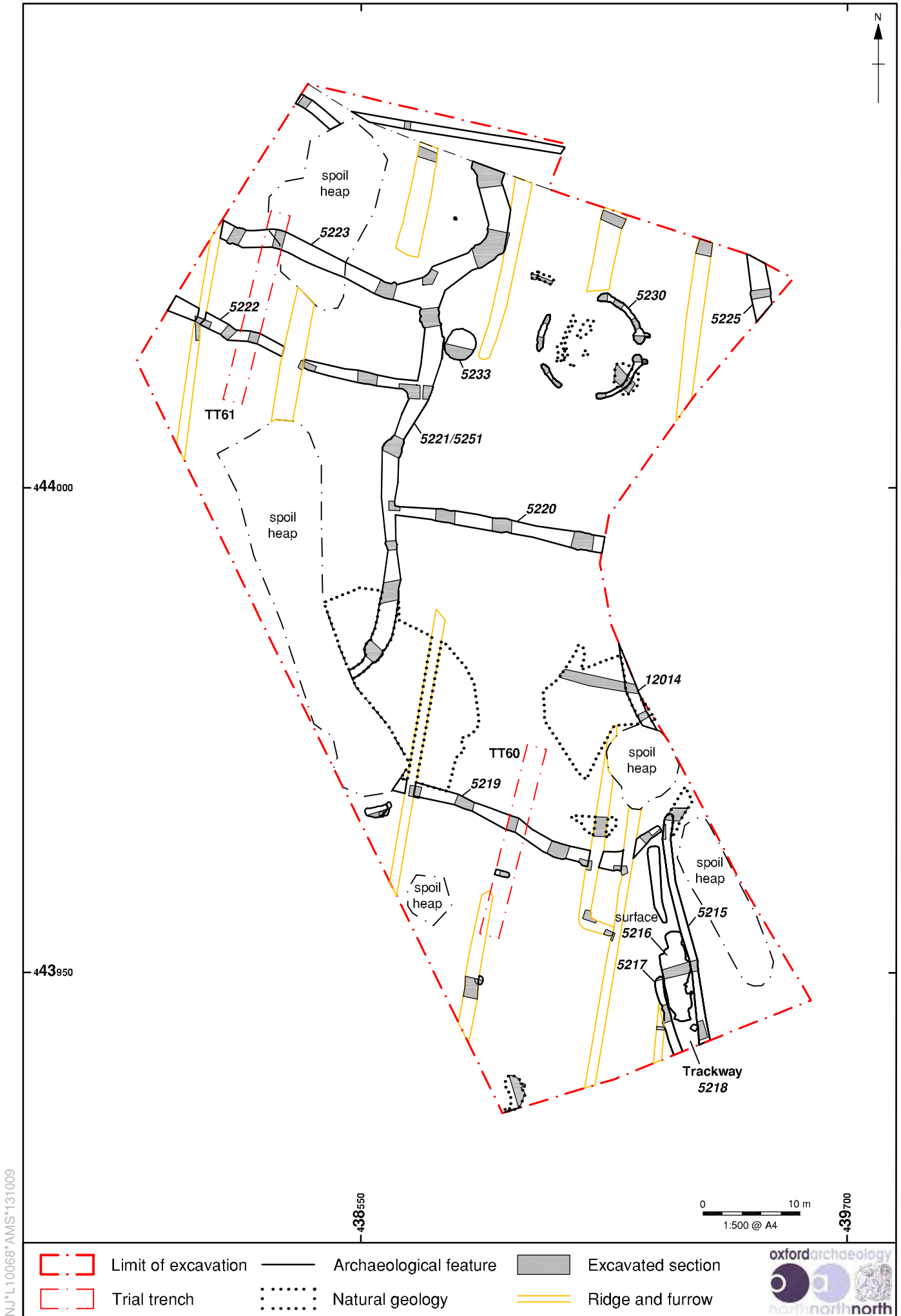
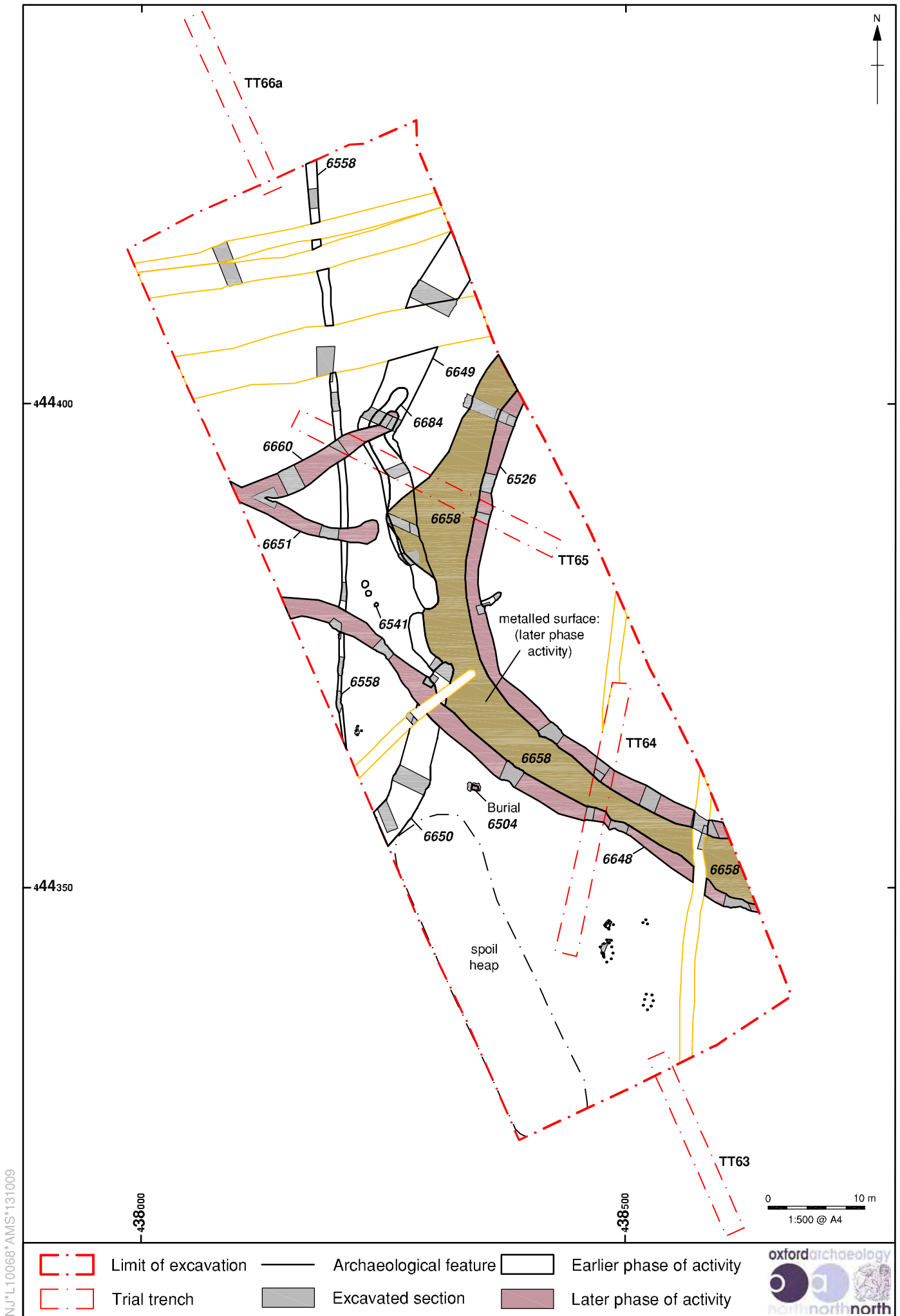


