



Coniston Copper Mines, Coniston, Cumbria

Archaeological Evaluation and Assessment of Results



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CONISTON COPPER MINES, CONISTON, CUMBRIA

Archaeological Evaluation and Assessment of Results

Prepared for:

Videotext Communications Ltd
11 St Andrews Crescent
CARDIFF
CF10 3DB

Prepared by:

Wessex Archaeology
Portway House
Old Sarum Park
SALISBURY
Wiltshire
SP4 6EB

www.wessexarch.co.uk

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Summary

In July 2012 an archaeological evaluation was undertaken by Channel 4's 'Time Team' within the Coniston Copper Mine Complex, near Coniston, Cumbria (NGR 328350, 498890). The complex covers an area of some 5 km square in the Lake District National Park and is considered of national importance, having been designated a Scheduled Ancient Monument (SAM number 38773, National Heritage List Entry 1003055).

The evaluation investigated two sites, the first located at Levers Water (Site A, also known as Back Strings) to investigate the standing remains of buildings around the Simon's Nick stope, thought to have their origins in the Elizabethan period. The second site (Site B) was located some 750m to the east of Levers Water along the Red Dell Beck, an area known as the Cobbler's Level within the Low or First Works. The investigation here concentrated on the search for the remains of an Elizabethan stamp mill used to crush ore, and an associated building.

The evaluation consisted of six hand excavated trenches, four at Levers Water investigating two structures (Buildings A and B), and two at Cobbler's Level investigating a third structure (Building C).

Dating of the two buildings at Site A was hampered by a scarcity of finds and the lack of diagnostically dateable features within the buildings. The whole complex is littered with structures built from the same stone materials, and in the same manner, which span several centuries. Tentative evidence suggests that both buildings were probably 18th century in date. However, the recovery of a timber radiocarbon dated to the late 15th–early 16th century, possibly reused, and the identification of three mortar stones for crushing ore by hand, all from Building B, does indicate early activities at Site A.

No trace of the stamp mill was identified at Site B and the no clear date for Building C was recovered; nor was any clear functional evidence for any of the buildings recovered.

The results of the evaluation were limited, but have enhanced the understanding of a small part of the large Coniston Copper Mines complex and warrant further dissemination. A short note in the *Industrial Archaeology Review* is proposed summarising the results of the evaluation, and setting the site in its local and regional context.



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The geophysical survey was undertaken by John Gater, Jimmy Adcock and Emma Wood (of GSB Prospection). Emma Wood also undertook the on-site survey and mapping. The excavation strategy was devised by Francis Prior. The on-site recording was co-ordinated by Steve Thompson and Darryl Freer (both of Wessex Archaeology).

The excavations were undertaken by Time Team's retained archaeologists, Phil Harding (Wessex Archaeology), Tracey Smith, Matt Williams (LP Archaeology), Ian Powlesland, Rob Hedge (Foundations Archaeology) and Cassie Newland, assisted by Penny Middleton (Northern Archaeological Associates [NAA]), Clare Henderson (Durham County Council), Dan Elsworth and Tom Mace (Greenlane Archaeology) and Ric Buckle. The metal detector survey was undertaken by Dean Allbutt.

The archive was collated and all post-excavation assessment and analysis undertaken by Wessex Archaeology. This report was compiled by Steve Thompson with initial historical research by Jim Mower, Alex Rowson and Celyn Williams of Videotext Communications with the assistance of Peter Fleming (Cumbria Amenity Trust Mining History Society [CATMHS]) and Penny Middleton (NAA). Specialist reports were prepared by GSB Prospection (geophysics) and Lorraine Mephram (finds). Report illustrations were prepared by Elizabeth James. The post-excavation project was managed on behalf of Wessex Archaeology by Lorraine Mephram.

This report has benefited from discussion with John Hodgson and Eleanor Kingston (Lake District National Park Authority), Warren Allison and the many members of CATMHS, Andrew Davison (English Heritage), Phil Andrews (Wessex Archaeology), Dan Elsworth (Greenlane Archaeology), Gerry McDonnell (Gerry McDonnell Archaeometals), David Millward (British Geological Survey) and Stewart Ainsworth.

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Archaeological Evaluation and Assessment of Results

1 INTRODUCTION

1.1 Project background

- 1.1.1 Wessex Archaeology was commissioned by Videotext Communications Ltd to undertake a programme of archaeological recording and post-excavation work on an archaeological evaluation undertaken by Channel 4's 'Time Team' at the Coniston Copper Mines, near Coniston, Cumbria, (hereafter the 'Site') (**Figure 1**).
- 1.1.2 This report documents the results of archaeological survey and evaluation undertaken by 'Time Team', and presents an assessment of the results of these works.

