



BANGARTH AND BLEA TARN IRON MINES, ESKDALE,

CUMBRIA

Archaeological Survey Report



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SUMMARY

Oxford Archaeology North (OA North) was invited by the National Trust to undertake a detailed topographic survey of two iron mines at Bangarth and Blea Tarn, Eskdale, Lake District (NY 1538 0081 and NY 1676 0061: approximate centre). The work was undertaken in accordance with a project design by OA North in response to a written brief by the National Trust. The survey was undertaken between the 5th and 9th March 2012 and 11th November 2012.

The work programme was divided into three elements: desk-based research; detailed field survey; and reporting, and examined areas of open common surrounding each mine, that is in the ownership of the National Trust.

The Eskdale mines comprise seven mines, or mine groupings, that were worked during the late nineteenth century and include Blea Tarn and Bangarth mines. A lease on the areas covering Bangarth and Nab Gill mines was taken by S and J Lindow in September 1845 and they initially focused on establishing levels at Nab Gill. Prior to 1854, however, they had putatively focused their workforce on 'opencast' extraction at Bangarth, which did not prove to be particularly successful and in c 1856 they withdrew from these operations. A subsequent attempt to mine Bangarth was made by Joseph Fearon in 1860, which was abandoned in the late 1860s.

The area between Nab Gill and Bangarth was leased by Faithful Cookson in the 1860s, who sub-let it to Whitehaven Iron Mines Ltd in 1871. This company established an additional level below the earlier Bangarth workings, and worked on four levels at the site, and began work at Blea Tarn mine, where they established seven. However, the vein narrowed as the works penetrated into the hillside and the company abandoned Bangarth in 1874 and the main focus of work was then directed onto the Nab Gill mine, which became the most successful of the operations in the area (Kelly 1994, 115).

The present survey has identified a complex archaeological resource at both Bangarth and Blea Tarn ironstone mines. Both mines are predated by elements associated with zigzagging trackways giving access onto the common for both stock grazing and peat cutting. Sites found adjacent to these trackways include small stone quarries, peat huts, sheepfolds and shelters. The area of Bangarth mine contains extensive evidence for cairnfields/field-systems of both earth and stone construction and stone-walled boundaries. Their considerable complexity, with areas of large consumption banks, interspersed with clearance cairns and probable later narrow ridge and furrow cultivation, point to multi-period use comprising at least small-scale cultivation and occupation on the now open common. There is evidence of two putative medieval shielings and a probably later demolished farmstead, as well as a platformed stock enclosure.

The simplest distribution of mining features is that at Blea Tarn mine, which reflects that there was a single phase of development from 1871 which proved unsuccessful in finding extensive ore deposits. Elements of mine adits, trials and open cutting were evident on at least five levels, including a large drainage adit at the base of the mine.

The mining features at Bangarth mine are more complex reflecting initial stoped working of a sizeable lode at the mine from the mid-1840s through sporadic activity to the late 1860s and renewed exploration from 1871. Evidently, the extent of viable ore was such that it was

deemed profitable to revisit the mine for further exploitation and, unlike at Blea Tarn mine, as is evident by the extensive spoil heaps and an inclined plane constructed for transport to the Ravenglass and Eskdale railway. On the upper part of the site the putative early stoping at the top of the mine has been worked and reworked as the large opencast pit has directly cut through the earlier workings; a series of truncated adit mouths, trials and spoil heaps indicate the earlier extraction operations.

On the open common the mine was evidently worked on a further two levels where there are extant features associated with two open cuttings: a trial mine and an adit. Immediately downslope, below the modern enclosure wall, is another level of working consisting of a large platformed working floor with three adit mouths (Site **BG34**) and the top of the inclined plane.

ACKNOWLEDGEMENTS

Oxford Archaeology North would like to thank Jamie Lund of the National Trust for commissioning the project.

The desk-based research was undertaken by Alastair Vannan and the topographic survey was undertaken by Peter Schofield and Jamie Quartermaine. The report was written by Peter Schofield, Alastair Vannan and Jamie Quartermaine, and the illustrations were produced by Mark Tidmarsh. The report was edited by Jamie Quartermaine, who also managed the project.

1. INTRODUCTION

1.1 CIRCUMSTANCES OF THE PROJECT

- 1.1.1 Oxford Archaeology North (OA North) was invited by the National Trust to undertake a detailed topographic survey of two iron mines at Bangarth and Blea Tarn, Eskdale, Lake District (Fig 1; NY 1538 0081 and NY 1676 0061: approximate centre). A project design was issued by OA North (*Appendix 1*) in response to a written brief from the National Trust (*Appendix 2*). The survey was commissioned to identify, record, and describe any extant structures and features associated with the iron mines and any surrounding archaeology. The survey was undertaken between the 5th and 9th March 2012.

1.2 OBJECTIVES

- 1.2.1 **Management Aims:** the primary purpose of the survey was to inform future conservation management of the industrial landscape on the landholding. An accurate archaeological survey of both Bangarth and Blea Tarn iron mines was needed to set the complexes within their broader landscape context.

1.3 LOCATION, TOPOGRAPHY AND GEOLOGY

- 1.3.1 The study area occupies part of a ridge of land that lies between the Rivers Mite and Esk in the western fells of the Lake District (centred on NY 15398 00821 and NY 16700 00727). Bangarth and Blea Tarn occupy the steep south-facing slopes of the portion of this ridge that forms the lower western flank of Scafell. These steep slopes lie below upland moors that include Low Longrigg, Eskdale Moor, Brats Moss, Burnmoor, and Miterdale Moss, in the Eskdale Fells. The mining sites at Bangarth lie between approximately 200m and 250m (aOD) and those at Blea Tarn lie between 100m and 200m (aOD).
- 1.3.2 The underlying rock types are the igneous rocks of the Borrowdale Volcanic Series, formed during the late Ordovician period, which represent the most dramatic period of Lake District rock formation. They are the result of the eruption of volcanoes some 450 million years ago and comprise hard lava beds interspersed with bands of tuff. The rock types have all suffered alteration with some of the tuffs becoming tough and flinty and therefore more resistant to weathering (British Geological Survey 1987; Countryside Commission 1998). These rocks host numerous mineral veins, including copper, lead, zinc, and iron (Countryside Commission 1998); deposits of haematite iron ore form a narrow strip on an outcrop of carboniferous limestone that measures approximately 12-13km long and up to 1.5km wide (Postlethwaite 1983, 140). The distribution of the ores within this strip is irregular, however, and there is rarely any indication of its presence at surface level (*ibid*).

2. METHODOLOGY

2.1 INTRODUCTION AND PROJECT DESIGN

- 2.1.1 **Project Design:** a project design submitted by OA North (*Appendix 1*), in response to a project brief by Jamie Lund, National Trust (*Appendix 2*), was used as the basis for this investigation. It was adhered to in full, and the work was consistent with the relevant standards and procedures of the Institute of Field Archaeologists, and generally accepted best practice.
- 2.1.2 The work programme was divided into three elements: desk-based research; detailed field survey; and reporting. The survey area was defined as the area of open common surrounding both iron mines as defined by their National Trust SMR polygons and an area of enclosed land to the south of the main Bangarth mine (Figs 1 and 2; and *Appendix 2*).

2.2 RAPID DESK-BASED RESEARCH

- 2.2.1 **Documentary and cartographic material:** a documentary study was undertaken to provide the basis for an assessment of the nature and significance of the known surface remains. A considerable amount of work has already been undertaken into the archaeology of the study area, and includes that undertaken by RCHME on the Eskdale Iron Mines (RCHM(E) 1995). It was therefore intended, in accordance with the project design and project brief, that the documentary study should concentrate on secondary sources and would draw upon the results of earlier work. The documentary study entailed a search of available photographs, topographic prints, early maps, and published documentary sources. The work involved the retrieval of information from the following repositories: National Trust Sites and Monuments Record (NTSMR), Cumbria County Record Office, Whitehaven, the National Trust property archives and the OA North library.

2.3 DETAILED TOPOGRAPHIC SURVEY OF BANGARTH AND BLEA TARN MINES

- 2.3.1 The survey of archaeological features within the extent of the Bangarth and Blea Tarn mines was primarily undertaken using differential GPS recording techniques. The survey was undertaken as a Level 3-type survey (English Heritage 2007) and involved four elements: Reconnaissance; Survey Mapping; Site Description; and Photography.
- 2.3.2 **Reconnaissance:** the reconnaissance consisted of close field walking, varying from 10m to 20m line intervals dependent on visibility and safety considerations. The survey aimed to identify, locate and record archaeological features on the ground. All sites identified from the NTSMR and historic Ordnance Survey maps were investigated.
- 2.3.3 **Survey Mapping:** a Satellite Global Positioning System (GPS) was utilised to satisfy the Level 3 survey requirements. Archaeological earthworks were recorded using a Leica 1200 differential GPS. The 1200 series GPS obtains corrections from Ordnance Survey GPS base stations, which are transmitted by mobile phone, and as

long as there is a mobile phone signal at the point of survey, can provide real time accuracies of +/- 0.02m.

- 2.3.4 The raw data from the differential GPS was combined within a CAD system, and plots were generated to enable the drawing up of the sites on site. The archaeological detail was drawn up in the field as a dimensioned drawing on the plots with respect to survey markers. On completion of the field survey, the drawings were enhanced within a CAD environment to produce the final drawings.
- 2.3.5 The survey recorded all pertinent archaeological detail, the internal detail of any structures, the changes between different grades of spoil, and any detail pertinent to the operation of the mines.
- 2.3.6 **Site Description:** a descriptive record of each of the individual built elements and monuments that make up each of the wider mining complexes was created. The data was directly input on site into a palm computer and was incorporated into an Access 97 compatible database that was backed up daily onto a portable computer running Access 97. The system has the advantage that it can be input in adverse weather conditions, unlike conventional *pro-forma* sheets, and saves on the subsequent transcription of the data into the database; however, it is slightly slower to create the entry in the field by comparison with a conventional *pro-forma*. The input into the system was guided by a *pro-forma* to ensure uniformity and consistency of input. The Eskdale mines have already been described in outline for the *RCHME* survey monument report (RCHM(E) 1995) and this served as the starting point for the present survey descriptions.
- 2.3.7 **Photography:** in conjunction with the archaeological survey, a photographic archive was generated, which recorded significant features, as well as aspects of the general landscapes and recorded all principal vistas. This photographic archive was maintained using a digital SLR camera with 10 mega pixel resolution, and the photographs were used within the gazetteer in the report (*Section 5*).

2.4 REPORT AND GAZETTEER OF SITES

- 2.4.1 **Reporting:** the present report identifies areas of defined archaeology and an assessment and statement of the actual and potential archaeological significance of the material, within the broader context of regional and national archaeological priorities. It incorporates descriptions of the individual features based upon those compiled for the *RCHME* report on the iron Mines (RCHM(E) 1995).
- 2.4.2 Information concerning the sites of archaeological interest within the study area has been collated into a gazetteer (*Section 5*). The gazetteer output from the Access 97 database is compatible with the National Trust SMR, and was formatted within Word to produce the gazetteer. Site locations are given as ten-figure National Grid References where possible, and the position of each site is indicated on Figures 3-7. the *National Monuments Record Thesauri* (English Heritage 1999) was used as part of the site descriptions.

2.5 ARCHIVE

- 2.5.1 A full archive has been produced to a professional standard in accordance with English Heritage guidelines (1991) and the *Guidelines for the Preparation of*

Excavation Archives for Long Term Storage (UKIC 1990). The project archive represents the collation and indexing of all the data and material gathered during the course of the project. The archive is provided in the English Heritage Centre for Archaeology format, both as a printed document and digitally. The archive will be provided to the National Trust for storage within both their regional and national archives.

3. HISTORICAL AND ARCHAEOLOGICAL BACKGROUND

3.1 BACKGROUND

3.1.1 The following section presents a summary of the historical and archaeological background of the general area. This has been compiled in order to provide a general context within which to understand the results of the landscape survey.

| Period | Date Range |
|-------------------|--------------------|
| Palaeolithic | 30,000 – 10,000 BC |
| Mesolithic | 10,000 – 3,800 BC |
| Neolithic | 4000 – 2,500 BC |
| Bronze Age | 2,500 – 700 BC |
| Iron Age | 700 BC – AD 43 |
| Romano-British | AD 43 – AD 410 |
| Early Medieval | AD 410 – AD 1066 |
| Late Medieval | AD 1066 – AD 1540 |
| Post-medieval | AD 1540 – c1750 |
| Industrial Period | cAD1750 – 1901 |
| Modern | Post-1901 |

Table 1: Summary of British archaeological periods and date ranges

- 3.1.2 **Earlier Prehistoric:** the limited environmental evidence that is presently available suggests that the clearance activity that had been initiated in the Neolithic continued throughout the Bronze Age (Hodgson and Brennand 2006, 31). Pennington (1970, 72-4) constructed a pollen diagram from cores taken through the lake sediments of Burnmoor Tarn, to the north-east of the study area. The vegetational history of Burnmoor is illustrated by this diagram, which shows the elm decline at 4221-3652 cal BC (5100 ± 120 BP; K-957), and a subsequent decline in oak woodland from c 2000 cal BC. At the same time, there was an expansion of grassland, and grassland herbs, and the absence of contemporary cereal or weed pollen indicates the existence of an open pastoral landscape. Pennington suggests that deterioration in the climate, illustrated by a reduction in alder pollen and a corresponding increase in that of Coryloids (probably of *Myrica* (bog myrtle)), brought to an end the Bronze Age occupation of the uplands from about 1200 BC (Pennington 1970, 72; Pearsall and Pennington 1973, 232).
- 3.1.3 Upland marginal settlement in western Cumbria during the Bronze Age is suggested in many areas by the presence of burial mounds and cairnfields (Hodgkinson *et al* 2000, 76; Quartermaine and Leech 2012). Such sites exist in the immediate vicinity of the study area and, in lieu of chronological refinement through the absolute dating of these sites, they should be considered within the sequence of clearance and subsequent climatic deterioration that is suggested by the environmental analyses. This suggests that they are likely to relate to activity between 2000 and 1200 BC.
- 3.1.4 Numerous monuments situated to the north-east of the study area were investigated during the Lake District National Park Survey (LDNPS) and were grouped broadly as Burnmoor. A subsequent survey in the nearby valley of Miterdale, to the north, reinforced the results of the LDNPS work, demonstrating cairnfields and funerary monuments (LUAU 2000). The part of the Burnmoor group of monuments that lies closest to the current study area consists of those at the south-western side of Brat's

Moss, which are within 1km to the north-east. However, the overall group of monuments forms a distinct complex of approximately 600 sites within 16 groupings (Quartermaine and Leech 2012) and can be understood most clearly if considered as a whole.

- 3.1.5 There are indications within some of the site groups of multi-phase activity across an extended period (*ibid*). In the absence of absolute dating, initial analysis suggests that the first phase may have comprised a funerary or ritual landscape, with Brat's Hill stone circle displaying characteristics indicative of early stone circles and several other local circles being typical of later types (*ibid*). The decline in oak forest recorded by Pennington (1970, 72-4) is likely to fall within the period when some of the stone circles in this area were constructed. This phase may have predated, or overlapped with, a second phase, consisting of primary cairnfields, which represent the most basic form of agricultural activity on Burnmoor of randomly distributed cairns resulting from primary clearance (Quartermaine and Leech 2012). The next phase may have been the establishment of proto-field systems, centred on Brat's Hill and Low Longrigg, which display indications of linear organisation and the establishment of plot boundaries (*ibid*). The next phase of development may have been the establishment of developed field systems, with stone banks forming rectilinear field systems and post-dating cairn alignments (*ibid*). The system of stone banks respected, and therefore post-dated, the stone circles found in this area. The imposition of later enclosures was also evident (*ibid*).
- 3.1.6 **Iron Age:** large field systems and agriculturally improved areas have been identified in the uplands of the Lake District (*ibid*). However, a lack of identifiable material culture has made it difficult to date these sites specifically to the Iron Age (Hodgson and Brennand 2006, 52). Along with the apparent absence of Iron Age settlement sites, there was an episode of forest recovery in the Early Iron Age, which is reflected within several upland pollen diagrams (Wells 2003).
- 3.1.7 The declining climatic conditions, coupled with a lack of dateable sites for the Iron Age, has led to the traditional belief that there was a lack of Iron Age settlement in Cumbria due to inhospitable conditions. However, there are numerous un-dated sites across the uplands, which could have Iron Age origins, phases of use continuing from the Bronze Age, or use pre-dating their assigned Romano-British dates. In fact, pollen evidence demonstrates that there was clearance and cereal cultivation in the region during the Late Iron Age (Hodgson and Brennand 2006, 52). Therefore, although the deterioration of the climate during the late Bronze Age and Iron Age is well attested (Wells 2003, 69), the subsequent impact upon levels of occupation may have been overstated (*ibid*). Iron Age settlement activity has been attested by radiocarbon-dated at Glencoyne Park and Balhowend, Matteredale, at heights of 230m and 280m AOD respectively (Hoaren and Loney 2004, 50).
- 3.1.8 **Roman Period:** following the Roman invasion of AD 43, the frontier of the empire remained between Chester and York until the reign of Vespasian (AD 69-79). In AD 71, the Romans defeated the *Brigantes* and, by AD 79, a main road was established north from Chester. In c AD 90, a fort was built at Watercrock, Kendal (Potter 1979) and a road was constructed running to the head of Lake Windermere and through the hills to Ravenglass, running through the Hardknott pass (OA North 2007b). This route passed along the Eskdale valley bottom to the south of the study area. With no evidence of a prehistoric routeway, as a precursor to the Roman road, the road appears to have been specifically constructed in order to link the Roman

fort at Ambleside (Collingwood 1914) with the fortlet at Ravenglass (Potter 1979). It was not until *c* AD 119 that the Hardknott pass appears to have become significant and, at this time, Hardknott fort was constructed (Bidwell *et al* 1999, 69), apparently to defend the vulnerable route inland from the coast (*op cit*, 72).

- 3.1.9 Evidence from the broader region, such as at Barnscar and Brantrake, indicates that rural settlement at this time was dispersed and of a native, non-Romanised character (Quartermaine and Leech 2012). As Romano-British occupation of the area was likely to represent a continuation of late prehistoric settlement and population, it can be difficult to differentiate between settlement sites of apparent later prehistoric date and those that might have continued in use into, or been established during, the Romano-British period. Pennington (1970) recognised a Romano-British clearance episode associated with cereal pollen at Burnmoor Tarn, dated to AD 390±130.
- 3.1.10 **Early Medieval Period:** little is known of the political situation in the Lake District after the withdrawal of Roman rule. It is generally assumed that the British kingdom of Rheged was located on the Solway, and may well have incorporated most or all of the Lake District (Higham 1986). This seems to have been subsumed into the Anglian kingdom of Northumbria by the mid-seventh century, which held sway over the area north of the Ribble and Humber until political anarchy descended in the ninth century, in part linked to the pressure of Viking incursions. Many of the Norse settlers who came into Cumbria during the tenth and eleventh centuries came from settlements in Ireland, the Isle of Man and the Western Isles, which resulted in the west of the region becoming more heavily settled.
- 3.1.11 There is a lack of archaeological information for this period in the Lake District, which, at least in part, is due to a lack of dating evidence for structures. Palaeobotanic evidence from the Lake District suggests that land management in the uplands increased during the ninth-tenth centuries (Quartermaine and Leech 2012). The analysis of pollen deposits from peat bogs indicates major wood clearance episodes in the interior valleys (Oldfield 1969; Pennington 1970) during the second half of the first millennium. For example, pollen from Devoke Water (Pennington 1964; 1965 and 1970) indicates that there was considerable clearance and agricultural activity within the wider region during the Roman and subsequent periods. However, contemporary with the Romano-British pollen evidence for arable agriculture at Burnmoor Tarn, and continuing to the present-day, was an increase in *Calluna* pollen, which is an indication of the formation of acidic humic soils that may have brought the relatively short-lived period of cereal cultivation to an end, perhaps by the seventh century AD (Quartermaine and Leech 2012). Since then, Burnmoor has been an open, infertile moor, with peat sediments continuing to accumulate in the wetter areas (*ibid*). This would not, however, preclude the use of the moorland for pastoral agriculture.
- 3.1.12 Archaeological evidence for early medieval activity in the wider area comes mainly from the coastal strip to the west of the study area. A single Early Christian grave from Ravenglass may indicate settlement of fifth or sixth century date, and the seventh to ninth centuries are represented by a scatter of place names of Anglo Saxon origin (National Trust 2000, 22). The presence of pre-Scandinavian sculptural fragments in churches generally indicates that they had a foundation date pre *c* 900; although the role of these churches, and the extent of their influence on the wider area, is not certain (Winchester 1987, 23-4). In the Copeland deanery, pre-Conquest sculpture is extant at 15 out of 25 medieval parish churches (*ibid*). Some

stone crosses, such as that from Irton, date to the Anglian period, during the eighth and ninth centuries, whilst others, such as those from Waberthwaite and Gosforth, date to the period of Scandinavian settlement during the tenth and eleventh centuries (Bailey 1980).

