

# **BUTTERMERE PIPELINE**

## Cumbria



### **Watching Brief**



**Oxford Archaeology North**

February 2002

**Ryan Utility Services**

Issue No.: 2000-01/127

OA (N) Job No.: L8180

NGR: NY 149 215 –

NY 189 173

**Document Title:** BUTTERMERE PIPELINE, CUMBRIA

**Document Type:** Watching Brief Report

**Client Name:** Ryan Utility Services

**Issue Number:** 2000-2001/127

**OA Job Number:** L8180

**National Grid Reference:** NY 149 215 - NY 189 173

Prepared by: Vix Hughes  
Position: Project Supervisor  
Date: February 2002

Checked by: Alan Lupton Signed.....  
Position: Project Manager  
Date: February 2002

Approved by: Rachel Newman Signed.....  
Position: Director  
Date: February 2002

Document File Location Alan/Projects/8180/report

**Oxford Archaeology (North)**

Storey Institute  
Meeting House Lane  
Lancaster  
LA1 1TF  
t: (0044) 01524 848666  
f: (0044) 01524 848606

w: [www.oxfordarch.co.uk](http://www.oxfordarch.co.uk)  
e: [info@oxfordarch.co.uk](mailto:info@oxfordarch.co.uk)

**© Oxford Archaeological Unit Ltd 2002**

Janus House  
Osney Mead  
Oxford  
OX2 0EA  
t: (0044) 01865 263800  
f: (0044) 01865 793496

Oxford Archaeological Unit Limited is a Registered Charity No: 285627

**Disclaimer:**

*This document has been prepared for the titled project or named part thereof and should not be relied upon or used for any other project without an independent check being carried out as to its suitability and prior written authority of Oxford Archaeology being obtained. Oxford Archaeology accepts no responsibility or liability for the consequences of this document being used for a purpose other than the purposes for which it was commissioned. Any person/party using or relying on the document for such other purposes agrees, and will by such use or reliance be taken to confirm their agreement to indemnify Oxford Archaeology for all loss or damage resulting therefrom. Oxford Archaeology accepts no responsibility or liability for this document to any party other than the person/party by whom it was commissioned.*

---

## CONTENTS

---

<b>CONTENTS.....</b>	<b>1</b>
<b>SUMMARY .....</b>	<b>3</b>
<b>ACKNOWLEDGEMENTS.....</b>	<b>4</b>
<b>1. INTRODUCTION .....</b>	<b>5</b>
1.1 Contract Background.....	5
<b>2. BACKGROUND.....</b>	<b>6</b>
2.1 The Site.....	6
2.2 Geology and Soils .....	6
2.3 Historical Background.....	6
2.4 Methodology .....	9
<b>3. RESULTS.....</b>	<b>10</b>
3.1 Introduction and General Results .....	10
3.2 Field 1 .....	10
3.3 Field 2.....	10
3.4 Field 3.....	11
3.5 Field 4.....	11
3.6 Roadside Adjacent to Field 5 .....	12
3.7 Field 6.....	13
3.8 Field 7.....	13
3.9 Field 8.....	14
3.10 Field 9.....	14
3.11 Field 10.....	15
3.12 Field 11.....	15
3.13 Field 12.....	15
3.14 Field 13.....	16
3.15 Field 14.....	16
3.16 Field 15.....	17
3.17 Field 16.....	17
3.18 Field 17.....	18
3.19 Field 18.....	18
3.20 Field 19.....	19
3.21 Field 20.....	19
3.22 Field 21.....	19
3.23 Field 22.....	21
3.24 Field 23.....	21
3.25 Field 24.....	22
3.26 Field 25.....	22
3.27 Finds .....	22

---

<b>4. CONCLUSIONS</b> .....	<b>23</b>
4.1 Discussion .....	23
4.2 Further Work / Potential.....	26
<b>BIBLIOGRAPHY</b> .....	<b>27</b>
<b>APPENDIX 1: CONTEXT LIST</b> .....	<b>29</b>
<b>APPENDIX 2: FINDS LIST</b> .....	<b>31</b>
<b>APPENDIX 3: SMR SITES IN THE VICINITY OF THE PIPELINE</b> .....	<b>33</b>
<b>ILLUSTRATIONS</b> .....	<b>34</b>
List of Figures .....	34
List of Plates .....	34

---

## SUMMARY

---

Oxford Archaeology North (OA North), in its former guise as the Lancaster University Archaeological Unit (LUAU), undertook a watching brief in September 2001, along a route between Scale Hill, north of Crummock Water (NY 149 215), and Buttermere village to the south to Buttermere (NY 189 173) in Cumbria. The work was undertaken on behalf of Ryan Utility Services.

The aim of the watching brief was to record any significant deposits uncovered during minor excavations associated with the installation of a new water supply. Several features were found along the 4km length of the pipeline, including three 'earthfast' walls; one organic deposit (most probably the remains of a small pond associated with a complex of structures including leats, as yet not fully understood or surveyed, in Lanthwaite Wood); one small pit / post hole; numerous land drains; three charcoal-rich features, and one slag-rich pit. The latter features were of most importance, seemingly part of small-scale industrial activity within the Buttermere valley. There appeared to be possible evidence of charcoal production of unknown date, although one charcoal-rich pit predated a Parliamentary Enclosure wall. The slag-rich pit and metal residues recovered from the topsoil stripping included iron but there were also other metals present.

---

## ACKNOWLEDGEMENTS

---

Thanks go to Ryan Utility Services for funding the work and, in particular, to Graham, Moff and Trevor of Wilsons of Keswick for their co-operation and assistance during the watching brief. Thanks are also due to Steven Reed the project manager, to Robert Maxwell of the National Trust, and John Hodgson of the Lake District National Park Authority for information, readily supplied. This report was compiled by Vix Hughes, who also undertook the watching brief. The finds were examined by Ian Miller. Alan Lupton was responsible for project management and report editing.

---

## 1. INTRODUCTION

---

### 1.1 CONTRACT BACKGROUND

- 1.1.1 A watching brief was undertaken by Oxford Archaeology North (OA North), in its former guise as the Lancaster University Archaeological Unit (LUAU), between Lanthwaite Wood and Wood Houses, Buttermere, Cumbria on behalf of Ryan Utility Services. The watching brief took place from 3rd September to 4th October 2001. The work was carried out as part of a scheme to improve the water supply to Buttermere by installing a new pipeline from Loweswater.
- 1.1.2 The work involved the monitoring the groundworks while the pipeline was excavated and inserted along the pre-determined route. The purpose of the watching brief was to record any archaeological deposits disturbed or destroyed by construction work, as the surrounding area is known, from previous excavations and surveys, to contain archaeological remains of various periods.
- 1.1.3 A full archive of the watching brief has been produced to a professional standard in accordance with current IFA and English Heritage guidelines (English Heritage 1991). This archive will be lodged with Cumbria County Record Office and a summary will be deposited with both the County Sites and Monuments Record (SMR) in Kendal and the National Monuments Record (NMR).

---

## 2. BACKGROUND

---

### 2.1 THE SITE

- 2.1.1 The route of the pipeline runs, more or less directly, from Scale Hill (NY 149 215) to Buttermere (NY 189 173) but only the part from the point where the pipeline emerges from Lanthwaite Wood onwards was subject to the watching brief (Fig 1). The area, which forms part of the Cocker valley, lies to the north-west of Buttermere village, within the Lake District National Park, and most of the land is owned by the National Trust and worked by tenant farmers; only three fields were under private ownership. Most of the land in the study area lies between Crummock Water's edge and the B5289 and is readily visible to visitors and land users; careful reinstatement was thus an integral part of the scheme.

### 2.2 GEOLOGY AND SOILS

- 2.2.1 The underlying solid geology of the area is of the Skiddaw Group, composed of Hope Beck and Kirk Stile Slates and Loweswater Flags (Shipp 1982). The overlying drift geology is boulder clay deposited at the end of the last glaciation approximately 10,000 years ago. Soils are of the Manod Association and these are typical brown podzolic soils (Countryside Commission 1998).

### 2.3 HISTORICAL BACKGROUND

- 2.3.1 **Prehistoric Period:** little is known of the prehistoric period in the immediate vicinity of Buttermere, more a reflection of the lack of organised systematic fieldwork in the area rather than any real lack of archaeology. A Late Neolithic - Early Bronze Age stone circle is known at Elva Plain (Rollinson 1967, 16 - NY 176 318) and a Bronze Age collared urn has been recovered from Papcastle (*op cit*, 22). This suggests burial activity in the area but the extent of this has not been formally defined.
- 2.3.2 By the Iron Age, the area seems to have been part of a tribal landholding, probably under the aegis of the Brigantes, who dominated much of the north (Cunliffe 1991). This tribal unit in this area by the Roman period was known as the Carvetii (Higham and Jones 1985). No sites definitely attributed to this period are known in the Buttermere area, again probably more a reflection of the problem throughout the North West in identifying a distinct 'Iron Age' culture rather than any real lack of activity *per se*. However, there are indications of Iron Age occupation at Carrock Fell, south-east of Caldbeck, where there is a stone-built fort and from spot finds such as the Embleton Sword from east of Cockermouth (Carruthers 1979, 23).
- 2.3.3 No excavation has taken place in the settlement at Lanthwaite Green (Sites and Monuments Record (SMR) 1091), although several surveys of the upstanding remains have been undertaken. The one artefact recovered during the 1920s (Mason and Valentine 1924) has since been lost, but the most recent survey



(National Trust 1999) concluded that the settlement enclosure was comparable with other known Romano-British sites suggesting it was occupied by indigenous inhabitants rather than new settlers. However, it also noted that the immediately adjacent field system had characteristics seen in sites dating from the Bronze Age to Romano-British and even later periods (Lund 2001, 17), making the dating of this complex of activities very difficult. The only other site dated to the Romano-British period in the vicinity is another probable homestead of similar stone walled construction (SMR 1221), lying at the south-east end of Buttermere.

- 2.3.4 **Roman Period:** in Cumbria the main areas of settlement, aside from the concentrations in forts and their associated extramural settlements, occurred along the valley floors and lower slopes of the Lune and Eden river valleys. These locations were suitable for the mixed farming practices common in the area and were close to the communication routes used throughout the period. There is evidence for Roman activity around the study area with the presence of forts at locations such as Hardknott, Ravenglass, Ambleside and nearer, at Papcastle with its associated large extramural settlement (Shotter 1997). The landscape was probably populated by numerous isolated farmsteads (Higham 1977).
- 2.3.5 **Early Medieval Period:** following the collapse of Roman government, by the sixth century the Buttermere area is thought to have been under the control of the British king Urien (died 593) (Higham 1986, 266), who ruled the small kingdom of Rheged, which may have been centred on the Solway Plain. The English kingdom of Northumbria expanded rapidly following the death of Urien, and by the mid seventh century the area was under Anglian control (Lambert 1996, 49). The name of Crummock Water possibly dates to this period since it is derived from the Old English for crooked, '*crumbaco*' (Armstrong *et al* 1971). In the tenth century, it is likely that some Norse settlement took place, with the placename evidence suggesting that any earlier Anglian incursions were concentrated in the Eden valley, south Westmorland, the Cumberland coastal strip and the Solway Plain, and that the later Norse settlement may have tended towards the upland areas (Fell 1972, 84). There is one recorded possible find spot (SMR 3531) of an iron spear head found just off the shore of Crummock Water which may be Viking, indicating the presence of Norse activity in the area. In the tenth century the area became part of the British kingdom of Strathclyde, and in the eleventh century it was contested by the emerging kingdom of Scotland and the English earls of Northumbria.
- 2.3.6 **Medieval Period:** in the period following the Norman Conquest, the Buttermere area formed part of the kingdom of Malcolm III of Scotland, but by the end of the century the Scottish border was pushed back to the Tweed-Solway line. The first mention of 'Butermere' as a name is dated to AD 1215, and it probably means a mere surrounded by good grazing land, with 'buter' apparently being frequently used locally to mean grazing land (Armstrong *et al* 1971). Other names in the area are relatively late in date, including 'Langhwate' first mentioned in 1505, and 'Ranerdall' in 1598. However, the recording of such places simply formalises our knowledge of their existence

and it is almost certain that there were settlements at Buttermere and also Lorton before the twelfth century (Rollinson 1989, 60). Further settlements seem to have been developed in the valleys by 1300 which may reflect economic and population growth (Winchester 1987).

