



# **MEATHOP TO LINDALE WASTE-WATER TRANSFER PIPELINE Lake District National Park**

## **Archaeological Watching Brief**



**Oxford Archaeology North**

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## CONTENTS

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<b>SUMMARY .....</b>	<b>2</b>
<b>ACKNOWLEDGEMENTS.....</b>	<b>3</b>
<b>1. INTRODUCTION.....</b>	<b>4</b>
1.1 Circumstances of the Project .....	4
<b>2. METHODOLOGY.....</b>	<b>5</b>
2.2 Project Design.....	5
2.3 Watching Brief.....	5
2.4 Archive.....	5
<b>3. BACKGROUND.....</b>	<b>6</b>
3.1 Topography and Geology .....	6
3.2 Historical Background .....	6
<b>4. RESULTS.....</b>	<b>8</b>
4.1 Observations .....	8
4.2 Finds.....	10
<b>5. CONCLUSIONS.....</b>	<b>11</b>
5.1 Discussion .....	11
5.2 Recommendations .....	12
<b>6. BIBLIOGRAPHY .....</b>	<b>13</b>
6.1 Secondary Sources .....	13
<b>APPENDIX 1: PROJECT BRIEF .....</b>	<b>14</b>
<b>APPENDIX 2: PROJECT DESIGN.....</b>	<b>15</b>
<b>APPENDIX 3: FINDS CATALOGUE .....</b>	<b>20</b>
<b>ILLUSTRATIONS .....</b>	<b>21</b>
List of Figures .....	21
List of Plates .....	21

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## SUMMARY

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Following a request by United Utilities Ltd, Oxford Archaeology North (OA North) undertook a desk-based assessment and walkover survey of a proposed waste-water transfer pipeline from Meathop to Lindale within the Lake District National Park (SD 441 805). The assessment recommended that a watching brief be conducted during the excavation of launch and retrieval pits needed to lay the pipe. The work was undertaken between 22<sup>nd</sup> June and 21<sup>st</sup> July 2004.

The study area is located between Meathop and Lindale villages in the Winster Valley, South Cumbria, lying within the Lake District National Park. The area was reclaimed from mosslands and sea marshes during the post-medieval period. The route of the pipeline traverses an area of agricultural land, predominantly pasture.

No significant archaeology was found during the watching brief and no recommendations for a further programme of archaeological fieldwork are made. The waterlogged nature of much of the peat subsoil meant that there was high potential for the preservation of waterlogged organic material which could be informative about the development of ecosystems and land use in the local area. Accordingly, a monolith sample was taken.

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## ACKNOWLEDGEMENTS

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Oxford Archaeology North would like to thank United Utilities Ltd for commissioning the work and Eleanor Kingston, archaeologist for the Lake District National Park Authority. Thanks are also due to Derek Fryer of Montgomery Watson Harza, Pat Hampsey of Eric Wright Civil Engineering and to Brian Bellamy and colleagues of AE Yates Limited for their help and good humour on site.

The watching brief was undertaken by Christina Clarke and David Tonks. David Tonks wrote the report and the drawings were produced by Emma Carter. The project was managed by Alison Plummer, who also edited the report along with Stephen Rowland.

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## 1. INTRODUCTION

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### 1.1 CIRCUMSTANCES OF THE PROJECT

- 1.1.1 A planning application was submitted to the Lake District National Park Authority (LDNPA) by United Utilities Ltd. The application proposed the construction of a waste-water transfer pipeline from Meathop, SD4397 8074 to Lindale, SD4230 8068 within the Lake District National Park Authority (LDNPA) (Fig 1). The proposed works affected an area of archaeological significance recorded on the LDNPA Historic Environment Record (HER). Consequently, United Utilities Ltd were advised that a programme of archaeological works would be required prior to the development taking place. Oxford Archaeology North (OA North) was commissioned to undertake an archaeological desk-based assessment and walkover survey along the proposed route.
- 1.1.2 The desk-based study and walkover survey was the subject of a separate report (OA North 2004) issued in January 2004. The assessment recommended a watching brief during the excavation of pipeline launch and retrieval pits
- 1.1.3 This document sets out the results of the watching brief in the form of a short report, which provides both a summary of the results and a detailed description of the findings. The project design was adhered to in full, and the work was consistent with the relevant standards and procedures of the Institute of Field Archaeologists, and generally accepted best practice.

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## 2. METHODOLOGY

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### 2.1 PROJECT DESIGN

- 2.1.1 A project design (*Appendix 2*) was submitted by OA North in accordance with a brief prepared by the LDNPA archaeologist (*Appendix 1*). Following acceptance of the project design OA North was commissioned by United Utilities Ltd to undertake the work.

### 2.2 WATCHING BRIEF

- 2.2.1 The launch and retrieval pits were excavated under the supervision of an archaeologist by a mechanical excavator using a toothed bucket. There was no prior topsoil stripping within the easement. The programme of field works recorded accurately, using *pro forma* recording sheets, the location, extent, and character of any surviving archaeological features observed during the excavation of pipeline launch and retrieval pits. Any finds were returned to OA North for analysis and a photographic record in colour slide and monochrome formats was compiled.

### 2.3 ARCHIVE

- 2.3.1 A full professional archive has been compiled in accordance with the project design (*Appendix 2*), and in accordance with current IFA and English Heritage guidelines (English Heritage 1991). The paper and digital archive will be deposited in the Cumbria Record Office, Barrow.