- 3.1.13 Eskdale lies within the district of Copeland, whose name is possibly derived from the Norse *kaupa-land* meaning 'bought land' (Winchester 1987). This, plus the evidence for Norse settlement in the coastal strip, could imply that an existing Anglian ruler sold the area to an incoming Norse chief. It has been suggested (*op cit*, 38) that the settlement pattern at this time might have consisted of permanent settlements in lowland areas, with shielings enabling the use of the uplands for summer grazing.
- 3.1.14 The sculptural and palynological evidence for Norse influence in the locale is reinforced by place-name evidence. The preponderance of place-names that include the elements 'birk', meaning birch, and 'by', meaning village (Armstrong *et al* 1950, 464-5) in the locale demonstrates widespread Scandinavian influence in the region. Miterdale and Eskdale may also have been subject to Norse influence, although the 'dale' element is of Old English derivation (*op cit*, 389-90; 464). Some of these place-names may, however, be post-Conquest in origin, as by this time such place-name elements had become part of the local dialect (Higham 1986). Place-names can not, therefore, automatically be equated with the settlement of ethnic groups in the absence of accompanying historical or archaeological evidence.
- 3.1.15 The presence of Norse settlement activity in the wider area is, however, further supported by the discovery of a Norse *Thing* mound at Thingmount, on land adjacent to Fell Foot Farm, Little Langdale (Quartermaine and Krupa 1994). The purpose of a *Thing* was as a moot mound for large communities where matters of law and administration could be engaged. The *Thing*, typically served a large community comprising the inhabitants of several Norse estates, and such mounds were typically in the centre of settlement areas and on lines of good communication, so that the dispersed communities could easily come together. The Thingmount is on the line of the principal communication route, of the Hardknott/Wrynose passes leading into Eskdale, through the centre of the Lake District and would have afforded a central meeting place accessible from all parts of the Lake District.
- 3.1.16 **Medieval Period:** the political situation in Cumbria was volatile during the tenth and eleventh centuries, with the emergent kingdom of Strathclyde to the north, and the growing power of England to the south competing for political control (Kirkby 1962). The land came under Norman control in 1092, and large feudal baronies were established (Earle and Plummer 1892).
- 3.1.17 The study area is within the area that was the Barony of Copeland (presumed to be the same area as early medieval Copeland), which was established sometime after 1120 (Todd 1995). A tripartite division of this large feudal barony created the smaller estates of the *Honour of Cockermouth*, the *Barony of Egremont*, and the *Seigniorship of Millom*. The Barony of Egremont, within which the study area is located, was associated with the parish of St Bees, and the lowland areas within it were further divided into smaller parishes, whilst the upland areas of forest tended to be part of the mother parish (Winchester 1987, 26). During the tenth to twelfth centuries more permanent colonisation and settlement of the inland areas developed, perhaps on the sites of former shielings (Winchester 1984).

- 3.1.18 Copeland was a private forest, or free chase (Liddell 1966). This meant that the local lord made restrictions on the use of the forest, for instance hunting was normally the preserve of the lord, and there were restrictions on pannage (allowing access for domestic pigs to feed), tree felling, enclosure, and building. The implications for any residents of the forest, then, would be much the same as for those living within a Royal Forest as, although Forest Law did not apply, the rights of the forest were still tightly restricted, with offences punishable through common law (*ibid*).
- 3.1.19 The exploitation of iron ores has been demonstrated in Cumbria throughout the eleventh to sixteenth centuries (Bowden 2000, 6), and bloomeries within the Lake District National Park have been dated by radiocarbon analysis to between cal AD 1170 and cal AD 1650 (Beta Analytic Inc 2003).
- 3.1.20 **Post-medieval Period:** the Percy Survey of 1578 was ordered by the Earl of Northumberland for the Copeland Forest, which by then comprised both 'Eskdaleward' and 'Middleward' (Kinniside and Nether Wasdale). The boundary between Eskdaleward and Middleward was not specified in the Percy Survey, as both wards were owned by the Earl; however, the boundary had been defined in an earlier survey of 1338 as Overbeck, Wast Water, and the Irt, with the current study area lying within Eskdaleward (Liddell 1966).
- 3.1.21 The Earls of Northumberland retained their lands in Eskdale until 1748, apart from several periods during the fifteenth and sixteenth centuries when it was held by the crown but was subsequently returned. In 1748 the estates passed by descent to the then Duke of Somerset, later the 1st Earl of Egremont, and in 1750 they passed into the Wyndam family, later the Barons' of Leconfield and Egremont, with whom they remained until the twentieth century (National Trust 2000, 23).
- 3.1.22 During the seventeenth and early eighteenth centuries, open land was enclosed on a piecemeal basis, with individual farmers or small groups enclosing formerly open areas (Rollinson 1989, 91). Parliamentary enclosure came later, with enclosure of the most improvable lands in the eighteenth century and parts of the higher fells in the nineteenth century. Some 40,000 acres of waste land in Cumberland were enclosed through agreement between tenants or by Act of Parliament (Whyte 2003). However, large parts of the higher fells, including much of the Eskdale fells, were never enclosed and enclosure awards and plans were not produced for the study area. By 1848, 26,000 acres remained as common land or waste out of a total 30,000 acres present within Eskdale, Wasdale, and Nether Wasdale (Lewis 1848, 181-6). The continued character of the study area as unenclosed moor and fell also means that tithe maps, which are one of the primary sources of mid-nineteenth century mapping, were not produced for this area. During the post-medieval period, Eskdale with Wasdale became a chapelry of the parish of St Bees, within the union of Bootle, and within the Allerdale ward of the western division of Cumberland (*ibid*). The unenclosed moorland continued to be a source of both raw materials and stock grazing and a series of well-defined trackways ascend the steep valley sides from the lowland settlement. The trackways were used as both drove routes and sledways to bring peat down from the common peat grounds. A series of distinctive stone peat huts, used for drying the peat on route to the settlements, were constructed along these tracks (Winchester 1984).

- 3.1.23 *Ironstone Mining*: the Eskdale mines comprise seven mines, or mine groupings, that were worked during the late nineteenth century (Adams 1988, 117). These include Blea Tarn and Bangarth mines, as well as the nearby Nab Gill mine (*ibid*). Although most of the Cumbrian iron mines extracted ore from the limestone strata, haematite in Eskdale occurs within the granite levels and is not as abundant as the deposits in the limestone areas (Postlethwaite 1983, 140; Kelly 1994, 115). Blea Tarn mine was established on a vein called the Blea Tarn Lode, which lies on an approximately north/south alignment (Adams 1988, 119). Bangarth was also established to target a vein running approximately north/south and contained a low quantity of iron ore, which was mixed with crushed rock (*op cit*, 123).
- 3.1.24 A lease on the areas covering Bangarth and Nab Gill mines was taken by S and J Lindow in September 1845 and they initially focused on establishing levels at Nab Gill (Adams 1988, 123). Prior to 1854, however, they had putatively focused their workforce on ‘opencast’ extraction at Bangarth, which did not prove to be particularly successful and in c 1856 they withdrew from these operations (*ibid*; Kelly 1994, 115). A subsequent attempt to mine Bangarth was made by Joseph Fearon in 1860, which was abandoned in the late 1860s (Adams 1988, 123; Plate 1). The 1863 plan alternatively recorded the ‘opencast’ as being an area of collapse where the ground had slumped into ‘Lindow’s old workings’.

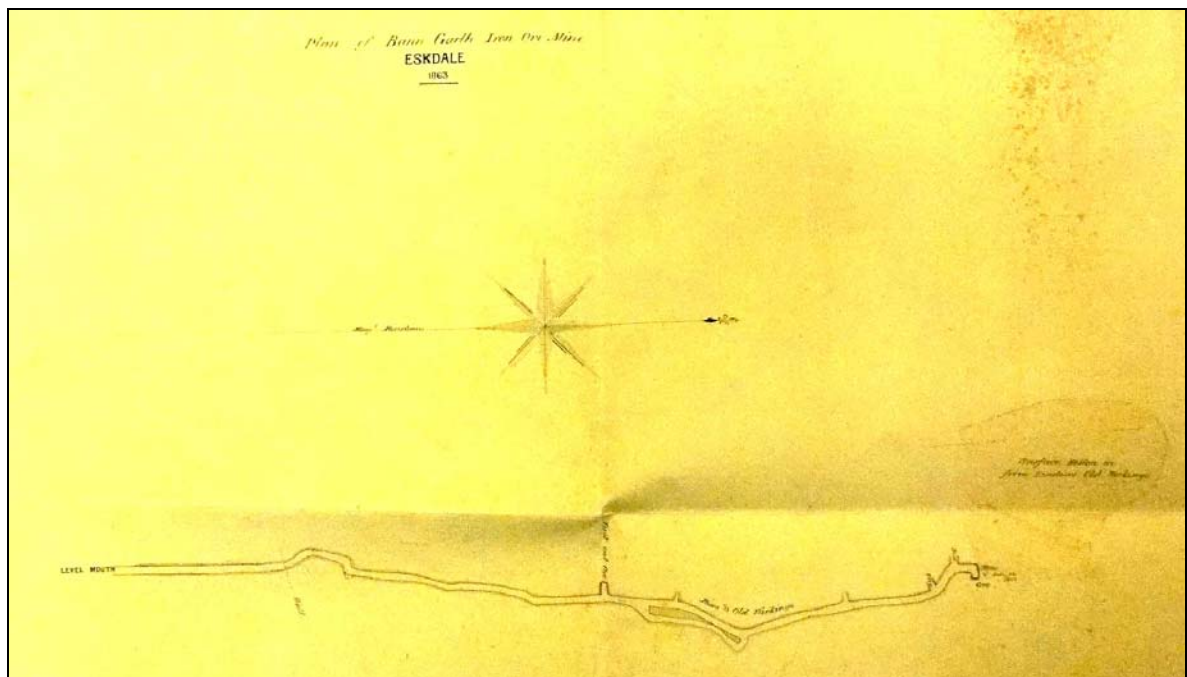


Plate 1: A plan of Bann Garth (sic) Iron Ore Mine by G Dunn of 1863 (CRO (W) YDH/211)

- 3.1.25 The area between Nab Gill and Bangarth was leased by Faithful Cookson in the 1860s, who sub-let it to Whitehaven Iron Mines Ltd in 1871 (*ibid*). This company established an additional level below the earlier Bangarth workings, and worked on four levels at the site, and began work at Blea Tarn mine, where they established seven levels (*ibid*; Kelly 1994, 115; Plates 2-3). However, the vein narrowed as the works penetrated into the hillside and the company abandoned Bangarth in 1874 and the main focus of work was then directed onto the Nab Gill mine, which became the most successful of the operations in the area (Kelly 1994, 115).

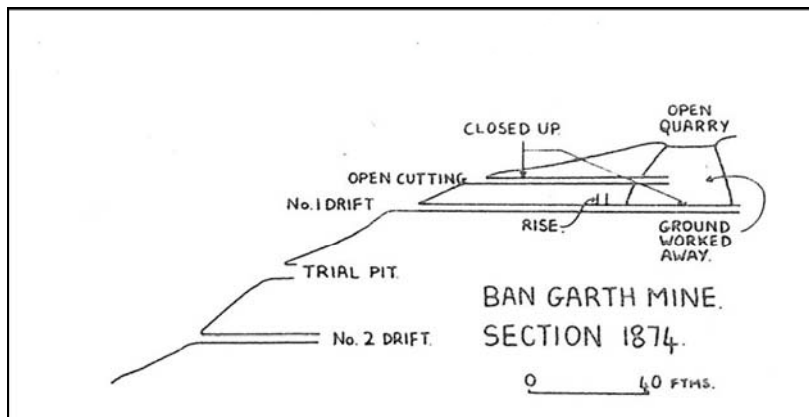


Plate 2: A cross-section showing the Bangarth mine in 1874 (Adams 1988, 117)

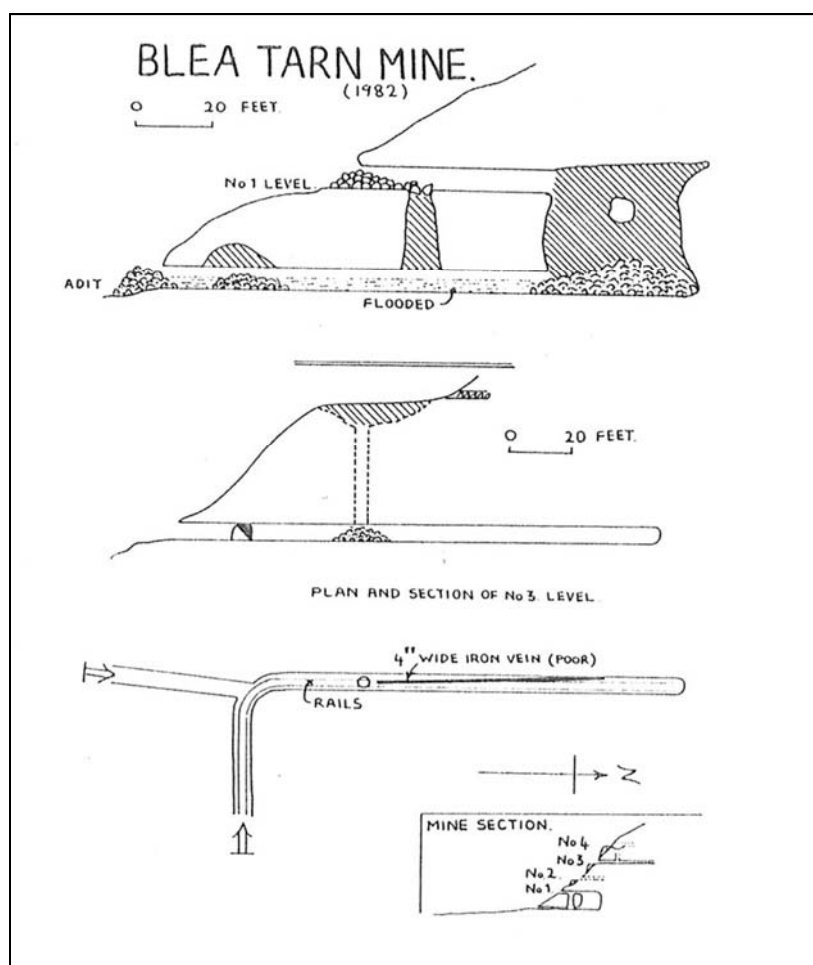


Plate 3: Sections and a plan depicting the Blea Tarn mine in 1982 (Adams 1988, 118)

3.1.26 In 1873, the Ravenglass and Eskdale Railway Act was passed, in response to the high cost of transporting iron ore to Ravenglass by road; the railway was financed by the Whitehaven Iron Mines company and was opened in 1875 (Adams 1988, 123; Plate 4). The decrease in the value of ore contributed to the liquidation of the company in 1881 (*ibid*).

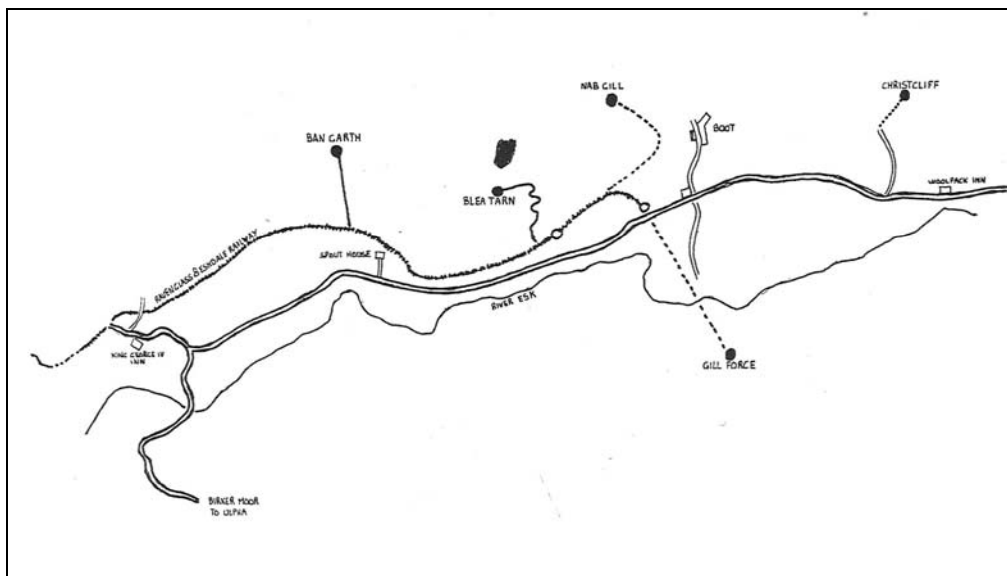


Plate 4: A schematic plan showing the relationships between the mines in northern Eskdale and the Ravenglass and Eskdale railway (Kelly 1994, 169)

3.1.27 The closure of the Eskdale mines directly affected the Eskdale railway and, following the purchase of the mines by businessmen from Liverpool and London in 1884, the manager of the Eskdale railway agreed with the new owners to reopen the Nab Gill mine (Kelly 1994, 116). This endeavour did not last long, however, and the mine was once more abandoned (*ibid*). Sporadic attempts were made to resume mining in this area, including the re-opening of the Nab Gill mine between 1909 and 1912, and a final attempt at Nab Gill in 1917 (Adams 1988, 23-4; Plates 4, 5 and 6).

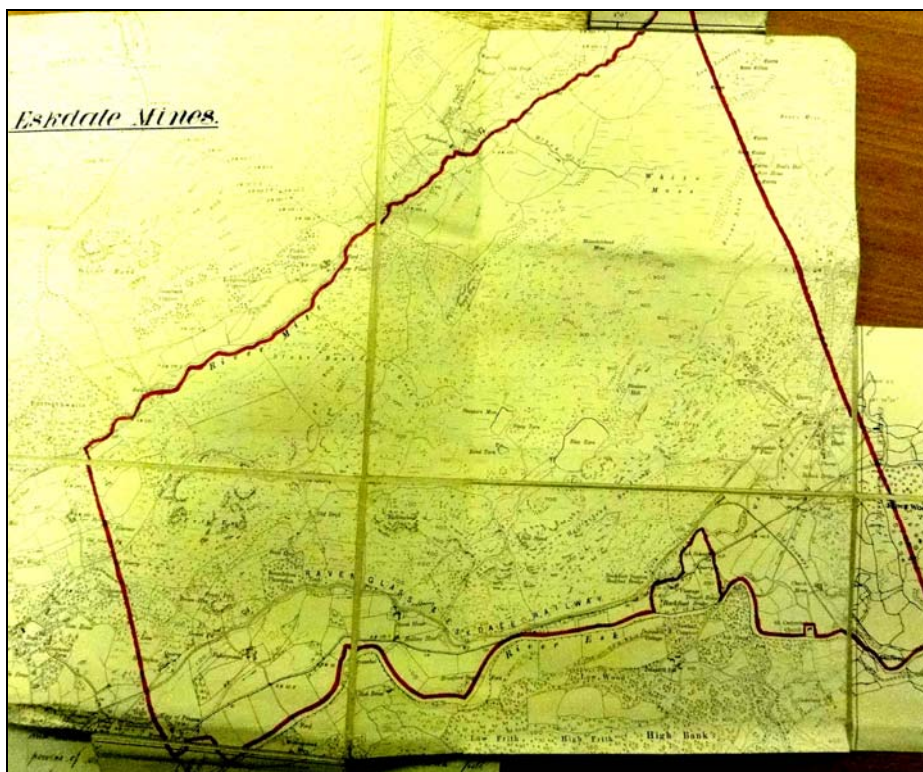


Plate 5: The area covered by the lease to extract iron ore from Eskdale mines in 1909 (CRO(W) D/BT/19/1/5420/89)



Plate 6: The Nab Gill mine as it appeared during the early twentieth century (Bradbury 2007)

3.2 MAP REGRESSION

- 3.2.1 **Bangarth Mine:** the earliest editions of historic Ordnance Survey mapping identified several archaeological features in the survey area, some associated with the Bangarth mine (Plate 7). The First Edition (1867) mapping identified a series of trackways running across the open common (Sites **BG03**, **BG08**, **BG27** and **BG31**), two roofed peat huts (Sites **BG02** and **BG30**) and the only mine feature recorded was the large opencast workings at the summit of the mine (Site **BG10a**). The Second Edition OS mapping (1899) (Plate 8) recorded all features identified in the previous edition of mapping, and the opencast was recorded as an ‘Old Quarry’. In addition, further mine features were recorded, including an ‘Old Drift’ (Site **BG28**), an open cut (Site **BG16**), and the spoil heap of an open cut (Site **BG16**).

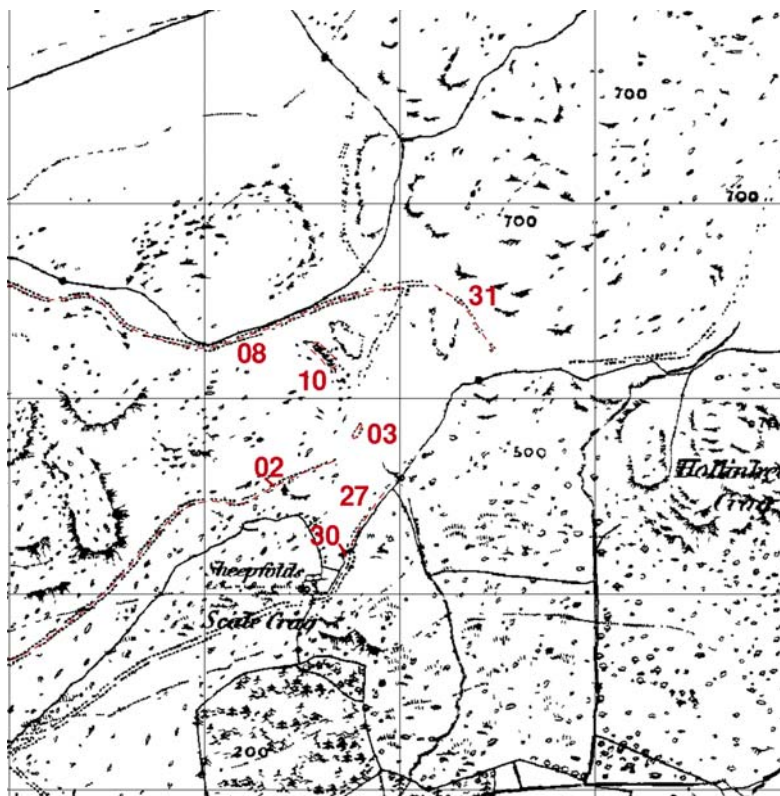


Plate 7: Area of Bangarth mine depicted on OS mapping in 1867



Plate 8: Area of Bangarth mine depicted on OS mapping in 1899

- 3.2.2 **Blea Tarn Mine:** the First Edition Ordnance Survey mapping (1867) predated the construction of Blea Tarn mine (Plate 9). Consequently, it only recorded evidence of the main access trackway to the peat grounds (Site **BT01**), and possibly depicted an associated peat hut as roofed (Site **BT02**). The Second Edition mapping (1899) (Plate 10) recorded the peat hut as an unroofed structure, and recorded the construction of the railway and the Stanley Ghyll Hotel. In addition, the mapping depicted several mine features, including two adits (Sites **BT11** and **BT14**) and three adit spoil heaps (Sites **BT04**, **BT08** and **BT13**).