- 2.3.7 There are several known SMR sites in the area dating to the medieval period, including four bloomery sites along the eastern side of Crummock Water, a potash kiln on the western edge of the lake, a moated manor house at the north end, and a cluster of structures higher up the slopes along the western edge (A list of the known SMR sites in the vicinity of the pipeline route is given in *Appendix 3*; the location of the sites are depicted on Fig 5). These remains, along with documentary evidence, show clearly the range of activities occurring in the area during the medieval period.
- 2.3.8 The landholdings around Buttermere during the medieval period were, as elsewhere, complex but there is evidence to show that, in addition to mixed farming, use was made of the lords' fulling mills and that textiles were already a part of the economic activity of the tenants (Winchester 1987, 140). The range of animals kept would have included cows and pigs, although sheep, herdicks in particular, were predominant due to their suitability to the relatively hostile environment and their multitude of uses in providing meat, milk and wool for textiles (Rollinson 1967, 96). By 1300, the oak woodlands of the area would have been impacted on by their continuing use for pig foraging, wood turning, tanning and for charcoal burning and iron smelting (Rollinson 1989, 83; Winchester 1987, 101).
- 2.3.9 During the fourteenth century, hostile raiding by the Scots was at its height, and close by at Lamplugh there is evidence of this in a fortified house typical of the time, known as peel towers (Pevsner 1967). The climatic deterioration in the fourteenth and fifteenth centuries, generally referred to as 'The Little Ice Age' (Grove 1988), may have had a profound impact in a location such as the Buttermere valley, reducing the altitudes at which arable farming could effectively take place. There was also widespread outbreaks of sheep murrain and plagues affecting the human population, but by the end of the medieval period economic conditions had greatly improved (Winchester 1987). From the late medieval period onwards most local communities were essentially self sufficient and, in addition, regional industries developed, most of which were to be found in rural locations and relied on the somewhat scattered populations and their relation to available resources, rather than being concentrated in urban centres (Lowe 1989, 101).
- 2.3.10 **Post-medieval Period:** from the sixteenth century onwards in the Buttermere area there was continued use of the landscape for mixed agricultural and pastoral farming and also continued use of the woodland resources along the lake edges. Textile industries became increasingly important and the nearby town of Cockermouth had mills for both wool and flax (Lowe 1989, 124). Throughout the Lake District, wood was a carefully managed resource, used for construction purposes, ship building, the tanning industry, and the making of hoops, casks, swill baskets, brushes etc (Marshall and Davies-Shiel 1977). The poor transport and communication network in this area has, however,

essentially marginalised more recent developments, except tourism, which relies heavily on the natural resources and related history of the area to attract visitors.

## **2.4 METHODOLOGY**

- 2.4.1 The work began at the Lanthwaite Wood end of the scheme and proceeded south-eastwards along the eastern side of Crummock Water. Each of the fields through which the pipeline traversed was numbered and briefly fieldwalked, since this had not been done prior to ground disturbance, as is more usual. There were two main areas of work: the first by Lanthwaite wood and south-eastwards, consisting of 20 fields; and the second, to the north-west of Buttermere village, consisting of a further five fields. The two areas were separated by Hause Point, a rocky protrusion into Crummock Water; at this point the pipeline was located beneath the road and a watching brief was not considered necessary.
- 2.4.2 In each field, the turf and part of the underlying topsoil was stripped, using a toothed bucket on a 360° tracked machine, under archaeological supervision. All finds were collected and features observed at this stage were recorded and manually-excavated. The trench was then excavated using the same machine but with a wedge-shaped bucket attached; instead of removing deposits in horizontal spits, they were removed in a vertical manner. Wherever deposits and features were seen, the machining was briefly halted while their nature was identified. The recording was comprehensive and included scale drawings, black and white and colour slide photography, objective context descriptions, and the collection of finds and samples.

---

## 3. RESULTS

---

### 3.1 INTRODUCTION AND GENERAL RESULTS

3.1.1 The total number of fields that the pipeline went through was 24: 19 north of Hause Point and five to the south of it. The fields were numbered consecutively from north to south (Figs 2-4) and the results are summarised below. It should be noted that there was no excavation through Field 5, but to the east, alongside the road, as intended. Features were identified in the following fields: 1, 2, 3, 4, 6, 8, 13, 15?, 16/17, 21, 22, and 24, and these varied from very recent drainage features to ambiguous ones of possible natural origin; there were three walls, four charcoal-rich features, one slag-rich pit and one small pit / post hole of archaeological significance. The majority of the pipeline section revealed nothing more than natural stratigraphy, which has been clearly influenced by the post-glacial nature of the area and the on-going processes relating to slope and hydrology. The natural stratigraphy was recorded throughout the project but is only briefly summarised in the following descriptions. The topsoil, **100**, varied in colour and texture only slightly throughout the length of the pipeline but the amount of stone inclusions was quite variable.

### 3.2 FIELD 1

3.2.1 Centred on NY 3156 5207, this sloping field was under short grass. The turf and topsoil stripping exposed no features or deposits, and the trench excavation revealed natural deposits composed of mid brownish red silty clay subsoil overlying a pale yellowish grey silty clay, both containing a high proportion of stone inclusions. At the south-eastern end of the field, 10m from the stream coincident with the boundary with Field 2, was a layer of organic material. The dark brownish grey, firm silty clay, **105**, contained organic flecks of *in situ* preserved roots and plant matter (Fig 2). The layer was located 0.2m below the ground surface and had a maximum depth of 0.3m at the extreme south-east end. The proximity of this feature to the existing stream and the possible existence of a dam and leat in the woods to the west, supports the suggestion that this layer has formed as a result of inundated / waterlogged conditions and decaying plant material, perhaps due to the stream being dammed.

### 3.3 FIELD 2

3.3.1 Centred on NY 3157 5206, this field was under long grass and reeds, and was relatively flat. The turf and topsoil stripping exposed no features or deposits. The northern part of the trench was waterlogged, owing to ground water and the proximity of the stream mentioned above. The trench excavation revealed intermittent organic deposits consistent with the waterlogged nature of this particular field. The underlying drift geology was composed of bluish grey plastic clay. The only feature seen in the field was a ceramic land drain,

oriented approximately north-east/south-west and located 12m from the boundary with Field 3.

### 3.4 FIELD 3

- 3.4.1 Centred on NY 3158 5206, the field was mostly under short grass but to the south-west there was an area of long grass and reeds. The field sloped gently downward from the north-east to the south-west and there appeared to be traces of ridge and furrow, oriented north-east/south-west and measuring approximately 3m from crest to crest. The turf and topsoil stripping exposed one feature, **106**, which was also visible as a slight earthwork, forming a low linear ridge oriented north/south (Fig 2). It was clear following excavation that the feature was the remnant of an old field wall.
- 3.4.2 The remains of wall **106** were highly degraded and there were no remaining faced stones, nor was there any evidence of coursing. The deposit was simply a dense concentration, measuring 1.2m wide and over 1.0m in length, and composed of angular stones no larger than 0.3m diameter, in a brownish yellow silty clay matrix. The wall almost certainly had been of a dry stone construction since no evidence of bonding material was found. The fact that the ridge and furrow halted at this boundary suggested that the two were to some degree contemporary but, other than that, dating the construction and decay of the wall was not possible, although the reduced volume of remains implies that some time has passed since it was in use.

### 3.5 FIELD 4

- 3.5.1 Centred on NY 3158 5205, the field was under short grass and in current use as pasture. The field had upstanding remains of a dry stone wall approximately half way along its length. Only the very western part of the wall was still standing, to a height of 1m, the rest being in an earthfast state, having collapsed or been dismantled at some point previously. At this point in the field there was a marked change in the ground level, the area to the south being higher by up to 0.5m. The pipeline route crossed the old wall towards the eastern side of Field 4, where the wall was no longer visible on the surface, other than as occasional stones. Topsoil stripping revealed the single, remaining course of wall **107**, on the same alignment as the standing remains and measuring 1m wide, over 1m in length and with a depth of approximately 0.3m (Fig 2). However, the stones were unsorted and were reasonably small and seemed more consistent with fill / core material and not the larger foundation stones of the wall, which could be seen where the wall was still extant. It seems likely that wall **107** was purposefully at least partially dismantled and the suitably large stones removed for use elsewhere.
- 3.5.2 The excavation of the pipeline trench through the northern part of the field revealed only natural soils, with a 0.2m deep topsoil overlying 0.3m of mid orangey brown, clayey silt subsoil, which in turn sealed the pale bluish grey silty clay drift geology containing gravels and occasional large slate rock fragments. In contrast, in the southern part of the field, in what would have

been a separate field until wall **107** was removed, two features of archaeological significance were encountered. The soils were essentially the same as in the northern part of the field, although the topsoil depth was greater to the south of wall **107**, reaching a maximum depth of 0.35m.

- 3.5.3 A small feature was located 5-6m from the eastern wall of Field 4 and 44m north of the boundary wall with Field 5, sealed under the topsoil and comprised a dark greyish black, sandy silt material, **101**, containing 1-2% charcoal flecks and several medium-large stones (Fig 2). The deposit, which was not contained in a clear cut, was only seen in the eastern section of the trench, suggesting that the remainder of the feature was located to the east. Several pieces of probable metal processing residues were recovered from the deposit and, when combined with the very small size of the surviving charcoal flecks, it is probable that the deposit represents either *in situ* remains of metal processing or a dump of waste material from such activity.
- 3.5.4 In comparison, the second feature, 2m to the south of **101**, had a very obvious cut, **103**, truncating the subsoil below (Fig 2; Plate 1); it had a symmetrical profile as seen in the section, with a sharper break of slope and steeper sides to the north and a more gentle slope to the south, with a flat base. The orientation of the feature was unknown but it was deeper and clearer to the west and appeared to peter out to the east, implying that the remainder lay to the west. It was filled with a black sandy silt, **102**, containing 5-10% charcoal flecks throughout, but with a greater concentration along the base of the fill and 2-5% of probable metal processing residues. The feature had maximum visible dimensions of 2.4m in length by over 0.9m width and a depth of 0.3m.
- 3.5.5 A further deposit, **104**, was identified as a mid grey clayey silt, only slightly distinct from the overlying topsoil, and this appeared to be a spread of material partially overlying the northern end of fill **102** and continuing for over 5m in a north-westerly direction. The deposit varied in depth from 0.05m to 0.1m and contained numerous fragments of metallic slag but almost no charcoal flecks. The deposit probably represents a dump of waste material from metal processing, simply scattered in the area around where the processing took place; it may have been further spread by later agricultural activity.