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## 3. BACKGROUND

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### 3.1 TOPOGRAPHY AND GEOLOGY

- 3.1.1 The study area around Meathop and Lindale comprises part of the Winstar Valley (Hodgkinson *et al*, 2000). The small enclosed valley has a wide open valley floor and shelving sides on the west and north. Its southern end merges with marine and estuarine silts on the edge of Morecambe Bay. To the west the valley is defined by Newton Fell and Cartmel Fell, and to the east by Whitbarrow (*ibid*).
- 3.1.2 In the nineteenth century the coastline marshlands were drained and converted to agricultural use (*ibid*). The solid geology comprises calcareous soils that occur in a discontinuous arc following the outcrops of Carboniferous limestones on the rim of Morecambe Bay. This geology produces a variety of brown earths and rendzinas of the Warton Association (*ibid*).

### 3.2 HISTORICAL BACKGROUND

- 3.2.1 The historical background is covered fully in the previous report (OA North 2004). The following is intended only as a brief summary of the historical developments detailed in that report.
- 3.2.2 Evidence of human activity can be seen on the limestone coasts of southern Cumbria from as early as the upper palaeolithic period. Most significantly, in terms of this body of work, was the discovery in 1982 of a probable Neolithic trackway north of Castle Head Cottage at SD 42090 80210. Neolithic peoples would most likely have exploited the wetland areas and it may be assumed that the track was built to link Meathop or Castle Head with the mainland across the saltmarsh.
- 3.2.3 The late Iron Age/early Romano-British period is represented in the area predominantly by Castlehead hillfort near Meathop (SMR 2248), which has produced a large number of artefacts. There are also records of Romano-British finds scattered across the area, including a considerable number of Roman artefacts in the parish of Cartmel, namely a coin hoard of 524 pieces (Hodgkinson *et al*, 2000).
- 3.2.4 As is the case throughout Cumbria, evidence for early medieval activity is extremely limited, although the medieval period is better represented both by sites and documentary records. The first record of Meathop occurs in 1184 and an early reference to Lindale occurs in 1292. The document shows that Meathop was then occupied by the descendants of Norse settlers (Satchel, 1984). The medieval monastic settlement at Cartmel Priory is also a valuable source of evidence for activity in the area during this period (Crowe 1984).
- 3.2.5 During the post-medieval period, a programme of land reclamation was carried out on the Meathop estate, with five fields reclaimed from former moss land in 1774-5 (Satchel, 1984, 86). Lime burning (for fertiliser) is first referred to in 1774 and the Meathop estate plans accompanying the sale



brochure of 1829 show a limekiln field, absent from the 1760 survey, adjacent to the farmstead. (*op cit* 92). Charcoal production at High and Low Meathop is known to have taken place at around the same time, and is documented by an agreement of 1781 (*op cit* 93). The Wilson House (SMR 30327), built in the eighteenth century and lying on the south side of the Lindale-Kendal road, is known for its connection with Isaac and John Wilkinson, important figures in the development of the iron industry. It is possible that a blast furnace was set up at Wilson House in 1748 to experiment with peat smelting and iron boats (Stockdale 1872). Subsequent investigations in 2002 have revealed that a steam-powered, peat-fuelled blast furnace (SMR 30327) was erected in 1778, using the second blowing engine ever constructed (Cranstone, 2002). Water power played an important role in these activities, and Stockdale mentions the existence of a canal cut to ferry peat to the site (Cranstone, 2002).

- 3.2.6 Large pumps for draining the marshes were built at Meathop and Saltcote at the end of the nineteenth century and large tracts of land were cleared for agricultural use. This coincided with the building of the Ulverston railway. The modern era, most notably the Second World War, is represented by the presence of pillboxes within the study area.

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## 4. RESULTS

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### 4.1 OBSERVATIONS

- 4.1.1 **Introduction:** in total, 21 launch and retrieval pits were excavated between 22nd June and 21st July 2004. They are described below in the order in which they were opened. Pit 1 was excavated to the north-west of Meathop, 920m (roughly half-way) along the proposed route of the pipeline. Pit 2 to Pit 13 were mostly dug at intervals between 60m and 100m (although that between Pits 3 and 4 was only 20m – see below) in a westerly direction towards Lindale. Pits 14 to 21 were excavated along the route of the pipeline to the east of Pit 1 towards, and around, Meathop and at intervals of roughly 100m (Fig 2).
- 4.1.2 **Pit 1:** measuring 4.0m x 1.0m x 2.2m, Pit 1 was excavated and shored in the absence of an archaeological presence. The stratigraphy comprised 0.1m mid brown-grey sandy-clay topsoil over 0.3m dark brown peat. The peat immediately overlay very soft, glutinous, light grey homogenous clay. No archaeological features or finds were discovered.
- 4.1.3 **Pit 2:** measuring 4.0m x 1.0m x 2.2m, the stratigraphy of Pit 2 comprised 0.15m mid brown sandy-clay topsoil over 2.1m dark brown peat directly above light grey homogenous clay natural, which quickly became covered with water (Plate 1). No archaeological features or finds were discovered.
- 4.1.4 **Pit 3:** measuring 3.0m x 1.0m x 1.3m, Pit 3 was excavated to remove an obstruction to the drilling operation. The stratigraphy comprised 0.15m dark grey-brown sandy-clay topsoil over dark brown to black, very damp, peat. The obstruction was a tree-bole within the peat measuring approximately 1.0m high and 0.8m in diameter (Plate 2). No archaeological features or finds were discovered.
- 4.1.5 **Pit 4:** measuring 3.5m x 1.2m x 1.7m, the stratigraphy of this pit comprised 0.2m mid to dark brown-grey sandy-clay topsoil over dark brown to black, very damp peat. Natural clay was not reached and there were no finds and no archaeological features or finds were discovered.
- 4.1.6 **Pit 5:** this pit measured 4.0m x 2.0m x 2.6m, and the stratigraphy comprised 0.3m mid to dark-brown sandy-clay topsoil over 2.0m dark brown peat. This lay directly above soft light grey homogenous clay natural. The sections were very unstable and collapsed almost immediately on being exposed. No archaeological features or finds were discovered.
- 4.1.7 **Pit 6:** measuring 4.0m x 1.2m x 3.3m, the stratigraphy of this pit comprised 0.4m dark grey sandy-clay topsoil over 2.0m dark brown peat. This lay above light grey homogenous clay natural. The sections were very unstable and collapsed almost immediately on being exposed. No archaeological features or finds were discovered.