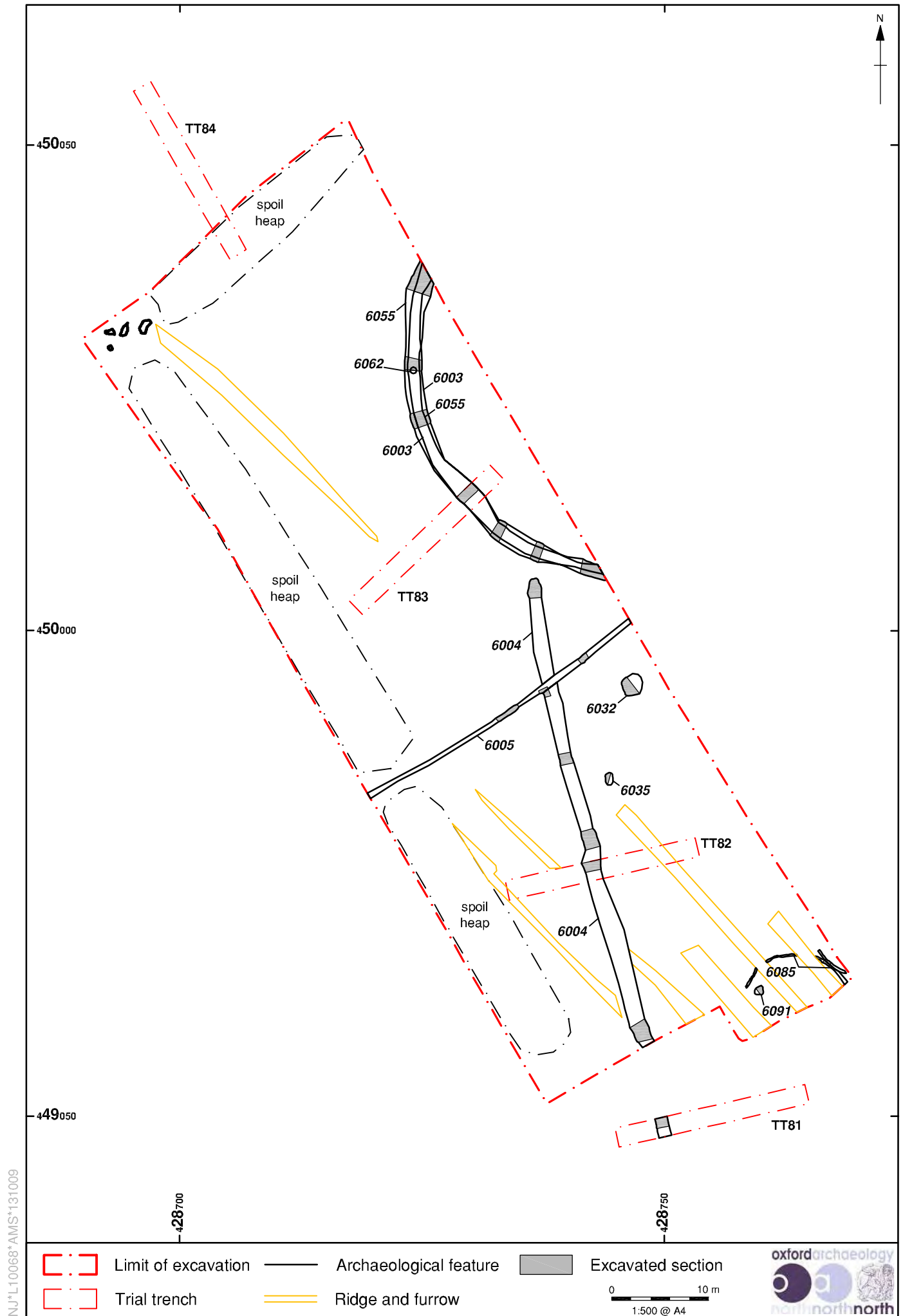
Figure 7: Site 26-2



NJ\*L10068\*AM/S\*131009

Figure 8: Site 26-3





NJ\*L10068\*AM/S\*131009

Figure 9: Site 35-4

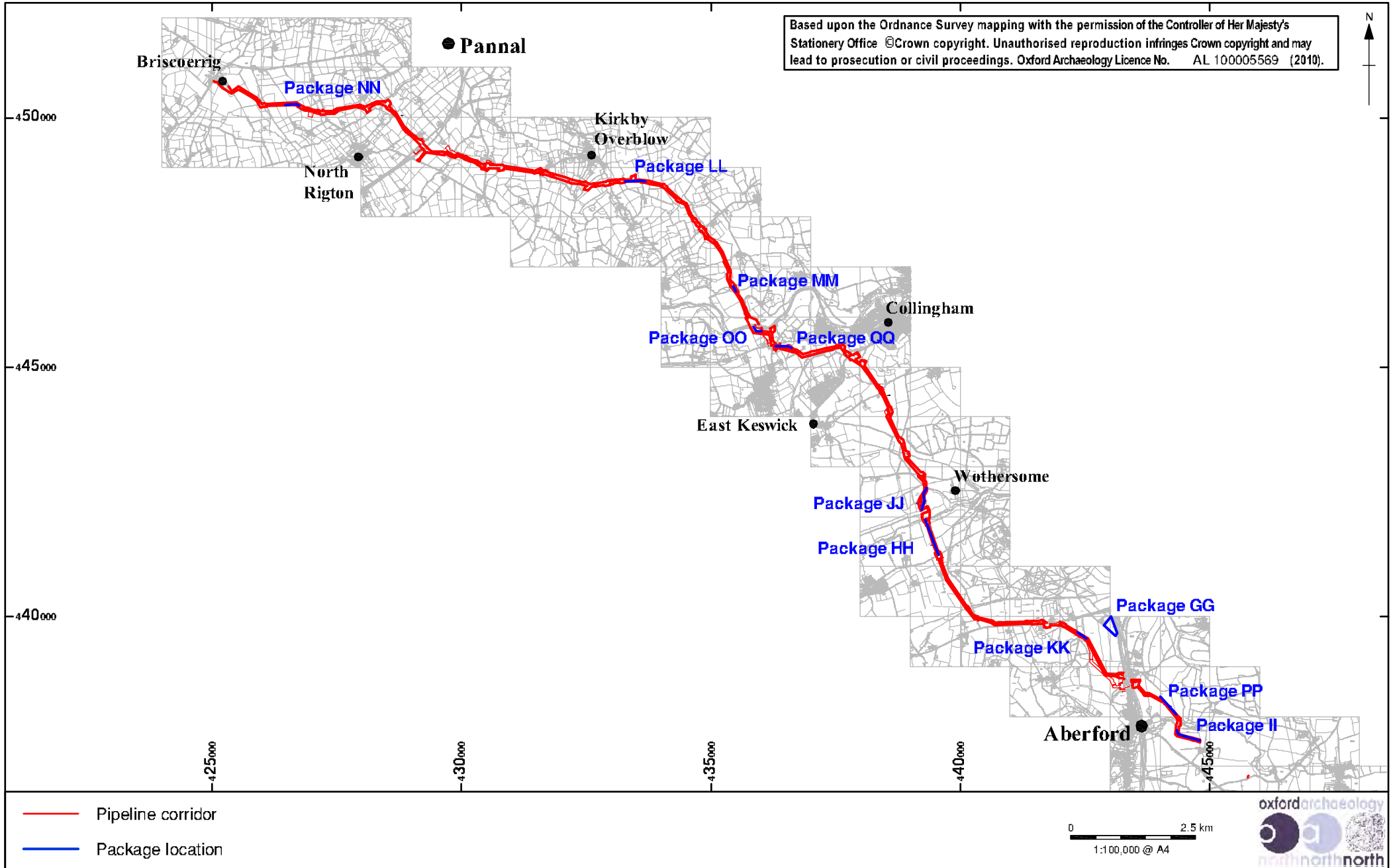
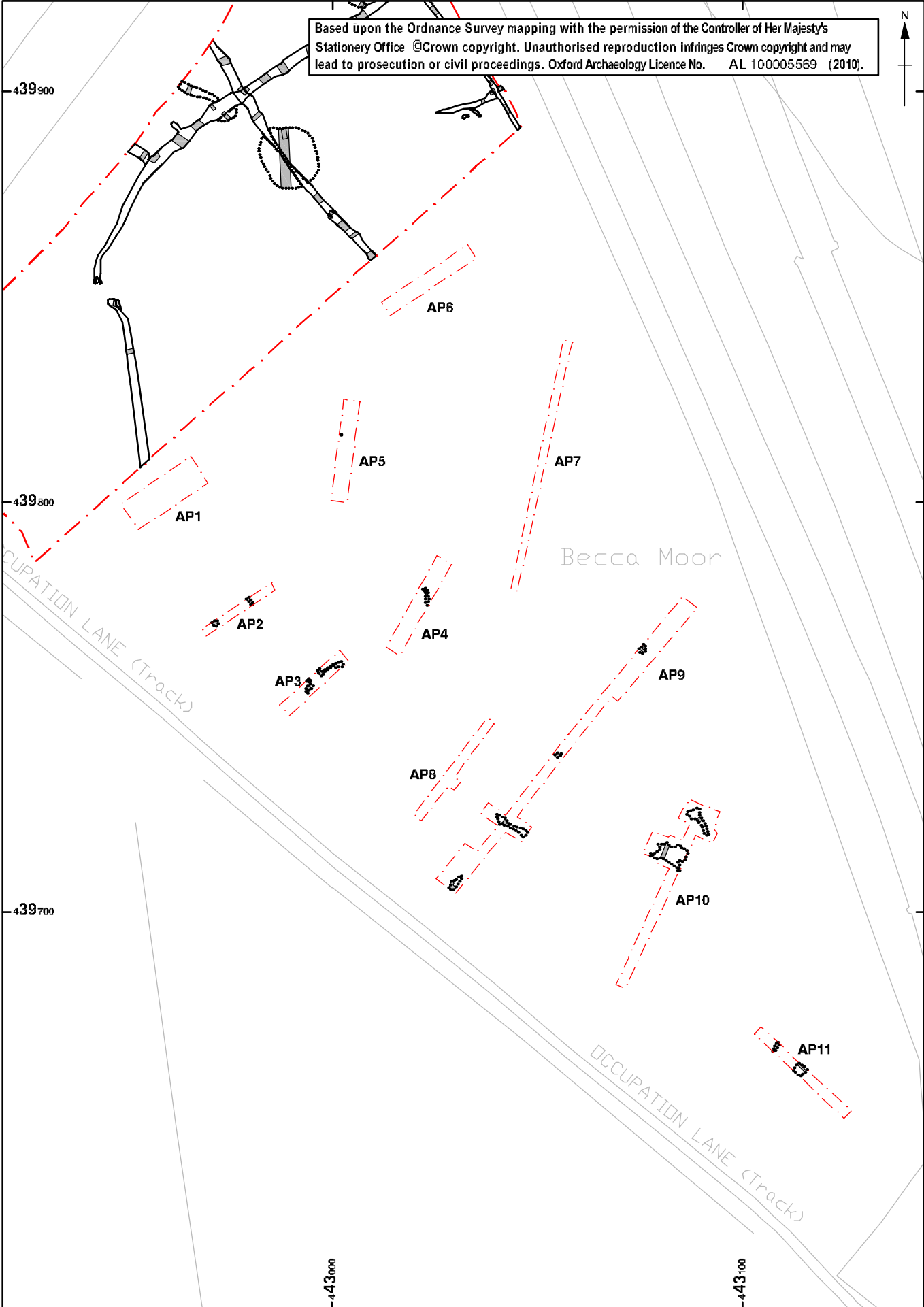
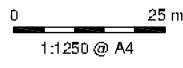


Figure 10: Phase 2 Evaluation: location of the packages along the route of the pipeline

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- Limit of excavation
- Excavated section
- Archaeological feature
- Natural geology