### **3.6 ROADSIDE ADJACENT TO FIELD 5**

- 3.6.1 Field 5 itself was not part of the pipeline route, apart from the extreme north-eastern corner where the pipe emerged from Field 4 and turned to run along the side of the road to the east of Field 5. In this corner of the field no archaeologically significant features were found. The entrance into the field had been managed in recent times and the irregular spread of concrete found in this location related to this. Along the side of the road, the deposits encountered during topsoil stripping and excavation were all natural in origin and consisted of a mid yellow silty sand subsoil, containing 60% small-medium angular stones, overlying the pale grey silty clay drift geology.

### 3.7 FIELD 6

- 3.7.1 Centred on NY 3158 5202, the field was under short grass and was steeply sloping downwards from the north-eastern corner of the field to the south-east. The turf and topsoil stripping exposed no features or deposits. The excavation of the pipe trench revealed one ambiguous feature and a variety of natural deposits consistent with the changing topography of the field. The possible feature was seen in both sections of the trench but was much shallower to the west, measured 0.9m in length, over 0.85m wide and 0.3m deep, and occurred at a depth of 0.35m below the ground surface. It was located 40m from the stream which marked the boundary with Field 7, and 6.5m from the eastern wall of Field 6 (Fig 2). The deposit, **108**, was a black, compact, silty matrix containing 80% small–medium stones and gritty particles which appeared to be stained by black organic matter; it was not possible to determine whether this was burnt or decaying plant material since it had no structure and was more of a staining rather than identifiable fragments. The deposit did not seem to be contained in an obvious cut but rather seemed to have formed within a shallow depression which had gradual boundaries with the surrounding subsoil; it was interpreted as a naturally-formed deposit, possibly localised iron panning.
- 3.7.2 The subsoil underlying the 0.2m deep topsoil was a mid brown clayey silt, 0.2m deep. Below that at the northern end of Field 6, continuing from adjacent to Field 5, was a pale grey silty clay, of 0.6m maximum depth. Where the ground surface began to drop, the grey subsoil petered out and overlay a mid pinkish brown gritty clayey silt, whilst further south the grey subsoil re-emerged and deposit **108** overlay this subsoil.

### 3.8 FIELD 7

- 3.8.1 Centred on NY 3159 5201, the field, which sloped downwards towards the south-west, was only separated from Field 6 by a stream. It was mostly covered by short grass, although there was bracken along the eastern side. The turf and topsoil stripping exposed no archaeological features or deposits, whilst the trench excavation revealed natural deposits identical to those in Field 6.

### 3.9 FIELD 8

- 3.9.1 Centred on NY 3159 5200, the field was under grass which had been recently cropped. It sloped gently downwards, both towards the lake edge and towards Field 9 and the south. Topsoil stripping revealed two features at the northern end of the field, both of which appeared initially to be the remains of walls, together with a ceramic drain to the south.
- 3.9.2 The remains of the northernmost 'wall', **109**, were located 15.8m from the boundary wall with Field 7 and measured over 1.1m long, 0.45m wide and 0.3m deep (Fig 2). Surrounding **109** to the north and south was a larger area of stony material, extending 2m either side. 'Wall' **109** comprised three aligned stones, oriented east/west, of compatible sizes, and the surrounding stony material was slightly distinct from the stony topsoil, being more densely

concentrated and in a greyer matrix. On excavation it was discovered that the three aligned stones rested on an outcrop of underlying solid geology and that they are likely to be the uppermost part of the geology, in the process of becoming eroded from the bedrock and thus more rounded as a result. The stony deposit almost certainly results from the same natural erosion.

- 3.9.3 In contrast, feature **110**, located 9.5m further south, was definitely a wall (Fig 2; Plate 2). There were two rows of parallel stones aligned east/west and the feature measured over 1.1m in length, 0.6m wide and about 0.25m in depth. Only one course of stones survived, the form of which was indicative of a dry stone wall, with two parallel roughly-worked faces forming a foundation and smaller stones acting as a core between; there was no evidence of a cut for **110**. There were also numerous small stones to the north of the wall, which seem consistent with tumbled material. The feature was identifiable in the field as a curvilinear earthwork, less than 0.15m in height, which seemed to partition the extreme north-eastern corner of the field, and, as only two stones were partially visible along its length at the ground surface, it had obviously been out of use for some time. There were no obvious indications of the wall having been keyed into the existing field wall to the east although to the north where the earthwork met the field wall it coincided with a gateway through the existing wall. The wall may have served as some form of shelter or small stockade, no longer needed and therefore allowed to decay.
- 3.9.4 A modern ceramic drain was located 22m from the boundary wall with Field 9. It truncated the topsoil and was oriented approximately north/south and corresponded to an area of the eastern field wall which had noticeably fewer lichen on it, and thus appeared to have been rebuilt relatively recently.

### **3.10 FIELD 9**

- 3.10.1 Centred on NY 3160 5200, the field was under short grass and sloped gently. The turf and topsoil stripping exposed no features or deposits. The trench excavation revealed only natural deposits, composed of 0.2m of topsoil overlying 0.3m of mid orangey brown subsoil, which within this field became increasingly stony; in turn, the subsoil overlay 0.75m of pale grey, silty clay, clearly the drift geology, which gradually changed to a mid-dark orange silty clay, containing 85% small shale / stone fragments.



### 3.11 FIELD 10

3.11.1 Centred on NY 3160 5199, the field was covered in dense gorse and bracken, and sloped but was very uneven. The topsoil stripping revealed no features and excavation of the pipe trench uncovered only natural deposits relating to ongoing colluvial and hydrological processes. The dark brown, rooty topsoil was much shallower at 0.1m depth, and overlay a 0.55m deep, pale greyish yellow, sandy silt, which was loose and friable and contained about 70% small shale fragments. The lower subsoil / drift geology was a mid grey, silty clay with moderate stone inclusions. Other natural deposits were seen in the section through this field which seemed to relate to the proximity of the streams at the north and south ends of the field and the associated waterlogged conditions.

### 3.12 FIELD 11

3.12.1 Centred on NY 3160 5198, the field was covered in bracken along the east side and the rest was undershort grass. The topography was similar to that in Field 10, being uneven, and this may have been partly due to the large number of vast stones (1m x 1m x 0.8m) encountered during the machining, particularly near the boundary with Field 10. The size of the stones and the steep sides of the valley at this point indicate that they probably originated from the exposed bedrock of the fell to the east which had rolled downslope to rest at this location. Again, the topsoil was shallow and with a large number of roots. The underlying subsoil was a 0.7m deep, mid pinkish orangey brown, clayey silt, with 55% small–medium angular stone inclusions. The drift geology was similar to that observed in Field 10, being a mid grey, silty clay with 60% stone inclusions, having a depth of 0.3m.

### 3.13 FIELD 12

3.13.1 Centred on NY 3161 5197, the field was covered in bracken along the east side and the rest was under short grass with some gorse. The topsoil stripping uncovered no features or deposits of archaeological significance. The topsoil continued to be shallow, the underlying upper subsoil was a mid yellowish grey silty clay, the lower subsoil was a mid brownish orange clayey silt, and at the bottom was the pale grey, silty clay drift geology. All of the deposits had a high content of small–medium angular stones and there were intermittent traces of iron pan formation throughout the sections.

### 3.14 FIELD 13

3.14.1 Centred on NY 3161 5197, the field was covered in bracken and gorse and very undulating in nature. The topsoil stripping revealed an area of darker soil, **III**, approximately 3m in length, located 115.5m from the boundary wall with Field 14 to the south and 12.5m from the east wall of Field 13 (Fig 2; Plate 3). Deposit **III** was a dark greyish black, humic silt, contained burnt charcoal flecks, and occurred 0.2m below the ground surface. Upon excavation, the deposit was also noted to have about 40% small–medium stones and was

thicker to the west, reaching a maximum thickness of 0.3m, implying that the remainder of the feature exists in that direction. The deposit contained sufficient burnt material to suggest *in situ* burning rather than a dump of material cleared from another location. Below this deposit was a mid brownish pink, soft, silty clay, **112**, again containing about 40% small stones. The deposit was only 0.1m deep and appeared to represent a basal layer, possibly providing a surface on which the burning could be carried out, or providing a support for an upstanding structure around which material was burnt. Deposits **111** and **112** appeared to be contained within a very shallow cut, **125**, which had gradual breaks of slope and gently sloping sides. It was not possible to tell to what extent the feature may have been truncated and whether the upper part had been disturbed by later activity such as ploughing.

- 3.14.2 Further to the south there was ephemeral evidence of ridge and furrow, and when the trench was excavated the section showed that the topsoil undulated slightly, varying in depth from 0.2m–0.35m; however, the area in question is in use as a footpath which may have affected the remains.

### **3.15 FIELD 14**

- 3.15.1 Centred on NY 3162 5193, the field was under short grass and in current use as pasture (Plate 4). It was known to have produced significant results from a geophysical survey (Brooks 2001) and the route of the pipeline had been adjusted to avoid the locations of the anomalies identified. It was also adjacent to Cinderdale Common, to the east of the B5289, where there are visible earthworks relating to small-scale industrial activity. The stripping of the turf and topsoil revealed no features and only a small amount of slag / industrial residue was collected from the topsoil. Careful excavation of the trench through this field disturbed no features or deposits of archaeological significance. The topsoil, which was 0.25m deep, became slightly greyer towards the south end, closer to the positive geophysical results. However, the deposit was not distinct from the topsoil and almost certainly relates to material being displaced either by being washed down towards the lake edge or by more recent agricultural activity.

- 3.15.2 The underlying subsoil was a 0.35m deep, mid orange clayey silt and beneath that was a deposit of 0.2m of pale greyish yellow silty clay. At the base of the trench was the mid grey silty clay drift geology, continuing 60-75% small–medium stones.

### **3.16 FIELD 15**

- 3.16.1 Centred on NY 3162 5192, the field was under short grass and in current use as pasture. The topsoil stripping revealed no archaeological deposits, but excavation of the pipeline trench uncovered two possible features. The first, towards the north end of the field, was part of an old stream bed and therefore of no archaeological significance. The interpretation of this feature could be confirmed from the topography and the presence of the current stream just to the north on the other side of boundary wall between Fields 14 and 15, but also

from the nature of the deposits themselves. Underlying the 0.2m deep topsoil was a 0.3m deep layer of pale yellow silty clay and below that a 0.25m deep band of pale grey clay containing less than 5% small stones. The deposits were very localised, being 2m wide and extending east and west beyond the trench edges running parallel to the field boundary. To the south of this deposit, approximately 20m from the north field wall, the ground rose steeply, and appeared to be the remains of a former stream bank.

- 3.16.2 At a distance of 26m south of the north field wall was another possible feature, **126**, seen when the trench was excavated (Fig 3). The feature was more ambiguous than the old stream course and it was not possible to distinguish whether it was of natural or man-made origin. There was no evident cut and the edges of the deposit were somewhat diffuse. Deposit **126** measured 4m in length, over 1m wide and 0.7m deep. The deposit was a loose, mid reddish brown clayey silt, containing 60% medium–large sub-angular unsorted stones and less than 5% black organic flecks which appeared to be charcoal. The stony nature of the feature was not unusual for the subsoils seen throughout the length of the pipeline and the charcoal flecks were very small, perhaps originating by hydrological means, particularly considering how loose the deposit was and the large spaces between the stones. Without further work it was not possible to ascertain the function of 'feature' **126**.