1.2 The Site, Location and Geology

- 1.2.1 The Coniston Copper Mines cover an area of some 5km square and are located in the Lake District National Park approximately 3km north-west of Coniston, Cumbria and centred on NGR 328350, 498890 at a height of approximately 450m above Ordnance Datum (m aOD).
- 1.2.2 The underlying geology consists of rhyolitic and andesite lava flows interbedded with hardened volcanoclastic dust and ashes (BGS Sheet 38).
- 1.2.3 The Coniston Copper Mines are identified as being of national importance and have been designated as a Scheduled Ancient Monument (SAM number 38773, National Heritage List Entry 1003055).
- 1.2.4 Two main areas of the Coniston Copper Mines were chosen for investigation through archaeological trenching. Site A (Levers Water or Back Strings) is centred on NGR 328060, 499040 at a height of approximately 485m aOD. Some 750m to the east, Site B (Cobbler's Level or Low Works/First Works) is centred on NGR 328030, 498940 at a height of approximately 295m aOD.

2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

2.1 Introduction

- 2.1.1 A Project Design was prepared by Jim Mower of Videotext Communications with contributions from Peter Fleming (Cumbria Amenity Trust Mining History Society [CATMHS]) and Penny Middleton (Northern Archaeological Associates [NAA]) (Videotext Communications 2012), outlining the historical and archaeological background to the Site. This draws on earlier accounts of the history of the mining industry in the Lake District, and Coniston in particular (e.g. Holland 1986; Adams 1988; Fleming 2000; Fleming 2002).



2.2 Historical Background

- 2.2.1 The following text is reproduced in an edited form with permission from Middleton (2010) and the entry in the English Heritage Pastscape database.
- 2.2.2 The Coniston Copper Mine valley is a complex and unique industrial landscape spanning some 400 years of historic development covering over a 5km square area of mountainous upland to the north of Coniston Village at the foot of Coniston Old Man. As a heritage asset, the site is considered to be of national, and possibly international significance due to the overall preservation and comprehensive nature of the surviving mine workings, many of which date back to the early 16th century, as well as the technological innovations employed on site and the long duration of continual use.
- 2.2.3 Coniston was one of the largest of the Cumbrian mines in operation and, at its peak in the mid-19th century, produced over 100 tons of ore a month. The national importance of the site is recognised in its status as a Scheduled Monument, and it is almost certainly one of the most comprehensive examples of Victorian copper mining outside Devon and Cornwall, and one of the earliest instances of modern industrialism in the north-west.
- 2.2.4 The mines date back at least to the late 16th century when Queen Elizabeth I commissioned German miners to come to work the fells under the auspices of the 'Mines Royal'. The early mining was concentrated around the Bonsor vein in the Red Dell Valley and the Paddy End Vein at Simon's Nick on the shores of Levers Water. The early mining was opencast working on the veins visible at the surface, and produced long narrow fissures (stopes) which descend to great depths, with ore processing adjacent to the stopes. Evidence of the Elizabethan workings can still be clearly seen today, in particular around Simon's Nick where the open stopes extend deep into the hillside.
- 2.2.5 During the 17th and 18th centuries the early mines were extended and deepened as water-powered pumping machinery became available; an extensive system of leats was used to carry water around the site. At this time the processing of the ore began to become centralised around two large dressing floors, one in the Copper Mines Valley, the Bonsor Dressing Floor, which became the focal point of the mine complex, and the Paddy End Dressing Floor in the Levers Water Valley. This work was undertaken in the 18th century by Charles Roe and the Macclesfield Copper Company.
- 2.2.6 Peak production was not reached until the 19th century when the venture was under the ownership of John Taylor and John Barratt. During this period the mine expanded to employ over 600 people in the extraction, preparation and transportation of the valuable copper ore, with 13 waterwheels powering the various pumps, winches and processing equipment. Dressing floors were enlarged, workers' housing built and many new levels and shafts were dug. The largest of these was Deep Level (c. 1850), which connected all of the previously remote mines to one tramway. The Paddy End Dressing Floor closed at this time.
- 2.2.7 Towards the end of the 19th century, as the demand for ore decreased and new and cheaper sources were found in South America, the price of copper plummeted and the mine slipped into decline. By the early 20th century the mine was in decline and discovery of new ore had slowed down.
- 2.2.8 The Coniston Electrolytic Company (a French run concern) briefly took over the Bonsor Mill and set up machinery to recover copper from waste spoil by acid leaching. Mandalls Slate Company used one of the buildings at the Upper Bonsor Mill as a base for dressing



slate, which was brought in by aerial ropeway from the Blue Quarries. Some small-scale exploration took place until the mines closed in 1956.