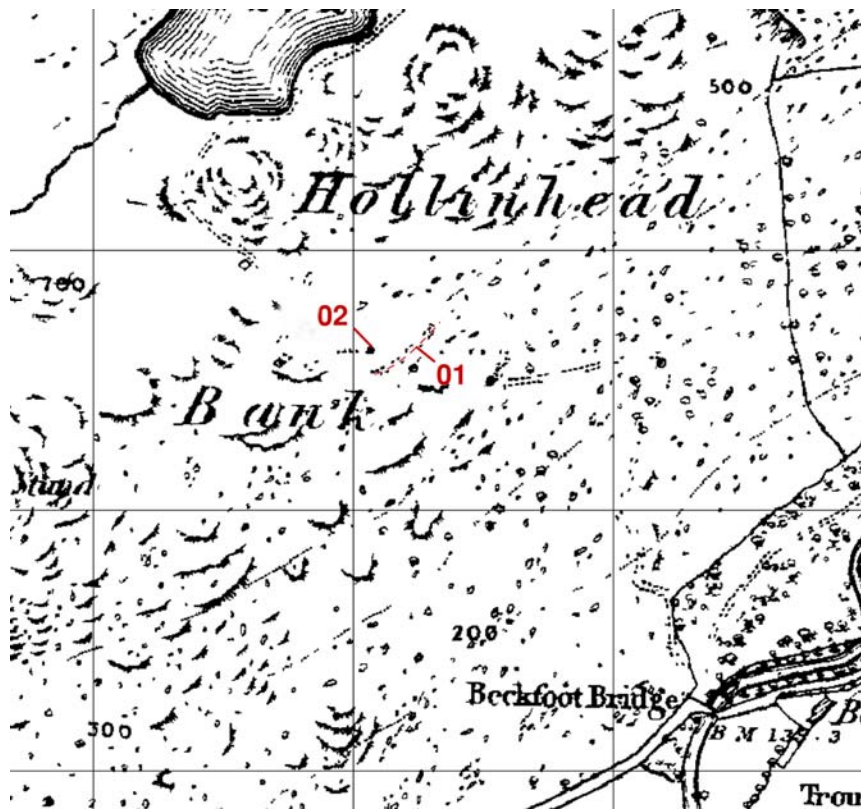


Plate 9: Area of Blea Tarn mine depicted on OS mapping in 1867

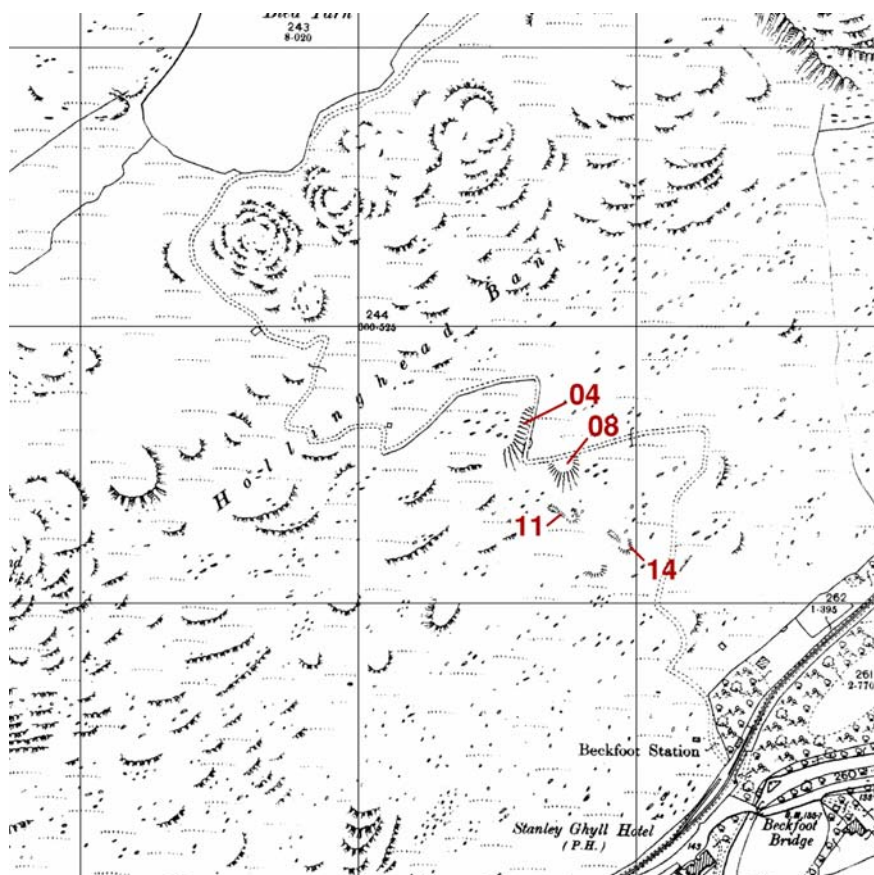


Plate 10: Area of Blea Tarn mine depicted on OS mapping in 1899

3.3 PREVIOUS ARCHAEOLOGICAL INVESTIGATION

- 3.3.1 *Eskdale Peat Storage Hut Survey*: a survey of all of the peat huts located within Eskdale was undertaken in 1982 (Winchester 1984). It identified thirty-five huts scattered on the valley sides, the majority of which were on the open common. They were associated with the well-defined peat sled tracks zigzagging up from the settlements on the valley floor. The huts were simple rectangular, stone-constructed structures that originally were either thatched or had slate roofs. Based on morphological grounds, the earliest huts (Type A) were simple structures built on level ground with a single entrance. The more elaborate, and probably later built examples (Type B) were akin to bank barns, as they were built into the hillside, and often had ramps or platforms leading to an upper doorway and had a lower second doorway. Documentary evidence suggested that some peat huts were constructed in the sixteenth century but the main phase of construction was in the mid-eighteenth century, and the later, more substantial, huts were constructed after this. Three examples of peat huts, identified during the 1982 survey, were revisited during the present survey, two at Bangarth mine (Sites **BG02** and **BG30**), and one at Blea Tarn mine (Site **BT02**).
- 3.3.2 *Eskdale Ironstone Mines Survey*: a field investigation was undertaken by RCAHM(E) during March-October 1995, of all seven ironstone mine sites within Eskdale. These consisted of Nab Gill, Blea Tarn, Mecklin Park, Christcliff, Brant Rake, Gill Force/Gate Crag, and Bangarth mines. Due to unfavourable ground conditions and vegetation on site, only brief descriptions were recorded for six of

the mines. The only site subject to detailed topographic survey and recording (at 1:1000 scale) was the most extensive complex at Nab Gill mine, which is located above Boot village (Plate 6).

4. SURVEY RESULTS

4.1 INTRODUCTION

4.1.1 The present Level-3 Survey has identified and recorded a total of 44 archaeological sites or features at Bangarth mine and a further 26 examples at Blea Tarn mine. (Figs 3-7; *Section 5*). The features identified within each iron mine survey area are described separately followed by a thematic discussion of the archaeological resource.

4.2 BANGARTH MINE (FIGS 3-5)

4.2.1 The iron mining complex at Bangarth is located on the summit and steep south-facing Eskdale valley side (Figs 3-5). The archaeological resource comprises two main elements/phases, the most obvious being the group of nineteenth century mine workings, surviving in the form of adits, trial mines, cuttings and a large opencast pit at the summit of the mine. The workings overlie an extensive earlier landscape consisting of a complex of settlement and agricultural field-system remains, as well as peat huts and sledways ascending from the valley floor at Fisherground.

4.2.2 *Non-mining activity*: the majority of surviving archaeological features that pre-date the iron mining are probably all associated with an extensive field-system. The field-system is located in and around craggy outcrops found on the narrow neck of open common at the upper edge of enclosed lands on the north side of the valley (Fig 3 and 4). Topographically, the land located immediately adjacent to the iron mining excavations comprises a small discrete patch of relatively sheltered, shallowly sloping, ground that conforms to the distribution of a cairnfield (Site **BG13**; Plate 11). The cairnfield, of at least fifteen medium/large-sized clearance cairns, is fringed to both the west and east by large consumption banks (Sites **BG11** and **BG14**) which has absorbed stone removed from the field plot as part of agricultural improvement. There is evidence for post-medieval period narrow ridge and furrow cultivation within the field plot (Sites **BG12** and **BG22**); which may be associated with a poorly preserved building, which, due to its size, was probably late in date (Site **BG15**).

4.2.3 The main area of cairnfield with consumption banks is flanked immediately to the west and east by slightly more elevated and undulating ground, where there are the fragmentary remains of predominantly stone-walled field-systems/plots. To the east of the eastern consumption bank, there are the walled foundations of a sub-divided field plot (Site **BG17a** and **b**). The field wall foundations possibly overly two, probable medieval or early post-medieval period, domestic structures. The southernmost, very fragmentary example is a two-celled sub-rectangular structure (Site **BG 18**). The other site consists of two conjoined structures (Site **BG19**): a rectangular building with central opposing entrances on the long wall sides and a sub-square cell cut slightly into the hillside to the east. Both putative domestic structures are overlain by later wall foundations for smaller sheep shelters. A sunken trackway runs upslope through this area (Site **BG31**).



Plate 11: Field-system containing both consumption banks and clearance cairns (Sites **BG13 a-n** and **14 a-g**)



Plate 12: Field-system overlain by an open cut working (Site **BG16**)

- 4.2.4 To the west of the main cairnfield the ground rises to the summit of a craggy knoll with a slightly sheltered area further beyond. The sheltered area contains the wall foundations of a field-system consisting of a triangular enclosure with three internal plots (Site **BG06b, c and n**). The north end of the enclosure has a small, two-celled, stock pound or platformed area scooped into the hillside (Site **BG07a and b**). There are, in addition, nine small/medium-sized clearance cairns located in the centre of the enclosure (Site **BG06d - I**); it is uncertain if these related to a phase pre-dating the wall-founded field-system. The fragmentary walls of the field-system beyond the enclosure, extend to the south (Sites **BG04 and BG05**); east (Site **BG06o**); north-east (Site **BG06p**), where there is a possible platform (Site **BG09**); and north-west (Site **BG06a**). The latter field wall continued north into an enclosed plantation, but clearly pre-dates the current stone walled field-system. A sunken trackway also runs upslope through this area (Site **BG08**).
- 4.2.5 Several well-defined peat tracks cross the open common (Sites **BG03 and BG27**); these are slightly sunken in places, zigzag upslope and are often retained by drystone walling. The trackways were primarily used for communal access to common grazings and peat grounds, but it has been suggested that the large retaining walls on the trackways (downslope out of the survey area) may indicate the re-use of the trackways for mining purposes. Both of the main trackways are each associated with unroofed remains of a single peat hut (Sites **BG02 and BG30**; Plate 13), and the northern track has a sheepfold lying adjacent to it and near the peat hut (Site **BG01**).



Plate 13: Large earthen loading ramp at the rear of a peat hut (Site **BG02**)

- 4.2.6 **Iron Mining Activity:** the discrete mining activity within the survey area, has two clear phases of development. There is evidence of working on three main levels on the hillside from the initial working of the mine that are post-dated by a large opencast excavation at the top of the workings, which may relate to documentary evidence of re-working of the site in the 1870s. This highest level of working (Fig 3) is dominated by a large kidney-shaped opencast area (Site **BG10a**; Plate 14). The opencast may be partially associated with slumping into galleries cut from lower down in the early iron workings, as there is a shaft evident at the base (Site

BG10b), but the opencast was clearly cut into earlier surface workings on the south side. There are the vestiges of at least two/three adit entrances and a trial mine truncated by the southern edge of the opencast (Site **BG10e/g, d, f** and **h**). There is some development of surface working on this level prior to the opencast, as one of the adits (Site **10e**) is overlain to the north by a revetted spoil heap (Site **10d**; Plate 15).



Plate 14: Large opencast pit at the summit of Bangarth Mine (Site **BG10a**)



Plate 15: The truncated entrance to an adit (Site **BG10e**) overlain by a later revetted spoil bank (Site **10d**)

- 4.2.7 In the middle set of levels is a group just north of the enclosure wall; it consists of a single adit entrance with small upcast bank on the side (Site **BG28**), and a more extensive open cutting cut laterally across the hillside with spoil tumbling downslope along its edge lies adjacent to the adit (Site **BG29**). The slope above the adit contains a small trial level cut diagonally across the hillside (Site **BG20**). The middle level of working consists of a single, long open cutting running perpendicular to the slope (Site **BG16**; Plate 12) with corresponding spoil heap downslope. There is no evidence of an obvious slumped entrance to an adit within the north end of the cutting (that Adams had recorded - Plate 2) and the feature seems too shallow to have allowed the full height of an adit aperture below ground level.
- 4.2.8 Just below the enclosure wall is a further set of levels (Site **BG32**) (Fig 5), which although slightly lower, are nevertheless part of the same middle group of levels. This small complex comprises a series of small adits (Sites **BG 32a, b, c, d** and **f**) at a broadly similar altitude opening out onto a platformed area, from which a large spoil mound (21m x 19m in size) (Site **BG32e**) extends. Linking up the adits are a series of narrow switch back tracks that take the spoil to the main spoil mound, and one of these (Site **BG33**) is a substantial sunken track that leads in part to a further adit (Site **BG 35**), which is to the east of the main group.
- 4.2.9 *Inclined Plane:* extending downslope from the Site **BG32** complex is an inclined plane (Site **BG36**) which took iron ore out from this complex, and also from the workings higher up via tracks **BG27** and **BG34b**, to a mineral railway (the Ravenglass and Eskdale Railway) at the bottom of the valley side (Fig 5; Plate 16). The incline extends up to the level of the Site **BG32** platform, and its south-western side is retained by a large dry-stone wall (Plate 17); however, access was also afforded to it from the broad revetted track **BG34b** at a slightly lower level.
- 4.2.10 Along its length there are sections where the incline is standing proud of the slope of the sloping valley side and others where it is cut into the slope; this accounts for variations in the gradient of the slope and ensures a uniform plane for the movement of waggons. The best surviving section is at the top where it is standing up above the valley slope and has earth retaining walls on either side, and is 5.7m in width (Plate 16). As the gradient of the valley side starts to reduce towards the bottom, the inclined plane becomes indistinguishable and there is no visible connection between it and the mineral railway. To an extent this may reflect that soil build up and vegetation has obscured this section but may also reflect that in this area there was no need for a raised platform and that the rails will have been laid directly onto the ground surface.
- 4.2.11 At a lower level are a series of adits and corresponding spoil heaps, which are grouped on either side of the inclined plane. Adits **BG41a** and **BG41b** were relatively small intrusions into the valley side as evidenced by the limited spoil mounds generated by them, and this contrasted with adits **BG37a** and **BG37b**, on the eastern side of the inclined plane, which generated a very substantial, and very prominent spoil mound (**BG37c**; 22m x 17m in extent); the adit evidently extended a long way into the valley side. What is perhaps most interesting is adit **BG38** which seemingly has cut across the line of the inclined plane; this was potentially a later working when the inclined plane had by this stage gone out of use and was no longer transporting ore from the higher workings.



Plate 16: The upper revetted section of the inclined plane (Site **BG 36**)



Plate 17: The retaining wall supporting the upper section of the inclined plane (Site **BG36**)

4.2.11 Below the lower adits are a group of test pits (**BG 40** and **BG 39**) each comprising a small depression with a relatively limited spoil mound around the forward apron. Given the limited amount of spoil they evidently reflect only a small sub-surface exploration. At the bottom of the slope is a single adit (**BG44**) which is associated with a very narrow, sinuous and undulating track (**BG42**) that extends across the slope, and which could only have accommodated pack animals. The track would have been redundant if the adjacent mineral railway was in place and it is to be presumed that the track and adit are earlier than the railway that was established in 1875 (*Section 3.1.26*).

4.3 BLEA TARN MINE (FIGS 6 AND 7)

4.3.1 The iron mining complex at Blea Tarn is located on a steep south-facing valley side and the archaeological resource comprises two main elements/phases. The most obvious resource is a group of nineteenth century mine workings, surviving in the form of adits, trial mines and open cuttings. The workings overlie an earlier landscape comprising features associated with agriculture and peat extraction that are found beside a long sinuous well-defined peat track ascending the valley side towards Blea Tarn.

4.3.2 *Non-Mining Activity:* the peat track (Site **BT01**) is slightly sunken in places on its lower extents and zigzags along the steeper upper reaches of the valley side where it is often retained by drystone walling (Fig 6). The trackway was primarily used for communal access to common grazings and peat grounds, and the track was also clearly used as access to the various later mine adits. It seems, however, that the retaining of the track was not solely associated with this later phase of use, as it had also been constructed above the mine workings. The upper reaches of the peat track is associated with the remains of two peat huts/scales, although only one of them was within the present survey area (Site **BT02**). Other non-iron mining activity included several discrete areas of stone quarrying, consisting of four small-scale quarry scoops located adjacent to the trackways (Sites **BT15**, **BT16**, **BT19** and **BT21**), as well as the more extensive working of a craggy knoll on the valley bottom (Site **BT25**). Unsurprisingly, there are very few other non-mining features located on the valley side; there are two sheep shelter walls (Sites **BT03** and **BT07**), as well as a building platform that, due to its small size and lack of other surrounding features, may have functioned as a simple shieling (Site **BT12**).

4.3.3 *Iron Mining Activity:* the documentary evidence that iron mine was a short-lived enterprise is borne out by the relatively simple distribution of mining features at this location on the valley side (Plate 18; Figs 6 and 7). There are adits, or trial excavations, cut into the hillside at six different levels running up the slope, but other than access tracks there are no ancillary features or buildings associated with them. The adits consist of small linear cuttings where the earth has slumped to cover the adit entrances; only two adits have partially open entrances (Sites **BT05** and **BT24**). Initial excavation of the adit has left linear upcast banks on either, or both, sides of the entrance cutting, which was superseded by tipping spoil downslope when the workings were extended underground. These spoil heaps often have flat working floors on top of them adjacent to the adit entrance, and may also have small mounds of worked material on them.



Plate 18: General view upslope of several mine adits and spoil heaps at Blea Tarn mine
(Sites **BT04**, **BT08** and **BT14**)

- 4.3.4 The highest adit (Site **BT04**) has the largest spoilheap, which has been partially retained beneath where it crosses the main access trackway; this related to Adams' 'No 4 Drift'. The next level down contains a pair of adits (Sites **BT05** and **BT08**). The western adit has a small open aperture and no spoil heap, which suggest that it was a drainage or ventilation adit and was depicted as adjoining the other adit underground in 'No 3 Drift' (Plate 3). The roof of the adit is very close to the ground surface and the section of the main access trackway to the north may be particularly unstable. The entrance to the eastern adit was closed by a small blocking wall; a single rail located outside it would suggest that the adit had a tramway running into it. The next level down, possibly 'No. 2 Drift', consisted of a single adit with two separate spoil heaps (Site **BT11**). The adit was accessed by a fragmentary trackway (Site **BT09**), although this may pre-date the mine (along with **BT10**) and could potentially be associated with a putative shieling (Site **BT12**).
- 4.3.5 The next level down ('No. 1 Drift?') consisted of a pair of adits, both of which probably join together underground (Sites **BT13** and **BT14**). At a further level down was a single linear adit (again possibly 'No. 1 Drift') that was stabilised by retaining walls on the edges (Site **BT23**). The adit was accessed by a section of trackway (Site **BT22**). The lowest level lay immediately beneath this adit on the flat valley floor and consisted a long linear open cutting with an open entrance (Site **BT24**; Plate 19); the adit probably functioned as drainage for the entire mine (Plate 3). Judging by the extent of the spoil heaps, the adit evidently ran for some distance into the hillside, or was used, via shafts from above to empty waste material from the galleries created in the upper part of 'No. 1 Drift' (Plate 3). It had a tramway running south that was used to link the adit to a series spoil mounds (Sites **BT24b-e**), and there are two iron rails located on the spoil heaps.



Plate 19: Open drainage adit at the foot of Blea Tarn mine (Site **BT24a**)

- 4.3.6 The mine workings are post-dated by a stone-built covered reservoir, and the fragmentary remains of iron piping crossing the mine area that originally probably fed water down from Blea Tarn (Site **BT17**). The reservoir may have provided water to either the railway or the Stanley Ghyll Hotel.

5. CONCLUSION

5.1 DISCUSSION

- 5.1.1 The present survey has identified a complex archaeological resource at both Bangarth and Blea Tarn ironstone mines. Both mines are pre-dated by elements associated with zigzagging trackways giving access onto the common for both stock and peat cutting. Sites found adjacent to these trackways include small stone quarries, peat huts, sheepfolds and shelters.
- 5.1.2 The area of Bangarth mine contains extensive evidence for cairnfields/field-systems of both earth and stone construction and stone-walled boundaries. Their considerable complexity, with areas of large consumption banks, interspersed with clearance cairns and probable later narrow ridge and furrow cultivation, point to multi-period use of at least small-scale cultivation and occupation on the now open common. There is evidence of two putative medieval shielings and a probably later demolished farmstead, as well as a platformed stock enclosure. A further possible shieling site was found in the Blea Tarn survey area.
- 5.1.3 The simplest distribution of archaeological features is that at Blea Tarn mine, and reflects that there was here a single phase of development from 1871 which proved unsuccessful in finding extensive ore deposits. Elements of mine adits, trials and open cutting were evident on at least five levels, including a large drainage adit at the base of the mine. The mine was post-dated by a covered reservoir.
- 5.1.4 The mining features at Bangarth mine are more complex in nature reflecting initial stoped working of a sizeable lode at the mine from the mid-1840s through sporadic activity to the late 1860s and renewed exploration from 1871. Evidently, the extent of viable ore was such that it was deemed profitable to revisit the mine for further exploitation and, unlike those of Blea Tarn mine, the spoil heaps are quite extensive and a single inclined plane (Site **BG36**) was constructed to the valley floor). Probably only the upper third of the extant mine remains lay on the open common (within the National Trust landholding) and here, the putative early stoping at the top of the mine has been worked and reworked as the large opencast pit had directly cut through the earlier workings; a series of truncated adit mouths, trials and spoil heaps indicate the earlier extraction operations. On the open common the mine was evidently worked on a further two levels where there are extant features associated with two open cuttings: a trial mine and an adit. Immediately downslope, below the modern enclosure wall, is another level of working consisting of a large platformed working floor with three adit mouths (Site **BG34**), and the top of the inclined plane running north/south to the valley bottom where it connects to the Ravenglass and Eskdale Railway.
- 5.1.5 Adjacent to the inclined plane are further working levels (Sites **BG37** and **BG41**) which comprise fairly intensively worked adits to judge by the size of the spoil mound (**BG37c**). What is, though, particularly interesting is the slightly higher Site **BG38** adit which seemingly cuts the inclined plane and suggests that it post-dated the abandonment of the inclined plane. There is, however, the alternative possibility that it was cut horizontally underneath the inclined plane and that it subsequently collapsed.