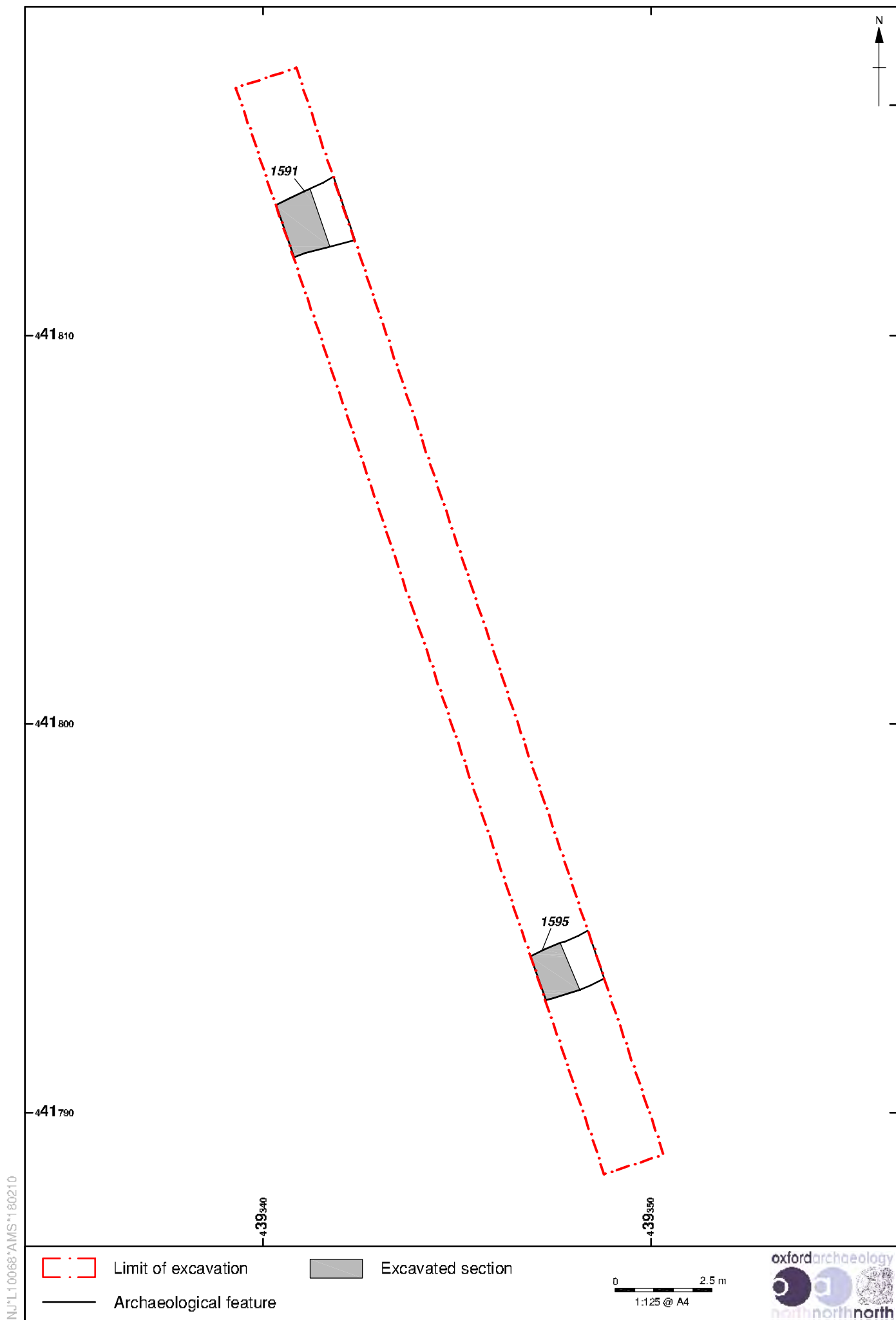


NJL10068\*AMS\*100210

Figure 11: Package GG







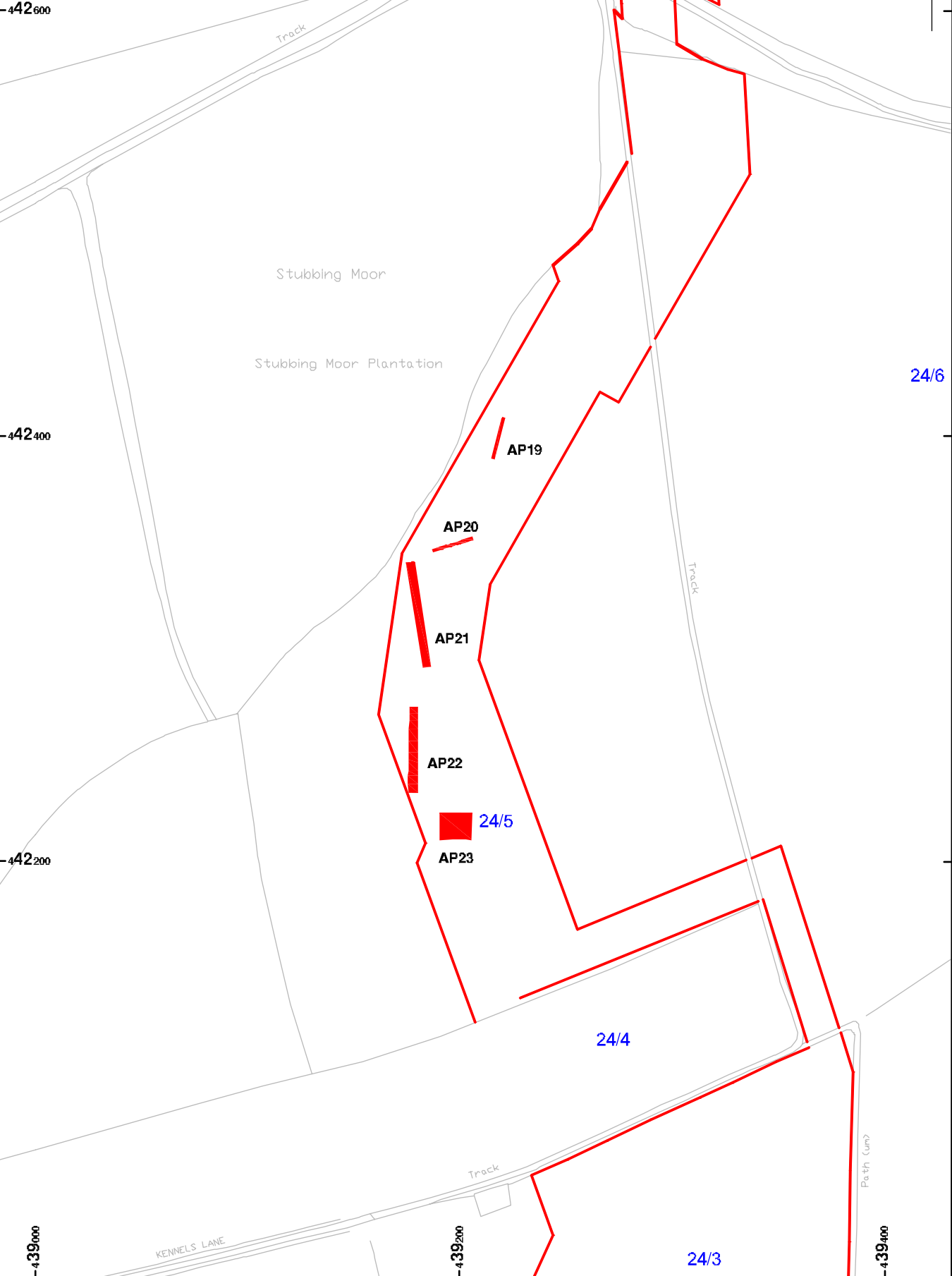
NJL10068\*AMS\*180210

Figure 13: Trench AP14



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NJL10068\*AMS\*180210

Figure 15: Package JJ

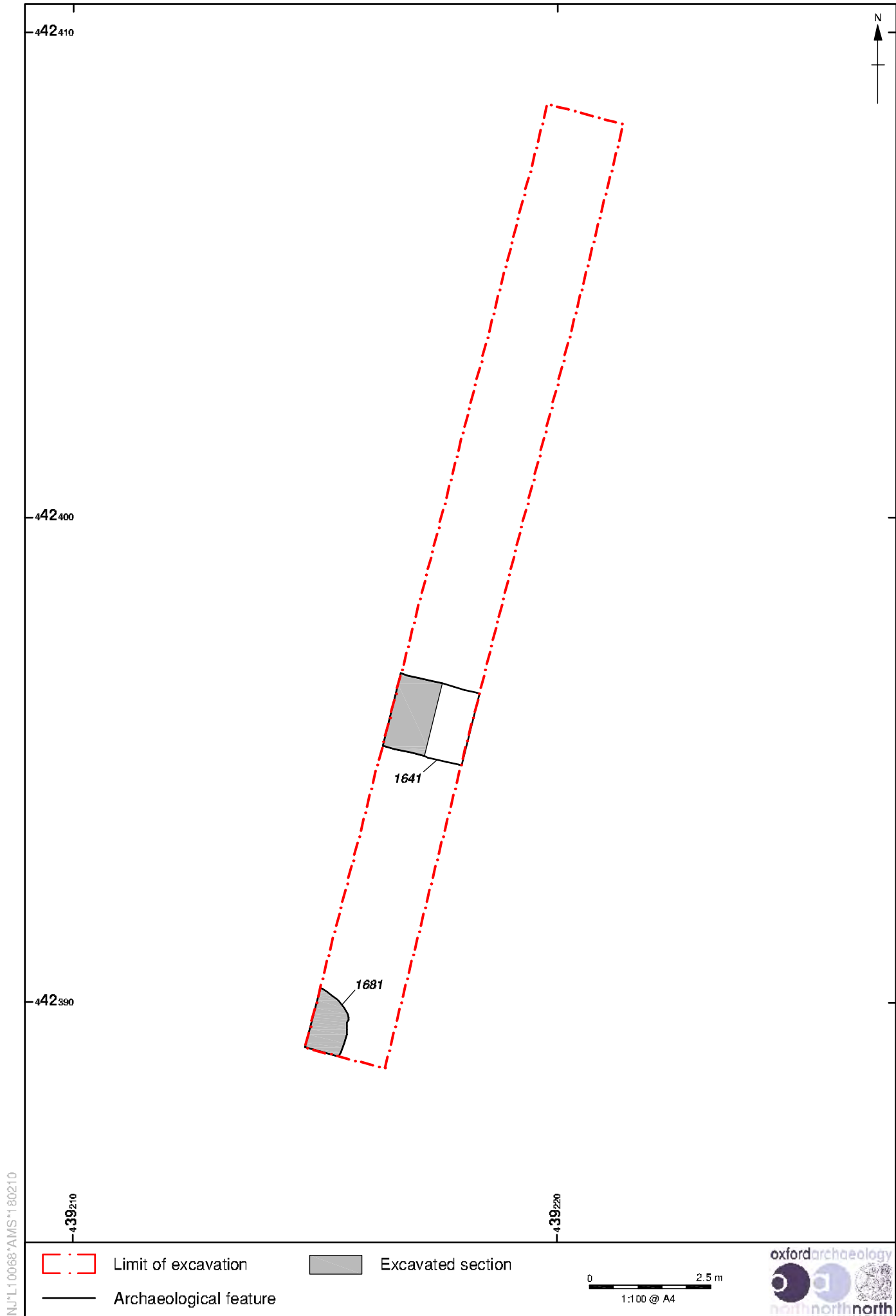


Figure 16: Trench AP19

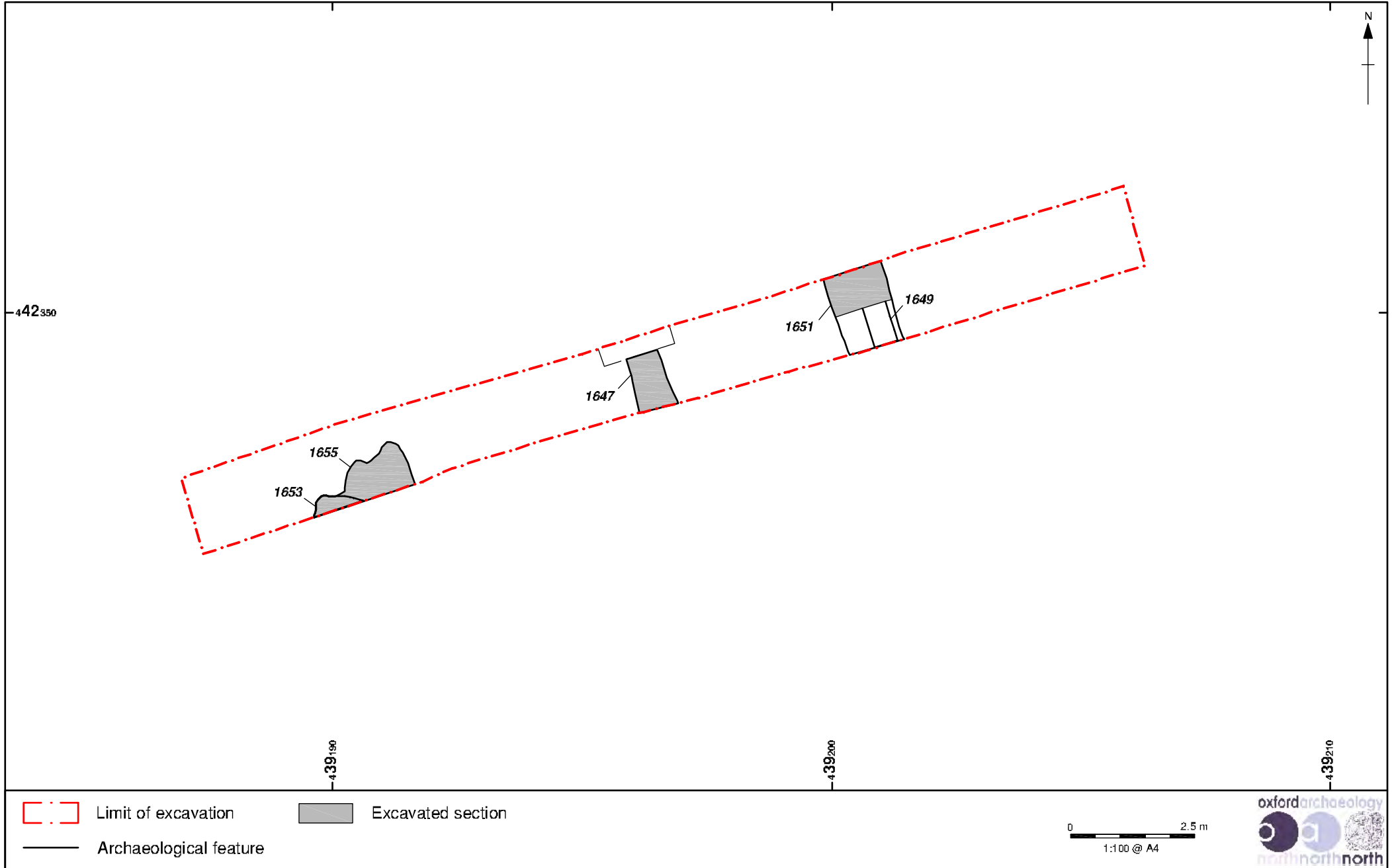


Figure 17: Trench AP20

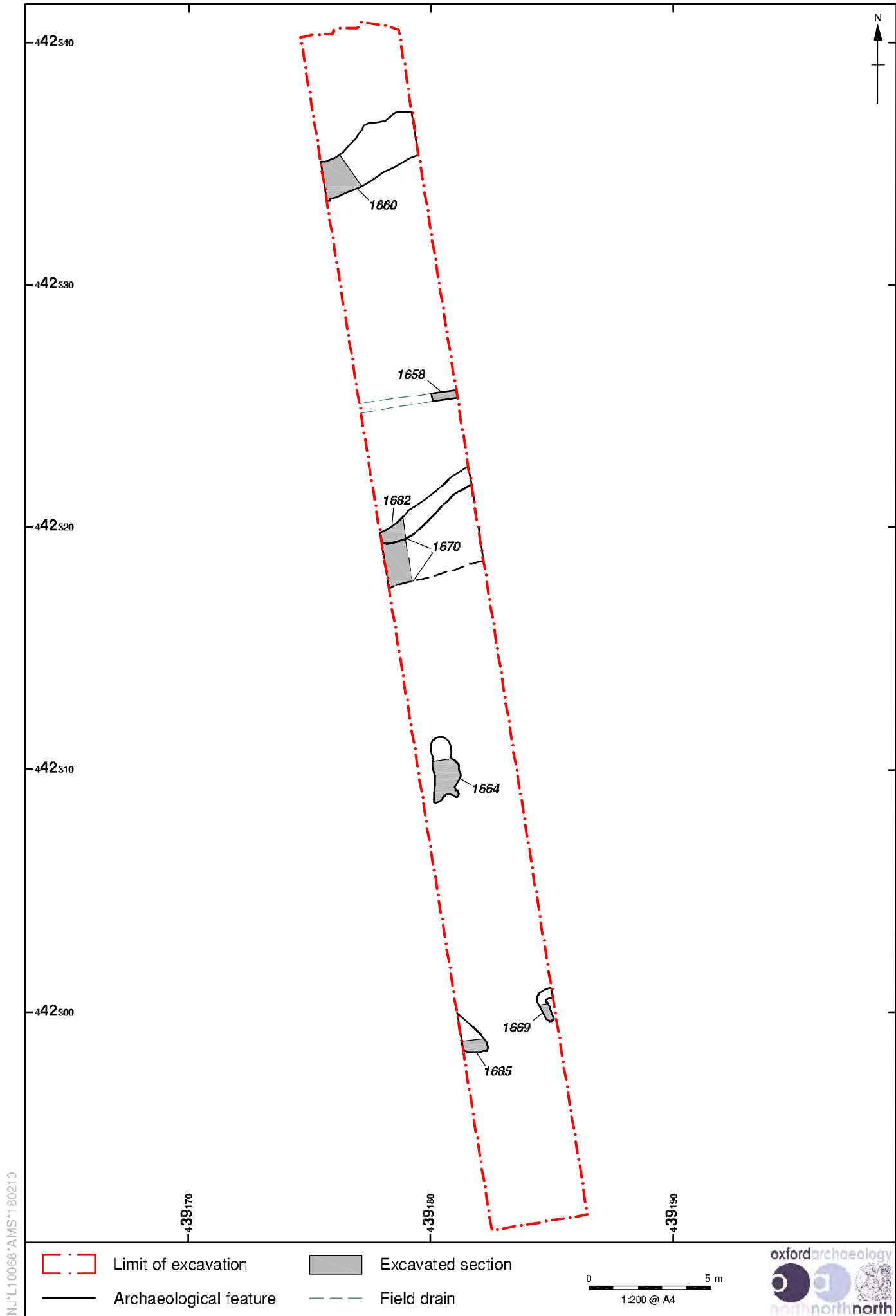