- 4.1.8 **Pit 7:** this pit measured 4.0m x 1.2m x 2.4m, and the stratigraphy comprised 0.6m mid to dark brown sandy-clay topsoil directly above fairly soft light blue-grey homogenous clay natural. No archaeological features or finds were discovered and there was no peat layer.
- 4.1.9 **Pit 8:** measuring 4.0m x 2.0m x 2.15m, the stratigraphy of this pit comprised 0.2m mid-brown sandy-clay topsoil over 0.1m layer of light brown-buff sand. This lay over c1.0m firmish brown clay, striped orange, which sealed fairly stiff mid-grey homogenous clay. No archaeological features or finds were discovered.
- 4.1.10 **Pit 9:** measuring 4.0m x 3.0m x 2.2m, the stratigraphy of Pit 9 comprised 0.2m mid-brown sandy-clay topsoil over c1.1m firmish brown clay, striped orange, which sealed fairly stiff mid-grey homogenous clay. The sections were fairly unstable. No archaeological features or finds were discovered.
- 4.1.11 **Pit 10:** this pit measured 4.0m x 1.5m x c3.0m, and the stratigraphy comprised 0.4m dark-grey sandy-clay topsoil over c0.9m mid-grey, mottled brown, clay with some sand which sealed soft mid to light-grey clay natural. No archaeological features or finds were discovered.
- 4.1.12 **Pit 11:** measuring 4.0m x 1.5m x c3.0m, the stratigraphy of Pit 11 comprised 0.4m dark-brown sandy-clay topsoil over soft, light-blue-grey homogenous clay natural. No archaeological features or finds were discovered.
- 4.1.13 **Pit 12:** this pit measured 4.0m x 1.5m x 1.75m, and the stratigraphy comprised 0.4m dark-brown sandy-clay topsoil over 0.4m light-grey-brown very fine homogenous sand. This lay over 0.2m dark-brown clay mixed with peat which sealed soft mid-grey-blue homogenous clay natural. No archaeological features or finds were discovered.
- 4.1.14 **Pit 13:** Pit 13 measured 4.0m x 1.5m x 1.6m. The stratigraphy comprised 0.3m brown-grey sandy-clay topsoil over light brown-buff, very fine homogenous sand natural. No archaeological features or finds were discovered.
- 4.1.15 **Pit 14:** measuring 4.0m x 3.0m x 1.6m, the stratigraphy of this pit comprised 0.4m brown-grey sandy-clay overlying blue clay with peat lenses. No archaeological features or finds were discovered.
- 4.1.16 **Pit 15:** measuring 4.0m x 1.5m x 2.4m, the stratigraphy of Pit 15 comprised 0.9m brown-grey sandy clay overlying blue clay with large lenses of peat. There were no finds and no archaeological horizons were observed.
- 4.1.17 **Pit 16:** this pit measured 4.0m x 1.5m x 2.5m, and the stratigraphy comprised 0.45m dark-brown-black sandy-clay over mixed buff and blue clay natural. No archaeological features or finds were discovered.
- 4.1.18 **Pit 17:** measuring 4.0m x 1.5m x 2.0m, the stratigraphy of Pit 17 comprised 0.4m dark-brown-black sandy-clay over 1.0m mixed buff and blue clay, which, in turn, overlay blue clay. At the interface between the topsoil and underlying clay there was a modern animal burial, possible cow or horse and

probably buried within the last fifty years. No archaeological features or finds were discovered.

- 4.1.19 **Pit 18:** measuring 3.0m x 1.5m x 2.0m, Pit 18 was located directly within a ditch, which had been left as the result of the removal of a field boundary. The stratigraphy comprised 0.3m dark brown sandy-clay topsoil over homogenous, firmish mid-grey clay natural. In the north and south sections the cut for the field boundary ditch was clearly visible. The ditch was filled by dark brown mixed peat and sandy-clay. The cut was 2.2m wide, 0.9m deep and notably squared, having a sharp break of slope at top and vertical sides breaking sharply to a flat base. Three sherds of pottery were found within this pit, which date to the post-medieval period ranging from the seventeenth to nineteenth centuries. These sherds indicate that the field boundary was in use during the post-medieval period. In addition, at around a depth of 1.1m in the north section, a roughly circular cavity c0.3m in diameter was discovered. Within the cavity were small branches and twigs. Water was trickling heavily from the hole. The cavity was discrete from the cut and lay entirely within the clay natural. It has been interpreted either as a root hollow, or more likely, an animal burrow
- 4.1.20 **Pit 19:** measuring 4.0m x 1.5m x c2.0m, the stratigraphy of Pit 19 comprised 0.4m dark-greyish-black sandy-clay over 1.2m mixed buff and blue clay, which overlay blue clay natural. No archaeological features or finds were discovered.
- 4.1.21 **Pit 20:** measuring 4.0m x 1.5m x 1.8m, the stratigraphy of this pit comprised 0.4m dark-greyish-black sandy-clay over 1.2m mixed buff and blue clay which overlay blue clay natural. No archaeological features or finds were discovered.
- 4.1.22 **Pit 21:** measuring 7.0m x 5.0m x 3.0m, the stratigraphy of Pit 21 comprised 0.7m modern rubbish in a matrix of very mixed dark-brown and black sandy-clay and peat. The rubbish contained corrugated iron and was probably a dump used by the farmer. It lay over homogenous blue clay natural. No archaeological features or finds were discovered.