5.1.6 The cross section through the mines from 1874 (Adams 1988, 17) is evidently schematic but by extrapolating distances out from Site **BG10**, which clearly corresponds to the open quarry shown on the 1874 section, it is possible to provide a correlation between these documented levels and the adits identified by the survey. The open cutting on the section probably correlates to the open adit **BG16**; the No. 1 Drift on the section would appear to match up with adit **BG28**. Given that there is a close proximity between the **BG32** and **BG28** adits, there is some uncertainty as to which is No 1 Drift, but the location and scale makes Site **BG28** the more probable candidate; the implication is, therefore, that **BG32** was later than 1874. The trial pit on the section coincides in location with the **BG38** adit, and if so would suggest that it did not post-date the abandonment of the inclined plane. Finally the No 2 Drift on the section matches with the **BG37b** adit. The test pits **BG39** and **BG40** along with the small adit (**BG 41**) at the bottom of the slope do not appear to be shown on the section.

6. BIBLIOGRAPHY

6.1 PRIMARY SOURCES

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APPENDIX 1: PROJECT DESIGN

1. INTRODUCTION

1.1 The National Trust have invited Oxford Archaeology North (OA North) to tender for an archaeological survey of the Bangarth and Blea Tarn, Eskdale. The proposed programme is intended to provide for the conservation management of the landscape and archaeological resource.

1.2 ESKDALE IRON MINES

1.2.1 The Eskdale Iron Mines, including Bangarth and Blea Tarn, were worked from the middle of the nineteenth century, and comprised adits extending into the moderate slope to gain access to the veins of haematite, and linked into corresponding spoil heaps (Bowden 2000, 17). Inclined plains were constructed to move the ore down to the level of the Ravenglass to Eskdale mineral railway which latterly was used to transport the ore to the main line on the coast (the railway was constructed in 1875). The earliest of these mines was Bangarth and Nab Gill which was leased to S and J Lindow, and Bangarth was succeeded by a J Fearon who worked the mine until the 1860s. In 1871 the Whitehaven Iron Mines Ltd started the Blea Tarn mine. The company concentrated its efforts on the Nab Gill mine and continued until 1883, when it went into liquidation (*ibid*).

1.3 OXFORD ARCHAEOLOGY NORTH

1.3.1 OA North has considerable experience of the evaluation, survey and excavation of sites of all periods, having undertaken a great number of small and large scale projects during the past 17 years. One of its particular specialisms is in the sphere of landscape recording and assessment. OA North has the professional expertise and resource to undertake the project detailed below to a high level of quality and efficiency. OA North and all its members of staff operate subject to the Institute of Field Archaeologists (IFA) Code of Conduct.

1.3.2 OA North has undertaken a large number of upland landscape surveys for a variety of clients (both private and national agencies such as English Heritage and Royal Commission on the Historical Monuments of England (RCHM(E)) and employs a qualified surveyor (James Quartermaine, BA, DipSurv, MIFA) who has many years experience of the identification and survey of upland landscapes, having worked closely with the RCHM(E) and the Lake District National Park Authority on a number of projects.

1.3.3 Since 1982 OA North has been undertaking extensive upland landscape surveys throughout Northern England but mainly in the Lake District. Surveys include the Lake District National Park Survey, the Torver Common surveys (Lake District), Haweswater and Thirlmere estate surveys (Lake District), Lyme Park (Peak District), most of the Forest of Bowland AONB, Lancashire, and a multitude of smaller landscape projects which include the Otterburn Range surveys in the Lake District National Park. OA North has undertaken archaeological field surveys of over 610sqkm of upland landscapes and has recorded over 21,000 field monuments. On the Arnside/Silverdale project, in 1992, OA North was the first archaeological organisation in Britain to use GPS (Global Positioning System) survey techniques and since then has considerably advanced its skills in this area. OA North can therefore claim to be one of the foremost specialists in the field of upland landscape recording.

1.3.4 Of relevance to the proposed project OA North has undertaken extensive surveys of industrial landscapes in the Lake District and elsewhere in Northern England. North has considerable experience of the recording of industrial landscapes from both Cumbria and elsewhere in Northern England. Notable examples include the Grassington Lead Mines, the Nenthead lead smelt mill, the Thirlmere lead mines and smelt mill (LUAU 1998), the Greenside lead mines and smelt mill, the Coniston Copper Mines, The Snailbeach lead mines (Shropshire) and smelt mill, and the Keele coal mining landscape.

1.4 PROJECT DESIGN

1.4.1 The following project design specification sets out the objectives of the project, provides a methods statement demonstrating how these can be met, defines the resource implications of the methods

statement and links these to a timetable and costings. Details of quality standards and monitoring procedures are also included.

2. OBJECTIVES

- 2.1 The primary purpose of the project is to inform future management decisions with regard to conservation matters relating to the archaeological and historical content of the industrial landscape.
- 2.2 The following programme has been designed to provide an accurate archaeological survey of the Bangarth and Blea Tarn Iron Mines, set within their broader landscape context. It is important that the individual sites are not simply viewed as isolated points on a map, but that the archaeological record reflects their group value and their importance to the historical fabric of landscape character areas within the areas.

3. METHODS STATEMENT

- 3.1 The following work programme is submitted in line with the objectives of the archaeological work summarised above. It is divided into three elements, plan survey, elevation survey, and reporting. The study area incorporates the area of both iron mines and includes the associated inclined planes.

3.2 DOCUMENTARY STUDY

- 3.2.1 **Documentary and cartographic material:** the data generated during the desk-based study will provide the basis for an assessment of the nature and significance of the known surface remains. It will also serve as a guide to the archaeological potential of the holding, and provide a basis from which historical narratives for the study area can be constructed.
- 3.2.2 It is recognised that a considerable amount of work has already been undertaken into the archaeology of the study area, and includes that undertaken by RCHME on the Eskdale Iron Mines (RCHM(E) 1995). It is therefore intended, in accordance with the brief, that the documentary study concentrate on secondary sources and will draw upon the results of earlier work.
- 3.2.3 This work will address the range of potential sources of information, and will include an appraisal of the Lake District Historic Environment Record and the National Trust Sites and Monuments Record, as well as appropriate sections of County histories, early maps, and such primary documentation (tithe and estate plans etc.) as may be available. Particular emphasis will be upon the early cartographic evidence which has the potential to inform the nineteenth land-use of the area, and will be essential to determining the development of the industrial landscape. The work by Keith Blood will be used to identify the existence of any maps.
- 3.2.4 Any photographic material lodged in the Lake District Historic Environment Record (Kendal) or County record Offices (Carlisle and Whitehaven) will also be studied. Published documentary sources will also be examined and assessed. It will examine photographs and place name evidence for the site and its environs.
- 3.2.5 This work will involve visits to the following repositories:
 - Lake District Historic Environment Record
 - Cumbria County Record Office (Carlisle and Whitehaven)
 - Local Studies Library
 - Private Archives
- 3.2.6 **Geology and Topography:** a rapid compilation of geological (both solid and Drift), pedological, topographical, and palaeoenvironmental information will be undertaken, using information available from the Ordnance Survey and ADAS. This will not only set any archaeological features in context but also serves to provide predictive data, that will increase the efficiency of the field investigation.
- 3.2.7 **Aerial Photography:** a survey of the extant air photographic cover will be undertaken. Aerial photographic collections to be consulted will include obliques and verticals held by the National Monuments Record based in Swindon, and photographs held by the County SMR.
- 3.2.8 **Map Processing:** the historic maps will be scanned and will be adjusted with respect to the 1:2500 OS base map by a process of rubber sheeting within CAD.

- 3.2.9 **Archive:** where possible good copies of the plans, maps and illustrative material will be obtained from the sources; they will be illustrated within the final report and held within the project archive. Where possible large format copies of maps and plans will be obtained from the Record Offices.

3.3 DETAILED PLAN SURVEY OF THE BANGARTH AND BLEA TARN MINES

- 3.3.1 The detailed survey will provide for a full record of all built elements within the extent of the Bangarth and Blea Tarn study area. This will be primarily be undertaken by means of GPS survey, although a total station will be used in areas which have inadequate mobile phone coverage (GPS corrections are transmitted by the mobile phone network).
- 3.3.2 **GPS Survey:** a Satellite Global Positioning System (GPS) will be utilised to satisfy the Level 3 survey requirements. GPS uses electronic distance measurement along radio frequencies to satellites to enable a positional fix in latitude and longitude which can be converted mathematically to Ordnance Survey national grid. The GPS is a Leica 1200 differential system and uses Ordnance Survey base stations in conjunction with a roving station to correct the raw data with corrections transmitted by mobile phone. It has already been established that there is good Orange mobile reception at much of both sites and consequently the technique should be effective in recording the remains. The accuracy of the OA North GPS system is capable of $\pm 0.03\text{m}$ and provides for a quick and effective means of recording the detail of the features. It is proposed that this technique be used to record the spoil heaps, earthwork features and topography.
- 3.3.3 **Drawing Up:** the raw data from the total station and the GPS will be combined within a CAD system, and then plots will be generated to enable the drawing up of the sites within the field. The archaeological detail is drawn up in the field as a dimensioned drawing on the plots with respect to survey markers. On completion of the field survey the drawings will be enhanced within the CAD environment to produce the final drawings.
- 3.3.4 The survey will record all pertinent archaeological detail, which will include any exposed wood or metal features, the internal detail of any structures, the changes between different grades of spoil, and any detail pertinent to the operation of the mines.
- 3.3.5 **Photography:** in conjunction with the archaeological survey a photographic archive will be generated, which will record significant features as well as aspects of the general landscapes. It will record all principal vistas. This photographic archive will be maintained using black and white 35mm film and also using a digital camera with 8 mega pixel resolution. The use of a digital camera provides very effective manipulation of photographic images, and these will be used in the report. The use of photography in this way considerably enhances the usability of a database and greatly assists the analysis of the landscape.
- 3.3.6 **Description:** the Eskdale mines have already been described for the *RCHME* survey monument report (RCHME 1995) and this will serve as the starting point for the present survey description. It is proposed to take a copy of the earlier report into the field and enhance the descriptions of the individual features as appropriate. The descriptive entries will be input directly into a Psion palm computer, for subsequent incorporation into the project report.

3.4 PROJECT ARCHIVE AND REPORTING

- 3.4.1 **Archive:** the results of the fieldwork will form the basis of a full archive to professional standards, in accordance with current English Heritage guidelines (*Management of Archaeological Projects, 2nd edition, 1991*). The project archive represents the collation and indexing of all the data and material gathered during the course of the project. This archive will be provided in the English Heritage Centre for Archaeology format, both as a printed document and digitally. Digital survey data will be provided in a suitable format for incorporation into the MapInfo Geographical Information System (GIS). A synopsis (normally the index to the archive and the report) should be placed in the Cumbria Sites and Monuments Record.
- 3.4.2 **Digital Presentation:** the survey data will be digitally transferred into a CAD system (AutoCAD 2004). The drawings can be output at any required scale, although the accuracy of generation assumes that the drawings will not be reproduced at scales of greater than 1:500. A digital copy of the archive will be passed to National Trust on completion of the survey alongside the final report.

- 3.4.3 **Reporting:** the report will identify areas of defined archaeology and an assessment and statement of the actual and potential archaeological significance of the material, within the broader context of regional and national archaeological priorities, will be made. It will incorporate descriptions of the individual features based upon those compiled for the RCHME report on the iron Mines (RCHME 1995) (subject to agreement with English Heritage). The report will make a clear statement of the archaeological potential of the individual sites within the study area.
- 3.4.4 **Content:** the full report will consist of an acknowledgements statement, lists of contents, executive summary, introduction summarising the brief and project design and any agreed departures from them, methodology, historical background (based on the RCHME survey), descriptions of principal features (in accordance with *Management of Archaeological Projects, 2nd edition, 1991*), list of archive contents and bibliography. Illustrative material will include location maps, plans and elevation drawings.
- 3.4.5 **Summary History:** the report will be presented on the basis of the results of the field survey, the RCHME survey. It will examine the factual evidence for the establishment and development of the Eskdale mines, adits and inclined planes.
- 3.4.6 **Output:** three bound and one unbound copies of the full report will be submitted to the National Trust. Each report will be illustrated by a selection of prints and maps.

3.5 CONFIDENTIALITY

- 3.5.1 The report is designed as a document for the specific use of the Client, for the particular purpose as defined in the project brief and 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.

4. OTHER MATTERS

4.1 ACCESS

- 4.1.1 It is assumed that National Trust will obtain access to undertake the survey from land owners and tenants.

4.2 HEALTH AND SAFETY

- 4.2.1 Full regard will, of course, be given to all constraints (services) during the excavation, as well as to all Health and Safety considerations. The OA North Health and Safety Statement conforms to all the provisions of the SCAUM (Standing Conference of Unit Managers) Health and Safety manual, as well as the OA Health and Safety Statement. Risk assessments are undertaken as a matter of course for all projects, and will anticipate the potential hazards arising from the project.

4.3 INSURANCE

- 4.3.1 The insurance in respect of claims for personal injury to or the death of any person under a contract of service with the Unit and arising in the course of such person's employment shall comply with the employers' liability (Compulsory Insurance) Act 1969 and any statutory orders made there under. For all other claims to cover the liability of OA North in respect of personal injury or damage to property by negligence of OA North or any of its employees there applies the insurance cover of £10m for any one occurrence or series of occurrences arising out of one event.

4.4 WORKING HOURS

- 4.4.1 Survey works will be undertaken on the basis of a five day week, within daylight hours only. It is anticipated that because of the use of academic members of staff and volunteers for certain aspects of the project, some works will be conducted during weekends.

5. WORK TIMETABLE

- 5.1 The phases of work will comprise:
- 5.1.1 **Field Survey**

4 days will be required for the field survey

5.1.2 **Archive and Reporting**

20 days would be required to complete this element.

5.1.3 OA North can execute the project within two weeks receipt of written notice.

6. OUTLINE RESOURCES

6.1 STAFFING

6.1.1 The project will be under the management of **Jamie Quartermaine BA DipSurv** (OA North Project Manager) to whom all correspondence should be addressed. He will monitor the progress of the project ensuring adherence to all agreed programmes and timetables. He will also provide technical back-up, advice, and will have editorial control over the compilation of the full report. He has many years experience of surveying upland landscapes, particularly in the Lake District and Yorkshire Dales National Parks. In particular he has considerable experience of recording industrial landscapes, which include the Wythburn Lead Mines and dressing floors, the Greenside Lead Mines and smelt mill, the Snailbeach Lead Mines and dressing floors and the Grassington lead dressing floors.

6.1.2 The field survey will be led by **Peter Schofield BA** who has considerable experience of field survey work, including prehistoric landscapes, and has undertaken considerable survey work throughout Cumbria and was a team leader on the recent major survey of the Northern Welsh Uplands. He undertook the recent surveys for the National Trust at Ennerdale in West Cumbria, and also at St Catherines, Windermere. He has completed a major boundary survey of an MOD training area, Holcombe Moor, in South Lancashire which has enabled us to develop GIS methodologies for analysing the results of the boundary survey.

6.1.3 Advice and consultancy will be provided by **Ian Miller**, who has considerable experience of the recording and excavation of industrial landscapes and was responsible for the analysis and compilation of the report for Greenside smelt mill.

APPENDIX 2: PROJECT BRIEF

Invitation to Tender: Archaeological survey of Bangarth Mine and Blea Tarn Mine, Eskdale 2010

Introduction

The National Trust wishes to commission an archaeological survey of Bangarth Mine and Blea Tarn Mine located in the Eskdale Valley. Bangarth Mine (centered NY15390077) and Blea Tarn Mine (centered NY16750067) form part of a series of iron mines located on the south facing flank of the Eskdale Valley, the largest of which being Nab Gill Mine perched on the valley side above the village of Boot (centered NY17420128).

The approximate extent of the archaeological features at Bangarth Mine and Blea Tarn Mine are shown as shaded areas on the two attached plans. A list of known archaeological features at each site is also provided.

Background

This proposed archaeological survey and assessment work will be managed by the National Trust Archaeologist (as representative of landowner). The survey will be supported by funding from Natural England through an Archaeological Management Plan for the Eskdale Commons which form part of the wider Eskdale Commons Higher Level Scheme Environmental Stewardship scheme.

Project aims

The project aims are essentially twofold. Firstly, it is clear from a recent site visit by archaeological staff from the National Trust and Lake District National Park Authority that an archaeological survey of these two areas of complex archaeology is required to inform and guide their future management. The complex nature of the multi period mining remains on-site, together with the ephemeral nature of some archaeological features, means that a detailed survey undertaken in the right conditions is required.

Secondly, the National Trust and Lake District National Park Authority have been in discussions with Natural England to look at ways of reducing the need for chemical control of bracken on upland archaeological sites in the medium to long term. In this request the surveys of Blea Tarn Mine and Bangarth Mine will aim to capture detailed information required to record and manage these sites in the hope that once in possession of this information repeated applications of a chemical control will not be required. Such an approach might then be applied to other upland archaeological sites in the Lake District.

Description of work to be undertaken

The project will consist of the following components.

Desk based analysis

- Prior to the field survey a thorough examination should be made of all easily available historic map evidence in order to better understand the

development of the mines. This map regression should appear in the final report.

- A through examination of all secondary source material relating to the Eskdale iron mines should be made in order to catalogue the available material and attempt to create a definitive account of the history and development of the mines. This account should focus of Blea Tarn Mine and Bangarth Mine, although it should also aim to establish some context for these sites by providing some insight into the iron industry throughout Eskdale and the wider region.

Field Survey

- The main aim of the proposed project is to undertake a detailed archaeological survey and assessment of Bangarth Mine and Blea Tarn Mine and their environs. All extant archaeological and historic features should be recorded including any ruined buildings, trackways, adits, hushing, shallow shaft workings, spoil heaps etc.
- As part of the survey the details of all existing sites and monuments previously recorded and that appear on the National Trust Sites and Monuments Record and the Lake District National Park Historic Environment Record should be checked. Existing records should be updated or amended where appropriate.
- A complete photographic record of all sites recorded.

Survey Outputs

- Information collected during the survey and assessment should be presented in the form of a fully illustrated report.
- The report should contain an introduction, background information, a methodology, a detailed description and interpretation of the recorded archaeology, and a gazetteer listing all recorded sites and monuments.
- Survey information should be presented in a series of printed digital maps that provide a detailed and accurate representation of the character and extent of the archaeology on-site. The survey information should also be represented showing all gazetteer numbers to enable cross referencing with the gazetteer. If possible the survey information should be represented a third time to clearly show the chronological phasing of the remains on-site.
- The report should include a gazetteer of all recorded sites and monuments should be created and should include various description fields to allow easy transference of information to the NTSMR and LDHER (the mandatory description fields should include site name, site number, NTSMR/ LDHER number, NGR, site type, description, condition, stability, survival, vulnerability, sources).

The contractor will allow for significant consultation with the National Trust/ Lake District National Park Archaeologist over the draft version of the final report.

Survey products

At the conclusion of the survey, the contractor will provide the National Trust with the following products:

- Six bound paper copies of the full report.
- Four complete digital copies of the report on CDs in jewelled cases will also be supplied. The digital report should appear as a complete 'ready to print' volume in Word and PDF formats. All maps and figures should also be saved in an archive folder as J.Pegs to allow ease printing or presentation of these figures in PowerPoint (i.e. not PDFs).
- Copies of the digital survey information should also be supplied in a CAD compatible format as a dwg.file and as a tab.file compatible with MapInfo Version 6.
- A folder containing digital photographs of all recorded archaeological sites should be included. Each photograph should be either saved with the name of the site record number or provided with a photo register that allows easy cross-referencing.

Current site conditions

The survey area is unenclosed and has open public access.

Contract Conditions

The National Trust and Lake District National Park Authority will retain copyright over the information produced during the course of these investigations and all information that appears in the final report. The National Trust fully recognises of the originator's moral right to suitable accreditation in any subsequent publication of the results.

It is National Trust policy to deposit copies of all reports with the relevant regional archives. A copy of the report will also be sent to the NMR in Swindon.

Insurance

The Contractor will take sole responsibility for all Health and Safety requirements arising from this work. The Contractor will also be expected to supply a suitable risk assessment and to provide evidence of adequate public liability insurance prior to the start of work.

Timescales

It is proposed that the archaeological survey will be undertaken after targeted bracken spraying and gorse removal on parts of Blea Tarn Mine and Bangarth Mine. This will enable the survey to be undertaken in optimal conditions.