Figure 18: Trench AP21

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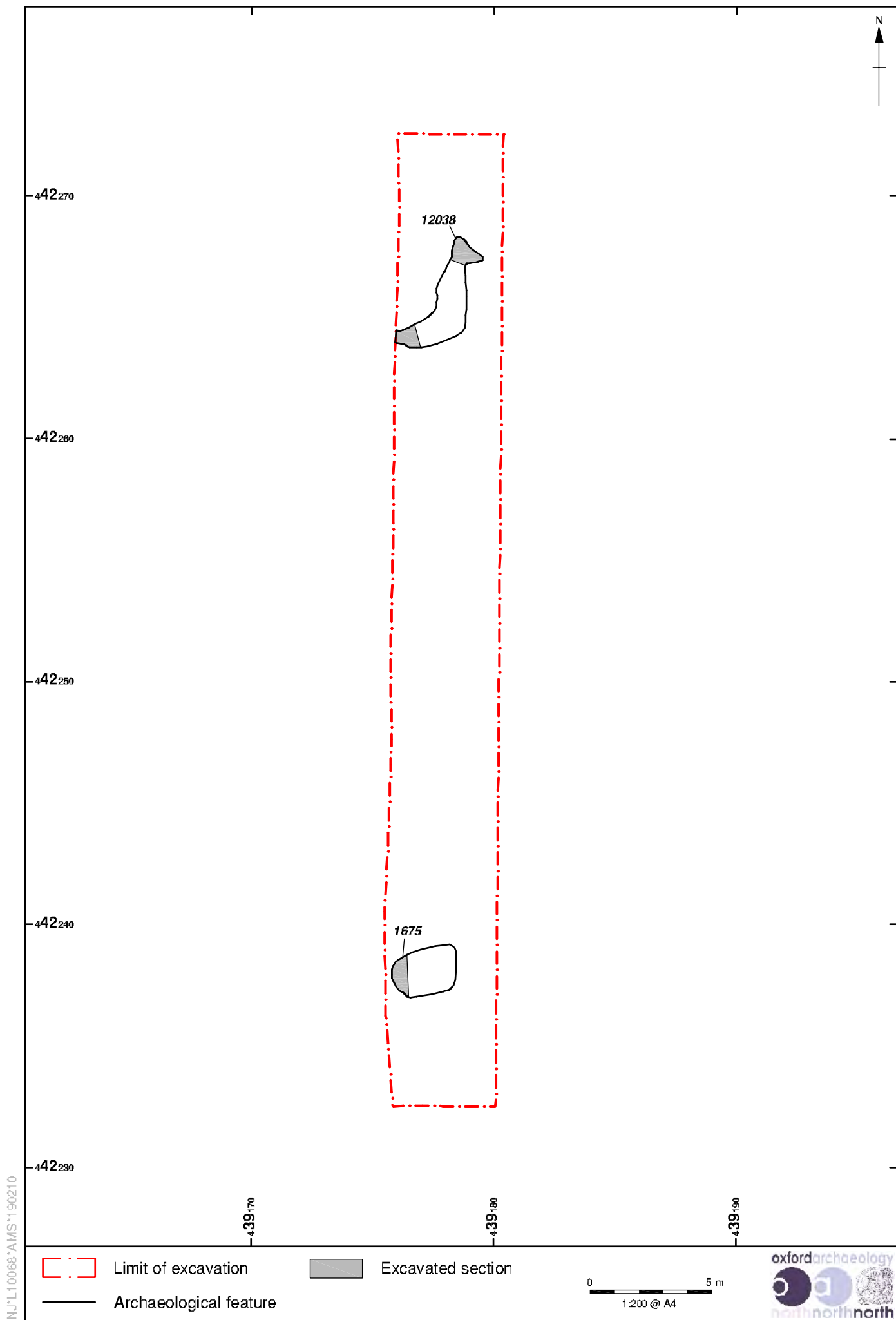
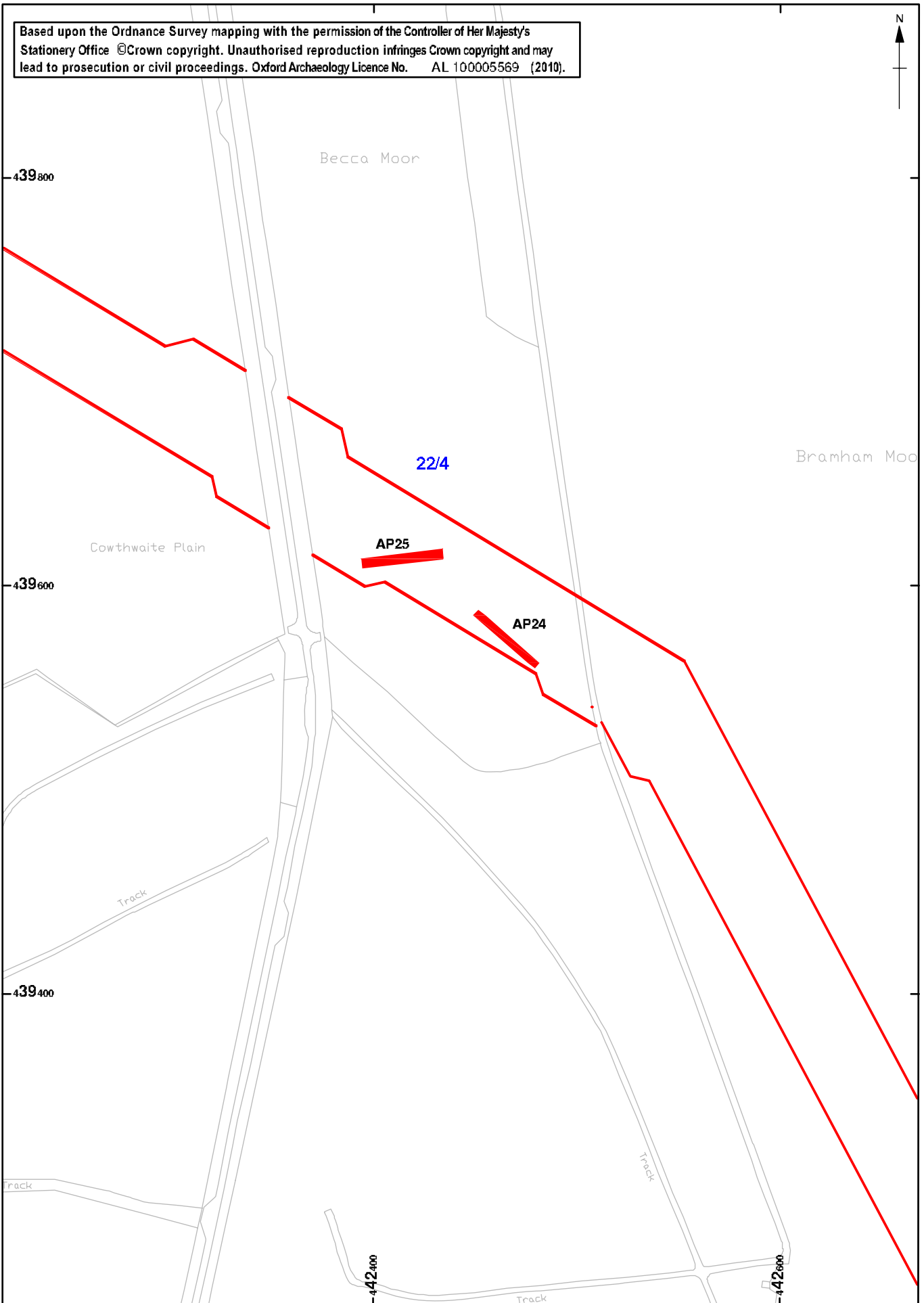




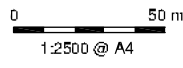
Figure 19: Trench AP22



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-  Route boundary
-  Evaluation trench



NJL10068\*AMS\*180210

Figure 20: Package KK

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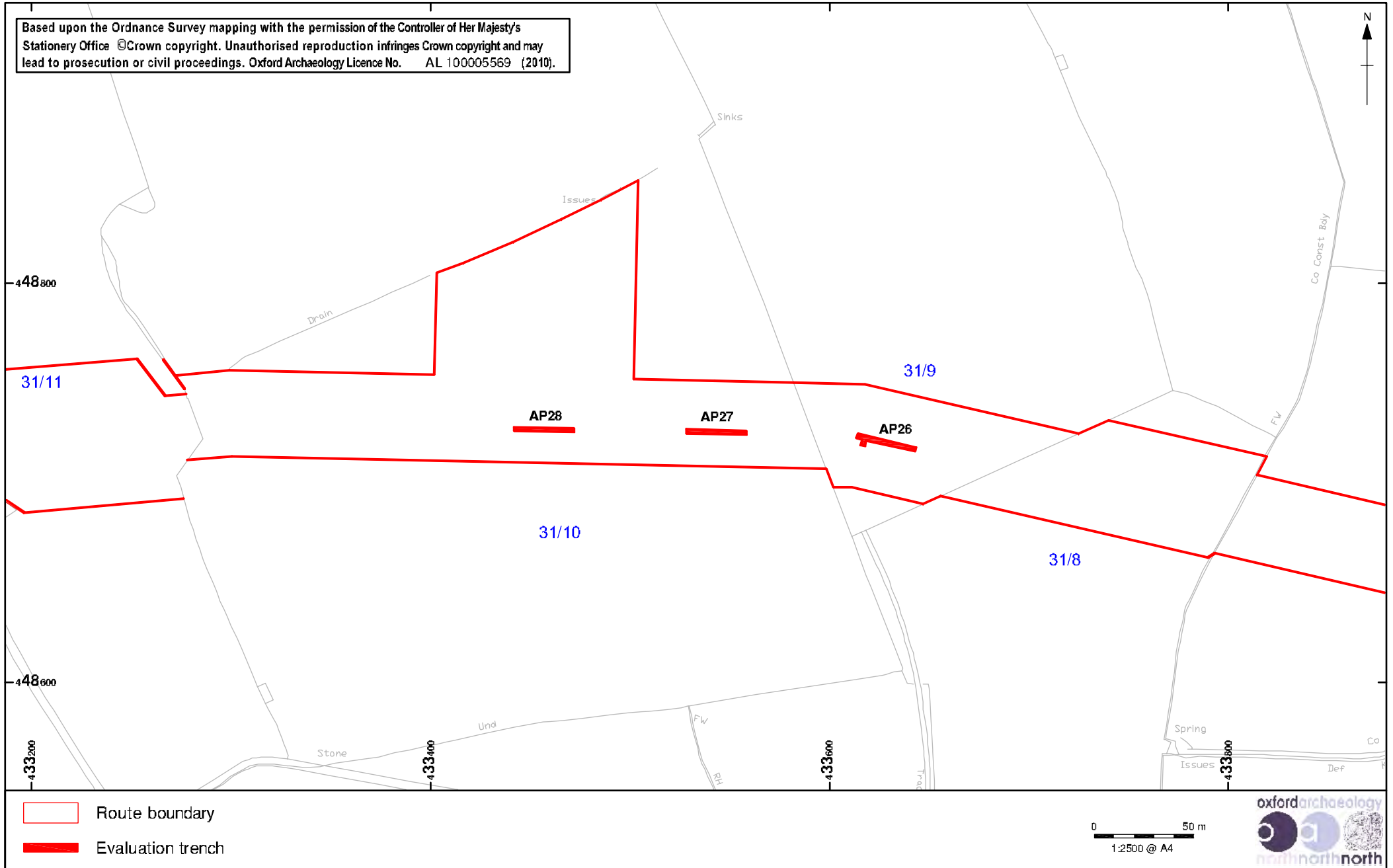