2.3 Pre-Elizabethan Activity

- 2.3.1 The earliest records of mining at Coniston on a commercial basis date to the 1590s. There has been suggestion of earlier mining activity on the site, possibly even dating to the Bronze Age, but no datable material evidence has as yet been found. Some parallels have been drawn between the mortar stones found on Simon's Nick and East Bonsor and those known from the prehistoric copper mines at Great Orme in North Wales, where over 25 such stones have been found in association with other dated deposits. They are also often found with hard igneous rock pestle stones used for grinding ore, but no such evidence has been forthcoming from Coniston.
- 2.3.2 Mortars are utilitarian objects which have remained relatively unchanged in design for millennia. As such, unless found in relation with other datable material, they could be prehistoric or post-medieval in date - it is impossible to tell. In reality, the level of mining activity across the Site has been so intense and prolonged that it would be extremely unlikely for any prehistoric material to survive, although the possibility cannot be ruled out.
- 2.3.3 Similarly, there is no evidence of Roman mineral extraction across the Coniston Fells and little anywhere across the Lake District, although some potential sites in Cumbria have been recently identified. Neither is there evidence of medieval workings, although smaller ventures were in operation prior to the establishment of the Mines Royal. In the late 16th century, Sir Daniel Fleming, the lord of the manor, noted that '*The Germans opened new working beside the old mine*', suggesting that there was an earlier concern at Coniston, although the date of such works is not clear. Such earlier surface workings are thought to have been around Levers Water, and that these were subsequently expanded and extended by the Germans. This might account for the number of mortar stones concentrated in this area. A number of these are found re-used in the construction of what are thought to be 17th century structures. This would suggest that the stones do pre-date the Mines Royal operation, but at present the date of these structures is far from secure.

2.4 16th and 17th century: the advent of the modern copper mining industry

- 2.4.1 During the 16th century England began to develop its native metal industries. This was due to a combination of wartime needs, expanding demand, and an over-reliance on European imports. In the 1560s Sir William Cecil, Secretary of State, invited a group of leading German miners and entrepreneurs to expand and develop the English metal mining and smelting industries. The technologies and skills of the German engineers were renowned across Europe and by the late medieval period they were already using waterwheels to pump water from the mines, grind ore, run blast furnace bellows and operate forge hammers.
- 2.4.2 In 1563 Daniel Hechstetter Senior (sometimes Hochstetter), a master miner, was approached by the Crown to oversee the search, extraction and smelting of copper and other ores in Cumberland, Westmorland and Lancashire. Hechstetter was an agent of the Haug Company, a successful consortium of merchants who had established links with London. Under the auspices of the newly formed '*Company of the Mines Royal*', Hechstetter set about establishing a number of mines across the area, one of the largest and most successful of which was the Goldscope Mine in the Newland Valley. Ore from these mines was transported across the fells by packhorse and brought to the new smelter on the Greta River at Brigham, near Keswick.



2.4.3 Initially, copper mining formed an important part of the Mines Royal, but by the early 1600s the company began to concentrate increasingly on more profitable lead mining operations. Further to this, by the middle of the 17th century cheap supplies of Swedish copper began to dominate the European metal markets. The net result was that by the end of the 17th century the first wave of copper mining in this country had all but ceased, with little production being conducted in either England or Wales.

2.5 The Mines Royal, 1590s–1640s

2.5.1 The date of the first operations at Coniston is not known, but ore was certainly being produced by the end of the 16th century, as already mentioned. In 1599 a survey led by Lord Scrope was ordered by the Crown to evaluate the Mines Royal operations. The survey specifically mentions workings at both Tilberthwaite and Coniston. Both of these mines were noted as being in poor production with dilapidated workings, a factor which points towards them having already been worked for some time prior to this date. In the same year as the survey, 100 kibbles of sorted ore was recorded as being produced at Coniston and sent to the Brigham smelter, yielding over 13 hundredweight of good copper.

2.5.2 By 1600 there is also considerable evidence of German miners, brought over from the Schwarz and Innsbruck districts of the German Tyrol, making their homes in Coniston. Surnames such as Clocker, Moyer and Puchberger appear in the birth, deaths and marriages records of the parish. These men opened a number of excavations, or 'Works', at Coniston along both the Bonsor and Paddy End Veins, and a second survey undertaken by the Crown in 1602 provides a detailed and compelling insight into their work and lives.

2.6 Location of the Elizabethan Works

2.6.1 The location of the Elizabethan works can be partially deduced from the information in the 1602 survey, but a later letter written following the closure of the mine provides a clearer picture of the extent of the earlier workings. Written on 13th April 1684, the letter is a report by David Davies addressing certain issues raised by a Dr Lister SRS regarding the feasibility of re-opening the mines. It provides an account of several of the 'Copperworks' across the Coniston Fells based on the testimony of three 'Old Men', or former miners, named as George Towers, William Towers and Henry Dover.

2.6.2 Based on the information in the letter, five main 'Works' were reported as being in operation at the time of the mines' closure c. 1648; although those later known as the 'Back Strings' were actually a collection of interconnected open-works being run by separate teams. The Elizabethan excavations were divided between those following the Great Bosnor Vein on the east side of the site and those following the Paddy End Vein at Levers Water, although these names were not used until the 18th century.