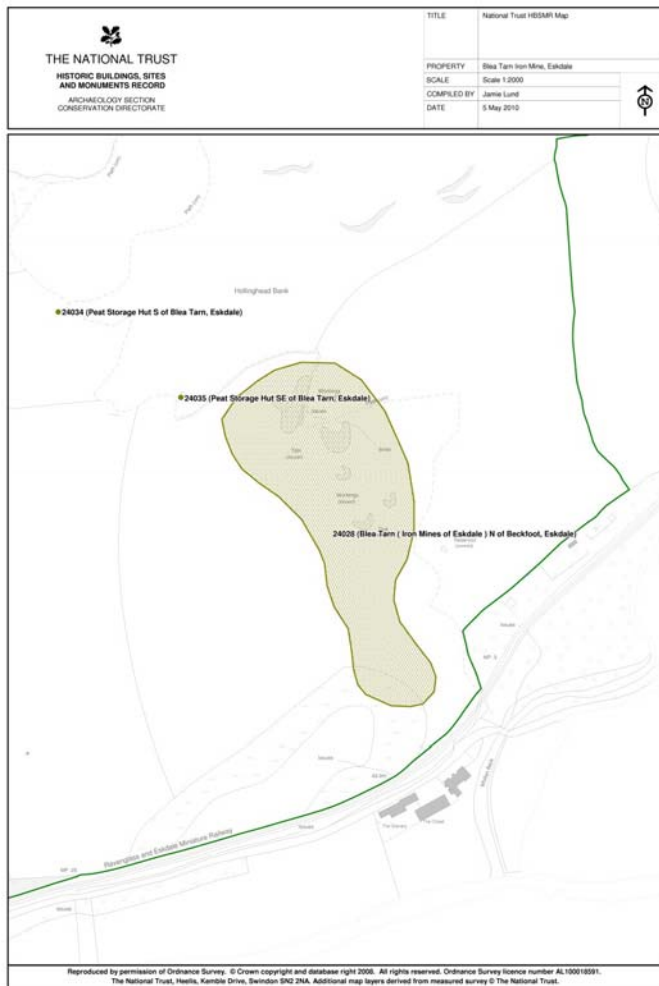
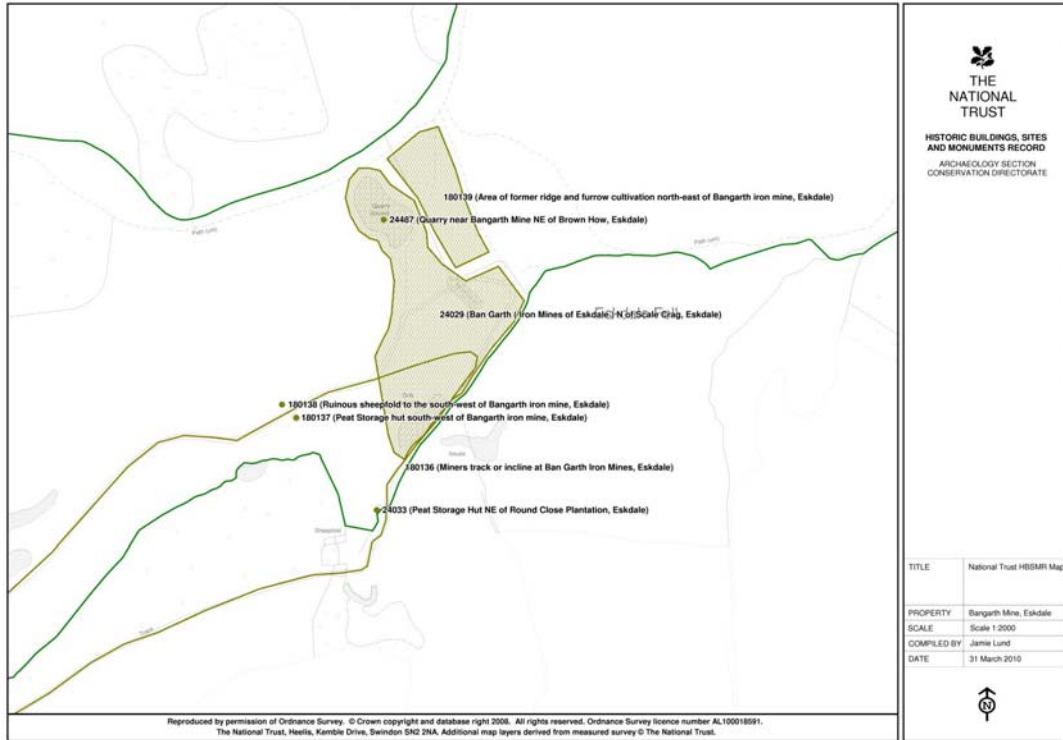
It is hoped that the conservation work described above will be undertaken in 2011 which means that the survey itself is likely to be undertaken in early Spring 2012. Ideally the survey work should be undertaken between February and early April. A draft report should be made available within three months of the completion of fieldwork.

Tenders for the above project (including a breakdown costing) should be returned to the National Trust Archaeologist by the end of May 2010 in order for the project costs to be included in the Archaeological Management Plan for the Eskdale Commons which form part of the wider Eskdale Commons Higher Level Scheme Environmental Stewardship scheme. The final cost of the project should be take into account inflation etc which is likely to occur between now and Spring 2012.

Useful Contacts

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APPENDIX 3 SURVEY GAZETTEER

BANGARTH MINE SITES

| | |
|--------------------|--|
| Site Number | BG01 |
| Site Name | Sheepfold, Bangarth, Eskdale |
| NTSMR | 180138 |
| NGR | NY 15279 00725 |
| Type | Sheep Fold |
| Period | Post-medieval |
| Photo Ref | 4889.jpg – 4891.jpg |
| Surveyor | Peter Schofield, OA North Survey 2012 |
| Description | Foundations of a two/three-celled rectangular sheepfold located adjacent to a peat hut (Site BG02). The structure measures approximately 9.9m long by 8.75m wide and the walls survive up to 0.3m high. There is no obvious sign of an entrance to the fold. |



| | |
|--------------------|--|
| Site Number | BG02 |
| Site Name | Peat Hut, Bangarth, Eskdale |
| NTSMR | 180137 |
| NGR | NY 15294 00714 |
| Type | Peat Store |
| Period | Medieval to Post-medieval |
| Photo Ref | 4892.jpg – 4896.jpg |
| Surveyor | Peter Schofield, OA North Survey 2012 |
| Description | A ruinous single celled rectangular peat storage hut located on top of a prominent craggy area that measures approximately 7.2m long by 6.4m wide and with walls surviving up to 3m high on the front (south-west) gable end. The front gable contains a single doorway with large stone lintel and there is a large earth and stone built ramp built against the north-east gable end at the rear of the structure. The peat hut lies adjacent to a peat sled track that was upgraded to give access to Bangarth Mine (Site BG03). The construction style of the peat hut was identified, by Winchester (1984), as being of the later Type-B form. It was depicted as a roofed structure on both the First and Second Edition OS mapping (1867 and 1899). |



| | |
|--------------------|---|
| Site Number | BG03 |
| Site Name | Trackway, Bangarth, Eskdale |
| NTSMR | 180136 |
| NGR | NY 15208 00698 to NY 15374 00787 |
| Type | Trackway |
| Period | Medieval to Post-medieval |
| Photo Ref | 4829.jpg; and 4888.jpg |
| Surveyor | Peter Schofield, OA North Survey 2012 |
| Description | A sinuous and partially revetted trackway running south-west/north-east through the area at Bangarth. It has been well used as a trackway and is sunken in several places. There is no obvious continuation to the east past the iron mine workings. It undoubtedly formed access to the mine but probably pre-dated the workings and acted as a peat track. It was depicted on the First Edition OS mapping (1867). The trackway was defined as a possible miners track or incline that rises up from the line of the former Eskdale mineral railway in the NTSMR. |



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| Site Number | BG04 |
| Site Name | Boundary Wall, Bangarth, Eskdale |
| NGR | NY 15256 00691 to NY 15231 00727 |
| Type | Boundary Wall |
| Period | Medieval to Post-medieval |
| Photo Ref | N/A |
| Surveyor | Peter Schofield, OA North Survey 2012 |
| Description | A single roughly linear wall foundation measuring approximately 44.8m long by 1.3m wide and located to the west of a peat hut (Site BG02). It is a detached portion of the south end of a larger field system (Site BG06) and would have formed a north/south orientated barrier between two rocky outcrops. The wall is crossed by a trackway/peat track (Site BG03). |

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| Site Number | BG05 |
| Site Name | Boundary Bank, Bangarth, Eskdale |
| NGR | NY 15168 00758 |
| Type | Boundary Bank |
| Period | Medieval to Post-medieval |
| Photo Ref | N/A |
| Surveyor | Peter Schofield, OA North Survey 2012 |
| Description | The fragmentary remains of a linear boundary bank. It is orientated roughly west/east and formed and measures approximately 24m long by 1.7m wide. It is a detached portion of the south-west end of a larger field system (Site BG06) and would have formed a barrier between two rocky outcrops on the edge of a steep west-facing slope. |

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| Site Number | BG06 |
| Site Name | Field-System, Bangarth, Eskdale |
| NGR | NY 15230 00811 |
| Type | Field-System |
| Period | Medieval to Post-medieval |
| Photo Ref | 4870.jpg; and 4875.jpg |
| Surveyor | Peter Schofield, OA North Survey 2012 |
| Description | A complex field-system located on the unenclosed moorland at Bangarth and to the west of the iron mines. The overall area measures approximately 210m by 130m and consists of a series of field plots demarcated by stone wall foundations and earth and stone-constructed boundary banks. The central part of the field-system is on a sheltered plateau on the west side of an elevated craggy knoll. The area contains an acute triangular plot that is sub-divided into four areas (Site BG06b, c, m and n). At the northern tip of the triangle is a platformed structure/fold (Site BG07) and the enclosure contains at least nine small clearance cairns (Sites BG06d-l). The clearance cairns may point to an earlier phase of field-system pre-dating the wall foundations. There are fragmentary field wall foundations running out from the central triangular enclosure on every side, to the south (Sites BG04 and BG05); east (Site BG06o); north-east (Site BG06p), where there is a possible platform (Site BG09); and north-west (Site BG06a). The latter field wall continued north into enclosed plantation, but clearly pre-dates the current stone walled field-system. The field-system is probably related to another section of field-system located to the east of the iron mines (Sites BG11, BG14 and BG17) but any direct relationship has been truncated by iron mining and tree plantation. |



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| Site Number | BG07 |
| Site Name | Stock Enclosure, Bangarth, Eskdale |
| NGR | NY 15217 00820 |
| Type | Stock Enclosure |
| Period | Medieval to Post-medieval |
| Photo Ref | 4876.jpg – 4877.jpg |

Surveyor Peter Schofield, OA North Survey 2012
Description An amorphous two-celled stock enclosure measuring approximately 24m long by 17m wide. The enclosure is contained with a field-system and on the north end of a triangular field plot (Site **BG06**). There is clearly multi-phased use of the structure as there is a sub-rectangular platform cut into the shallow south-facing hillside that has been overlain by stone wall foundations (Site **BG7a**). The southern cell of the structure has an earth and stone-constructed bank partially overlain by a wall foundation (Site **BG7b**).



Site Number **BG08**
Site Name Trackway, Bangarth, Eskdale
NGR NY 15139 00875
Type Trackway
Period Post-medieval
Photo Ref 4878.jpg
Surveyor Peter Schofield, OA North Survey 2012
Description A short slightly curvilinear section of sunken trackway cutting through a field-system (Site **BG06**). It is orientated roughly north-west/south-east and measures approximately 65m long by 6m wide and is up to 1m deep in places. It was depicted on the First Edition OS mapping (1867).



Site Number **BG09**
Site Name Boundary Bank and Platform, Bangarth, Eskdale
NGR NY 15365 00870
Type Boundary Bank
Period Medieval to Post-medieval
Photo Ref N/A

Surveyor Peter Schofield, OA North Survey 2012
Description An earth and stone-constructed boundary bank and attached platform located on the north-east end of a field-system (Site **BG06**). The bank skirts the north side of a craggy knoll, it measures approximately 36.4m long by 3.2m wide and on the eastern end it widens into a shallow platform up to 7.7m wide by 0.3m high. The platform may have been a small domestic/stock structure or the base of a peat drying stand but it's function cannot be clearly defined from the surviving earthworks.

Site Number **BG10**
Site Name Ironstone Pit, Bangarth, Eskdale
NTSMR 24029 and 24487
NGR NY 15357 00868
Type Ironstone Pit
Period Nineteenth Century
Photo Ref 4868.jpg – 4869.jpg; 4872.jpg; 4874.jpg; and 4880.jpg – 4887.jpg
Surveyor Peter Schofield, OA North Survey 2012
Description The uppermost workings of Bangarth iron mine that overall measure approximately 46m long by 41m wide and is up to 5m deep. The site consists of a large kidney-shaped opencast quarry scoop (Site **BG10a**) that has been excavated upwards out from a vertical shaft/stope (Site **BG10b**) which Adams (1988) recorded as descending into a gallery accessed from adits lower down the mine (Plate 2). There is a complex series of features associated with extraction that predate the opencast quarry; however, these have been heavily truncated by the quarry itself. The features include at least one shallow trial mine (Site **BG10h**), and a large upcast spoil heap with no obvious associated adit/trial (Site **BG10c**). There is a revetted spoil bank that would have been associated with an adit/trial (Site **BG10d**), to the side of which is a narrow linear space that may have formed access to an adit (Site **BG10f**). Finally there is a small gap flanked by stone-facing (Site **BG10e**) forming the entrance to a heavily truncated adit which has a corresponding revetted spoil bank located below it (Site **BG10g**). The site was depicted on the First Edition OS mapping (1867) and was recorded as an 'Old Quarry' on the Second Edition OS mapping (1899).



Site Number **BG11**
Site Name Boundary Bank, Bangarth, Eskdale
NGR NY 15360 00896 to NY 15370 00788
Type Boundary Bank
Period Medieval to Post-medieval
Photo Ref 4831.jpg – 4832.jpg; and 4867.jpg
Surveyor Peter Schofield, OA North Survey 2012
Description A long linear stone consumption bank forming the western side of a large field plot located on relatively flat unenclosed land at Bangarth. The bank is constructed of surface-gathered stones forming a bank that would have cleared land for cultivation. It is orientated roughly

north/south and has clearly been truncated by later mining activity (Site **BG10**). The two extant sections of bank measure 41.8m long by 3m wide (Site 11a) and 16.5m long by 5m wide (Site **BG11b**) and survive up to 0.4m high in places.



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| Site Number | BG12 |
| Site Name | Narrow Ridge and Furrow, Bangarth, Eskdale |
| NTSMR | 180139 |
| NGR | NY 15396 00905 |
| Type | Narrow Ridge and Furrow |
| Period | Post-medieval |
| Photo Ref | 4851.jpg – 4852.jpg; and 4858.jpg |
| Surveyor | Peter Schofield, OA North Survey 2012 |
| Description | A discrete area of narrow ridge and furrow cultivation located in a field plot on a relatively flat area of unenclosed land at Bangarth. The cultivation is orientated roughly north-west/south-east, measures approximately 107m by 70m and is 2m wide between ridge crests. It is contained within an area of clearance cairns (Site BG13) but it is uncertain if the cultivation is part of the surrounding field-system. The NTSMR description suggested cultivation on the common associated with occupation during extraction at the iron mine. |



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| Site Number | BG13 |
| Site Name | Cairnfield, Bangarth, Eskdale |
| NTSMR | 24029 |
| NGR | NY 15401 00841 |
| Type | Cairnfield |
| Period | Medieval? |

Photo Ref 4834.jpg; 4840.jpg – 4841.jpg; 4845.jpg; 4847.jpg; 4859.jpg; and 4861.jpg
Surveyor Peter Schofield, OA North Survey 2012
Description A cairnfield consisting of at least fifteen piles of cleared stone located on a relatively flat area of unenclosed land at Bangarth. The overall area of the cairnfield measures approximately 160m by 70m and is defined in an area between two linear north/south orientated consumption banks (Sites **BG11** and **BG14**). The cairns vary in shape from circular to small elongated banks and measure between 3m in diameter up to 11m by 6m in size. There is a main cluster of twelve cairn on the south end of the site and a large outlier to the north (Site **BG13e**).



Site Number **BG14**
Site Name Boundary Bank, Bangarth, Eskdale
NGR NY 15427 00975 to NY 15414 00802
Type Boundary Bank
Period Medieval to Post-medieval
Photo Ref 4848.jpg – 4850.jpg; and 4857.jpg
Surveyor Peter Schofield, OA North Survey 2012
Description A long linear stone consumption bank forming the western side of a large field plot located on relatively flat unenclosed land at Bangarth. The bank is constructed of surface-gathered stones forming a bank that would have cleared land for cultivation. The main bank measures 140m long by 6.6m wide, and survives up to 0.6m high in places. The southern end of the field boundary continues by turning west for up to 50m as a curvilinear earthen platform. The platform has been used for the construction of a probable domestic building (Site **BG15**).



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| Site Number | BG15 |
| Site Name | Building Platform, Bangarth, Eskdale |
| NGR | NY 15424 00809 |
| Type | Building Platform |
| Period | Post-medieval? |
| Photo Ref | 4839.jpg; 4842.jpg – 4844.jpg; 4846.jpg; and 4860.jpg |
| Surveyor | Peter Schofield, OA North Survey 2012 |
| Description | The fragmentary foundation remains of a demolished rectangular structure is located on the south side of a cairnfield on unenclosed land at Bangarth (Site BG13). The original structure had at least two cells and measures approximately 16.7m long by 9m wide. There are traces of wall faces surviving on the foundation course but the majority of the structure is covered in demolition rubble. The building utilised a levelled curvilinear platform as its base (Site BG14d). The building may have been domestic in function, or alternatively could have been a peat hut; its size suggesting a post-medieval period construction date. |



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| Site Number | BG16 |
| Site Name | Open Cut, Bangarth, Eskdale |
| NGR | NY 15398 00818 |
| Type | Open Cut |
| Period | Nineteenth Century |
| Photo Ref | 4830.jpg; 4833.jpg;; 4835.jpg – 4838.jpg; and 4873.jpg; and 4879.jpg |
| Surveyor | Peter Schofield, OA North Survey 2012 |
| Description | A long linear open cut working located to the south and below the main opencast quarry (Site BG10) at the summit of Bangarth Mine. The cutting is orientated roughly north-west/south-east and measures approximately 41.5m long by 7m wide. There is no obvious evidence for an adit mouth at the north-west end and there is a large corresponding spoil heap downslope to the south-east. The site was probably described by Adams (1988) as an open cutting (Plate 2), and it is depicted on the Second Edition OS mapping (1899). |



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| Site Number | BG17 |
| Site Name | Field-System, Bangarth, Eskdale |
| NGR | NY 15458 00898 |
| Type | Field-System |
| Period | Post-medieval |
| Photo Ref | 4871.jpg |
| Surveyor | Peter Schofield, OA North Survey 2012 |
| Description | A section of field-system consisting of boundary wall foundation, located on undulating unenclosed land at Bangarth. The site is attached to the eastern side of a large consumption bank (Site BG14) which seems to predate the walled boundaries, and it forms two separate field plots (Sites BG17a and BG17b). The overall area of the site measures approximately 177m by 80m and the wall foundations survive up to 1.3m wide by 0.4m high in places. The site is crossed by a sunken trackway (Site BG31) and clearly overlies two possible rectilinear domestic structures (Sites BG18 and BG19). The field-system may be contemporary with a similarly constructed complex located to the west (Site BG06) but there is no direct relationship between them. |



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| Site Number | BG18 |
| Site Name | Shieling, Bangarth, Eskdale |
| NGR | NY 15490 00874 |
| Type | Shieling |
| Period | Medieval to Post-medieval |
| Photo Ref | 4854.jpg – 4856.jpg |
| Surveyor | Peter Schofield, OA North Survey 2012 |
| Description | The fragmentary remains of a possible two celled sub-rectangular earth and stoned banked structure located on a flat elevated area of land at the edge of a field-system (Site BG17). The structure measures approximately 17.7m long by 6.9m wide but its surface internal detail is very ephemeral. The site is overlain by fragments of later wall foundations which may relate to either part of a wall associated with the field-system or, alternatively, a badly damaged shelter/fold. The structure is also on the alignment of a sunken trackway (Site BG31) that may have truncated the site. |



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| Site Number | BG19 |
| Site Name | Shieling, Bangarth, Eskdale |
| NGR | NY 15433 00948 |
| Type | Shieling |
| Period | Medieval to Post-medieval |
| Photo Ref | 4862.jpg – 4866.jpg |
| Surveyor | Peter Schofield, OA North Survey 2012 |
| Description | A conjoined pair of single celled rectangular earth and stone banked structures located on the eastern edge of a field-system (Site BG17). The western structure measures 8.8m long by 5.6m wide and has opposing central entrances on the long sides. The eastern structure is sub-square, has been cut into the hillslope on the east side and measures 8.8m by 8.5m. The easternmost structure is overlain by a walled shelter that measures 5m by 4.2m. The shelter has an entrance on the south side. Originally, the structures possibly formed a simple shieling with adjoining stock fold. |



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| Site Number | BG20 |
| Site Name | Trial Level, Bangarth, Eskdale |
| NTSMR | 24029 |
| NGR | NY 15382 00787 |
| Type | Trial Level |
| Period | Nineteenth Century |
| Photo Ref | 4827.jpg – 4828.jpg |
| Surveyor | Peter Schofield, OA North Survey 2012 |
| Description | A shallow linear trial level that is orientated roughly west/east and measures approximately 14.2m long by 6.2m wide. There are slightly upcast spoil banks surrounding the cutting and a larger spoil heap on the eastern side. |



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| Site Number | BG21 |
| Site Name | Trackway, Bangarth, Eskdale |
| NGR | NY 15394 00774 |
| Type | Trackway |
| Period | Post-medieval? |
| Photo Ref | 4825.jpg |
| Surveyor | Peter Schofield, OA North Survey 2012 |
| Description | A short linear section of sunken trackway. It is orientated roughly north-east/south-west and measures approximately 25.5m long by 4.6m wide. It adjoins a further trackway on the south end (Site BG27) and crosses an area of narrow ridge and furrow cultivation (Site BG22). |



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| Site Number | BG22 |
| Site Name | Narrow Ridge and Furrow, Bangarth, Eskdale |
| NGR | NY 15398 00778 |
| Type | Narrow Ridge and Furrow |
| Period | Medieval to Post-medieval |
| Photo Ref | 4826.jpg |
| Surveyor | Peter Schofield, OA North Survey 2012 |
| Description | A small plot of narrow ridge and furrow cultivation. Overall it measures approximately 36m by 25m and is roughly 2.5m wide between north-east/south-west orientated ridge crests.. |



Site Number BG23
Site Name Trackway, Bangarth, Eskdale
NGR NY 15431 00782
Type Trackway
Period Medieval to Post-medieval
Photo Ref N/A
Surveyor Peter Schofield, OA North Survey 2012
Description A short linear section of sunken trackway. It is orientated roughly east-north-east/west-south-west and measures approximately 31m long by 3.8m wide.