Figure 21: Package LL

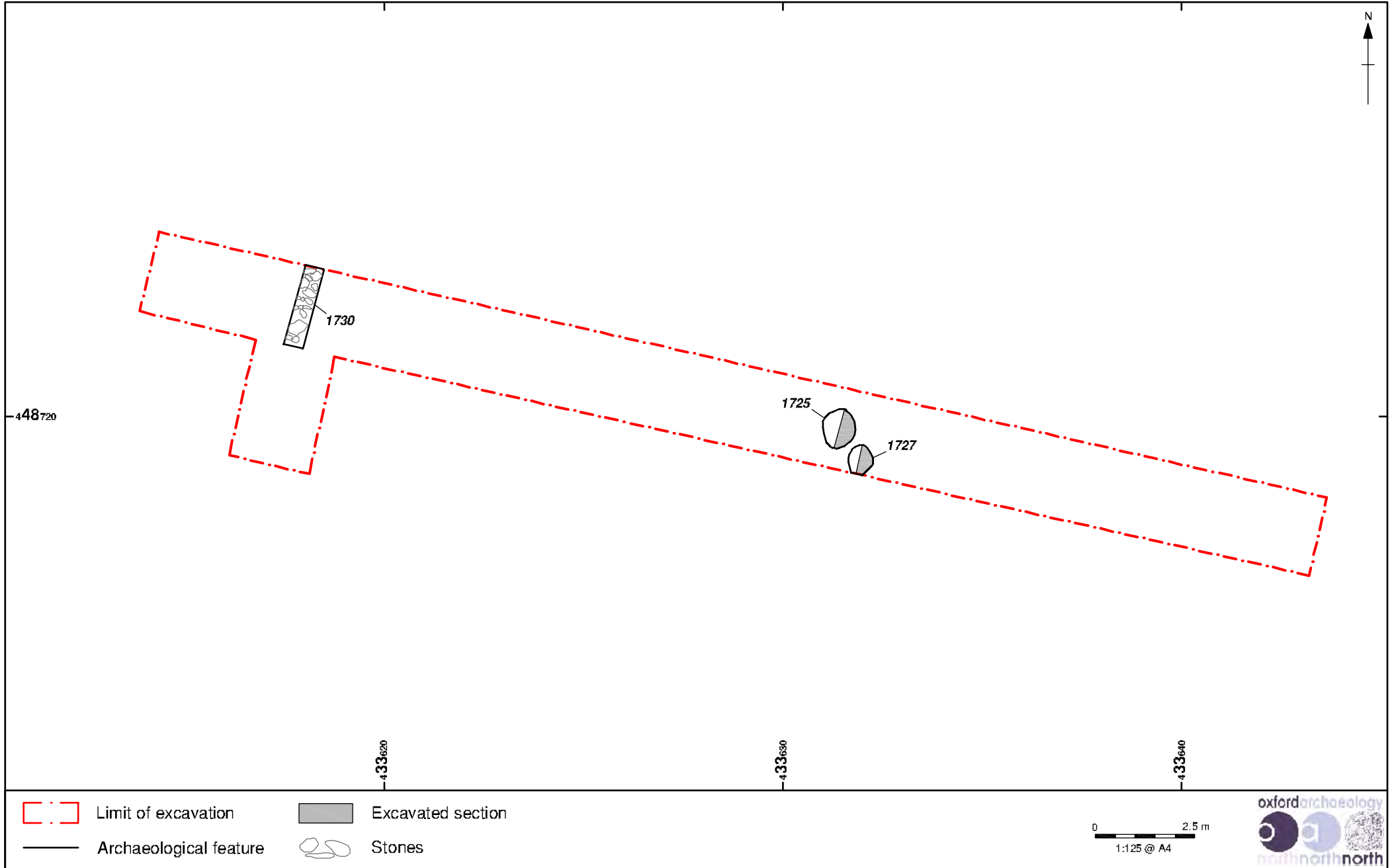
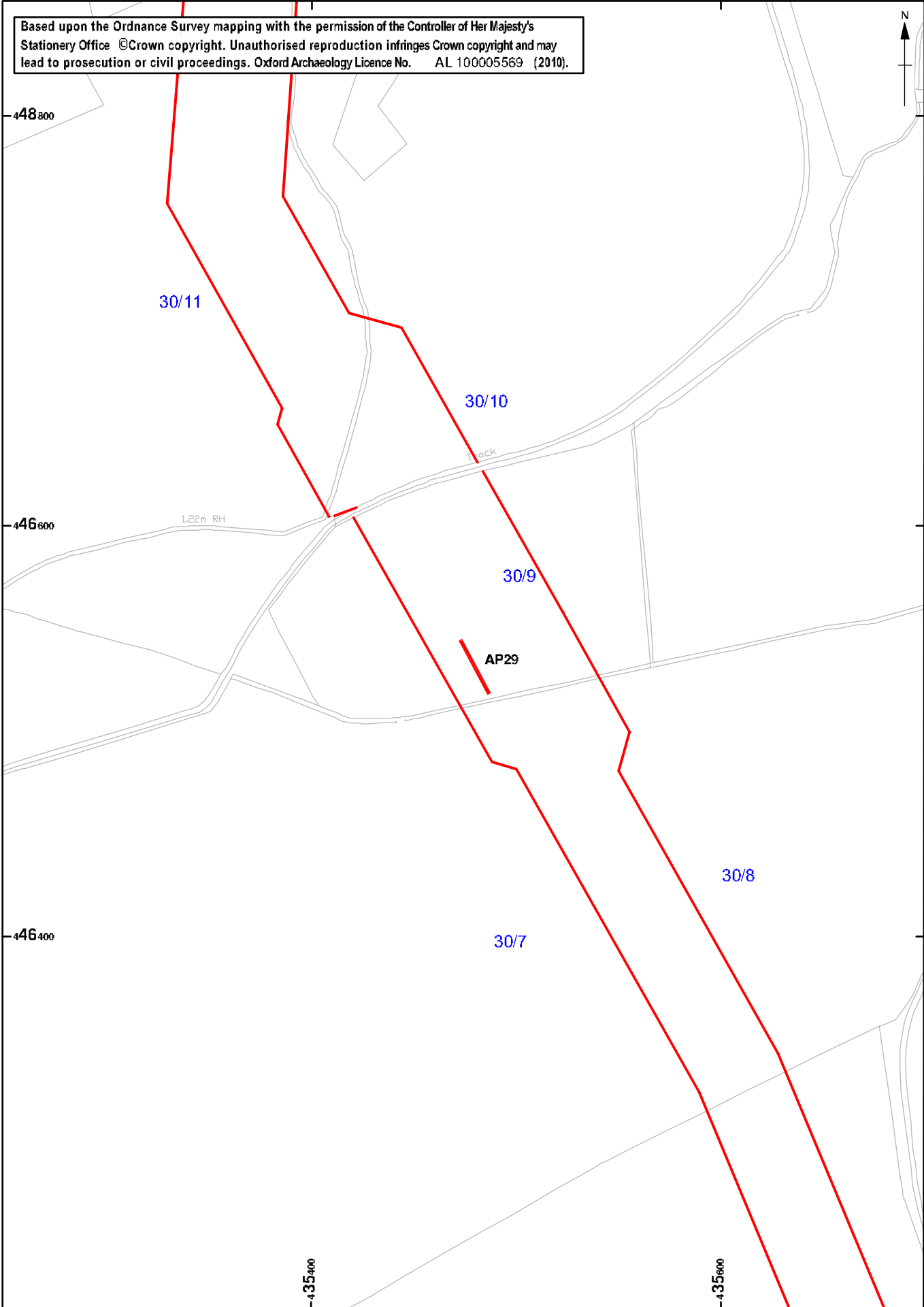


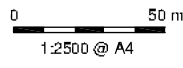


Figure 22: Trench AP26

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-  Route boundary
-  Evaluation trench



NJL10068\*AMS\*190210

Figure 23: Package MM

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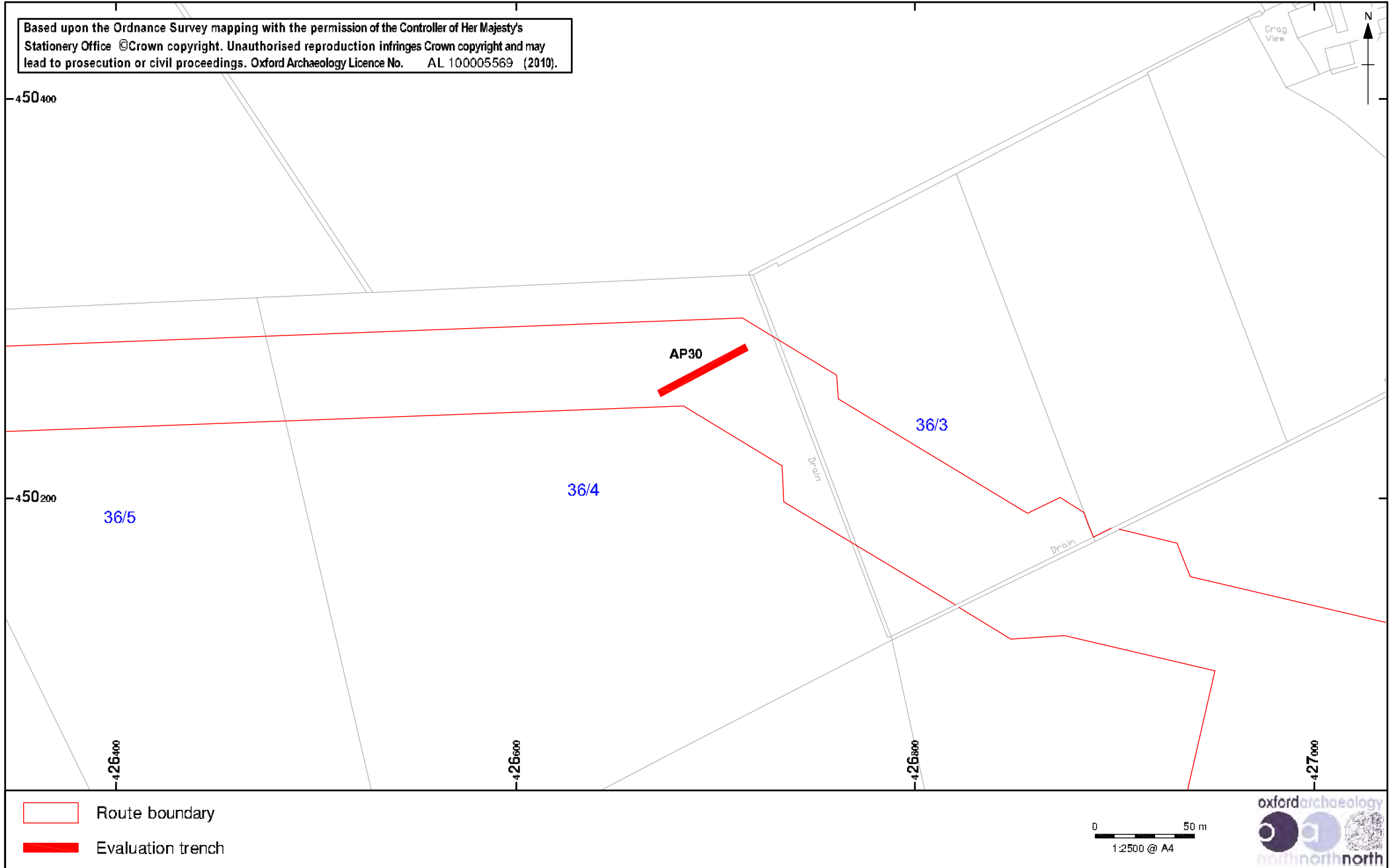