2.7 Site A: Levers Water or Back Strings (Figure 1)

2.7.1 At Site A there are a number of open-works up on Simon's Nick which were re-worked and expanded in later periods. Several 16th century Works are detailed in this location in Davies' letter; each named after the miner responsible for supervising the work (many still with German surnames), including Hanch Clocker's Work, Richard Tower's Work, George Tower's and William Dixon's Work, Bartle Clocker's Work, John Sackloc's Work and Hanch Mire's Work, as well as the Sumy-work near the Water-side. All of these are described as lying together *'and wrought about 10 or 12 fathom, the Seam of Ore about 16 inches thick, the Stone very soft, and the Ore very rich, and much of the said Ore green, and was much prized by the Head Masters at Keswick'*. This collection of open-



works remains a dominant feature of the landscape and perhaps more than any other area provides a clear picture of the scale and extent of the Elizabethan mines.

- 2.7.2 The Sumy-work (or semi-work) described in Davies' letter almost certainly lies beneath the Levers Water tarn which, although a natural feature, is known to have been raised at least twice since the 16th century. The German engineers had planned to drain the tarn to access the supply of ore underneath it, but such ambitious plans never came to fruition.
- 2.7.3 At Simon's Nick, veins or ribs of solid chalcopyrite were found which were suitable for marketing without any additional treatment except crushing. As a result, ore was dressed by hand in the area immediately adjacent to the mine. In this area a number of small semi-circular shelters, or crushing huts, are known, as well as a number of mortar stones. These occur largely on the east side of the open stopes where at least four separate structures are known. These are penannular in shape and approximately 2m in diameter with an interior space just large enough to accommodate a sitting figure. The walls are constructed of dry stone and stand only two or three courses high. It is unclear whether these were ever little more than impromptu shelters, built to provide some protection from the elements for those individuals crushing and sorting the ore, the surrounding semi-circle of orange-brown waste being the material rejected during this process. There are also two more substantial structures associated with the Back Strings but these may be slightly later in date.

2.8 Site B: Cobbler's Level or Low Works/First Works (Figure 1)

- 2.8.1 These Works (750m east of Levers Water) were concentrated on the Bonsor vein, located just to the east of Red Dell Beck and was one of the oldest lodes worked on the site. It was known initially simply as 'Coniston Mine' but later became 'Low Works' to distinguish it from the newer works opening further up the fell.
- 2.8.2 Eventually it was to become the largest and most profitable mine the Germans operated at Coniston, reaching a depth of over 180ft and covering some considerable distance. It was initially divided by the Germans into three partnerships and the 1602 survey provides precise details of the men running each section. The 'West' was worked by Fabian and four English pickmen, while the 'Midleworke' was under the supervision of Hawkins Gibson with two pickmen. To the east was 'Clocker's worke' (possibly after Christopher Clocker) where an additional eight pickmen laboured. The survey noted how much ore was raised from each section and how much each man was paid as well as sundry other information.
- 2.8.3 The letter of 1684 provides further details of Low Works, referring to the existence by this time of a 'Stulm or Shaft'. This was a 'stollen' or adit, a tunnel driven into the rock to drain excess water out and away from the open stope, and was almost certainly 'Cobbler's Level', located further down the slope, on the east side of the beck. Started in 1614, Cobbler's was the first hand-driven tunnel on the site. Hacked out through solid rock without the aid of gunpowder (not used on the site until 1693), it took three years to complete.
- 2.8.4 By the time work ceased at Coniston at the start of the Civil War in the 1640s, Low Works had reached a depth of Forty Fathoms with a working seam of '*above three quarters of a yard thick of good Ore*'. Today, considerable evidence of the Works still survives above, although several of the exposed open-works have been partially backfilled. These lie adjacent to the later 18th century Bonsor East mine, as well as the 19th century Old Engine Shaft, both of which have damaged and backfilled some of the earlier workings.



Below the surface, the eastern end of the German excavations survives in a very good state of preservation.

- 2.8.5 Despite the poorer preservation of the open-works at Low Works compared with those of the Back Strings, there are numerous other archaeological features in the vicinity relating to this period. Surrounding the open stopes are remnants of the original spoil tips, the dark, orange-brown spoil from the Elizabethan mines being very different from the dark grey bedrock blasted out from the later 18th and 19th century workings. There are also two mortar stones known from the vicinity, used for crushing and dressing ore by hand.
- 2.8.6 Poorer quality ore required further dressing and crushing, undertaken at a stamp mill. A stamp mill comprised a battery of four iron shod timber beams, or ‘stamps’, which were attached by cams to the revolving axle of a water wheel and then dropped alternately to crush the ore loaded from a hopper below. Such a mill is known from the documentary sources to have been in operation at Coniston by 1619, although there is considerable discussion about its location. Davies, in his letter of 1684, refers to a stamp house ‘*near the first work*’ and this has been taken to mean the site on the west bank of Red Dell Beck. This is known to be the site of an early 19th century mill and dressing floor but may have also housed both a 17th and 18th century mill on the same location. However, recently it has been argued that given the ‘*first work*’ referred to in Davies’ letter is Low Works, it would be far more likely that a mill would be located further downstream, close to Cobbler’s Level. There is certain evidence for a possible dressing floor adjacent to the adit here, where a series of terraces covered with ore waste are clearly visible.
- 2.8.7 At both Red Dell and Cobbler’s, no structural evidence survives of the stamp mill itself, but this is not surprising given that such structures would have been constructed of wood, and also bearing in mind the extensive later re-use of the area.