Site Number BG24
Site Name Trackway, Bangarth, Eskdale
NGR NY 15370 00748
Type Trackway
Period Medieval to Post-medieval
Photo Ref N/A
Surveyor Peter Schofield, OA North Survey 2012
Description A possible short linear section of sunken trackway. It is orientated roughly west-north-west/east-south-east and measures approximately 16.5m long by 2.2m wide

Site Number BG25
Site Name Quarry, Bangarth, Eskdale
NGR NY 15359 00767
Type Quarry
Period Medieval to Post-medieval
Photo Ref N/A
Surveyor Peter Schofield, OA North Survey 2012
Description A small sub-circular quarry scoop located adjacent to the western side of a revetted trackway (Site BG03). The quarry measures approximately 6.9m long by 6.4m wide and is cut into the steep hillside up to 0.6m deep.

Site Number BG26
Site Name Trackway, Bangarth, Eskdale
NGR NY 15404 00747
Type Trackway
Period Medieval to Post-medieval
Photo Ref N/A
Surveyor Peter Schofield, OA North Survey 2012

Description A short linear section of sunken trackway. It is orientated roughly north-west/ south-east and measures approximately 22.2 long by 3.4m wide.

Site Number **BG27**
Site Name Trackway, Bangarth, Eskdale
NTSMR 180136
NGR NY 15363 00648 to NY 15376 00765
Type Trackway
Period Medieval to Post-medieval
Photo Ref 4816.jpg; and 4824.jpg
Surveyor Peter Schofield, OA North Survey 2012
Description A sinuous trackway running south-west/north-east through the area at Bangarth. It has been well-used as a trackway and is sunken in several places. The trackway turns to the west on the northern end. It undoubtedly formed access to the mine but probably pre-dated the workings and acted as a peat track. It was partially depicted on the First Edition OS mapping (1867). The trackway was defined as a possible miners track or incline that rises up from the line of the former Eskdale mineral railway in the NTSMR.



Site Number **BG28**
Site Name Adit, Bangarth, Eskdale
NTSMR 24029
NGR NY 15401 00736
Type Adit
Period Nineteenth Century
Photo Ref 4818.jpg – 4820.jpg
Surveyor Peter Schofield, OA North Survey 2012
Description A sunken adit entrance and adjoining spoil heap located on the north side of the modern enclosure wall and to the north of an access trackway (Site **BG27**) at Bangarth. The adit is cut into the steep hillslope and measures approximately 17.4m long by 7.4m wide and is up to 3.5m deep. Adams (1988) probably recorded this feature as ‘No. 1 Drift’ and it was depicted on the Second Edition OS mapping (1899) as an ‘old Drift (Hematite)’.



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| Site Number | BG29 |
| Site Name | Open Cut, Bangarth, Eskdale |
| NTSMR | 24029 |
| NGR | NY 15382 00723 |
| Type | Open Cut |
| Period | Nineteenth Century |
| Photo Ref | 4817.jpg; and 4821.jpg – 4823.jpg |
| Surveyor | Peter Schofield, OA North Survey 2012 |
| Description | A linear open cut working or trial located on the steep slope to the west of an adit at Bangarth (Site BG28). The site is clearly a separate feature to the adit. It consists of a linear cutting with a small linear upcast bank on the south side and further spoil spreading downslope to the south. It is orientated roughly north-west/south-east and overall measures approximately 54m by 24m wide. |



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| Site Number | BG30 |
| Site Name | Peat Hut, Bangarth, Eskdale |
| NGR | NY 15354 00646 |
| NTSMR | 24033 |
| Type | Peat Store |
| Period | Medieval to Post-medieval |
| Photo Ref | 4802.jpg – 4803.jpg; and 4810.jpg – 4815.jpg |
| Surveyor | Peter Schofield, OA North Survey 2012 |
| Description | A ruinous single celled rectangular peat storage hut located along the upper enclosure wall adjacent to the open common north-east of Round Close Plantation. It measures approximately 7m long by 4.8m wide and with walls surviving up to 3m high on the side |

walls. There is doorway on the south-east wall elevation with a large stone lintel and a blocked doorway in the south-west gable end. There is a small platform built internally on the eastern corner of the structure and roof slates are built into the modern field wall adjacent to the extant entrance. The peat hut lies adjacent to a peat sled track that was upgraded to give access to Bangarth mine (Site **BG03**). The construction style of the peat hut was identified by Winchester (1984), as being of the later Type-B form; however, the structure seemed to be identical in construction style to a peat hut at Blea Tarn that was identified as being of Type-A form (Site **BT02**; NTSMR 24035). It was depicted as a roofed structure on both the First and Second Edition OS mapping (1867 and 1899).



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| Site Number | BG31 |
| Site Name | Trackway, Bangarth, Eskdale |
| NGR | NY 15428 00916 to NY 15486 00882 |
| Type | Trackway |
| Period | Medieval to Post-medieval |
| Photo Ref | 4853.jpg |
| Surveyor | Peter Schofield, OA North Survey 2012 |
| Description | A short linear section of sunken trackway. It is orientated roughly north-west/south-east and ascends a hill containing parts of a field-system (Site BG17). It was depicted on the First Edition OS mapping (1867). |



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| Site Number | BG32 |
| Site Name | Mine complex, Bangarth, Eskdale |

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| NGR | NY 15423 00708 |
| Type | Adits and spoil mounds |
| Period | Post-medieval |
| Photo Ref | BG32.jpg; BG32a.jpg; BG32b.jpg; BG32c.jpg; BG32e.jpg; BG32f.jpg |
| Surveyor | Jamie Quartermaine, OA North Survey 2012 |
| Description | A large flat platform on a moderate slope supplied by a series of trial pits and adits that are set into the slope. The mine complex is shown on the OS 1899 first edition 1:2500 map but not on the OS 1867 6" map. Extending forward of the platform is a large finger mound of spoil. Adit BG32a is a sub-circular hollow (9.6m x 6.6m), with a large rock at its western entrance. Its entrance opens out onto a flat topped track on top of the platform which feeds towards the principle spoil mound (BG32f). Adit BG32b is a sub-circular hollow with an earth retaining wall at its rear; this feeds into a zig-zag track which initially extends west and then converges onto the spoil heap. Also feeding into the zig-zag track is adit BG32c which also comprises a hollow with a section of dry-stone walling set into its back. There is a circular, flat topped mound (BG32d) above the main platform, which would appear to be a trial pit rather than an adit, and is 6m x 5m in size. Extending down the slope towards the principle platform is a narrow gully (BG32e) which may be a further small adit; it is 7.2m x 2.9m in size. Extending out from the platform is a large finger spoil mound, which is 21m x 19m in size and reflects the dispersal of spoil from the multiple adits. Extending east from the mine complex is a sunken trackway (Site BG33), and a further track (Site BG34) extends west. Extending downslope and to the south from the complex is an inclined plane which took ore to the mineral railway at the bottom of the slope. |



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| Site Number | BG33 |
| Site Name | Sunken Trackway, Bangarth, Eskdale |
| NGR | NY 15439 00710 – 15537 00692 |
| Type | Sunken Trackway |
| Period | Post-medieval |
| Surveyor | Jamie Quartermaine, OA North Survey 2012 |
| Description | A short linear section of sunken trackway. It is orientated roughly east/west and extends east out from the BG32 mine complex (Site BG32). It is a deeply sunken feature set into the slope with a large bank on its southern side. The track forks, with one section extending south-east only to peter out after 61m, while the north-eastern section extends up to and through a small adit (Site BG35). On the eastern side of the adit it has a revetment wall against its southern side and it has the form of a terraced track. It was not depicted on any of the historic maps. |

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| Site Number | BG34 |
| Site Name | Trackway, Bangarth, Eskdale |
| NGR | NY 15402 00700 – 15358 00624 |
| Type | Trackway |
| Period | Post-medieval |
| Photo Ref | bg34b.jpg |
| Surveyor | Jamie Quartermaine, OA North Survey 2012 |
| Description | A zig-zag section of trackway that extends south-west from adit BG32c and then has a switch back to lead up to the start of the inclined plane (BG36). The upper section (BG34a) is very narrow and in places poorly defined, while the lower section (BG34b) is very broad (6.2m wide) and has an earth retaining wall on its southern side. The implication is that this lower section was intended to take traffic not just from adit BG32c , but also the larger and higher mines. |

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| Site Number | BG35 |
| Site Name | Adit, Bangarth, Eskdale |
| NGR | NY 15498 00725 |
| Type | Adit |
| Period | Nineteenth Century |
| Surveyor | Jamie Quartermaine, OA North Survey 2012 |
| Description | A small adit (10.2m x 15.2m in size) to the east of the main mine complex (Site BG32), and which is linked to the main complex by track BG33 . It has a limited cut into the slope and a relatively small spoil mound to the south. Given the limited size of the adit, it may, potentially have been exploratory. |

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| Site Number | BG36 |
| Site Name | Inclined Plane, Bangarth, Eskdale |
| NGR | NY 15408 00702 – 15480 00478 |
| Type | Inclined Plane |
| Period | Nineteenth Century |
| Photo Ref | BG36-1.jpg; BG36-2.jpg; BG36-3.jpg; BG36-4.jpg; BG36-5.jpg; BG36-6.jpg; |
| Surveyor | Jamie Quartermaine, OA North Survey 2012 |
| Description | <p>An inclined plane that linked the BG32 mine complex to the mineral railway at the bottom of the slope (234m long (horizontal measurement)). At the top the incline extends up to the top of the platform of the complex, and its south-western side is retained by a large dry-stone wall. Access was also afforded to it by the broad track BG 34b. Throughout its length it has sections that are either standing proud of the valley side, or are set into the surface so that it has a uniform plane for the movement of waggons. The best surviving section is at the top, immediately beneath the platform, where it is proud of the valley slope and has earth retaining walls on either side, and here is 5.7m wide.</p> <p>Part way down the plane it is cut by an adit (BG38) and below this point is a section where the inclined plane is partly set into the slope, albeit having an earth retaining wall on its eastern side, and here the surface of the plane is typically 3m wide. The line of the inclined plane is ill-defined in the area of adits BG37 and BG41. Towards the bottom the inclined plane is alternately revetted on either the eastern or western sides, but is heavily obscured by vegetation. As the slope of the valley side diminishes towards the bottom the inclined plane becomes indistinguishable and there is no visible connection between it and the mineral railway, partly because of soil and vegetation build up in this area.</p> <p>The inclined plane is not depicted on the OS 1867 or 1999 mapping.</p> |



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| Site Number | BG37 |
| Site Name | Adits and spoil mound, Bangarth, Eskdale |
| NGR | NY 15449 00618, 15450 00605, 15495 00588 |
| Type | Adit; Spoil mound |
| Period | Nineteenth Century |
| Photo Ref | BG37c.jpg; |
| Surveyor | Jamie Quartermaine, OA North Survey 2012 |
| Description | Two adits and a large spoil mound adjacent to the inclined plane (Site BG36). The smaller adit (BG37a) is set above BG37b , and has an opening to the side of BG37b to allow for the movement of spoil around it towards the finer mound (BG37c). It has a deep 2.5m aperture and is 12.5m x 5.5 m in extent; it is now heavily overgrown with thorn bushes. The larger adit opens straight out towards the finger mound, and again is a deeply heavily sunken hollow and is 14m x 9m in extent. The finger mound (BG37c) is large, being 22m x 17m in extent and rises substantially above the valley side; it reflects a considerable amount of extraction from the two adits. It is though now heavily obscured by vegetation. Both adits and the spoil mound are depicted on the OS first edition 1:2500 map (1899) but are not on the 1:10560 map (1867). |



Site Number BG38
Site Name Adit, Bangarth, Eskdale
NGR NY 15430 00635
Type Adit
Period Nineteenth Century
Photo Ref BG38.jpg
Surveyor Jamie Quartermaine, OA North Survey 2012
Description A pair of adits that seemingly cut through the inclined plane (**BG 38**). The smaller adit small adit (8.1m x 3m in size) is set into the hillside and is less than a metre deep; it in turn opens out into the larger, easterly adit (14.2m x 4.8m in size) which cuts the inclined plane and opens out to the south-west. It is about 2.5m deep and there is no corresponding spoil mound, so it is presumed that it fed into the **BG37c** finger mound. The adits were potentially established after the higher mines went out of use and there was no longer a need for the inclined plane to carry ore from them.

Site Number BG39
Site Name Trial pits, Bangarth, Eskdale
NGR NY 15416 00537; 15425 00511
Type Trial pits
Period Post-medieval
Surveyor Jamie Quartermaine, OA North Survey 2012
Description A pair of what appear to be trial pits, rather than adits. They comprise hollows set into the steep sloping hillside, with the spoil spread around the forward, southern edge of the hollow. Pit **BG39a** has an internal hollow that is 8.1m x 4.5m in extent and has a marked forward apron from the spoil. The southernmost pit (**BG 39b**) is smaller and has internal dimensions of 6.4m x 4.3m. Extending east from the pit is a section of terraced track which extends towards the inclined plane, but seemingly peters out before it gets there.

Site Number BG40
Site Name Trial pit and adit, Bangarth, Eskdale
NGR NY 15482 00545; 15486 00532
Type Trial pit and adit
Period Post-medieval
Surveyor Jamie Quartermaine, OA North Survey 2012
Description A trial pit and an adit on the east side of the inclined plane. The probable test pit (**BG40a**) comprises a hollow set into the steep sloping hillside, with the spoil spread around the forward, southern edge of the hollow. It has an internal hollow that is 7.9m x 4.4m in extent and has a marked forward apron from the spoil. The putative adit or possibly a pit is a deep depression, that is up to 2m deep with an opening on the southern, downslope side. There is no sign of any spoil immediately adjacent to it. To the west of both pits is a large mass of deep, impenetrable thorn vegetation, which may simply be an expanse of thick vegetation, but it could also obscure an area of working or even spoil (**BG40c**).

Site Number BG41
Site Name Adits and spoil mound, Bangarth, Eskdale
NGR NY 15433 00580, 15424 00572
Type Adit; Spoil mound
Period Nineteenth Century
Photo Ref BG41.jpg; BG41_2.jpg; BG41_3.jpg
Surveyor Jamie Quartermaine, OA North Survey 2012
Description Two adits and associated spoil mounds adjacent and to the west of the inclined plane (Site **BG36**). The smaller, western adit (4.4m x 3.7m) has an opening to the south and a small spoil mound immediately to the south. The larger eastern adit is 8.1m x 5.1m and has a large spoil mound to the south (19m x 13.1m in extent). There is a level area to the east of the adit that would have allowed the movement of ore up to the inclined plane.

The adits are not depicted on either the 1867 or 1899 OS maps.

| | |
|--------------------|---|
| Site Number | BG42 |
| Site Name | Trackway, Bangarth, Eskdale |
| NGR | NY 15472 00466 – 15390 00463 |
| Type | Trackway |
| Period | Post-medieval |
| Surveyor | Jamie Quartermaine, OA North Survey 2012 |
| Description | A section of track extending east/west away from the line of the inclined plain. It is terraced into the slope, is narrow in places (c1.7m width) and follows an irregular route across the topography. It may have been intended for pack animals rather than wheeled vehicles. The stream passes under it through a culvert and it extends between the adit and spoil heap of Site BG41 suggesting that it was a mining feature. It tapers out short of a boundary wall, to the west, in an area of undulating topography. |

| | |
|--------------------|---|
| Site Number | BG43 |
| Site Name | Culvert, Bangarth, Eskdale |
| NGR | NY 15450 00456 |
| Type | Culvert |
| Period | Nineteenth Century |
| Surveyor | Jamie Quartermaine, OA North Survey 2012 |
| Description | A narrow stream leads down the valley side in a very narrow channel, but then opens out into a wide stone revetted culvert (5.5m wide) just below a trackway (BG42). There is a considerable flow at this juncture and there is potential, if the base of the culvert were blocked, for the build up of water within the culvert. At present the culvert narrows down to a small channel which then extends under the mineral railway. It would appear that this was a small reservoir to provide a head of water for the adjacent mineral railway. Just below the location of this culvert a 'Tank' is shown on the OS 1:2500 map which would have provided water for the steam engines on the mineral railway. The culvert would probably have provided the head of water to fill the tank. At present a modern divert channel, and an adjacent, very small, reservoir supplies with a plastic pipe a modern tank beside the railway, and it is considered that BG43 was undertaking a similar purpose. |

| | |
|--------------------|---|
| Site Number | BG44 |
| Site Name | Adits and spoil mound, Bangarth, Eskdale |
| NGR | NY 15443 00468 |
| Type | Adit; Spoil mound |
| Period | Nineteenth Century |
| Surveyor | Jamie Quartermaine, OA North Survey 2012 |
| Description | An adit and associated spoil mound, and has a trackway (BG42) extending across it and would have linked it the area of the inclined plane (Site BG36). The adit is 8.1m x 4.1m in extent and is 1.8m at the rear; the sizeable spoil mound is 13m x 9.5m and extends up to the edge of the culvert. The adit is not depicted on either the 1867 or 1899 OS maps. |

BLEA TARN MINE SITES

| | |
|--------------------|--|
| Site Number | BT01 |
| Site Name | Peat Track, Blea Tarn, Eskdale |
| NGR | NY 16588 00725 to NY 16864 00489 |
| Type | Trackway |
| Period | Medieval to Post-medieval |
| Photo Ref | 4711.jpg - 4713.jpg; 4720.jpg; 4732.jpg; 4735.jpg; 4738.jpg; 4739.jpg; 4760.jpg; 4762.jpg; and 4767.jpg |
| Surveyor | Peter Schofield, OA North Survey 2012 |
| Description | A sinuous trackway running roughly north/south up the south-facing valley side from the valley floor through the surveyed area to Blea Tarn in the north. It has undoubtedly been well-used as a peat trackway and is alternatively either sunken or revetted in several places, and was re-used for access to the Blea Tarn mines It was depicted on the First Edition OS mapping (1867). |



| | |
|--------------------|--|
| Site Number | BT02 |
| Site Name | Peat Hut, Blea Tarn, Eskdale |
| NTSMR | 24035 |
| NGR | NY 16620 00732 |
| Type | Peat Store |
| Period | Medieval to Post-medieval |
| Photo Ref | 4708.jpg - 4710.jpg |
| Surveyor | Peter Schofield, OA North Survey 2012 |
| Description | A ruinous single celled rectangular peat storage hut that measures approximately 5.8m long by 4.3m wide and with walls surviving up to 0.7m high on the north side wall elevation. There is a small platform built internally on the south-west corner but there are no obvious entrances to the structure. The peat hut lies adjacent to a peat sled track giving access onto the common near Blea Tarn (Site 1). The construction style of the peat hut was identified, by Winchester (1984), as being of the earlier Type-A form. It was depicted as a roofed structure on the First and OS mapping (1867), but was unroofed by the time of the Second Edition OS mapping (1899). |



| | |
|--------------------|---|
| Site Number | BT03 |
| Site Name | Shelter Wall, Blea Tarn, Eskdale |
| NGR | NY 16684 00737 |
| Type | Shelter Wall |
| Period | Post-medieval |
| Photo Ref | N/A |
| Surveyor | Peter Schofield, OA North Survey 2012 |
| Description | Foundations of a small slightly curvilinear sheep shelter wall. It measures approximately 2.9m long by 0.8m wide. |

| | |
|--------------------|---|
| Site Number | BT04 |
| Site Name | Adit, Blea Tarn, Eskdale |
| NTSMR | 24028 |
| NGR | NY 16703 00727 |
| Type | Adit |
| Period | Nineteenth Century |
| Photo Ref | 4711.jpg – 4719.jpg |
| Surveyor | Peter Schofield, OA North Survey 2012 |
| Description | A sunken adit entrance located on the northern (top) end of the Blea Tarn iron mines. The adit is cut into the steep hillslope and measures approximately 17.3m long by 8.4m wide and is up to 4.5m deep (Site BT04a). The initial upcast spoil heap is on the eastern side of the adit (Site BT04c) and a larger spoil heap is located downslope to the south (Site BT04b). There is a small spur of revetted trackway (Site BT04d) running up from the main access track (Site BT01) onto a flat working floor constructed on the top of the large spoil heap at the mouth of the adit (Site BT04b). The foot of the large spoil heap has been retained adjacent to the trackway. Adams (1988) probably recorded this feature as 'No. 4 Drift' and the large spoil heap was depicted on the Second Edition OS mapping (1899). |



| | |
|--------------------|---|
| Site Number | BT05 |
| Site Name | Trial Level, Blea Tarn, Eskdale |
| NTSMR | 24028 |
| NGR | NY 16724 00698 |
| Type | Trial Level |
| Period | Nineteenth Century |
| Photo Ref | 4721.jpg – 4723.jpg |
| Surveyor | Peter Schofield, OA North Survey 2012 |
| Description | A small trial level or drainage adit located directly below the ‘No. 4 Drift’ at Blea Tarn Mine. The cutting measures approximately 4.9m long by 2.6m wide and there is an open stone-lined entrance into the hillside. The site lies adjacent to the south side of the main access trackway (Site BT01). Adams (1988) probably recorded this feature as the western subsidiary entrance into ‘No. 3 Drift’ at the mine (with Site BT08). |



| | |
|--------------------|---|
| Site Number | BT06 |
| Site Name | Trial Level, Blea Tarn, Eskdale |
| NTSMR | 24028 |
| NGR | NY 16733 00692 |
| Type | Trial Level |
| Period | Nineteenth Century |
| Photo Ref | 4724.jpg |
| Surveyor | Peter Schofield, OA North Survey 2012 |
| Description | A small linear trial level cut into the hillside below the supposed ‘No. 4 Drift’ at Bangarth mine. The cutting is orientated roughly west/east, has an upcast spoil bank on the south side, and measures approximately 7.8m long by 5.4m wide. |



| | |
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| Site Number | BT07 |
| Site Name | Sheep Shelter, Blea Tarn, Eskdale |
| NGR | NY 16698 00678 |
| Type | Shelter Wall |
| Period | Post-medieval |
| Photo Ref | 4725.jpg and 4726.jpg |
| Surveyor | Peter Schofield, OA North Survey 2012 |
| Description | A small sheep shelter constructed against a rocky outcrop. The extant structure measures approximately 3.3m long by 2.2m wide and has walls surviving up to 1m high. |



| | |
|--------------------|---|
| Site Number | BT08 |
| Site Name | Adit, Blea Tarn, Eskdale |
| NTSMR | 24028 |
| NGR | NY 16738 00712 |
| Type | Adit |
| Period | Nineteenth Century |
| Photo Ref | 4727.jpg – 4731.jpg; and 4740.jpg |
| Surveyor | Peter Schofield, OA North Survey 2012 |
| Description | A sunken adit entrance located at Blea Tarn iron mine. The adit is cut into the steep hillslope and measures approximately 14.7m long by 8m wide and is up to 2.5m deep (Site BT08a). The initial upcast spoil heap is on the north side of the adit and a larger spoil heap is located |

downslope to the south across the other side of the main access trackway (Site **BT01**). A flat working floor has been constructed on top of the larger spoil heap at the mouth of the adit (Site **BT08b**), and in addition, the adit mouth has been closed at a later date by a small blocking wall. There is a single iron rail located adjacent to the trackway on the eastern side of the adit that probably suggests a tramway running into the adit. Adams (1988) probably recorded this feature as the eastern main entrance to 'No. 3 Drift' which had a tramway entering it, and the large spoil heap was depicted on the Second Edition OS mapping (1899).



| | |
|--------------------|--|
| Site Number | BT09 |
| Site Name | Trackway, Blea Tarn, Eskdale |
| NGR | NY 16751 00672 to NY 16826 00731 |
| Type | Trackway |
| Period | Post-medieval |
| Photo Ref | 4733.jpg; 4734.jpg; 4736.jpg and 4737.jpg |
| Surveyor | Peter Schofield, OA North Survey 2012 |
| Description | A fragmentary linear section of trackway cut into the hillside on an east-north-east/west-south-west orientation. The extant section measures approximately 38m long by 4m wide and there is a turn to the north on the eastern end towards the main access trackway (Site BT01). The track formed access to an adit (Site BT11) but could have pre-dated the mine and has given access (along with another section of track - Site BT10) to a possible shieling site (Site BT12). |



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|--------------------|----------------------------------|
| Site Number | BT10 |
| Site Name | Trackway, Blea Tarn, Eskdale |
| NGR | NY 16851 00722 to NY 16898 00750 |
| Type | Trackway |
| Period | Post-medieval |

Photo Ref N/A
Surveyor Peter Schofield, OA North Survey 2012
Description A linear section of partially reverted trackway cut into the hillside on an east-north-east/west-south-west orientation. The extant section measures approximately 54m long by 3m wide. The track may have formed access along with another section of track (Site **BT09**) to a possible shieling site (Site **BT12**).