Figure 24: Package NN

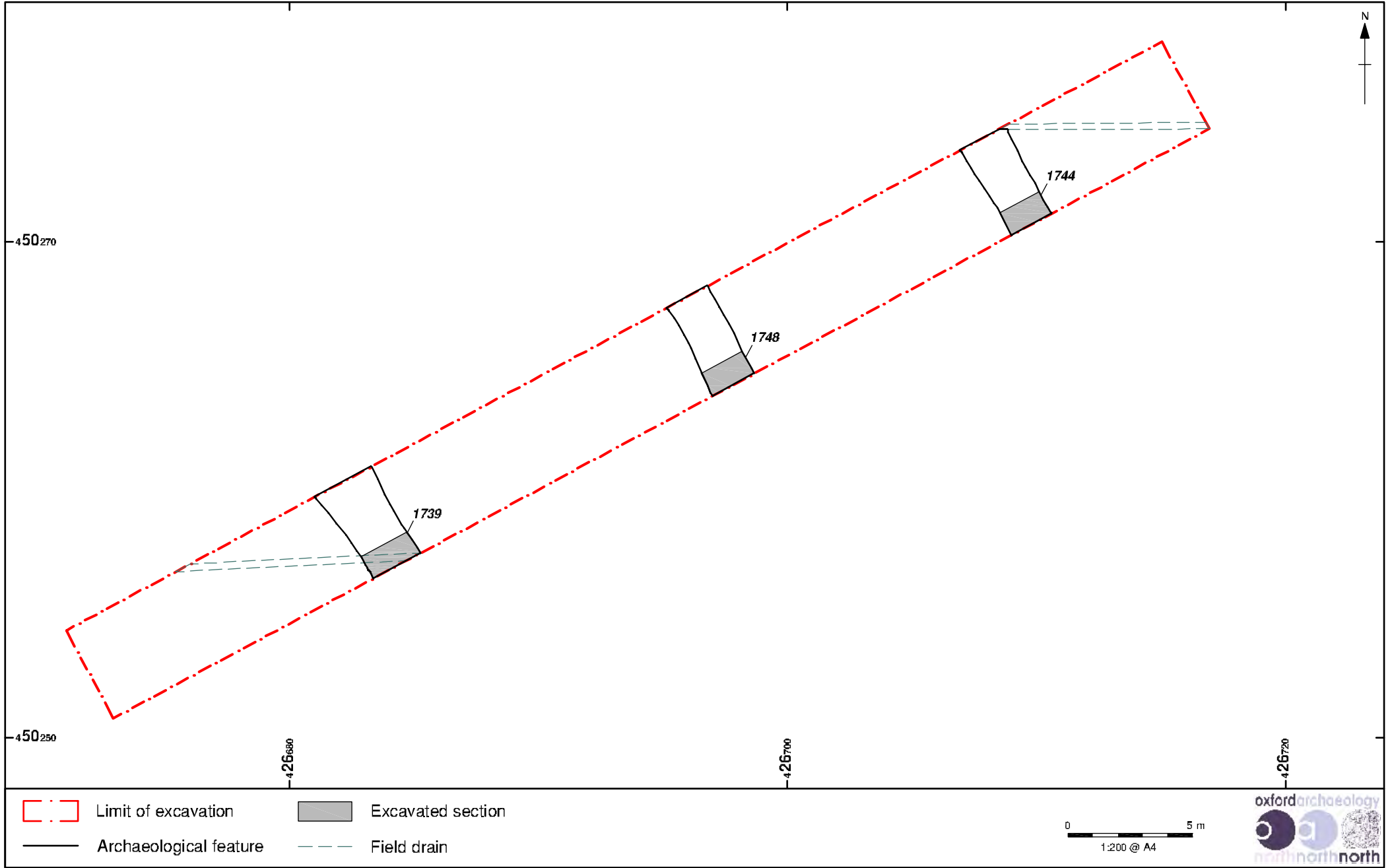


Figure 25: Trench AP30

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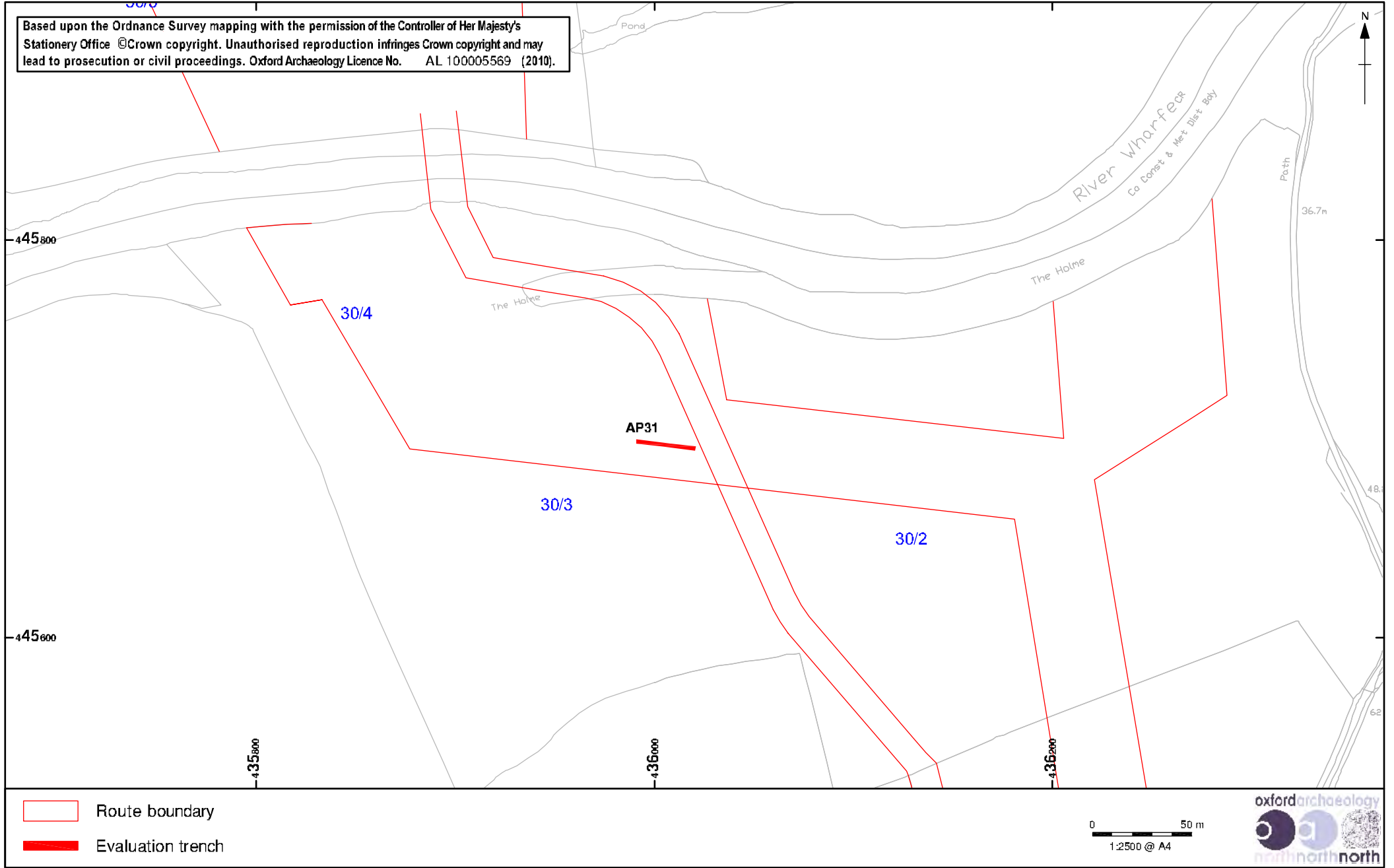
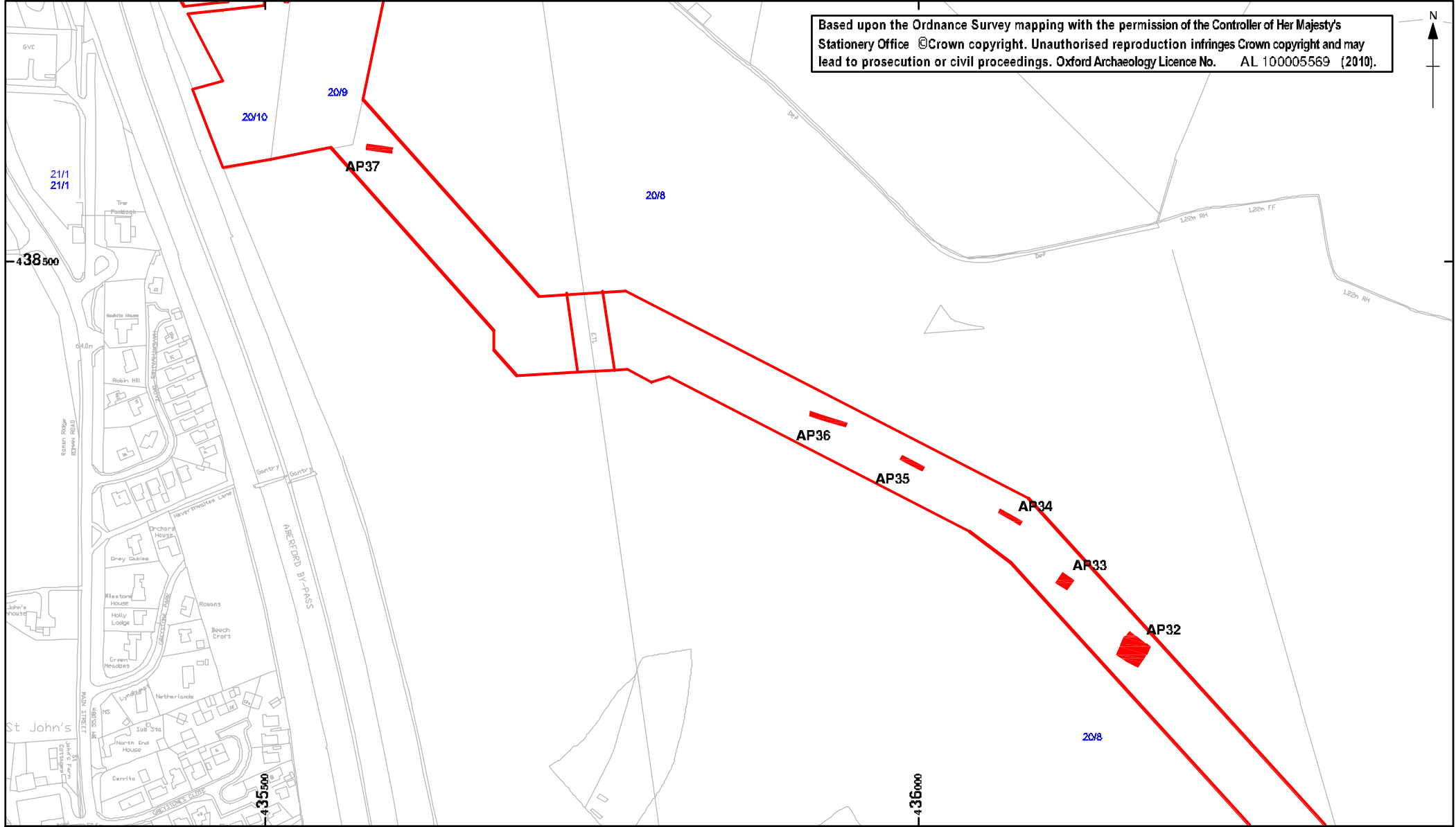