2.9 Archaeological background

- 2.9.1 There have been a number of programmes of research and survey undertaken at the Coniston Copper Mines but there has been limited intrusive archaeological work.

Table 1: Previous Work at the Coniston Copper Mines

Date	Organisation	Work undertaken
1983	Cumbria and Lancashire Archaeological Unit	In August 1983, the Cumbria and Lancashire Archaeological Unit were commissioned by Philip Johnston to undertake a survey of the Bonsor Upper Mill Site in advance of restoration and conversion work (Middleton 1985).
1995-97	RCHME	Detailed survey of the site undertaken by the then Royal Commission covering a 5.5km square area. The whole area was surveyed at a scale of 1:2500 with three 1:500 enlargements (Red Dell, Old Engine Shaft and the Back Strings). The 1:2500 survey was based on an air-photograph transcription done by Simon Crutchley of the Aerial Photographic Unit at the National Monuments Record Centre Swindon. This was then later enhanced in the field using ground based survey techniques.



1997 - Ongoing	British Geological Society and CATHMS	An ongoing survey of the below ground workings. This has also included considerable conservation work such as the restoration of the entrance to Flemings Level and the Back Strings. Restoration and consolidation work has also been undertaken by CATHMS on above ground features, including the stone arch below the Thriddle Incline and the Old Engine Wheel House.
2006	North Pennines Archaeology Ltd	North Pennines Archaeology Ltd undertook a rapid archaeological desk-based assessment and watching brief on behalf of United Water Utilities as part of archaeological recording of works in advance of the extension of the Paddy End Water Treatment Works (NPA 2006).
2007	Oxford Archaeology North	An archaeological Survey was undertaken of Paddy End Dressing Floors following damage caused by a burst water main above the site (OA North 2007).
2007	UCL Earth Sciences	A programme of geophysical survey work was undertaken UCL Earth Sciences (Walpole 2007) employing magnetic gradiometry and GPR was conducted over the talus slope to search for the early 17th century drainage adit at Levers Water. An anomalous GPR feature was found. It has been suggested that the location of this GPR feature is a possible candidate for the location of the buried adit.
2010	Archaeo-Environmental Ltd	A Conservation Management Plan for the Coniston Copper Works was prepared for The Lake District National Park Authority (Middleton 2010).

3 AIMS AND OBJECTIVES

- 3.1.1 The project design (Videotext Communications 2012) provided full details of the research aims and methods. A brief summary is provided here.
- 3.1.2 The project aimed to ascertain the location, date, condition, character and extent of the underlying archaeological remains and address the significance of those archaeological remains in an attempt to answer two key research questions:
- **Research Aim 1:** Are the structural remains at the 'Back Strings' 16th/17th century in date and what was their function?
- 3.1.3 Standing structural remains at the Levers Water/Back Strings site consist of several small semi-circular shelters, or crushing huts, as well as a number of mortar stones. These occur largely on the east side of the open stopes where at least four separate structures are known. These are penannular in shape and approximately 2m in diameter. The walls are constructed of dry stone and stand only two or three courses high. There are also two more substantial structures located in this area.
- **Research Aim 2:** Are there 16th/17th century structural remains at Cobbler's Level? Does anything survive of the potential 17th century stamp mill at this location?
- 3.1.4 Elizabethan remains at the Cobbler's Level or Low Works site are poorly preserved compared with those of the Back Strings. However, there are numerous other archaeological features in the vicinity relating to this period such as remnants of the



original spoil tips and two mortar stones known from the vicinity, used for crushing and dressing ore by hand.

- 3.1.5 Poorer quality ore would have been crushed utilising a ‘stamp mill’, known from the documentary sources to have been in operation at Coniston by 1619. It has been suggested that this stamp mill may have been sited close to Cobbler’s Level. There is evidence for a possible dressing floor adjacent to the adit here, where a series of terraces covered with ore waste are clearly visible. It was proposed to explore the potential location of the stamp mill through an investigation of the dressing floor and its surroundings adjacent to the adit.