Site Number **BT11**
Site Name Adit, Blea Tarn, Eskdale
NTSMR 24028
NGR NY 16743 00670
Type Adit
Period Nineteenth Century
Photo Ref 4741.jpg – 4745.jpg
Surveyor Peter Schofield, OA North Survey 2012
Description A sunken adit entrance located at Blea Tarn iron mine. The adit is cut into the steep hillslope and measures approximately 8.2m long by 3.7m wide and is up to 2.5m deep (Site **BT11a**). The spoil heap is located downslope to the south (Site **BT11c**) and a flat working floor has been constructed on top of it at the mouth of the adit (Site **BT11b**). The adit is accessed from the east side via a fragmentary trackway (Site **BT09**). Adams (1988) probably recorded this feature as ‘No. 2 Drift’ and both adit and spoil heap were depicted on the Second Edition OS mapping (1899).



Site Number **BT12**
Site Name Building Platform, Blea Tarn, Eskdale
NGR NY 16723 00656
Type Building Platform
Period Medieval to Post-medieval
Photo Ref 4746.jpg – 4748.jpg
Surveyor Peter Schofield, OA North Survey 2012
Description A small rectangular building platform located on a flat shelf on an otherwise steep undulating south-facing valley side. The platform measures approximately 7.6m long by 6.1m wide and has a well-defined southern edge surviving up to 0.5m high. The top of the platform has fragmentary foundation remains of two sub-dividing walls, or, alternatively, a later structure sat atop the platform. The site is possibly a small domestic shieling.



| | |
|--------------------|---|
| Site Number | BT13 |
| Site Name | Adit, Blea Tarn, Eskdale |
| NTSMR | 24028 |
| NGR | NY 16764 00638 |
| Type | Adit |
| Period | Nineteenth Century |
| Photo Ref | 4749.jpg – 4755.jpg |
| Surveyor | Peter Schofield, OA North Survey 2012 |
| Description | The westernmost of a pair of sunken adit entrances located at Blea Tarn iron mine. The adit is cut into the steep hillslope and measures approximately 7.6m long by 6.3m wide and is up to 2.5m deep (Site BT13a). The flat-topped spoil heap is located downslope to the south (Site BT13b). Adams (1988) possibly recorded this feature as part of 'No. 1 Drift' and the spoil heap was depicted on the Second Edition OS mapping (1899). |



| | |
|--------------------|--|
| Site Number | BT14 |
| Site Name | Adit, Blea Tarn, Eskdale |
| NTSMR | 24028 |
| NGR | NY 16780 00653 |
| Type | Adit |
| Period | Nineteenth Century |
| Photo Ref | 4756.jpg – 4759.jpg |
| Surveyor | Peter Schofield, OA North Survey 2012 |
| Description | The easternmost of a pair of sunken adit entrances located at Blea Tarn iron mine. The adit is cut into the steep hillslope and measures approximately 10.7m long by 5.6m wide and is up to 2.5m deep (Site BT14a). The initial upcast spoil heap is on the eastern side of the adit and a |

larger flat-topped spoil heap is located downslope to the south (Site **BT14b**). Adams (1988) possibly recorded this feature as part of 'No. 1 Drift' and the spoil heap was depicted on the Second Edition OS mapping (1899).



| | |
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| Site Number | BT15 |
| Site Name | Quarry, Blea Tarn, Eskdale |
| NGR | NY 16829 00644 |
| Type | Quarry |
| Period | Post-medieval |
| Photo Ref | 4761.jpg |
| Surveyor | Peter Schofield, OA North Survey 2012 |
| Description | A small oval quarry scoop located adjacent to the eastern side of the main access trackway (Site BT01). There is a small upcast bank on the south end and overall it measures approximately 8.7m long by 5m wide and is up to 0.4m deep. |



| | |
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| Site Number | BT16 |
| Site Name | Quarry, Blea Tarn, Eskdale |
| NGR | NY 16818 00602 |
| Type | Quarry |
| Period | Post-medieval |
| Photo Ref | 4763.jpg |
| Surveyor | Peter Schofield, OA North Survey 2012 |
| Description | A small rectangular rock-cut quarry scoop located adjacent to the north side of the main access trackway (Site BT01). There is a single roughly-hewn stone, a potential gatepost, on the south-east side. Overall it measures approximately 4.9m long by 3.4m wide and is up to 1m deep. |



| | |
|--------------------|--|
| Site Number | BT17 |
| Site Name | Covered Reservoir, Blea Tarn, Eskdale |
| NGR | NY 16835 00605 |
| Type | Reservoir |
| Period | Twentieth Century |
| Photo Ref | 4764.jpg |
| Surveyor | Peter Schofield, OA North Survey 2012 |
| Description | A disused rectangular stone-constructed covered reservoir with concrete roof. The structure measures approximately 4.6m long by 2.6m wide and is up to 1.3m high. There is a manhole in the centre of the roof and the retaining walls have been strengthened by iron bracing rods. There are several manhole covers and the remnants of iron water pipes running downslope from the north-west towards the reservoir. |



| | |
|--------------------|---|
| Site Number | BT18 |
| Site Name | Trackway, Blea Tarn, Eskdale |
| NGR | NY 16828 00587 to NY 16774 00570 |
| Type | Trackway |
| Period | Post-medieval |
| Photo Ref | 4771.jpg |
| Surveyor | Peter Schofield, OA North Survey 2012 |
| Description | A curvilinear partially revetted section of trackway cut into the hillside on a roughly west/east orientation. The extant section measures approximately 59m long by 1.7m wide and it adjoins the main access trackway on the east end (Site BT01). |



| | |
|--------------------|--|
| Site Number | BT19 |
| Site Name | Quarry, Blea Tarn, Eskdale |
| NGR | NY 16773 00580 |
| Type | Quarry |
| Period | Post-medieval |
| Photo Ref | 4768.jpg; 4769.jpg |
| Surveyor | Peter Schofield, OA North Survey 2012 |
| Description | A sub-rectangular quarry measuring approximately 15.8m long by 6.8m wide and up to 2m deep. There is a rock-cut quarry face on the north end and a slight upcast bank to the south. The trackway (Site BT18) has been retained adjacent to the quarry. |



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| Site Number | BT20 |
| Site Name | Trackway, Blea Tarn, Eskdale |
| NGR | NY 16790 00578 to NY 16821 00561 |
| Type | Trackway |
| Period | Post-medieval |
| Photo Ref | 4765.jpg; 4766.jpg; 4770.jpg |
| Surveyor | Peter Schofield, OA North Survey 2012 |
| Description | A curvilinear section of trackway cut into the hillside on a roughly north-west/south-east orientation. The extant section measures approximately 37.5m long by 2m wide and it adjoins two other trackways (Sites BT01 and BT18). |



| | |
|--------------------|---|
| Site Number | BT21 |
| Site Name | Quarry, Blea Tarn, Eskdale |
| NGR | NY 16808 00569 |
| Type | Quarry |
| Period | Post-medieval |
| Photo Ref | N/A |
| Surveyor | Peter Schofield, OA North Survey 2012 |
| Description | A small rectangular rock-cut quarry scoop located adjacent to the north side of a trackway (Site BT20). Overall it measures approximately 5.6m long by 4m wide and is up to 1m deep |

| | |
|--------------------|---|
| Site Number | BT22 |
| Site Name | Trackway, Blea Tarn, Eskdale |
| NGR | NY 16822 00559 to 16798 00551 |
| Type | Trackway |
| Period | Nineteenth Century |
| Photo Ref | N/A |
| Surveyor | Peter Schofield, OA North Survey 2012 |
| Description | A curvilinear section of trackway cut into the hillside on a roughly west/east orientation. The extant section measures approximately 28.3m long by 2.5m wide and it gave access between the main trackway (BT01) and an adit (Site BT23). |

| | |
|--------------------|--|
| Site Number | BT23 |
| Site Name | Adit, Blea Tarn, Eskdale |
| NGR | NY 16793 00552 |
| Type | Adit |
| Period | Nineteenth Century |
| Photo Ref | 4772.jpg – 4776.jpg |
| Surveyor | Peter Schofield, OA North Survey 2012 |
| Description | A sunken adit entrance located at Blea Tarn iron mine. The adit is cut into the steep hillslope and is encircled by fragments of retaining wall on either side. It measures approximately 9.8m long by 4.8m wide and is up to 2.5m deep (Site BT23a). The spoil heap is located downslope to the south and a flat working floor has been constructed on top of it at the mouth of the adit (Site BT23b). The adit is accessed from the east side via a fragmentary trackway (Site BT22). Adams (1988) probably recorded this feature as either part of ‘No. 1 Drift’ or a deep drainage level driven in below the whole mine. The site is not depicted on the historic OS mapping. |



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|--------------------|--|
| Site Number | BT24 |
| Site Name | Adit, Blea Tarn, Eskdale |
| NTSMR | 24028 |
| NGR | NY 16794 00507 |
| Type | Adit |
| Period | Nineteenth Century |
| Photo Ref | 4777.jpg – 4782.jpg; and 4787.jpg – 4793.jpg |
| Surveyor | Peter Schofield, OA North Survey 2012 |
| Description | A sunken adit entrance and open cutting located at Blea Tarn iron mine. The adit is cut into the hillslope on the bottom edge of the valley side. It measures approximately 35.3m long by 7.5m wide and is up to 1.5m deep (Site BT24a). The adit entrance remains open but is partially blocked. The long spoil heap is located on boggy ground to the south and consists of several finger dumps of material (Sites BT24b, c and e) and a mound (Site BT24d). The adit clearly utilised a tramway system at some point and two iron rails are evident on the spoil heaps. Adams (1988) probably recorded this feature as either part of ‘No. 1 Drift’ or a deep drainage level driven in below the whole mine. The site is not depicted on the historic OS mapping. |



| | |
|--------------------|---------------------------------------|
| Site Number | BT25 |
| Site Name | Quarries, Blea Tarn, Eskdale |
| NGR | NY 16827 00478 |
| Type | Quarry |
| Period | Post-medieval |
| Photo Ref | 4783.jpg; and 4794.jpg |
| Surveyor | Peter Schofield, OA North Survey 2012 |

Description A series of at least eight quarry scoops and rock-cut areas surrounding a small oval knoll located on the valley floor adjacent to the railway. The outcrop measures approximately 50m long by 30m wide and is up to 6m high in places.



Site Number BT26
Site Name Trackway, Blea Tarn, Eskdale
NGR NY 16855 00497 to NY 16810 00444
Type Trackway
Period Post-medieval
Photo Ref 4795.jpg
Surveyor Peter Schofield, OA North Survey 2012
Description A sinuous section of trackway located on the valley floor between the south side of a craggy knoll and the railway. It is orientated roughly south-west/north-east and measures approximately 75m long by 2.5m wide. It gave access from the main trackway (Site **BT01**) to the tramroad entering the lowest adit into Blea Tarn mine (Site **24a**).



ILLUSTRATIONS

FIGURES

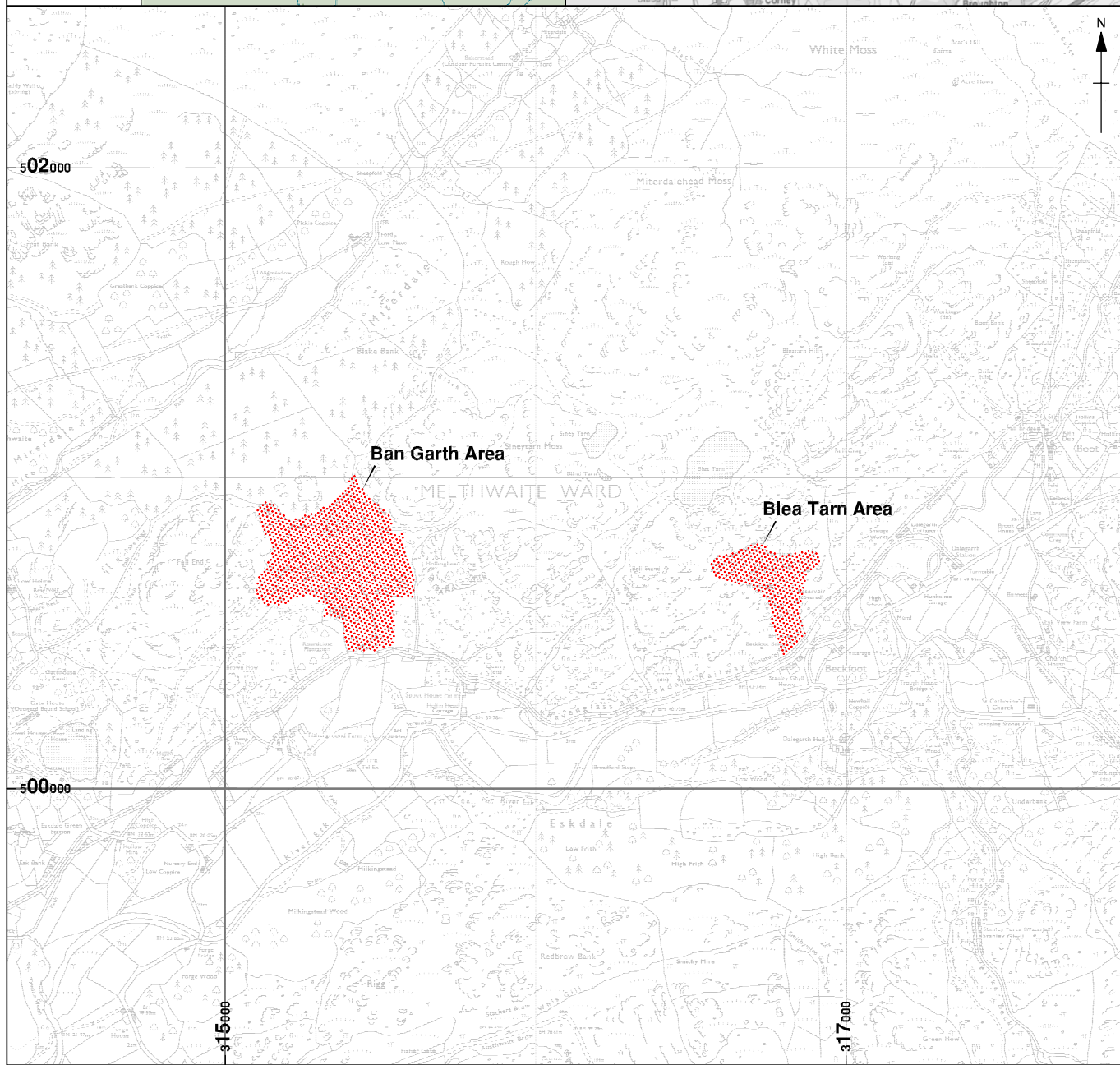
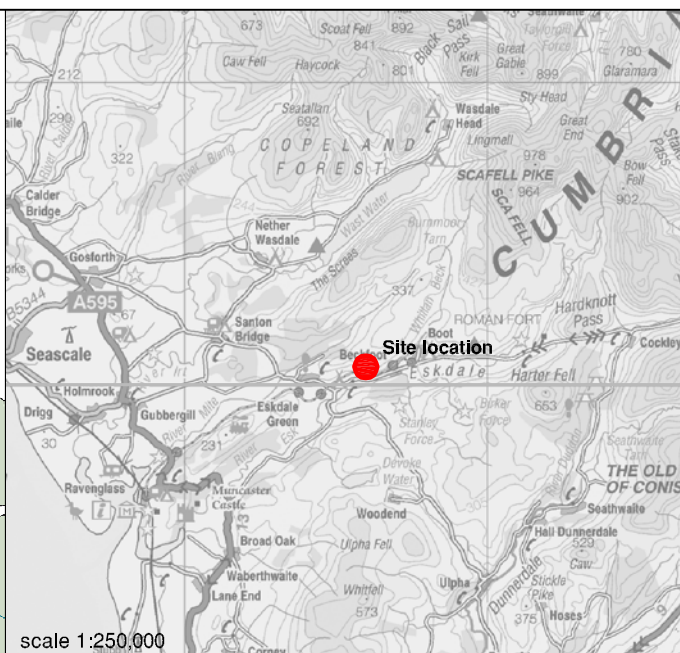
- Figure 1: Site location
- Figure 2: Location of detailed survey plans
- Figure 3: Bangarth Mine (North)
- Figure 4: Bangarth Mine (Central)
- Figure 5: Bangarth Mine (South)
- Figure 6: Blea Tarn Mine (North)
- Figure 7: Blea Tarn Mine (South)

PLATES

- Plate 1: A plan of Bann Garth (sic) Iron Ore Mine by G Dunn of 1863 (*CRO (W) YDH/211*)
- Plate 2: A cross-section showing the Bangarth mine in 1874 (Adams 1988, 117)
- Plate 3: Sections and a plan depicting the Blea Tarn mine in 1982 (Adams 1988, 118)
- Plate 4: A schematic plan showing the relationships between the mines in northern Eskdale and the Ravenglass and Eskdale railway (Kelly 1994, 169)
- Plate 5: The area covered by the lease to extract iron ore from Eskdale mines in 1909 (*CRO(W) D/BT/19/1/5420/89*)
- Plate 6: The Nab Gill mine as it appeared during the early twentieth century (Bradbury 2007)
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- Plate 11: Field-system containing both consumption banks and clearance cairns (Sites **BG13 a-n** and **14 a-g**)
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- Plate 13: Large earthen loading ramp at the rear of a peat hut (Site **BG02**)
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- Plate 15: The truncated entrance to an adit (Site **BG10e**) overlain by a later revetted spoil bank (Site **10d**)
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- Plate 17: The retaining wall supporting the upper section of the inclined plane (Site **BG36**)

Plate 18: General view upslope of several mine adits and spoil heaps at Blea Tarn mine (Sites **BT04**, **BT08** and **BT14**)

Plate 19: Open drainage adit at the foot of Blea Tarn mine (Site **BT24a**)



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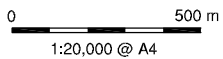