### 3.17 FIELD 16

- 3.17.1 Centred on NY 3162 5190, this relatively flat field was under long grass. The turf and topsoil stripping revealed no features other than a modern septic tank and pipe serving the houses near Rannerdale Bridge. Mechanical excavation through the field found no archaeological features or deposits. However, at the extreme southern end, next to Field 17 and partially under the field wall itself, was a charcoal-rich feature, **116** (Figs 3 and 6), discovered while manually excavating below the wall in order to thread the pipe through. The overall dimensions of the feature were, as far as could be seen, 1.05m in length, by over 0.7m in width and 0.4m in depth. It had an upper fill, **113**, 0.2m in depth, of mid greyish brown silty clay, which contained approximately 5% of charcoal flecking. Below this was a 0.02m thin band of soft, orangey pink, silty clay, containing 5% small stones, **117**. Underlying this band, was a charcoal-rich deposit, **114**, which comprised a 0.12m thick, black, humic silt containing about 85% charcoal, both as flecks and larger brittle chunks, of a maximum size of 0.04m x 0.02m x 0.01m. The deposit is almost certainly the remains of the *in situ* burning of plant matter to produce charcoal. The basal deposit, **115**, in this feature was a 0.07m deep dark pinkish red silty clay, of a plastic consistency and containing 10-20% small stone inclusions. It is suggested that this deposit represents a lining inserted deliberately into the feature, possibly to help provide support for a superstructure. The overall shape of pit **116** could not be confirmed, given that a significant proportion of the feature remained beyond the area of excavation. The cut appeared to be symmetrical and U-shaped in profile, with near vertical sides and a gently concave base. The top fill, **113**, was sealed by the foundation deposit of the 1.4m high stone wall between Fields 16 and 17, showing that it predated the wall, which is a useful

but imprecise indication of its date. No artefacts, either metal or ceramic, were recovered from any of the fills associated with this feature.

### **3.18 FIELD 17**

3.18.1 Centred on NY 3162 5189, the field was under rough grass and in current use as pasture. The turf/topsoil stripping and excavation of the pipeline trench uncovered no features or deposits of archaeological significance. The 0.3m deep stony topsoil overlay a 0.3m deep mid brownish orange, silty clay subsoil, containing 40-50% small-medium angular stones. At the base of the trench was a further subsoil, over 0.6m deep, which was a mid brownish grey silty clay, containing 30% small, 10% medium, and 5% large angular stones.

### **3.19 FIELD 18**

3.19.1 Centred on NY 3162 5187, the field was under long grass and in current use as pasture. The turf/topsoil stripping and excavation of the pipeline trench uncovered no features or deposits of archaeological significance. The 0.25m deep topsoil overlay a 0.3m deep dark orangey brown, silty clay subsoil containing 40% small-medium angular stones. At the base of the trench was a further subsoil, over 0.45m deep, which was a mid brownish grey, silty clay, and containing a similar proportion of angular stones.

### **3.20 FIELD 19**

3.20.1 Centred on NY 3162 5186, the field was under long grass and in current use as pasture. The topsoil stripping revealed no features, other than very modern pipes and a septic tank running to Rannerdale Farm. The excavation of the pipeline trench uncovered no features or deposits of archaeological significance. The 0.3m deep topsoil overlay a 0.25m deep mid orange, silty clay subsoil containing 40% small-medium angular stones. At the base of the trench was a further subsoil, over 0.35m deep, which was a mid brownish grey, silty clay, containing a similar proportion of angular stones to the subsoil above.

### **3.21 FIELD 20**

3.21.1 Centred on NY 3162 5185, the field was under short, rough grass and in current use as pasture. The topsoil stripping and excavation of the pipeline trench uncovered no features or deposits of archaeological significance. The 0.2m deep topsoil overlay an upper subsoil which was 0.25m deep and a mid orange, silty clay. Below this was a lower subsoil of similar texture but mid orangey brown in colour. At the base of the trench was the dark grey, silty clay drift geology, which reached a maximum depth of 0.3m. Unusually, the boundary between Field 20 and Field 19 to the north was not a dry stone wall but a recently introduced mixed hedge.

### 3.22 FIELD 21

- 3.22.1 Centred on NY 3168 5176, the field was under short grass, and was bordered by trees both on the north side and the lake shore on the south. The field is in current use as pasture and for public, pedestrian access. The topsoil stripping revealed no features but there was a higher incidence of quartz fragments than normal. The subsequent excavation of the pipeline trench encountered bedrock at the base of the tree-lined slope at the north end and at this point the ground water level was also reached. It should be noted that there were some difficulties with working in this trench due to collapse of the stream banks which the pipeline traversed and much of the lower levels at the north end of the trench were inundated with water. The excavation of the pipe trench revealed 0.15m of topsoil, which overlay a sequence of varying subsoils. The uppermost of these was 0.2m deep and consisted of pale brown, silty clay with 20% sub-angular stones. Below this was a 0.3m deep layer of similar but distinct pale yellowish brown silty clay, containing 10% small stones. The subsoil beneath this measured 0.2m in depth and comprised a mid orange silty clay with only 5-10% small sub-angular stones. The lowest subsoil was a mid brown silty clay with 10% stones, 0.4m in depth. At the base of the sequence was an intermittent dark brown organic silty clay, which appeared to be developing peat. The peat-like deposit was only visible in the northern part of the trench, being seen at the greater depth reached there, and it varied from 0.05m to 0.20m in depth. The presence of the organic deposit may relate to the close proximity of the lake and the waterlogged nature of the soils.
- 3.22.2 Two distinct clusters of features were uncovered during the trench excavation, neither of which were visible in the topsoil stripping phase. The first was located 26.5m north of, and continued up to, the stream (Fig 4) and consisted of four black stony deposits. These were all identical in nature and, as such, were defined as features **127 A-D**, **127A** being the furthest north. Each formed a distinct feature, similar to **108** seen in Field 6, and they varied in size from 2.5m to 1.75m in length and from 0.05m to 0.4m in depth. The deposits occurred between 0.6m and 0.8m below the ground surface and had no obvious cuts associated or clay forming a base. The material was dark blackish brown, with a silty clay matrix surrounding dense concentrations of small sub-angular stones and grit. The dark matrix appeared to be slightly smeared over the stones and there was no evidence of charcoal or slag residues within any of the deposits; in-between the features was a thin discontinuous band of the same material. The lack of any anthropogenic material within the deposits and their presence beneath several layers of naturally-accumulated subsoils suggests a natural rather than man-made origin. The deposits were almost certainly the result of ongoing iron pan formation in an area of frequently waterlogged soil conditions.
- 3.22.3 The second area contained a feature, **124**, very distinct from **127**, located 17m from the south end of the field where it was separated from Field 22 by a post and wire fence. The uppermost deposit, **121**, was an extensive mid grey, silty clay, containing 5-10% charcoal flecks and small chunks. It was located approximately 0.3m below the ground surface and was only 0.05m deep but occurred over a large area sealing both the underlying charcoal-rich deposit,

**118**, and fill **122**. It may represent post-depositional disturbance and spreading from ploughing or other activity.

- 3.22.4 Fill **118** was a black, soft, humic silt containing 50% charcoal flecks and fragments of burnt organic material. It was seen in both sections demonstrating that the remainder of the feature extended in either direction. The deposit contained sufficient burnt material to suggest *in situ* burning rather than a dump of material cleared from another location. Below this deposit was a mid orange, soft clay, **120**, 0.03m deep, which sealed another layer, **120**, of mid pinkish red, soft, plastic, silty clay, measuring 0.08m in depth. Deposit **120** seemed to be providing a surface on which the burning could be carried out or had provided a support for an upstanding structure around which material was burnt.
- 3.22.5 The deposits **118**, **119** and **120** appeared to be contained within a very shallow cut, **124**. The cut had gradual breaks of slope with the concave base but these were sharper at the top, and gently sloping sides. It was not possible to tell to what extent the feature may have been truncated and whether the upper part had been disturbed by later activity such as ploughing. The overall shape of the feature was not revealed but the cut was better defined in the south-west-facing section, suggesting that the pit was oval in shape. It should also be noted that there was no obvious evidence of an embankment having been created by cutting into the gradual slope of the field.
- 3.22.6 The second feature in this area was a small pit or possible post hole, the fill of which was sealed by deposit **121**. It was located approximately 1.2m further south-east of **118** and only seen in the north-east-facing section of the trench, approximately 0.45m below the ground surface. The fill, **122**, was a mid grey silty clay and contained 5% charcoal flecks. There was, however, no evidence of any packing material or the remains of an *in situ* post, which would have confirmed its interpretation as a post hole. The charcoal present in the fill suggests some association with **118** but it may simply be the case that this feature being later and partially infilled with an earlier charcoal-rich deposit. The cut, **123**, had a slightly asymmetrical U-shaped profile, which measured 0.3m in width and 0.2m in depth.

### 3.23 FIELD 22

- 3.23.1 Centred on NY 3169 5174, the field was under a combination of short grass and junctus. Linear undulations were evident in its topography, and upon topsoil stripping these were revealed to be drainage features. The excavation of the pipe trench revealed further drainage features deeply cut into the subsoils below. There was a total of 12 drainage channels filled with either laid stones or ceramic pipes (Fig 4). The 0.2m deep topsoil overlay an upper subsoil which was 0.25m deep and a mid orange, silty clay. Below this was a lower subsoil / drift geology of similar texture but pale grey in colour and 0.55m deep.

### 3.24 FIELD 23

3.24.1 Centred on NY 3168 5174, this area consisted of a patch of small steeply sloping woodland and as such was not stripped prior to excavation. The excavation revealed intermittent soils accumulated between areas of outcropping solid geology. Where present the topsoil was 0.3m deep and contained a significant root mat. The underlying subsoil, which was 0.20m deep, was a mid greyish yellow loose, silty clay. Below this was the mid orange silty clay drift geology, which was 0.50m deep. No archaeological features and/or deposits were revealed.

### **3.25 FIELD 24**

3.25.1 Centred on NY 3170 5174, the large field was under short grass and in use as pasture. The topsoil stripping in this field revealed no features of archaeological significance and the subsequent excavation of the trench uncovered a number of variable subsoils, all consistent with natural deposition. The topsoil was 0.2m deep and the main underlying subsoil was a mid orange, silty clay which varied from 0.35m to 0.6m in thickness. This subsoil had an undulating boundary with the drift geology below, which was a pale-mid grey silty clay, containing stone inclusions.

3.25.2 Five large stone drainage features of recent date were identified in the eastern part of the trench, located at roughly equal intervals of 13m. Each was approximately 2m wide as seen in section, 0.4m in depth and occurred at 0.2m below the ground surface. These features comprised 80% medium sub-rounded stones surrounded by a mid grey silty clay, forming a loose gritty matrix. In profile they had a very broad U-shaped appearance, were aligned approximately north/south, and were cut into the subsoil.

### **3.26 FIELD 25**

3.26.1 Centred on NY 3173 5173, this field was not part of the original route of the pipeline, and whereas most of the previous fields were owned by the National Trust, this one is under private ownership. The pipe trench went through the field wall adjacent to the road, through the field and emerged at the other, eastern, end of the field back onto the road. The topsoil stripping and subsequent excavation revealed no deposits or features of archaeological significance. The topsoil was on average 0.25m deep and the underlying mid brownish orange, silty clay subsoil was 0.3m thick. At the bottom of the trench was the pale grey, orange mottled, silty clay drift geology, containing 10% stones.