4 METHODOLOGY

4.1 Geophysical Survey

- 4.1.1 During the course of the evaluation a geophysical survey was carried out across the Site by GSB Prospection Ltd (GSB Prospection 2012). A combination of magnetic susceptibility survey and fluxgate gradiometer (magnetic) and ground penetrating radar (GPR) was used. The survey grid was tied in to the Ordnance Survey grid using a Trimble real time differential GPS system.

4.2 Evaluation Trenches

- 4.2.1 Six hand dug trenches (Trenches 1–6) of varying sizes were excavated, their locations determined in order to investigate and to address specific research objectives (**Figure 1**).
- 4.2.2 At various stages during excavation the deposits were scanned by a metal detector and signals marked in order to facilitate investigation. The excavated up-cast was scanned by metal detector.
- 4.2.3 All archaeological deposits within the trenches were recorded using Wessex Archaeology’s pro forma record sheets with a unique numbering system for individual contexts. Trenches were located using a Trimble Real Time Differential GPS survey system. All archaeological features and deposits were planned at a scale of 1:20 with sections drawn at 1:10 and 1:20. All principal strata and features were related to the Ordnance Survey datum.
- 4.2.4 A full photographic record of the investigations and individual features was maintained, utilising digital images. The photographic record illustrated both the detail and general context of the archaeology revealed and the Site as a whole.
- 4.2.5 At the completion of the work, all trenches were reinstated using the excavated material.
- 4.2.6 The work was carried out on the 24th–27th July 2012. The archive and all artefacts were subsequently transported to the offices of Wessex Archaeology in Salisbury where they were processed and assessed for this report.

5 RESULTS

5.1 Introduction

- 5.1.1 The following sections provide a summary of the information held in the Site archive. Details of individually excavated contexts are retained in the Site archive and a tabulated version of these can be found in **Appendix 1**.



5.2 Geophysical Survey (Figure 2)

- 5.2.1 The geophysical survey consisted of a magnetic susceptibility and ground penetrating radar (GPR) survey at Site A (Levers Water or Back Strings). The aim of the magnetic susceptibility survey was to locate any further structures or activity associated with the copper mines to the south-east of Building B (see below), while the GPR survey was conducted within the stope Simon's Nick to determine whether there was a man-made platform floor level beneath the spoil rubble, separating it from the excavated workings beneath (**Figure 6, Plate 13**).
- 5.2.2 Ground conditions were very poor due to the nature of the Site. GPR and fluxgate gradiometer (magnetic) survey was ruled out over the main area of interest due to this. The igneous geology would also have impacted on the gradiometer results. GPR traverses were collected within Simon's Nick, although the rubble deposits meant that keeping the antenna in contact with the ground was difficult.

Conclusions

- 5.2.3 The success of geophysics in such an extreme environment was always likely to be limited. The magnetic susceptibility survey only really confirmed what was obvious, that there was a concentration of activity around the buildings. The survey produced values which were generally low across a small survey area, but higher susceptibility readings (ranging from 2-5 times the background level) to the south of Building B may indicate burning. More random areas of slightly increased susceptibility have been recorded and are most probably associated with the geology or waste deposits.
- 5.2.4 The GPR survey of the base of Simon's Nick was inconclusive; it was possible to determine varying thicknesses of rubble, but it was not apparent whether the underlying responses were the top of solid geology or a man-made level.

5.3 Evaluation Trenches

- 5.3.1 Any substantial archaeological remains revealed were recorded and left *in situ*. No removal of structural elements took place and the earliest phases of activity were not fully exposed and therefore not fully interpreted. Trenches 1–4 were targeted on the structures around Simon's Nick at Site A while Trenches 5–6 were located at Site B.

Site A: Levers Water or Back Strings

Trench 1: Building A (Figure 3)

- 5.3.2 Trench 1 investigated the standing remains of a roughly north–south aligned sub-rectangular building (Building A) located on an area of relatively flat land at the base of a steep incline to the south and overlooking Levers Water to the north. The building lay between two stopes, with Simon's Nick directly adjacent to the east. Building A was centred on NGR 358045, 499026 at a height of 490m aOD.
- 5.3.3 Building A was approximately 4.5m long by 3.8m wide and was built of roughly parallel walls **104** (west) and **106** (east) with a curving, almost apsidal northern wall, **105** (**Figure 3, Plate 1**). Access into the building was through an entrance in the southern wall **107**. The internal dimensions of the building were approximately 2.7m by 2m, with walls around 0.9m thick and surviving to a maximum height of around 1m. The stone of the walls was mined material, and not derived from the natural geological bedrock located at the surface.
- 5.3.4 Trench 1 was located inside Building A to investigate the infilling deposits and the doorway blocking wall **108**. Possibly the earliest identified archaeological feature was **116**,



which appeared to form a hollow in which Building A had been constructed; this hollow was identified from the 0.25m change in height from the exterior to the interior of the building and appeared to have been excavated to reduce the height the walls needed to be to create a usable structure. Alternatively, the builders used a naturally occurring hollow in which to build.