## 4.2 FINDS

- 4.2.1 In all, four fragments of dry wood and three sherds of pottery were recovered from Pit 18. The wood was unmodified roundwood, identified as Hawthorn-type, and seems likely to be of no antiquity (*Appendix 3*).
- 4.2.2 Two of the three fragments of pottery recovered are undiagnostic, being body and base sherds from large storage vessels in differing gritty red fabrics, both with a dark brown internal glaze. These vessels were in use from the late seventeenth to the late nineteenth centuries, changing little during that period. The third fragment is again a body fragment from a slip-decorated vessel, probably of Staffordshire manufacture, and probably dating to the mid- to late eighteenth century. All of these finds were unstratified.

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## 5. CONCLUSIONS

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### 5.1 DISCUSSION

- 5.1.1 It is interesting to speculate that the cavity in the natural observed in Pit 18 may have been man-made. The material within the cavity was not roots, which do not normally penetrate clay in the first instance, but very small branches and twigs. As such, they must have been placed there. However, there was no sign of shaping or working and they were too small to have been considered part of a structure. The most likely explanation, therefore, is that their presence was the result of bioturbation, possibly rabbits.
- 5.1.2 The ditch cut observed in Pit 18 was unsurprising as the pit was located within what was obviously an old field boundary that had been removed some time before, probably in the twentieth century. It was visible as a linear depression in the surface. The post-medieval pottery within the fill suggests that it was cut some time prior to this date, but the feature is not of particular significance.
- 5.1.3 The absence of peat within Pit 7 in the western field, contrasts with its presence in Pit 6, in the eastern field, and is almost certainly the result of post-medieval peat extraction. The differential presence of peat either side of a field boundary could imply that the western field was subject to large-scale peat removal after the mossland was reclaimed (and possibly enclosed) from 1774 onward, but before the major drainage and cultivation programmes of the late nineteenth century. The unstable nature of the pits excavated in the eastern field demonstrated that the peat in this field, surviving to a depth of around 2.0m, was extremely waterlogged, and this may have been a reason that it was not exploited. It is interesting, however, to observe little or no obvious height difference between the two fields.
- 5.1.4 It is unsurprising that such small interventions failed to encounter any archaeology other than field boundaries or evidence of peat extraction dated to the later post-medieval period. Except on the occasional drier islands within the mossland, the marginal, boggy, nature of the land would have meant that it was unsuitable for agriculture and settlement prior to the combination of later post-medieval economic and technological factors that led to peat extraction and drainage. Although the moss would have provided resources such as reeds, peat and waterfowl, as well as limited, seasonal grazing, these are likely to have been more extensively rather than intensively exploited by settlements located in drier, upland areas, such as Castlehead Iron Age hillfort. It is also possible that the majority of this exploitation would have focussed around trackways, such as that discovered by a Lancaster University Archaeology Unit watching brief in 1982 and likely to be of Neolithic date (Leech 1982). Besides the trackways themselves, economic activity is likely to have left little trace in the archaeological record, but there is plentiful evidence for prehistoric ritual activity in wetland sites in the Northwest of England and in Britain and in northern Europe in general. Such examples include the late Bronze Age offerings from Flag Fen, Cambridgeshire, the Llyn Cerrig Bach hoard Anglessey and more locally, Lindow Man, Cheshire, both of Iron age

date (Darvill 1987, Stead *et al* 1986). Extraction of salt from the marshes may have been important long before the earliest record of salt pans in 1184 (Satchel 1984), and it is possible that early prehistoric exploitation of this resource may even have helped to precipitate Neolithic track building in the area.

## **5.2 RECOMMENDATIONS**

- 5.2.1 On the basis of the watching brief results, there are no recommendations for further archaeological fieldwork within the development area. However, a single monolith sample was taken from the north-west-facing section of Pit 2, which was characterised by good organic preservation. It is therefore recommended that strategic subsamples be taken from this monolith and subjected to an assessment for analytical potential in terms of the state of preservation, quality and quantity of varying organic remains, such as charred and uncharred plant macrofossils, charcoal, pollen and insects. Such material could be highly informative in reconstructing the palaeoenvironmental development of the site.

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## APPENDIX 1: PROJECT BRIEF

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# **BRIEF FOR A PROGRAMME OF ARCHAEOLOGICAL WORKS ALONG THE ROUTE OF THE MEATHOP – LINDALE TRANSFER PIPELINE**

## **SUMMARY**

*Construction of a water main pipeline in the Meathop to Lindale area is to be carried out by United Utilities. There are no recorded archaeological remains directly on the route of the water main but it passes close to a number of sites and covers a wide area in which archaeological remains are likely to survive. The work is entirely within the Lake District National Park. Location plans for the work are enclosed with this brief.*

It is possible that some archaeological deposits of interest may be disturbed or exposed by the development. The Lake District National Park Authority (LDNPA) has therefore recommended that before the development commences, United Utilities should secure the implementation of a programme of archaeological work in accordance with a written scheme of investigation which has been submitted to and approved by the National Park Planning Authority. This is in line with government advice as set out in the DoE Planning Policy Guidance on Archaeology and Planning (PPG 16). This brief sets out the requirements for that programme of archaeological works.