### **3.27 THE FINDS**

3.27.1 In total, 267 fragments of artefacts and ecofacts were recovered from the watching brief, and in general the material was badly abraded and poorly preserved. The assemblage for the most part comprises nineteenth century and later material, mainly ceramics, clay pipe, vessel glass, ironwork, and an appreciable amount of industrial residues. Catalogues of the artefacts have

been included in *Appendix 2* in Object Reference Number order. All finds were treated in accordance with standard OA North practice.

- 3.27.2 The finds assemblage was dominated by fragments of pottery (138 sherds), all of which date to the post-medieval and modern periods, and are of little archaeological significance. A range of kitchen and tableware forms appeared to be represented, although most of the fragments were too small and abraded for a detailed identification. The three fragments of clay pipe were similarly abraded, although sufficient remained of one (1016 from the topsoil in Trench 21) to indicate a nineteenth century date. A similar date may be ascribed to the glass artefacts (14 sherds), all of which were fragments of bottles. The few fragments of iron (eight fragments) included nails and part of a horseshoe, all of which were badly corroded.
- 3.27.3 The most interesting components of the assemblage were the industrial residues retrieved from the fill (**102**) of pit **103**, and associated deposit **104**. The residues were subjected to XRF analysis by the University of Bradford's Ancient Metallurgy Research Group, which indicated them to be typical of iron smelting slag, with low manganese contents. One fragment, retrieved from pit fill **102**, was strongly magnetic, with a high elemental iron content, suggesting that it may have been derived from fused roasted ore fines. The residues are undated but, given the known presence of medieval bloomery sites in the vicinity (2.3.7 above), it is possible that these also represent medieval activity.
- 3.27.4 Material from two charcoal-rich features (pits **124** and **125**) was sampled, and checked for charcoal and other carbonised remains. The results indicated that both pits contained charcoal, although it was not possible to ascertain whether the wood originated from coppiced or mature woodland. The majority of the charcoal originated from oak with some diffuse porous wood, probably alder/hazel or birch. In addition, carbonised plant remains of material from herbaceous plants, including a carbonised grain of oat, were recorded from the fills of both pits (**112** and **124** respectively). These have the potential to provide AMS dating for the two pits, although this has not been undertaken at this stage.



---

## 4. CONCLUSIONS

---

### 4.1 DISCUSSION

- 4.1.1 The watching brief for the new water pipeline along the eastern side of Crummock Water revealed few features throughout its 4km length. Those encountered and recorded included: three old, now 'earthfast', walls, **106**, **107** and **110**; one organic deposit, **105**, which was the probable remains of a small holding pond for water and is, perhaps, associated with a complex of structures, including leats, in Lanthwaite Wood, not yet fully understood or surveyed; one small pit / post hole, **123**; numerous land drainage devices ranging from ceramic drains to linear stone sykes; three charcoal-rich features, **125**, **116**, and **124**; and one slag-rich pit, **103**.
- 4.1.2 The three walls are indicative of the long time period over which the landscape has developed. It is evident from the extensive, multiphase features identified at Lanthwaite Green (Lund 2001; National Trust 1999) at the north end of Crummock Water that the area has been desirable for agricultural use since at least the Roman period and almost certainly before, as there is plentiful evidence of woodland clearance, dating from the Neolithic onwards, throughout the Lake District (Fell 1972, 13). Although no evidence was found relating to such an early period, the remains reveal that there has been a continued tradition of delimiting the landscape for use by the construction of walls. Whether these divisions have been to stockade animals, cordon off areas for differing landuse, or whether they reflect land ownership, they are surviving elements in a palimpsest landscape. The walls found during the watching brief are different in nature and function. Wall **106** in Field 3 almost certainly related to the visible ridge and furrow as these respected the position of the wall. This was therefore probably used as a perimeter for arable land. Wall **107** in Field 4 was still partially standing and appears to be the remains of a post-medieval field boundary wall, currently going out of use. The southernmost wall, **110**, in Field 8 was curvilinear and appeared to section off a 300-400m<sup>2</sup> corner of the field, at the north end near to the road. The wall had been completely dismantled and survived as a single course below ground and as an earthwork on the surface. There were no apparent relationship with the existing field walls nor did it continue through Field 7 to the north. Its purpose, origin or date is not certain but possible interpretations include an animal stockade or a shelter / windbreak of some type. Sheep folds are known in the area, one having been recently rebuilt by the National Trust in Field 11, though these were generally much smaller in size.
- 4.1.3 The small area of organic deposit, **105**, seen in Field 1, probably represents the *in situ* decay of organic matter resulting from waterlogged conditions, and may relate to a holding pond serving the visible leat system to the west, which has yet to be fully recorded. The function of this putative water management system remains unclear.

- 4.1.4 Bloomeries are essentially the simplest way of smelting raw iron ore into metal. In the past they usually consisted of hand-worked domed hearths, made of burnt clay and often strengthened around the base with a circle of stones (Marshall and Davies-Shiel 1977, 28). As such, they have been in use since the Iron Age (Lowe 1989, 116) and, although there are indications that during the early medieval period other processing methods may have been used (Mack *et al* 2000, 87), this was the method of obtaining iron up until the latter half of the sixteenth century. When innovations led to the development of stringhearths and from then on to bloomsmithies and blast furnaces (the first blast furnace in Britain is dated to the fifteenth century, the first in Cumbria at Backbarrow is dated 1711 - Bowden 2000, 47). Preliminary smelting of ore usually occurred either near the mines or in areas of woodland used for fuel production (Bouch and Jones 1961, 120).
- 4.1.5 The presence of apparent bloomeries along both sides of Crummock Water shows that the area was used for smelting iron ore. Most of the known sites have not been accurately dated owing to a lack of systematic archaeological excavation. Although most are referred to as medieval, it is unclear whether they are pre- or post-1560; c 1564 the instigation of the Mines Royal Company had significant impacts on the organisation and scale of iron production throughout the Lake District (Marshall and Davies-Shiel 1977; Rollinson 1967, 103). Set up as a private company with the approval of Elizabeth I, it sought to and achieved an increase in the level of production, partially through better organisation of resources and the increased use of water power (Postlethwaite 1975). There have been suggestions that under this company small workings were established in the Buttermere valley (Rollinson 1967, 104). Prior to the watching brief, geophysical survey showed the existence of a marked magnetic anomaly and possible bloomery sites in Field 14 (Brooks 2001). Using this information it was possible to avoid disturbing these sensitive areas.
- 4.1.6 However, in Field 4 a slag-rich pit, **103**, was found; this feature was not detected during the geophysical survey, nor was it evident on the ground surface or during the topsoil stripping. There was little evidence of the clay dome element of a typical bloomery but since the entire feature was not seen the exact nature of the site remains unclear. Metal processing residues were found both within the associated fill, **102**, and spread several metres to the north, **104**. The metal residues seemed to be iron and were slag-like, their interpretation suggesting that the site was a possible bloomery. Located approximately 0.4m below the ground surface, there is little sign of the pit and deposits having been disturbed to any great degree. It should be noted that there was a distinct difference between feature **103** and the other charcoal-rich features seen (see 4.1.7), in that the former contained metal processing residues and only smears of charcoal, resulting from its use as a fuel source for the processing. The other deposits had no obvious metal residues and appear to be related to the production of charcoal.
- 4.1.7 The main class of feature identified during the watching brief was that of charcoal-rich pit. A total of three was found along the 4km pipeline excavated under archaeological supervision, including **125** in Field 13, **116** in Field 16 / 17, and **124** in Field 21. They were of broadly similar form, having clay basal

deposits, overlain by very dense concentrations of charcoal and then sealed by much less charcoal-rich deposits. The charcoal probably represents the small fraction left behind when the rest had been removed for use elsewhere. The sizes ranged from 1.0m to 5.0m as seen in the section, although only **125** was 5.0m; since it was closer to the ground surface, it may have been subject to greater disturbance and spreading beyond its original dimensions. It also had the lowest proportion of charcoal, again suggestive of post-depositional disturbance. The thickness of each charcoal deposit was similar, ranging from 0.2m to 0.4m, and the depth below the ground surface at which these features were encountered was roughly similar, varying from 0.25m to 0.4m, despite the distances between the features. The function of these pits was almost certainly to produce charcoal (which burns at much higher temperature than wood and is, therefore, suitable as a fuel to smelt iron (Marshall and Davies-Shiel 1977, 30)) by the controlled burning of organic matter.

- 4.1.8 Among the features associated with charcoal burning are pitsteads, which are often described as circular clearings or platforms which vary in size from 6m (Lowe 1989, 116; Rollinson 1967, 109) to 9m (Jones 1996, 277) ie. significantly larger than **116** and **124**, though **125** was close to this size. If these pits were for producing charcoal for use as a fuel source, then they would have been associated with the wider use of the landscape, since to provide one ton of charcoal for burning, several acres of woodland would have been required (Marshall and Davies-Shiel 1977, 30); there is evidence that the woodlands were extensively managed, by coppicing, to avoid depletion of resources (Bowden 2000, 77). In addition, there was an established tradition of relocating the charcoal production sites when the wood in an area had been used up, allowing it to regenerate.
- 4.1.9 No artefacts were found in association with any of the charcoal-rich pits, and from examining the amount of soils accumulated and sealing these features, it was not possible to provide any evidence of the date when they were in use. They appeared to be single events in that there was no evidence for a succession of charcoal layers in any of them.
- 4.1.10 It may be possible to envisage the landscape around Crummock Water and Buttermere as being both self sufficient in terms of agriculture and also having a degree of diverse but small-scale industry, closely associated with the use of woodland resources. Although conclusive dating of these industrial activities was not possible, there is some indication, from background information and comparison with other sites, that they may relate to the later medieval and post-medieval periods, possibly prior to the wholesale Parliamentary Enclosure of the remaining lands. The close association between charcoal production and the processing of iron ore appears to have been an important economic activity in the Crummock Water and Buttermere area.

## 4.2 FURTHER WORK / POTENTIAL

4.2.1 Possibilities for further work in the area include establishing the extent and dating of the complex of water management and associated bloomeries in Lanthwaite Wood adjacent to Field 1. This appears to be reasonably well preserved and could be quite extensive, especially if organic deposit **105** identified in Field 1 relates to a holding pond for the leat system. The second area for possible further work relates to the nature of the metal processing in the valley. Much of the material appears to be iron-derived but there was a considerable amount of less clearly identified residues collected from the topsoil and, although this is not a well-defined context, it would be important to consider whether only iron was being worked or if, indeed, other metals were as well. Further expert analysis would shed some light on the issue. Finally, the third area of possible further work relates to the charcoal-rich pits. Since they do not conform to the typical 'pitstead', should they be considered as such? This issue, and the question of their date, cannot be resolved without the systematic excavation of at least one site. The work completed during this project has illustrated the complex and regional significance of the archaeological landscape of the Crummock Water and Buttermere area.