Figure 26: Package OO

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-  Route boundary
-  Evaluation trench

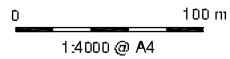


Figure 27: Package PP



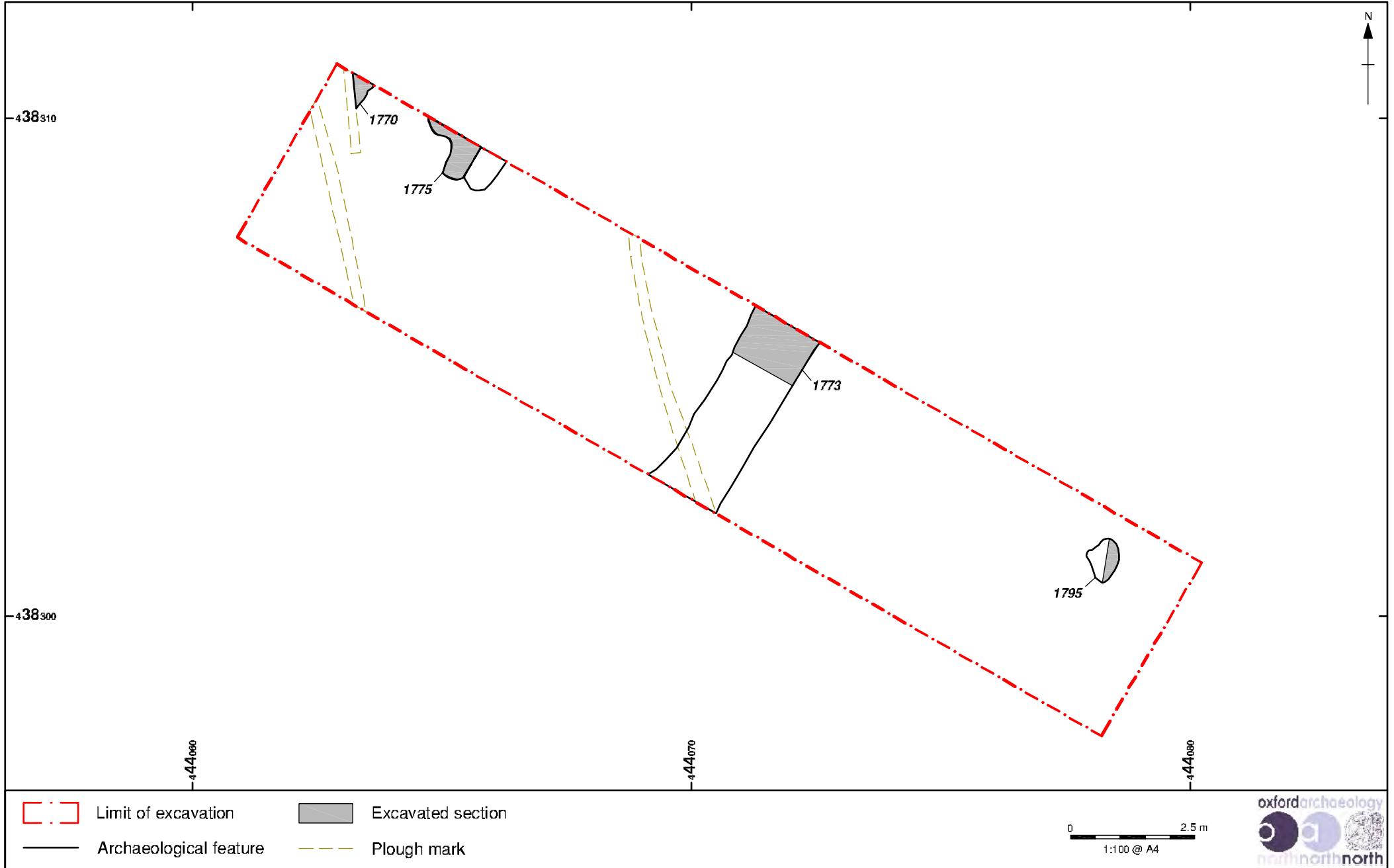


Figure 28: Trench AP34

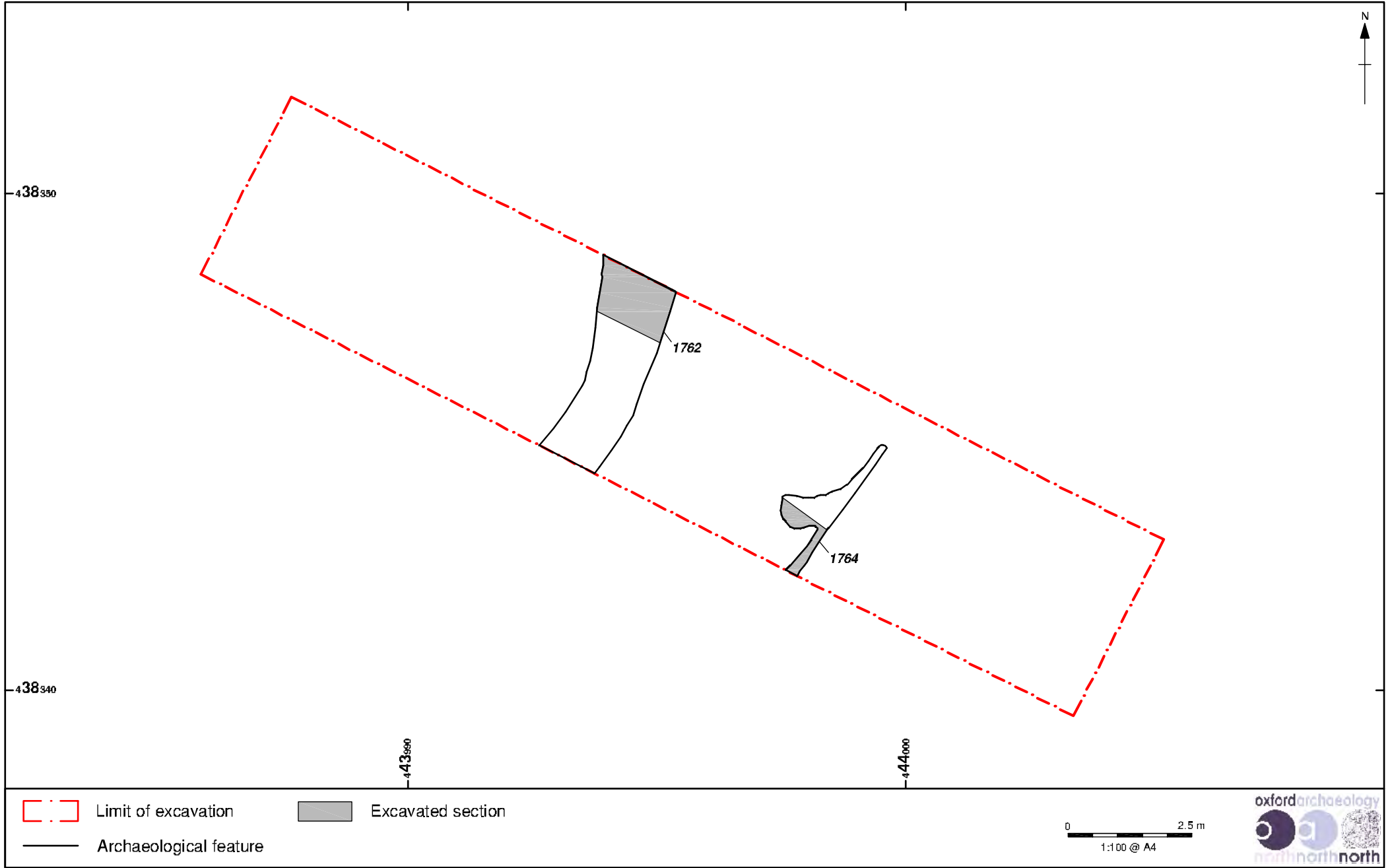


Figure 29: Trench AP35

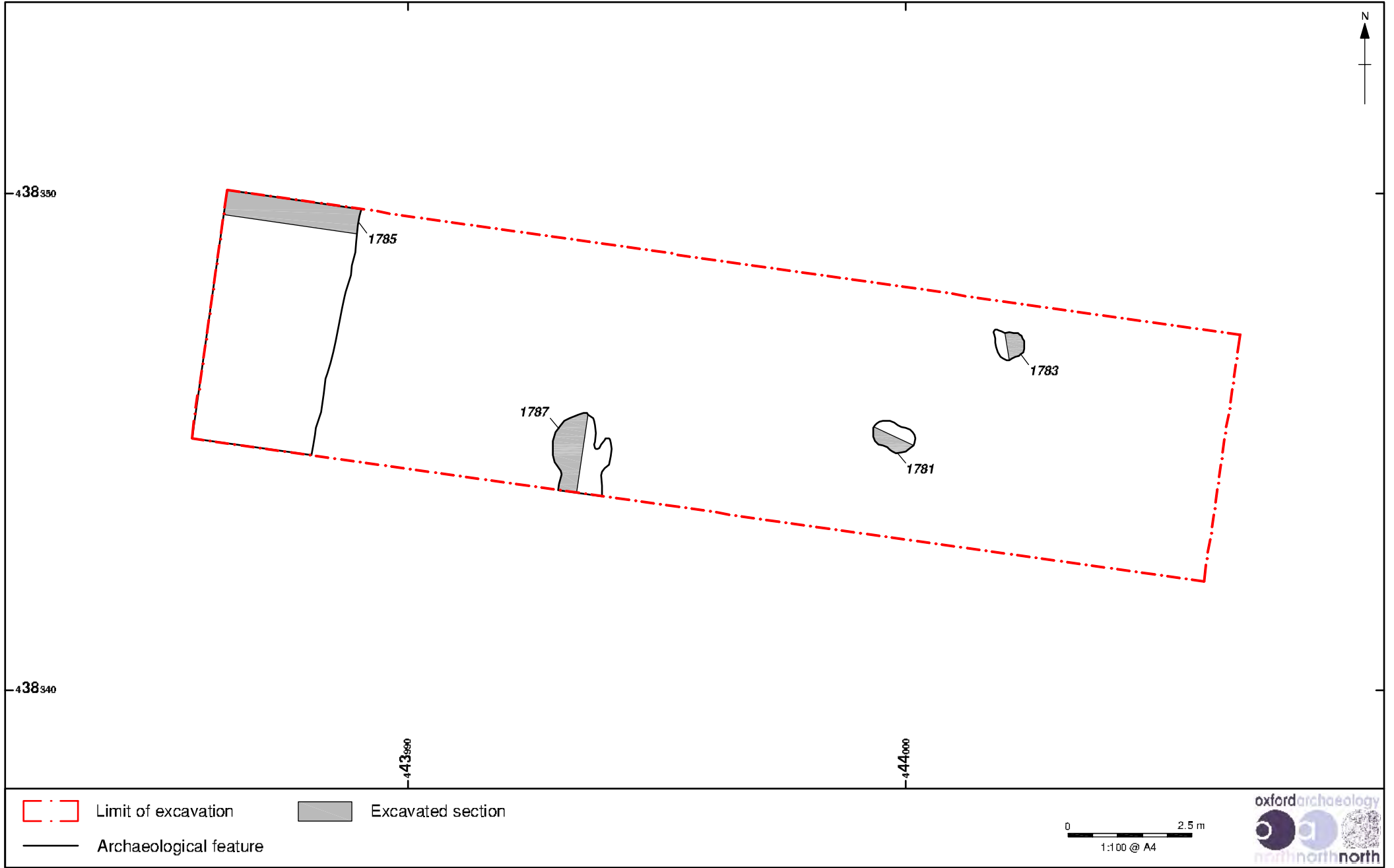


Figure 30: Trench AP37

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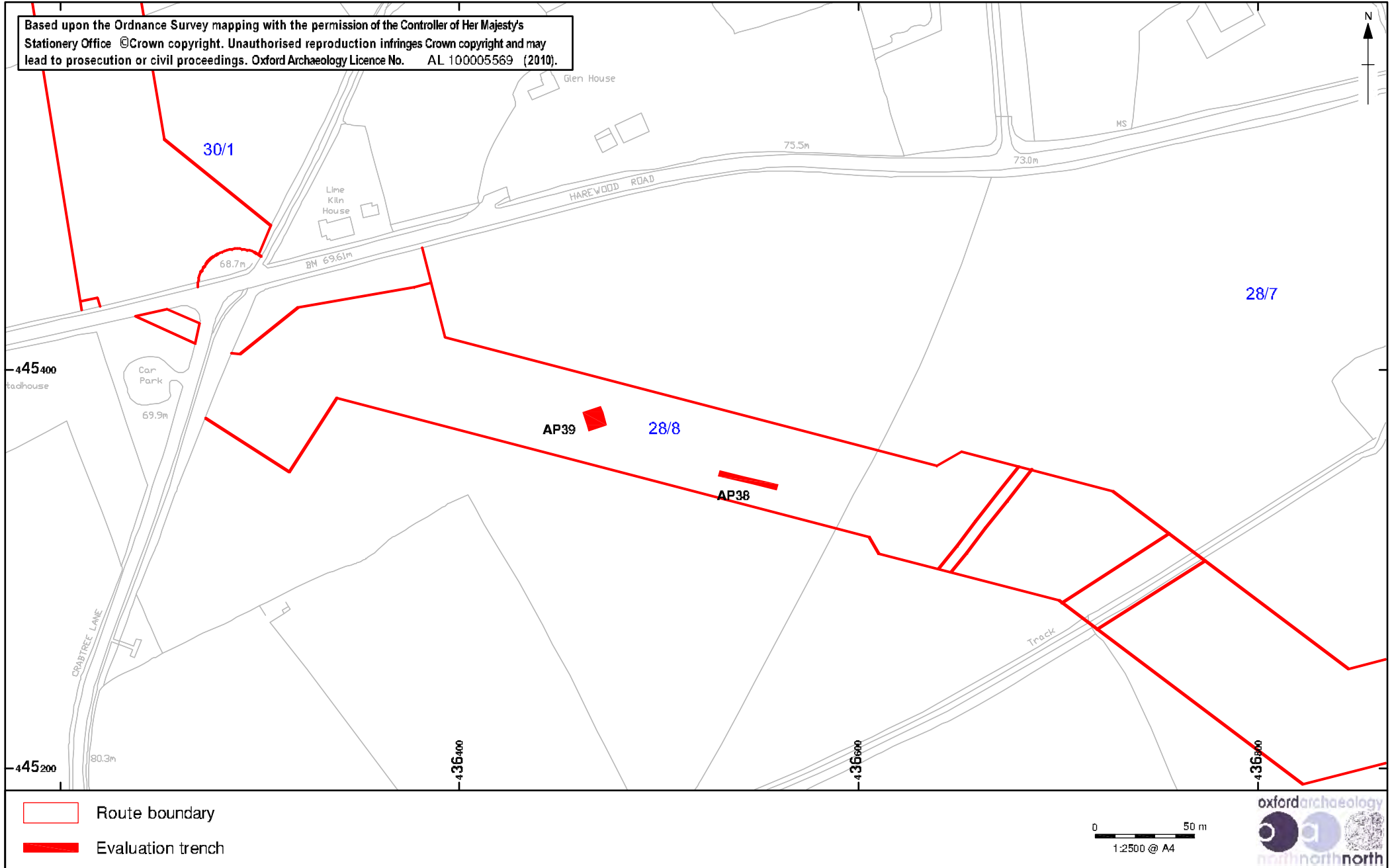


Figure 31: Package QQ

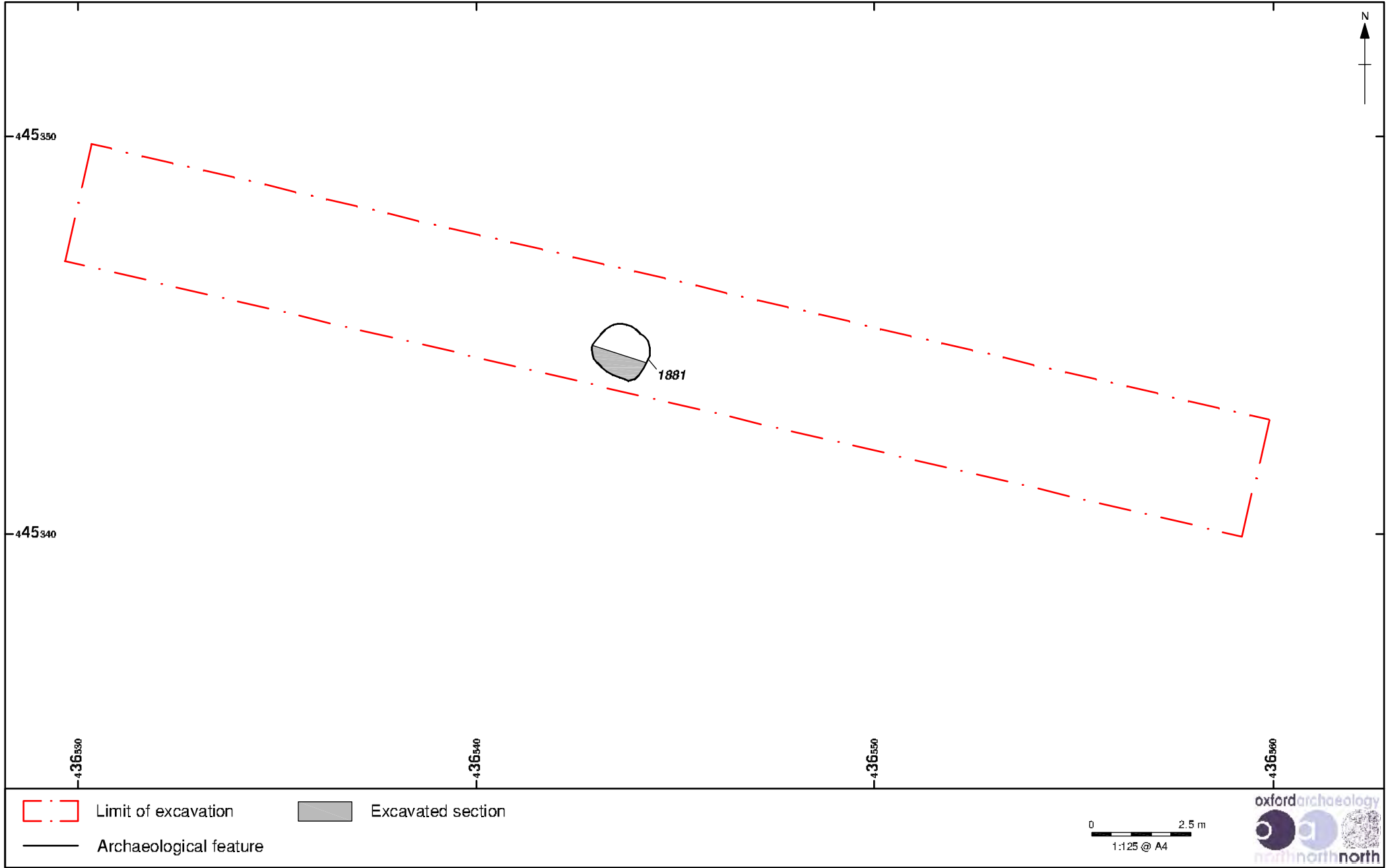


Figure 32: Trench AP38