*Detailed proposals and tenders are invited from appropriately resourced, qualified and experienced archaeological contractors to undertake an archaeological assessment and watching brief for this pipeline and to produce a report on that work.*

## **1. BACKGROUND**

- 1.1 The LDNPA has been consulted by United Utilities over the proposed construction of a water main in the Meathop to Lindale area (see enclosed location map). The route of the pipeline is adjacent to a number of sites of archaeological significance recorded in the Lake District National Park Sites and Monuments Record. In addition, the area has never been subject to any systematic archaeological survey and therefore has the potential for the survival of previously unrecorded sites of archaeological interest, particularly in the areas where the route passes through apparently undisturbed greenfield areas.
- 1.2 The LDNPA Archaeologist has therefore advised United Utilities that a programme of archaeological recording is required during the course of the pipeline works. This recommendation is based on policies in the Joint LDNPA and Cumbria County Council Structure Plan, the LDNPA Local Plan and is also in line with government guidance given in Planning Policy Guidance Note 16 (Archaeology and Planning). It is also in line with advice contained in the Water Act 1991 Code of Practice on Conservation, Access and Recreation 2000 and Article 1 (5) of Circular 04/99.

## **2. SCOPE OF THE ARCHAEOLOGICAL WORKS**

- 2.1 The pipeline construction would severely damage or destroy any archaeological remains that may be present on the route. The LDNPA has therefore recommended that United Utilities should secure the implementation of a programme of archaeological work in accordance with a written scheme of investigation that has been submitted to and approved by the LDNPA.
- 2.2 The principle aim of the work is to identify any archaeological remains within the easement soil strip and pipe trench and to investigate and record any revealed archaeological remains or deposits.
- 2.3 The following work will be required:
- a) A desk based assessment must first be carried out for the entire route, to include collation of all relevant material from the Lake District National Park Sites and Monuments Record (SMR) and examination of any available maps (printed and manuscript), aerial photographs and other relevant background material;
  - b) An examination by an archaeologist of all parts of the pipeline route that are not within the existing highway in order to identify any visible archaeological features that have not been recorded in the Lake District National Park SMR. This must take place in advance of any top soil stripping on the pipeline route;
  - c) An archaeological watching brief for all sections of the pipeline route not within the existing highway. This should include:
    - Archaeological monitoring of all topsoil stripping and pipe trench excavation;
    - Cleaning by hand of possible archaeological features;
    - Full excavation and recording of any archaeological remains identified within the easement or pipe trench;
- 2.4 The archaeologists must have the authority to halt any earth moving activity if necessary to define and record areas of archaeological interest.

## **3. PROJECT DESIGN**

- 3.1 Before the pipeline work commences a detailed proposal should be prepared by potential contractors and submitted to the LDNPA Archaeologist for approval on behalf of the Authority and United Utilities.
- 3.2 Proposals to meet this Brief should take the form of a detailed project design prepared in accordance with the recommendations of the *Management of Archaeological Projects 2<sup>nd</sup> Ed.* (1991) and must include:
- A description of the proposed methods of observation and recording system;

- An explanation of the sampling strategy to be used. This should include sampling of appropriate materials for environmental and/or other scientific analysis. Special attention should be paid to any waterlogged deposits encountered.
- A projected timetable for work on site including staff structure and numbers;
- A projected timetable for all post excavation work (through to final publication of results), including staff numbers and specialist sub-contractors;
- Any significant variations to the proposal must be agreed by the LDNPA Archaeologist in advance.

#### 4. SITE MONITORING

- 4.1 The LDNPA Archaeologist will be responsible for monitoring the archaeological work. A minimum of one week's notice of the commencement of fieldwork must be given to the LDNPA so that arrangements for monitoring can be made.

#### 5. REPORTING REQUIREMENTS

- 5.1 The archaeological work should result in a report including a description of the methodology employed; plans and sections at an appropriate scale showing location and position of deposits and finds located; a list of and spot date for any finds recovered and a description and interpretation of the deposits identified.
- 5.2 The objective account of the archaeological evidence recovered should be clearly distinguished from the interpretation of those features. The methodology used should be critically reviewed.
- 5.3 **A site diary must be kept and incorporated in the report, to include a record of all time spent on site and all locations worked.**
- 5.4 **A summary report should be submitted to a suitable regional or national archaeological journal within one year of completion of fieldwork. If archaeological remains of significance are identified, one or more full reports should be published in a suitable journal or other publication and should include an account of any structures located and full details of significant finds, illustrated as appropriate.**
- 5.5 4 copies of the report should be deposited with the LDNPA on the understanding that it will be made available as a public document.

#### 6. DEPOSITION OF ARCHIVE AND FINDS

- 6.1 The archaeological archive arising from the recording should be deposited in an appropriate local institution, in a format to be agreed with that institution. The LDNPA must be notified of the arrangements made. Any finds of archaeological interest should be appropriately conserved and deposited in an appropriate institution: any finds that cannot be so deposited should be fully analysed and published.