---

## BIBLIOGRAPHY

---

- Armstrong, AM, Mawer, A, Stenton, FM, and Dickens, B, 1971 *The Placenames of Cumberland*, Eng Placename Soc, **21/2**, Cambridge
- Bouch, CML, and Jones, GP, 1961 *The Lake Counties 1500-1830: A Social and Economic History*, Manchester
- Bowden, M (ed), 2000 *Furness Iron*, London
- Brooks, IP, 2001 *Buttermere WTW Pipeline Geophysical Survey*, unpubl rep
- Carruthers, FJ, 1979 *People Called Cumbri*, London
- Countryside Commission, 1998 *Countryside Character, Volume 2: North West*, Cheltenham
- Cunliffe, B, 1991 *Iron Age Communities in Britain*, 3rd edn, London
- English Heritage, 1991 *Management of Archaeological Projects*, 2nd edn, London
- Fell, C, 1972 *Early Settlement in the Lake Counties*, Clapham
- Grove, J, 1988 *The Little Ice Age*, Cambridge
- Higham, NJ, 1977 *Rural Settlement and Land Use in the First Millennium AD in Cumbria*, unpubl PhD thesis Manchester Univ
- Higham, NJ, 1986 *The Northern Counties to AD 1000*, Harlow
- Higham, NJ, and Jones, GDB, 1985 *The Carvetii*, Gloucester
- Jones, W, 1996 *Dictionary of Industrial Archaeology*, Stroud
- Lambert, J (ed), 1996 *Transect Through Time: the archaeological landscape of the shell north western ethylene pipeline*, Lancaster Imprints, **1**, Lancaster
- Lowe, A, 1989 The Industrial Landscape, in *The Lake District: Landscape Heritage*, W, Rollinson (ed), London
- Lund, J, 2001 Survey of a Romano-British Settlement at Lanthwaite Green, Crummock, *Archaeol North*, **18** summer edn
- Mack, I, McDonnell, G, Murphy, S, Andrews, P and Wardley, K, 2000 Liquid Steel in Anglo-Saxon England, *Historical Metallurgy*, **34**, 87-96
- Marshall, JD, and Davies-Shiel, M, 1977 *Industrial Archaeology of the Lake Counties*, Beckermest

- Mason, JR, and Valentine, H, 1924 The British Village Site at Lanthwaite Green and Other Earthworks in West Cumberland, *Trans Cumberland Westmorland Antiq Archaeol Soc*, n ser, **24**, 117-22
- National Trust, 1999 *An Archaeological Survey of an Enclosed Settlement and its Environs at Lanthwaite Green, Crummock Water, Grasmere*. unpubl rep
- Pevsner, N, 1967 *The Buildings of England: Cumberland and Westmorland, Middlesex*
- Postlethwaite, J, 1975 *Mines and Mining in the Lake District*, Beckermest
- Rollinson, W, 1967 *A History of Man in the Lake District*, London
- Rollinson, W, 1989 *The Lake District: Landscape Heritage*, London
- Shipp, T, 1982 *The Lake District: Rocks and Fossils Field Guide*, Cumberland Geol Soc, London
- Shotter, D, 1997 *Romans and Britons in North West England*, Lancaster
- Winchester, AJL, 1987 *Landscape and Society in Medieval Cumbria*, Edinburgh

---

**APPENDIX 1: CONTEXT LIST**


---

<b>Context No.</b>	<b>Field No.</b>	<b>Description</b>
<i>100</i>	-	Topsoil
<i>101</i>	4	Charcoal and slag deposit
<i>102</i>	4	Charcoal and slag fill of <i>103</i>
<i>103</i>	4	Pit cut
<i>104</i>	4	Dark grey slag-rich deposit
<i>105</i>	1	Organic deposit
<i>106</i>	3	Wall
<i>107</i>	4	Wall
<i>108</i>	6	Black stony deposit
<i>109</i>	8	Wall?
<i>110</i>	8	Wall
<i>111</i>	13	Burnt fill of <i>125</i>
<i>112</i>	13	Pinkish clay deposit, fill of <i>125</i>
<i>113</i>	16/17	Mid grey-brown deposit
<i>114</i>	16/17	Black, charcoal-rich fill of <i>116</i>
<i>115</i>	16/17	Pinkish red clay deposit
<i>116</i>	16/17	Pit cut
<i>117</i>	16/17	Thin sandy clay band
<i>118</i>	21	Black, charcoal-rich fill of <i>124</i>
<i>119</i>	21	Red clay deposit
<i>120</i>	21	Mid orange fill of <i>124</i>
<i>121</i>	21	Grey, charcoal-flecked spread
<i>122</i>	21	Fill of <i>123</i>
<i>123</i>	21	Cut of pit / post hole ?
<i>124</i>	21	Pit cut

---

<i>125</i>	13	Pit cut – very shallow
<i>126</i>	15	Deposit - feature?
<i>127</i>	21	Deposit - feature?



## APPENDIX 2: FINDS LIST

<b>Object Record No.</b>	<b>Field No.</b>	<b>Context No.</b>	<b>Quantity</b>	<b>Material</b>	<b>Description</b>
1001	1	<b>100</b>	6	Ceramic	Post-medieval
1002	3	<b>100</b>	4	Ceramic	Post-medieval
1003	4	<b>100</b>	2	Ceramic	Post-medieval
1004	6	<b>100</b>	2	Ceramic	Post-medieval
1005	8	<b>100</b>	4	Ceramic	Post-medieval
1006	9	<b>100</b>	1	Ceramic	Post-medieval
1007	10	<b>100</b>	1	Ceramic	Post-medieval
1008	13	<b>100</b>	4	Ceramic	Post-medieval
1009	14	<b>100</b>	15	Ceramic	Post-medieval
1010	15	<b>100</b>	7	Ceramic	Post-medieval
1011	16	<b>100</b>	5	Ceramic	Post-medieval
1012	17	<b>100</b>	3	Ceramic	Post-medieval
1013	18	<b>100</b>	1	Ceramic	Post-medieval
1014	19	<b>100</b>	14 / 1	Ceramic / Glass	Post-medieval
1015	20	<b>100</b>	4 / 1	Ceramic / Glass	Post-medieval
1016	21	<b>100</b>	11 / 2	Ceramic / Glass	Post-medieval
1017	22	<b>100</b>	7 / 4	Ceramic / Glass	Post-medieval
1018	23	<b>100</b>	2 / 1	Ceramic / Glass	Post-medieval
1019	24	<b>100</b>	37 / 5	Ceramic / Glass	Post-medieval
1020	25	<b>100</b>	8	Ceramic	Post-medieval
1021	13	<b>100</b>	3	Iron	Bucket handles, nail
1022	15	<b>100</b>	1	Iron	Nail?
1023	17	<b>100</b>	2	Iron	Horseshoe fragment, nail
1024	21	<b>100</b>	1	Iron	Nail?

1025	25	<b>100</b>	1	Iron	Nail?
1026	Adjacent F1	-	1	Metal?	Slag
1027	13	<b>100</b>	3	Metal?	Slag
1028	14	Surface find	6	Metal?	Slag
1029	4	<b>100</b>	2	Metal?	Slag
1030	4	<b>104</b>	9	Metal?	Slag
1031	4	<b>102</b>	5	Metal?	Slag
1032	14	<b>100</b>	4	Metal ?	Slag
1033	15	<b>100</b>	1	Metal?	Slag
1034	4	<b>101</b>	7	Metal?	Slag
1035	4	<b>100</b>	5	Metal?	Residue?
1036	4	<b>101</b>	2	Metal?	Residue?
1037	4	<b>102</b>	6	Metal?	Residue?
1038	4	<b>104</b>	1	Metal?	Residue?
1039	13	<b>100</b>	4	Metal?	Residue?
1040	14	<b>100</b>	20	Metal?	Residue?
1041	17	<b>100</b>	6	Metal?	Residue?
1042	18	<b>100</b>	4	Metal?	Residue?
1043	19	<b>100</b>	7	Metal?	Residue?
1044	20	<b>100</b>	6	Metal?	Residue?
1045	15	<b>100</b>	10+	Metal?	Residue?
1046	21	<b>100</b>	6	Metal?	Residue?
1047	24	<b>100</b>	10+	Metal?	Residue?
1048	24	<b>100</b>	10+	Metal?	Residue?
1049	19	<b>100</b>	1	Metal? Slag	-

### APPENDIX 3: SMR SITES IN THE VICINITY OF THE PIPELINE

<b>SMR Number</b>	<b>Period</b>	<b>Description</b>
1071	Medieval	Monument including site of manor house known as Loweswater Pele
1091	Prehistoric	Enclosure and hut circle, scooped hollow, two compounds visible
1092	? Prehistoric	Enclosure, appears to be on common unfenced land, overgrown
1093	? Prehistoric	Enclosure, alleged hillfort, not relocated in 1978
1220	Medieval	Remains consist of foundation walls of over 10 rectangular buildings and associated features
1221	Roman	Remains of small stone-walled probable Romano-British homestead
3095	Medieval	Possible site of St Mary Magdalene church
3531	Early Medieval	Iron spear head found in Crummock Water, off small island, probably Viking or earlier
12195	Post-medieval	Disused quarry
13830	Post-medieval	Ice house
15900	Medieval	Site of bloomery now on woodland path
15909	Medieval	Potash kiln of late medieval date with remains of charcoal on track
15910	Medieval	Site of bloomery on shore line
15911	Medieval	Site of bloomery, developed, with car park on top

---

## ILLUSTRATIONS

---

### LIST OF FIGURES

- Figure 1      Location of Pipeline Route
- Figure 2      Western part of Pipeline Route
- Figure 3      Middle part of Pipeline Route
- Figure 4      Eastern part of Pipeline Route
- Figure 5      SMR sites
- Figure 6      Section through Feature *116*

### LIST OF PLATES

- Plate 1      Industrial Feature *103*
- Plate 2      Wall *110*
- Plate 3      Feature *125*
- Plate 4      View of Field 14



based upon the Ordnance Survey 1:50000  
 with the permission of the controller of HMSO  
 © Crown Copyright

The block contains the Ordnance Survey logo, which consists of three overlapping circles in white, blue, and grey. To the right of the logo is a scale bar with markings for 0, 500, and 1000 metres.

Figure 1: Location of Pipeline Route



**Oxford Archaeology North**  
Storey Institute  
Meeting House Lane  
Lancaster  
LA1 1TF  
Tel 01524 848666  
Fax 01524 848606

PROJECT:

Buttermere

DRAWING No:

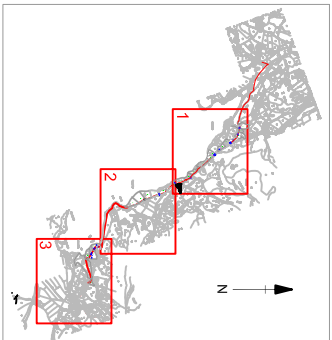
2

0 100m  
Scale 1:5000

DRAWN BY: ELC

DATE: November 2001

LOCATION:



KEY

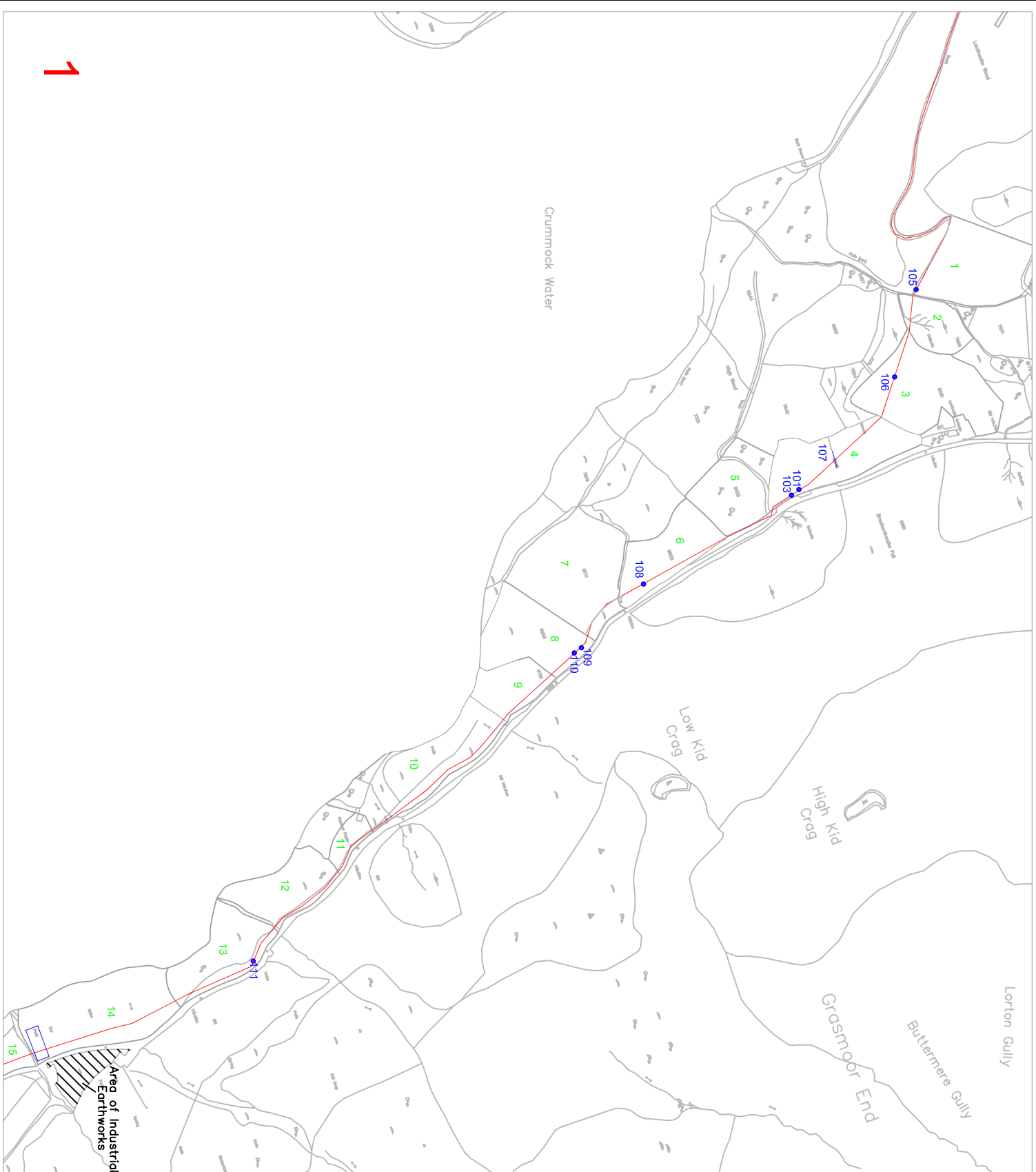
- depositor/features
- 10 field number
- area of geophysics

TITLE:

Pipeline Route - 1

COMMISSIONED BY:

Ryan Utility Services





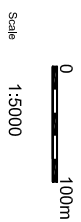
**Oxford Archaeology North**  
 Storey Institute  
 Meeting House Lane  
 Lancaster  
 LA1 1TF  
 Tel 01524 848666  
 Fax 01524 848606

PROJECT:

Buttermere

DRAWING NO:

3



DRAWN BY: ELC

DATE: November 2001

LOCATION:



KEY

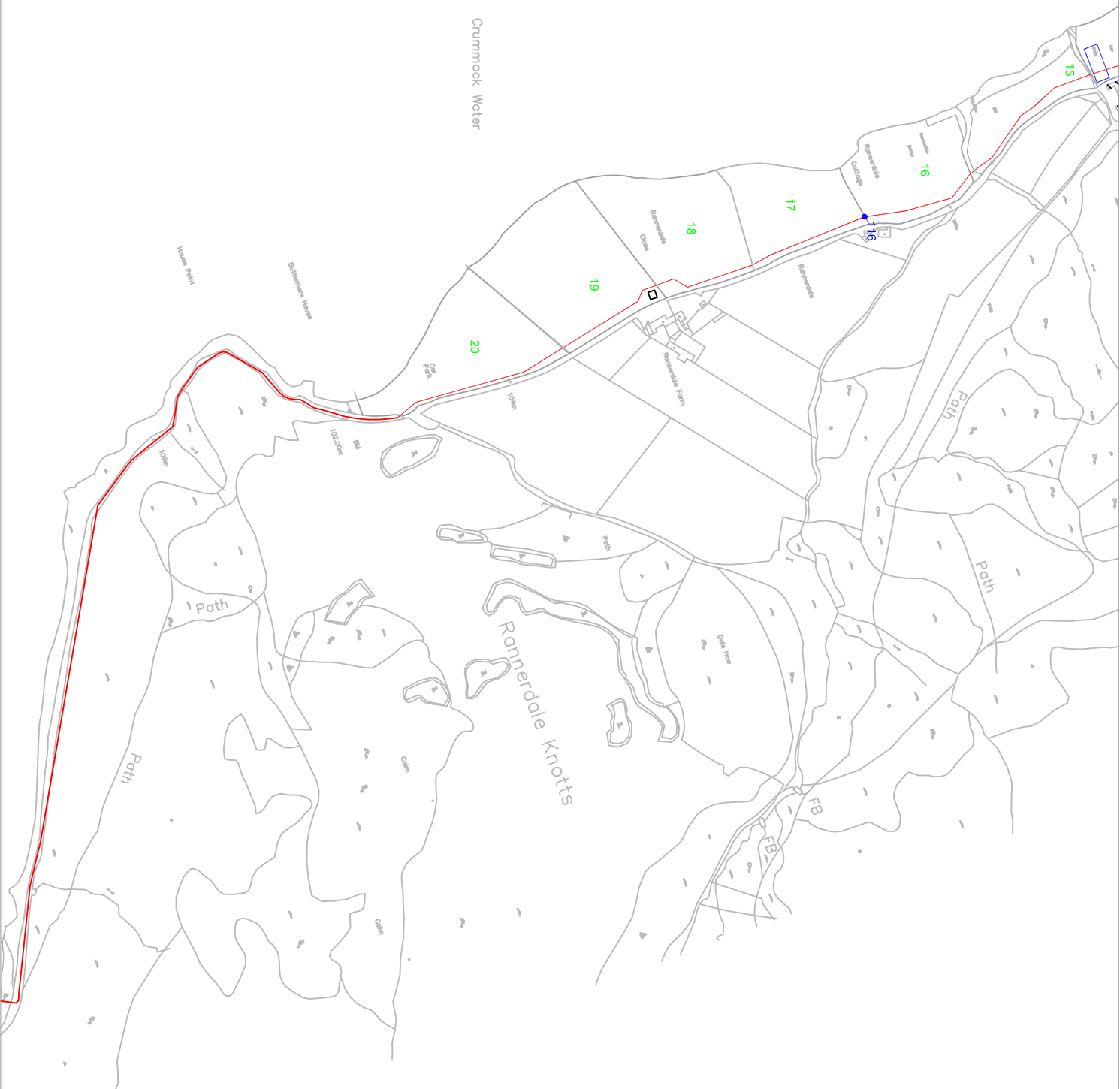
- deposit/features
- 10 field number
- area of geophysics

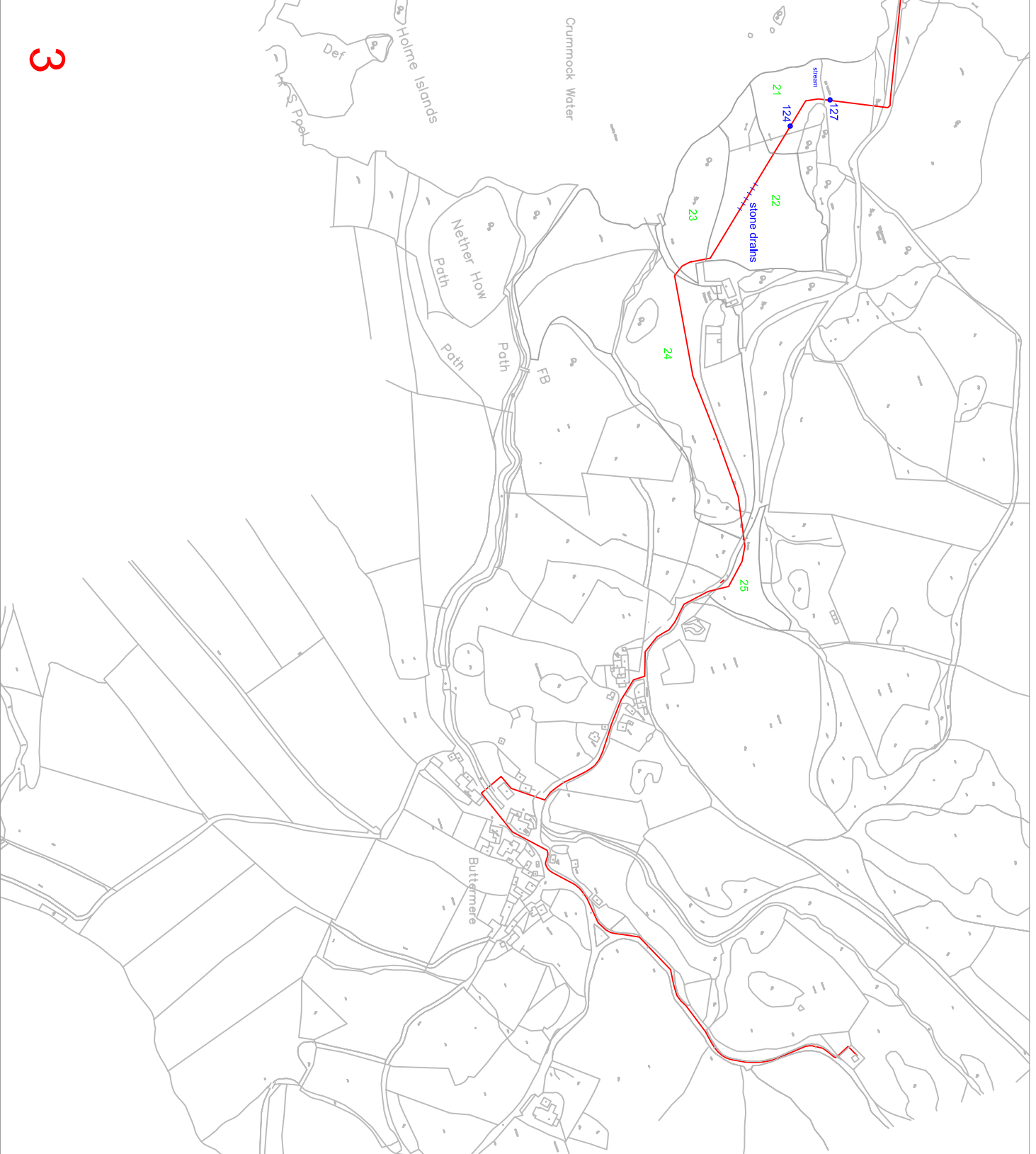
TITLE:

Pipeline Route - 2

COMMISSIONED BY:






Ryan Utility Services



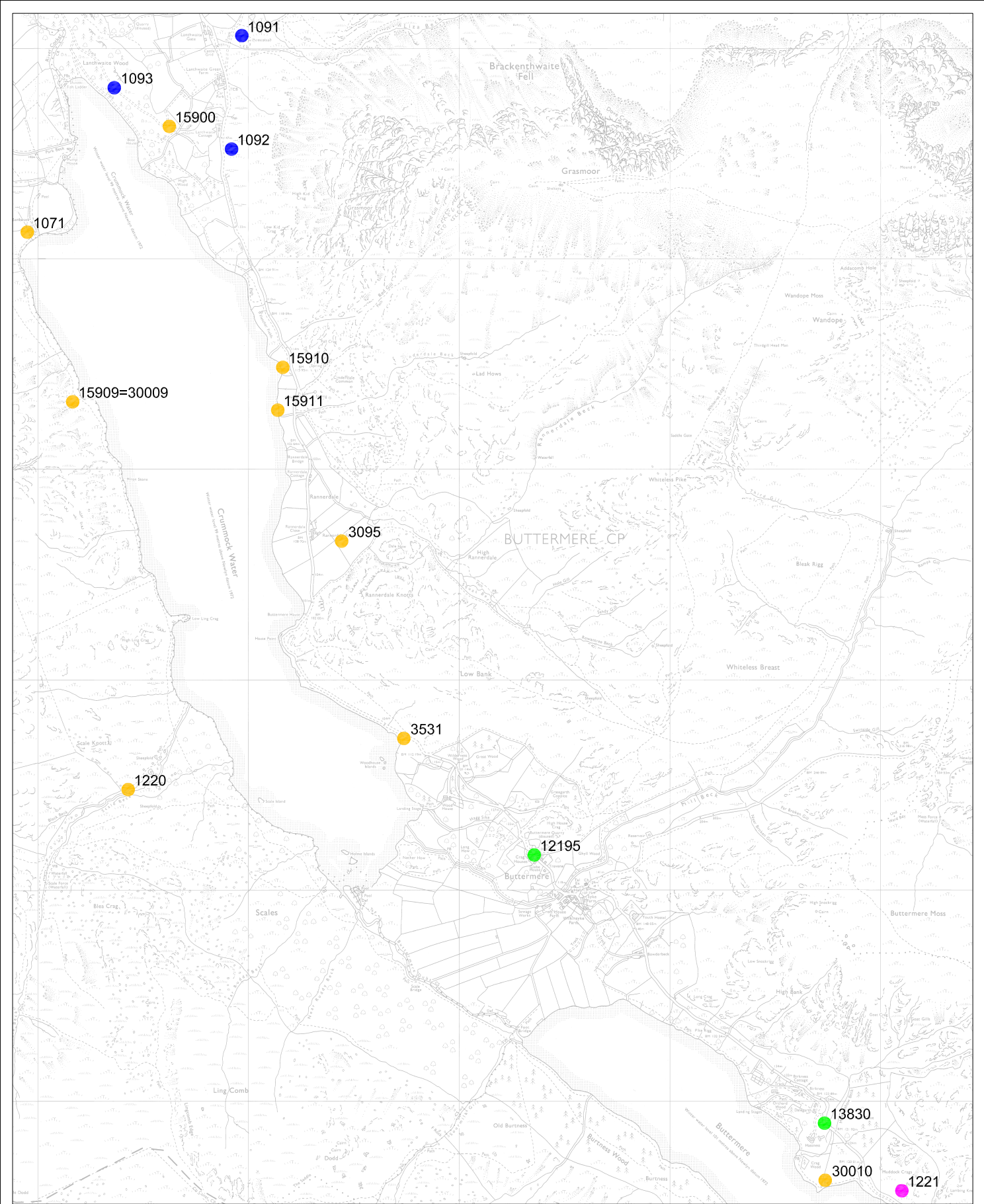


3

Figure 4 : Eastern Part of Pipeline Route

 <p><b>Oxford Archaeology North</b>          Storey Institute          Meeting House Lane          Lancaster          LA1 1TF          Tel 01524 848666          Fax 01524 848606</p>	<p>PROJECT: <b>Buttermere</b></p>	<p>DRAWING No: <b>4</b></p>	<p>Scale <b>1:5000</b></p>  <p>DRAWN BY: <b>ELC</b>          DATE: <b>November 2001</b></p>	<p>LOCATION:</p> 	<p>KEY</p> <ul style="list-style-type: none"> <li> depositor/features</li> <li> field number</li> </ul>	<p>TITLE: <b>Pipeline Route - 3</b></p>	<p>COMMISSIONED BY: <b>Ryan Utility Services</b></p>
--	---------------------------------------	---------------------------------	--	--	---	---	--








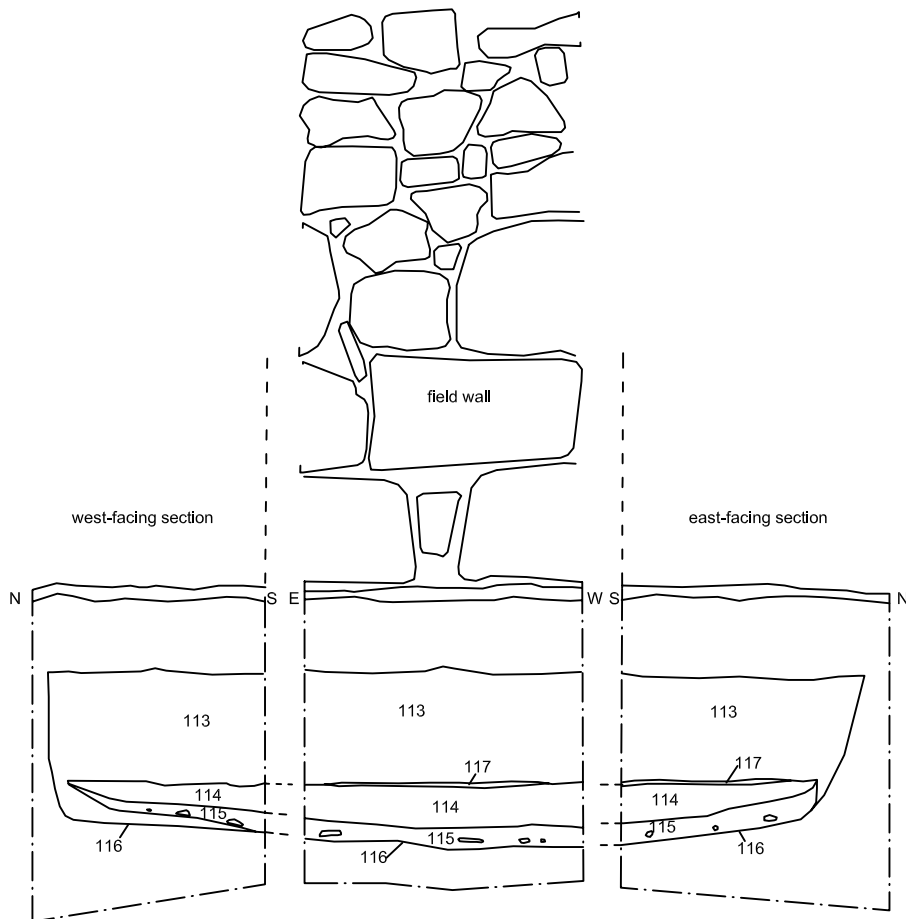

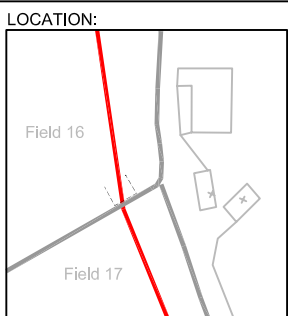
 <p><b>Oxford Archaeology North</b>          Storey Institute          Meeting House Lane          Lancaster          LA1 1TF</p> <p>Tel 01524 848666          Fax 01524 848606</p>	<p><b>PROJECT:</b> Buttermere</p> <p><b>DRAWING No:</b> 5</p> <p><b>SCALE:</b> 1:25000 </p> <p><b>TITLE:</b> SMR Sites</p> <p><b>CLIENT:</b> Ryan Utility Services</p> <p><b>DRAWN BY:</b> ELC</p> <p><b>DATE:</b> November 2001</p>	<p><b>LOCATION:</b></p>  <p>N</p>	<p><b>KEY</b></p> <ul style="list-style-type: none"> <li><span style="color: green;">●</span> Post-medieval</li> <li><span style="color: orange;">●</span> Medieval</li> <li><span style="color: magenta;">●</span> Roman</li> <li><span style="color: blue;">●</span> Prehistoric</li> </ul>
---	---	---	---

Figure 5 : SMR Sites



**Oxford Archaeology North**  
 Storey Institute  
 Meeting House Lane  
 Lancaster  
 LA1 1TF  
 Tel 01524 848666  
 Fax 01524 848606

PROJECT: Buttermere  
 DRAWING No: 6  
 SCALE: 1:20   
 TITLE: Section through Feature 116  
 CLIENT: Ryan Utility Services  
 DRAWN BY: ELC  
 DATE: November 2001



KEY

Figure 6 : Section through Feature 116

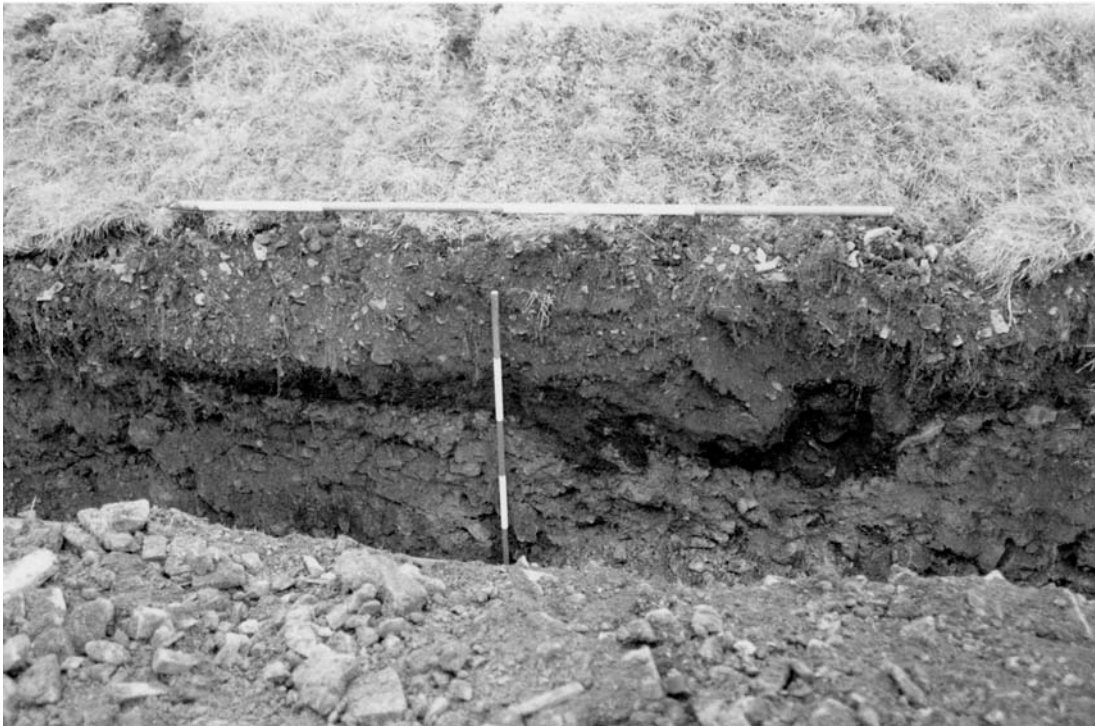


Plate 1: Industrial Feature *103*



Plate 2: Wall *110*



Plate 3: Feature *125*



Plate 4: View of Field 14