- 5.3.5 At the base of the hollow was a reworked natural glacial till (**115**) which was sealed by occupation/trample deposit **114**. Sealing **114** was a deliberate floor surface layer (**113**) formed from crushed dressing waste, which was sealed in turn by trample deposit **112**. These deposits butted against wall **104** (**Figure 3, section**). A final floor layer, **111**, was recorded sealing **112**, which was formed of crushed dressing waste in the same manner as **113**.
- 5.3.6 At some point during the use of Building A, an additional structure was built on the eastern side of wall **106**. Constructed of walls **117** and **119**, it clearly butted against **106** and formed a small shelter or possibly an ore bin (**Figure 3, Plate 2**). The structure was supported by a deposit of dressing waste rubble deposit, **120**, which had been banked up against the northern side of walls **117** and **119**. This structure was clearly contemporaneous with the primary use of Building A and was associated in some manner with mining and ore processing, but its function is not entirely understood.
- 5.3.7 Floor surface **111** was subsequently sealed by **103**, originally an occupation/trample deposit containing fragments of dressing waste which ultimately became an organic topsoil formation following the abandonment of Building A. Three fragments of clay pipe stem were recovered from **103** and have been tentatively dated (on stem bore diameter) as 18th century or later.
- 5.3.8 Sealing **103** was rubble deposit **102**, derived from the collapse of the walls of Building A. At least one stone recovered from deposit **102** contained the remains of a blast hole to receive gunpowder to blast the rock. It was unclear if these holes had been pneumatically drilled (making them mid-19th century at the earliest) or pecked out by hammer and chisel; however, the blast hole indicates that the building was constructed with mined material removed post-1693 (the first historically recorded date of the use of gunpowder at Coniston). Building A therefore appears to have been 18th century in date at the earliest, from the pipe stem evidence and the blast holes.
- 5.3.9 Structure **108** blocked the doorway through wall **107**; this was initially thought to have been a deliberately built wall, but it lay upon deposit **103** and therefore may represent further collapse similar to **102** (**Figure 3, Plate 1**).
- 5.3.10 A test pit was excavated to the south of Building A to investigate a circular crop mark visible in the grass, possibly the location of a 'dolly-tub', a circular trough which used centrifugal force and water to separate impurities from crushed ore, in the same manner as a buddle. Underneath turf and topsoil (**109**) was a thin spread of dressing waste, **110**, sealing the upper natural **121**. There was no 'dolly-tub'.

Trenches 2, 3 and 4: Building B (Figures 4–5)

- 5.3.11 Trenches 2, 3 and 4 investigated the standing remains of Building B, aligned north-east to south-west and some 30m north-east of Building A. Building B was approximately 7.5m long by 6m wide, with internal dimensions of approximately 6m by 3m. It was constructed of southern wall **208** and a parallel northern wall, **402**, which incorporated two large glacial erratic boulders (**406**). A staggered entrance to the east was formed of walls **408** (bonded to **402**) and **313** (bonded to **208**) and the building was divided into two rooms by a central wall, **310**. The walls were approximately 0.9m thick and were visible to a height of at least

1m. There was no return wall observed at the western end and the structure appeared to have been open on this side.

- 5.3.12 Four phases of activity were defined from the evidence uncovered in the three trenches, and are described below.

Phase 1

- 5.3.13 The only evidence of activity pre-dating Building B was identified on the south-western corner, where deposit **206** was cut through by **210**, the construction hollow for the building. The nature of deposit **206** was unclear; it was initially thought to have been natural in origin, but it was clearly differentiated from the glacial till which overlay the natural bedrock. It is therefore possible that it represented an earlier made ground layer derived from repeated dumps of fine dressing waste (**Figure 4, Section 2**).

- 5.3.14 Further pre-building activity is inferred from the recovery of three mortar stones from the exterior of wall **208** at its junction with **313**. These stones had fallen out of wall **208**, and are a clear indication of the reuse of earlier materials from the Site. Unfortunately, these stones are utilitarian objects which have remained relatively unchanged in design for millennia, and so cannot provide a date for the Phase 1 activity (**Figure 5, Plate 10**).

Phase 2

- 5.3.15 As with Building A, Building B appears to have been constructed within a hollow excavated into the nature geology. The cut was observed in Trench 2 and recorded as **210**, and the change in level from the exterior to the interior, observed in Trench 3, was a drop of over 1m. Wall **208** was built in the hollow with packing material **209** butting against it, and with deposits **216** and **213** in-filling the void to level the ground surface to the west (**Figure 4, Section 2**).