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## APPENDIX 2: PROJECT DESIGN

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### 1. INTRODUCTION

- 1.1 United Utilities (hereafter the client) propose to undertake the construction of a new pipeline in the Meathop to Lindale area, Cumbria. The site lies within the Lake District National Park, and there are known archaeological remains in close proximity to the route to be taken by the pipeline.
- 1.2 As a result the LDNPA Archaeologist has issued a brief for a desk-based assessment, visual inspection and watching brief to be undertaken for the proposed development site. The following document represents a project design for this task.
- 1.3 Oxford Archaeology North (OA North) has considerable experience of the assessment and excavation of sites of all periods, having undertaken a great number of small and large scale projects during the past 20 years. Evaluations and assessment have taken place within the planning process, to fulfil the requirements of clients and planning authorities, to very rigorous timetables. OA North has the professional expertise and resources to undertake the project detailed below to a high level of quality and efficiency.
- 1.4 OA North is an Institute of Field Archaeologists (IFA) registered organisation, registration number 17, and all its members of staff operate subject to the IFA Code of Conduct.

### 2. OBJECTIVES

- 2.1 The following programme has been designed to provide an accurate archaeological assessment of the designated area within its broader context. The required stages to achieve these ends are as follows:
- 2.2 ***Desk-Based Assessment***
- The first stage will involve a desk-top assessment of a 1km study area centred on the development area.
- 2.3 ***Visual Inspection***
- The second stage will be the undertaking of a walkover survey of all parts of the route that are not within the existing highway.
- 2.3 ***Watching Brief***
- This will be maintained for all topsoil stripping activities associated with the development.
- 2.4 ***Assessment Report***
- A written assessment report will assess the significance of the data generated by this programme within a local and regional context. The report will appraise the archaeological impact of the development proposal.

### 3. METHODS STATEMENT

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

#### 3.2 DESK-TOP ASSESSMENT

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

3.2.2 **Documentary and cartographic Material:** this will rapidly appraise the data in the LDNPA Sites and Monument Record office. Cartographic sources held in the Kendal Record office will also be consulted. Early maps (printed and manuscript), and such primary documentation (tithe and estate plans etc.) as may be reasonably available will be inspected. Particular attention will be paid to field and place names recorded on early cartographic sources relating to estate and parish boundaries, field boundaries, woodlands and routes, as these often provide important evidence of archaeological activity and transformation of the historic landscape. All available published and unpublished documentary sources will also be examined and assessed. The relevant local studies library will be consulted as appropriate, as will the Lonsdale Estate records.

3.2.3 **Aerial Photography:** any relevant photographic material held by the LDNPA will be studied. This may indicate the range and survival of archaeological and structural features in the designated area no longer visible at ground level.

3.2.4 **Physical Environment:** a rapid desk-based compilation of geological (both solid and drift), pedological, topographical and palaeoenvironmental information will be undertaken. This will not only set the archaeological features in context, but also serves to provide predictive data that will increase the efficiency of the field visit. Any engineering and/or borehole data relating to the site will also be examined.

#### 3.3 VISUAL INSPECTION

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

#### 3.4 WATCHING BRIEF

3.4.1 **Methodology:** a programme of field observation will accurately record the location, extent, and character of any surviving archaeological features and/or deposits within the topsoil stripping activities in the course of the proposed development works. A systematic examination of any subsoil horizons exposed during the course of the groundworks, and the accurate recording of all archaeological features and horizons, and any artefacts, identified during observation.

3.4.2 During this phase of work, recording will comprise a full description and preliminary classification of features or materials revealed, and their accurate location (either on plan

and/or section, and as grid co-ordinates where appropriate). Features will be planned accurately at appropriate scales and annotated on to a large-scale plan provided by the Client. A photographic record will be undertaken simultaneously.

- 3.4.3 A plan will be produced of the areas of groundworks showing the location and extent of the ground disturbance and one or more dimensioned sections will be produced.
- 3.4.4 Putative archaeological features and/or deposits identified by the machining process, together with the immediate vicinity of any such features, will be cleaned by hand, using either hoes, shovel scraping, and/or trowels depending on the subsoil conditions, and where appropriate sections will be studied and drawn. Any such features will be sample excavated (ie selected pits and postholes will normally only be half-sectioned, linear features will be subject to no more than a 10% sample, and extensive layers will, where possible, be sampled by partial rather than complete removal).
- 3.4.5 It is assumed that OA North will have the authority to stop the works for a sufficient time period to enable the recording of important deposits. It may also be necessary to call in additional archaeological support if a find of particular importance is identified or a high density of archaeology is discovered, but this would only be called into effect in agreement with the Client and the County Archaeology Service and will require a variation to costing. Also, should evidence of burials be identified, the 1857 Burial Act would apply and a Home Office Licence would be sought. This would involve all work ceasing until the proper authorities were happy for burials to be removed. In normal circumstances, field recording will also include a continual process of analysis, evaluation, and interpretation of the data, in order to establish the necessity for any further more detailed recording that may prove essential.
- 3.4.6 *Full regard will, of course, be given to all constraints (services etc.), as well as to all Health and Safety regulations. OA North provides a Health and Safety Statement for all projects and maintains a Unit Safety policy. All site procedures are in accordance with the guidance set out in the Health and Safety Manual compiled by the Standing Conference of Unit Managers.*

### 3.5 ASSESSMENT REPORT

- 3.5.1 **Archive:** the results of Stage 3.2 to 3.4 will form the basis of a full archive to professional standards, in accordance with current English Heritage guidelines (*Management of Archaeological Projects*, 2nd edition, 1991). The project archive represents the collation and indexing of all the data gathered during the course of the project. The deposition of a properly ordered and indexed project archive in an appropriate repository is considered an essential and integral element of all archaeological projects by the IFA in that organisation's code of conduct.
- 3.5.2 This archive can be provided in the English Heritage Centre for Archaeology Service format, both as a printed document and on computer disks as ASCii files (as appropriate), and a synthesis (in the form of the index to the archive and the report) will be deposited with the Cheshire Sites and Monuments Record office. OA North practice is to deposit the original record archive of projects (paper, magnetic, and plastic media) with the appropriate County Record Office, and, where appropriate the material archive (artefacts, ecofacts, and samples) with the County Museums Service. In this instance, the record archive will be sent to the Cheshire Record Office.
- 3.5.3 **Collation of data:** the data generated by 3.2 will be collated and analysed in order to provide an assessment of the nature and significance of the known surface and subsurface remains within the designated area. It will also serve as a guide to the archaeological potential of the

area to be investigated, and the basis for the formulation of any detailed field programme and associated sampling strategy, should these be required in the future.