Figure 1: Site location

JQ*L10457*MAT* June2012

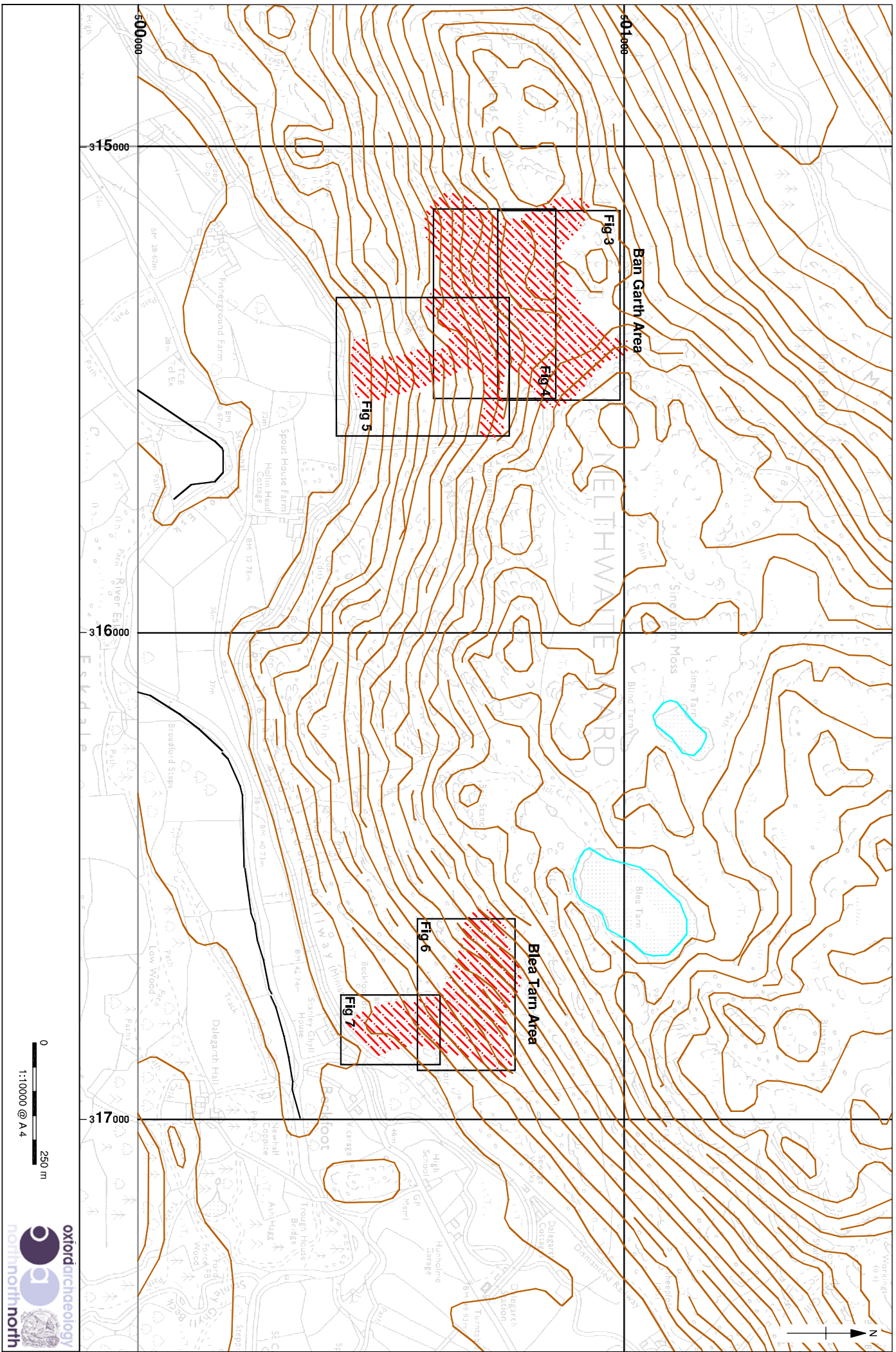


Figure 2: Location of detailed survey plans

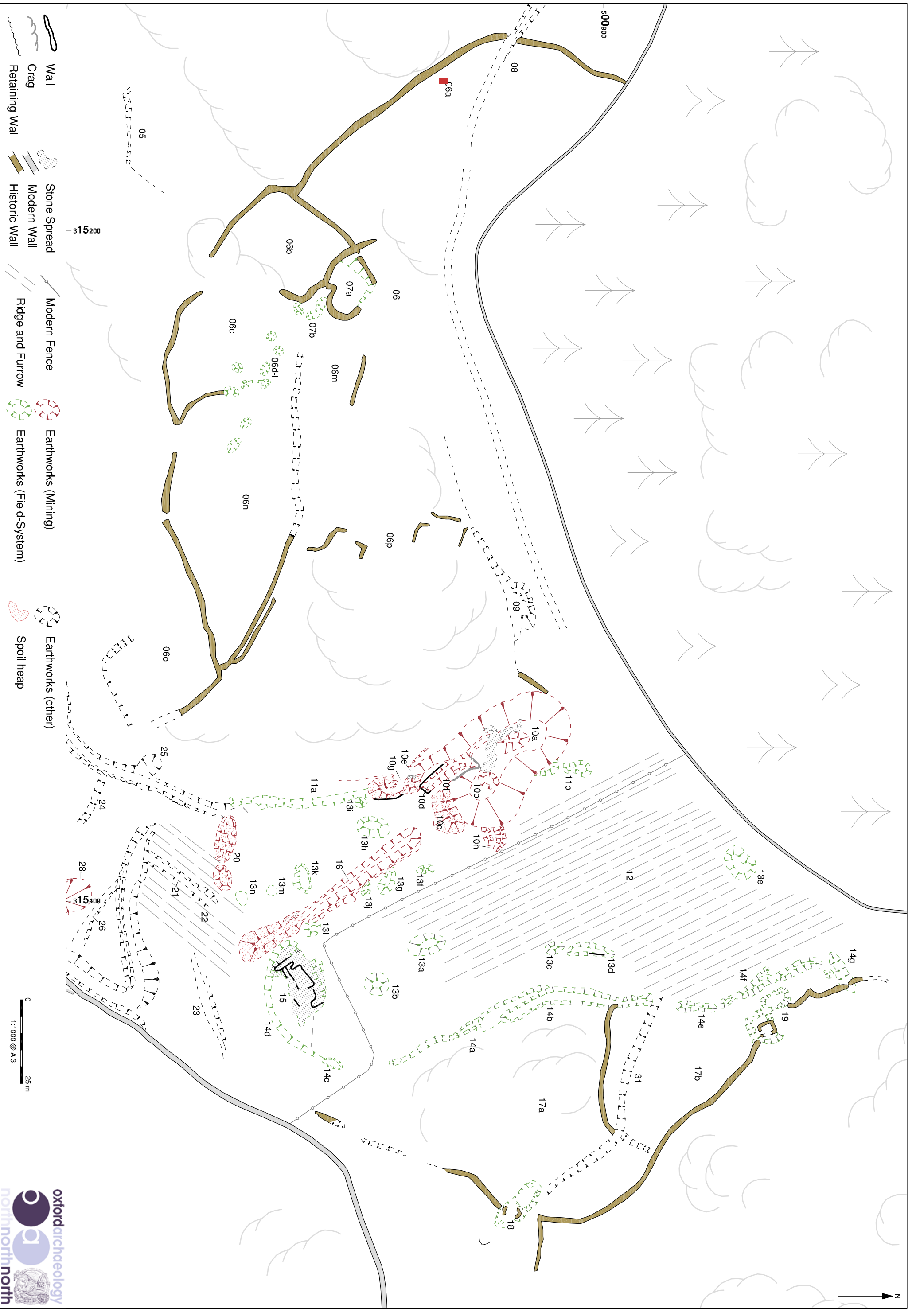


Figure 3: Bangarth Mine (North)

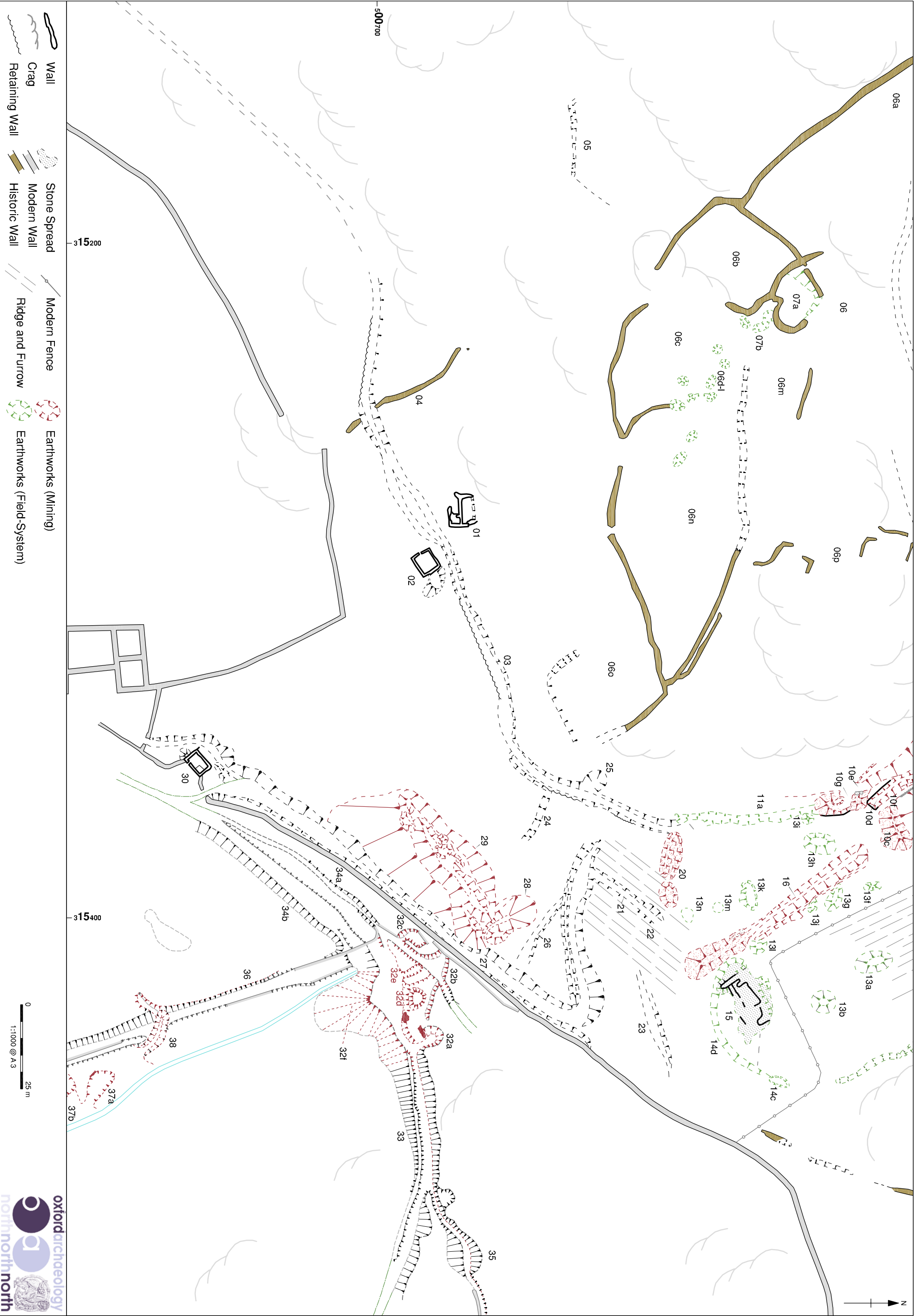


Figure 4: Bangarth Mine (Central)

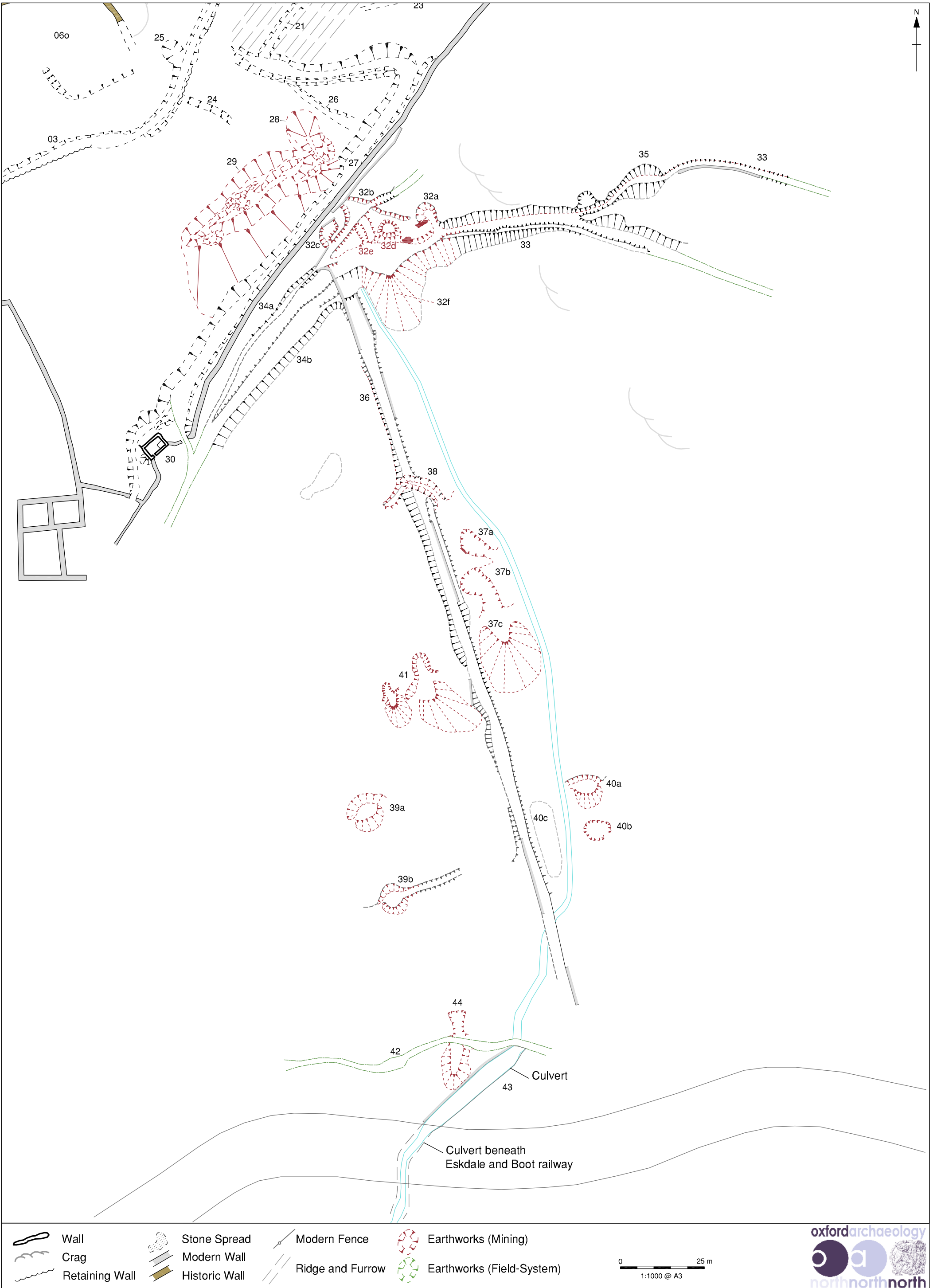


Figure 5: Bangarth Mine (South)

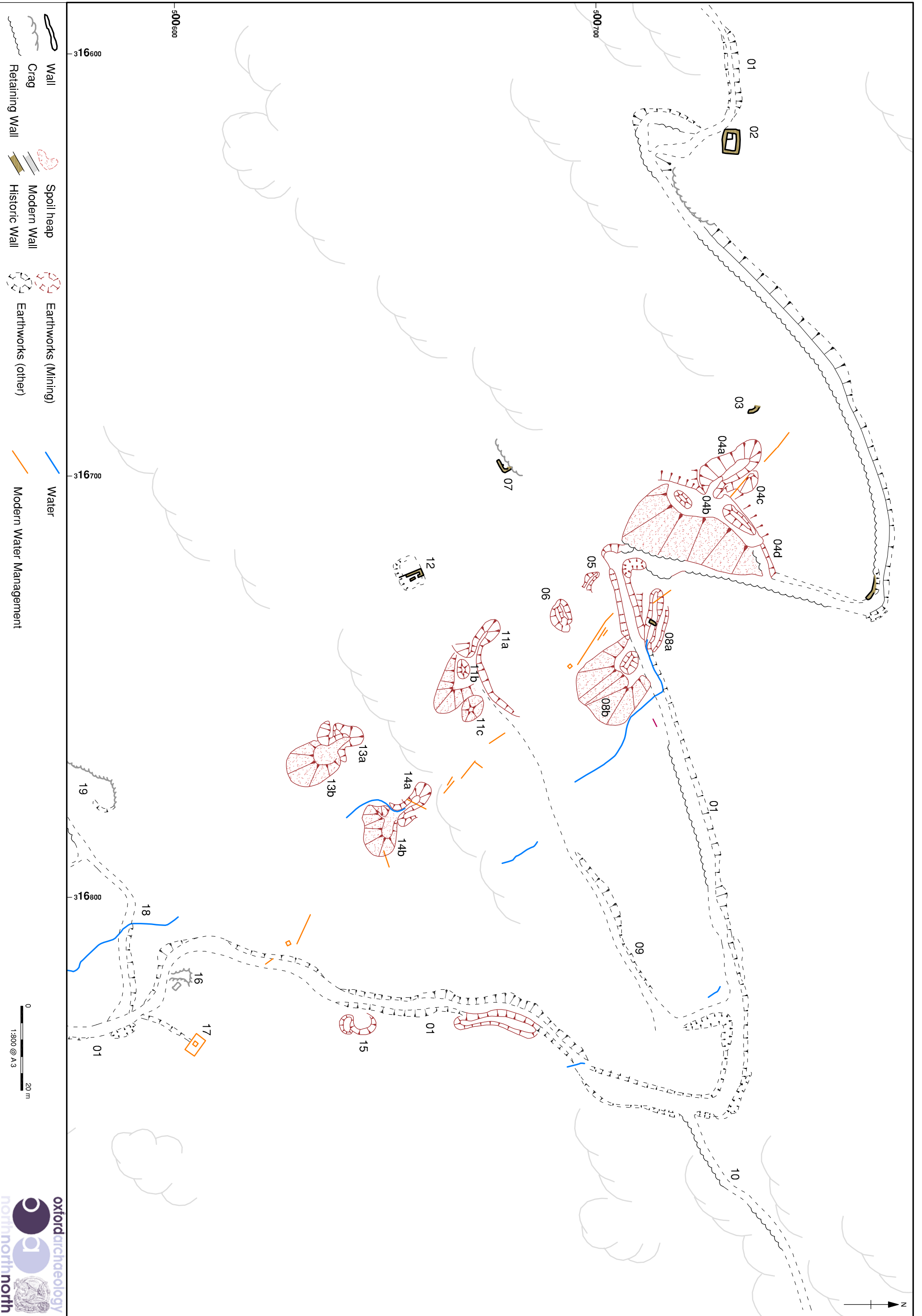


Figure 6: Blea Tarn Mine (North)

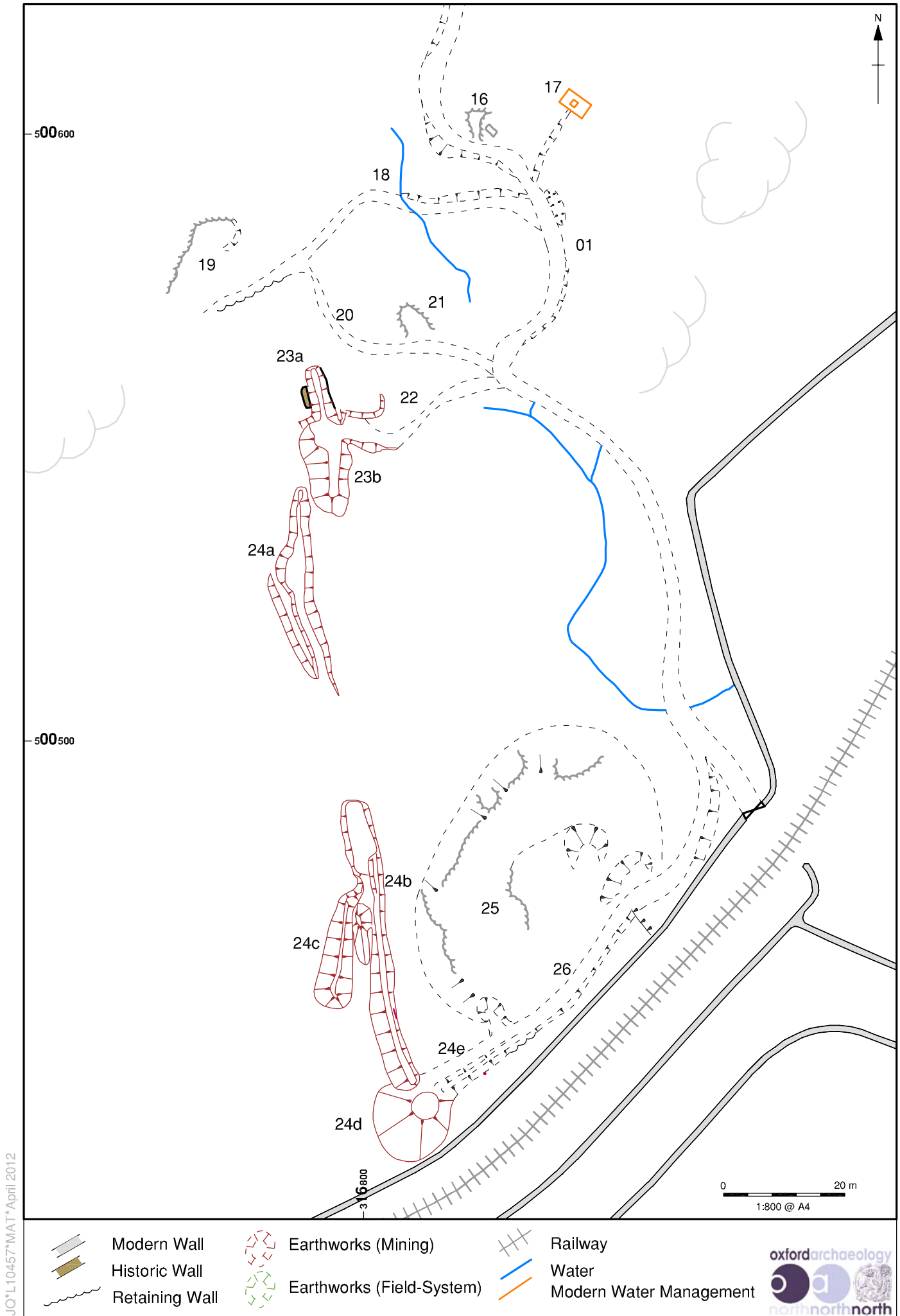


Figure 7: Blea Tarn Mine (South)