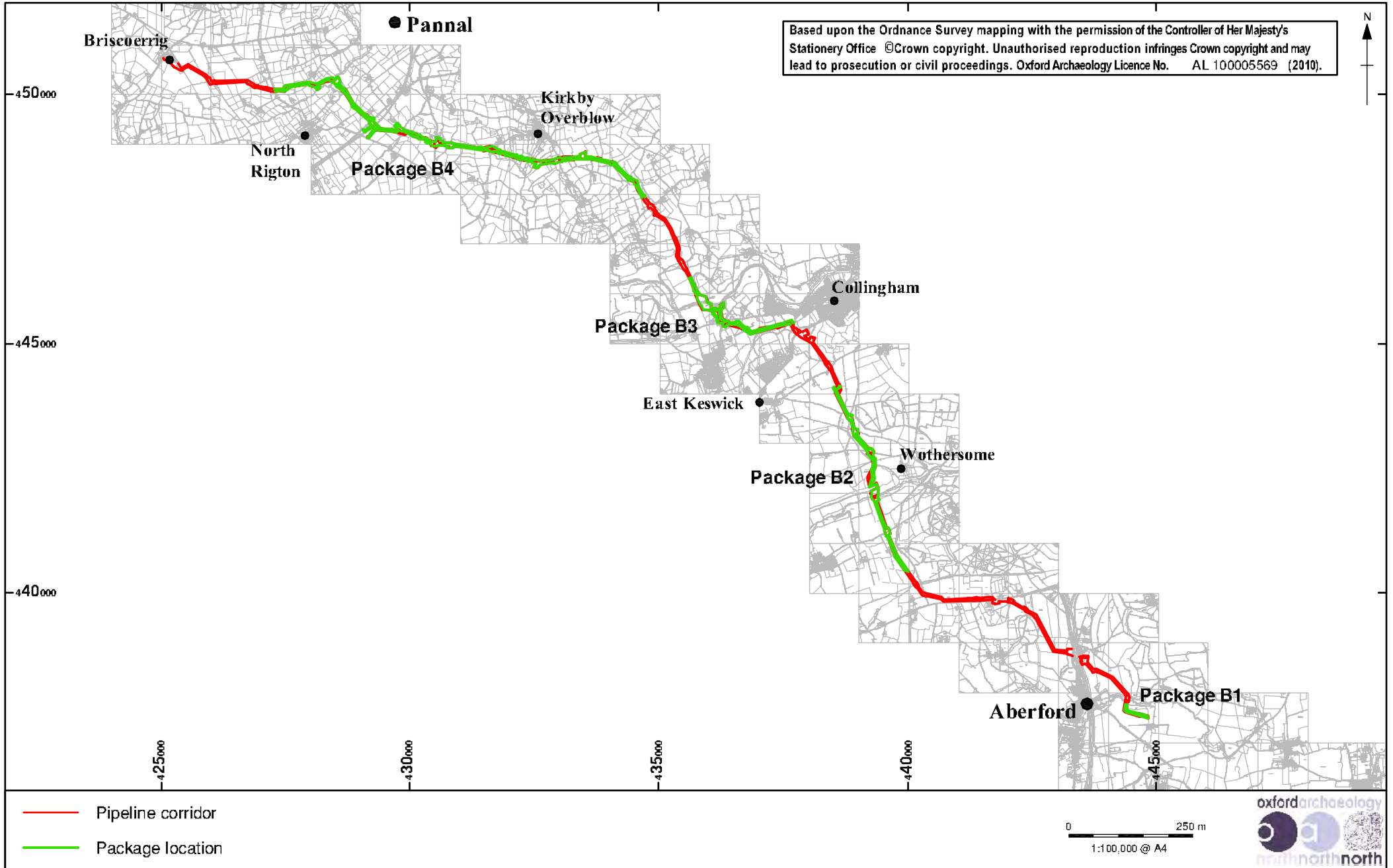


Figure 33: Watching Brief: location of the packages along the route of the pipeline





Plate 1: Crouched burial of adult male (**1888**), Site 20-8



Plate 2: Site 3, showing trackway and quarry





Plate 3: Roundhouse **5230**, Site 26-2



Plate 4: Two of the postholes forming the porch of roundhouse **5230**, Site 26-2





Plate 5: Metalled surface (**5216**) of trackway, Site 26-2



Plate 6: Sampling of curvilinear feature (**6003** and **6055**), Site 35-4



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