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

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

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

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

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

3.5.8 **Publication:** a summary report will be submitted to a suitable regional or national archaeological journal within twelve months of completion of the fieldwork.

## 4. OUTLINE RESOURCES

4.1 The project will be under the management of **Alison Plummer** (OA North Senior Project Manager) to whom all correspondence should be addressed.



- 4.2 Present timetabling constraints preclude detailing exactly who will be carrying out the desk-based assessment and watching brief, but all elements of the project are likely to be supervised by an OA North project supervisor experienced in this type of project. All OA North supervisors are experienced field archaeologists capable of carrying out projects of all sizes.

## 5. PROJECT MONITORING

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

### APPENDIX 1: LEVEL 1 SURVEY

The survey outlined is based on survey levels defined by the Royal Commission on the Historical Monuments of England (RCHM(E)) and are in accordance with stages of evaluation defined by the Association of County Archaeological Curators (ACAO 1993).

#### *Level 1 Survey (Assessment)*

This is a rapid level of survey (Site Inspection in project design) typically undertaken alongside a desk top study as part of the site assessment (ACAO 1993, 14). It is an initial site inspection, which helps the local planning authority to consider fully the archaeological implications of a planning proposal and also serves as the basis for undertaking and planning further archaeological work on the site.

The Level 1 survey represents the minimum standard of record and is appropriate to exploratory survey aimed at the discovery of previously unrecorded sites. Its aim is to record the existence, location and extent of an archaeological site. The emphasis for the recording is on the written description, which should record type and period and would not normally exceed *c.* 50 words.

The location and extent of the sites is typically shown on 1:2,500 or 1:10,000 OS maps as requested by the client. The extent of a site is only defined for sites greater than 50m in size and smaller sites are shown with a cross.

There are two alternative techniques (Levels 1a and 1b), which provide different accuracy levels and have different applications:

#### *Level 1a*

The sites are located by manual distance measurement techniques (eg pacing) with respect to field boundaries and provide an accuracy of +/- 10m (8 figure grid ref.). The loss of accuracy is offset by the slightly reduced costs; however, it is only appropriate for enclosed land, because of the paucity of usable topographic detail.

#### *Level 1b*

The sites are located using Global Positioning System (GPS) techniques, which uses electronic distance measurements along radio frequencies to satellites to enable a fix in Latitude and Longitude, which can be converted mathematically to Ordnance Survey National Grid. As long as differential GPS techniques are employed then it is possible to achieve accuracies of better than +/- 1m. There is a slightly increased cost implication by comparison with Level 1a survey, but it can be undertaken in most terrains, even some woodland.

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**APPENDIX 3: FINDS CATALOGUE**


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<b>Pit</b>	<b>Context</b>	<b>Qty</b>	<b>Material</b>	<b>Description</b>	<b>Date</b>
18	Unstratified	4	Wood	Unmodified roundwood, Hawthorn-type	-
18	Unstratified	2	Pottery	Body fragment, gritty red fabric, brown internal glaze. Base fragment, gritty red fabric with occasional white inclusions, brown glaze in and out.	Seventeenth-nineteenth century
18	Unstratified	1	Pottery	Body fragment, closed vessel. Staffordshire slip-decorated.	Mid-late eighteenth century

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## ILLUSTRATIONS

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### **LIST OF FIGURES**

Figure 1: Location Map

Figure 2: Launch and Retrieval Pits Location Plan

### **LIST OF PLATES**

Plate 1: Pit 2, south-east-facing section

Plate 2: Tree-bole from within peat layer

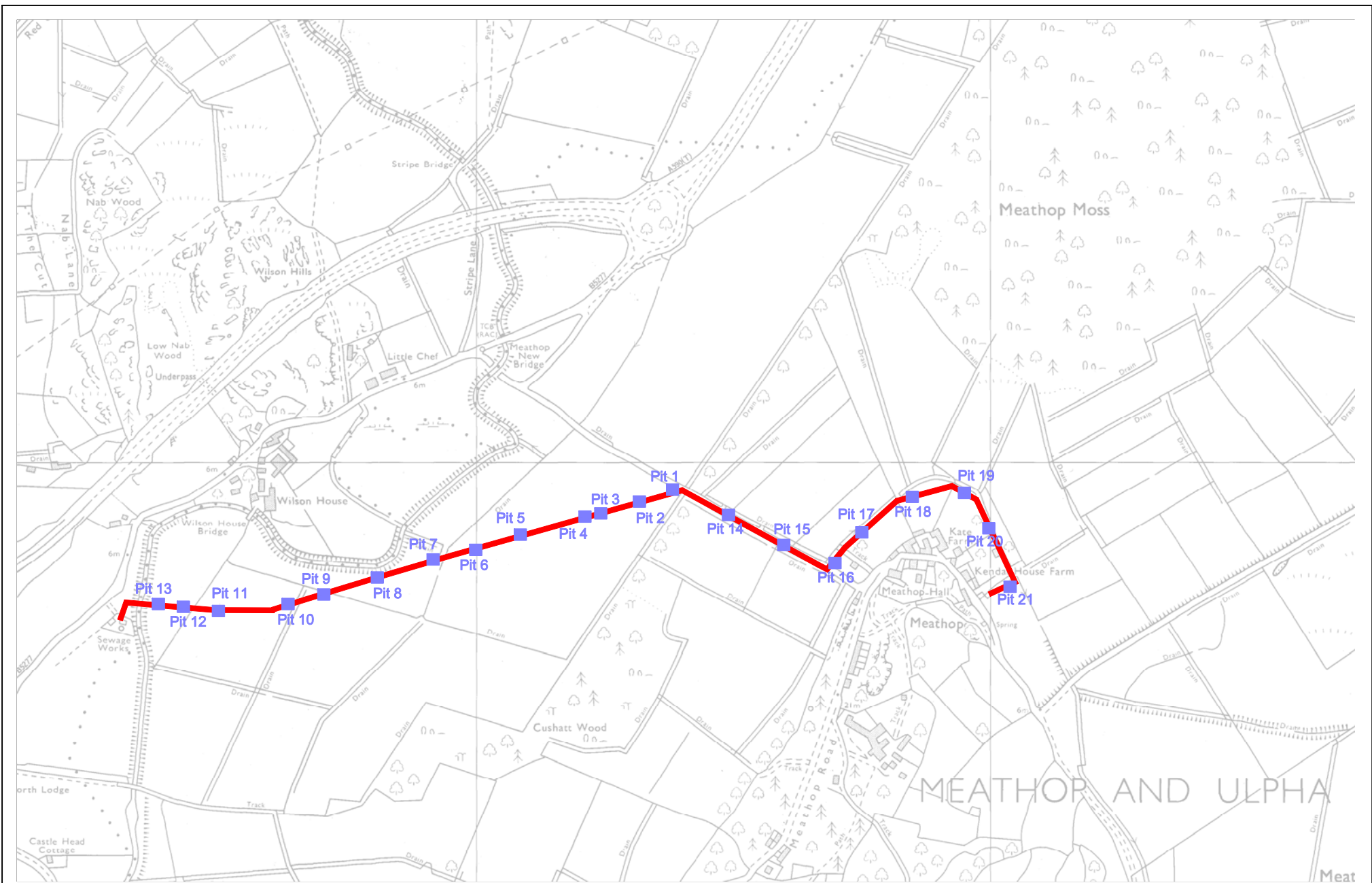
Plate 3: Pit 7, north-west facing section showing clay only, no peat



based upon the Ordnance Survey 1:100000  
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Figure 1: Location Map



based upon the Ordnance Survey 1:10000  
 with the permission of the controller of HMSO  
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■ Pit 13 Pit location  
— Pipeline



Scale 1:10000 at A4



Figure 2 : Pit location plan

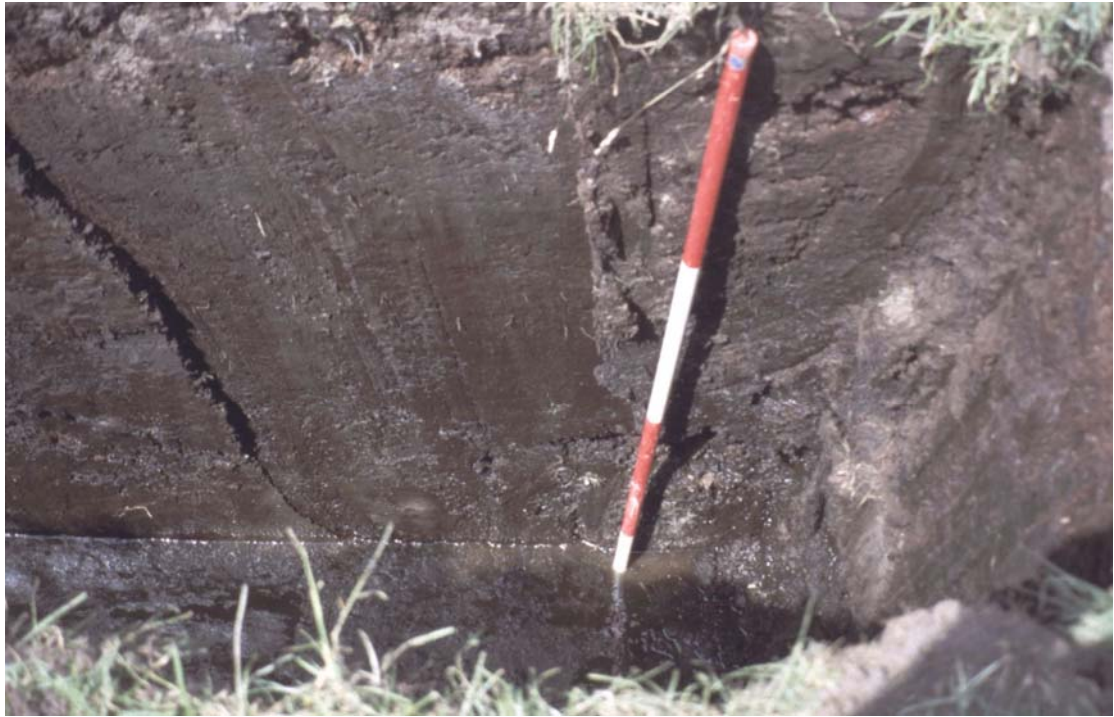


Plate 1: Pit 2, south-east-facing section



Plate 2: Tree-bole from within peat layer



Plate 3: Pit 7, north-west-facing section showing clay only, no peat