- 5.3.16 At the south-western end of wall **208**, two parallel timbers, aligned north-west to south-east, probably formed a ground sill beam, **215**, to receive upright timber posts forming a timber wall on the west side (**Figure 5, Plate 7**). The timber sill beam corresponded to a slot that had been pecked into the northern face of the large quoin stone of wall **208** (**Figure 4, Section 2**).

- 5.3.17 A sample of the timber sill beam was submitted for radiocarbon dating and, in the absence of any artefacts, provides the sole dating for the building (see below, **Radiocarbon Dating**). The timber produced a date range of 1435–1515 with an 86.5% probability, placing it most probably in the early Tudor period, although there is an 8.9% chance that it dates to 1595–1620 and belongs to the Elizabethan or early Stuart period. The date, however, came with a few caveats, and should be seen as a maximum limiting age – ie the wood can be no older than this date. Whether reused or not, the timber possibly belongs to the period associated with the German miners and the Mines Royal.

- 5.3.18 The full height of wall **208** (1.5m) was recorded in Trench 3 at what was thought to be the junction with wall **310**. The construction was dry-stone, and the main raw material was mined, while the lower courses consisted of unworked, rounded boulders. There was a small recess or alcove in **208** (0.65m wide by 0.33m deep and 0.37m high); its function is unknown (**Figure 5, Plate 9**). There was a doorway within dividing wall **310**, which had been subsequently blocked by the addition of wall **311** (see below, Phase 3). Wall **310** was constructed in the same manner as **208**, with upper courses of mined stone and lower courses of unworked boulders; it butted against the southern side of northern wall **402/406**.



- 5.3.19 The junction of walls **402** and **408** and the location of an external dressing floor were investigated in Trench 4. The walls were constructed of roughly shaped mined stone with large quoins, and butted against the natural glacial erratic boulder **406** (**Figure 5, Plate 6**). Due to the extent of the collapse from **402** and **408**, it was unclear on what surface the walls had been constructed.
- 5.3.20 Trench 3 lay inside the south-western room of Building B, in the angle formed by walls **310** and **208**. The natural geology (**309**) was exposed within a small sondage at the base of Trench 3 at a height of 485.87m aOD and around 1m below the current ground surface. This was sealed by surface **308**, formed from processed and dressed mined material crushed into gravels (in the same manner as **404**, and the floor surfaces in Building A).
- 5.3.21 Sealing the floor surface was trample layer **307**, which was probably equivalent to layer **212**, found inside the building adjacent to timber sill beam **215**. This layer represents material brought into the building on the miners' boots and re-deposited on surface **308**. A sample of **307** was tested using X-Ray Fluorescence (XRF), and produced a copper reading of 20% compared to a natural background reading of the surrounding land surface of 1%. The increased copper reading is a result of processing mined ore in the vicinity. Trample layer **307** was subsequently sealed by a further crushed dressing waste floor surface, **306**, and a further trample layer, **305** (**Figure 4, Section 3**).
- 5.3.22 Outside the building were a number of dressing waste deposits – **404** at the north-east corner (sealing topsoil/peat formation layer **405**), and **205** at the south-west corner, sealing **213** (the infill of hollow **210**), and overlain by dressing waste layer **204**. The dressing waste deposits on the south-western side are relatively thin in nature and probably represent a mixture of trample and waste material.
- 5.3.23 Butting against the southern side of wall **208** was a rectangular building constructed from walls **214**, **218** and **219**. This building was not investigated by trenching, but appears to have been a dressing floor or hut. No dating evidence was recovered for this later building, but it is probable that it belongs to the 17th or 18th centuries.
- Phase 3
- 5.3.24 Building B was eventually decommissioned, in a phase which saw the doorway through wall **310** blocked by **311** (**Figure 4, Section 1; Figure 5, Plates 8 and 9**) and the infilling of the southern room with repeated dumps of dressing waste. A possible rough stone revetment appears to have been constructed prior to the first dumping of material, although it is equally possible that **312** represents collapsed material from wall **402**. Four distinct dumps of dressing waste of varying sizes (**301–304**), indicating different stages of the crushing process, infilled the south-western room of Building B. The north-eastern room appeared to have been infilled with collapsed wall material (**314**), but this deposit was not investigated (**Figure 5, Plates 8 and 9**).
- 5.3.25 A single fragment of clay pipe stem was recovered from deposit **312** and is tentatively dated (on stem bore diameter) as late 17th or early 18th century, indicating probable deposition in 18th century during the expansion of mining. It could, however, be residual and (re)deposited during the peak production of the 19th century.
- 5.3.26 The deliberate infilling of the building suggests that it had fallen into such a state of disrepair that it was unsalvageable and therefore became a useful space for dumping waste while still allowing access and movement around the top of the mines, as can be seen from the distinct piles of dressing waste around Simon's Nick. It is likely that this took place during the expansion of the mines and the period of peak production during the 19th century.

Phase 4

- 5.3.27 The final phase of activity around Building B comprised the addition of a small penannular or C-shaped structure on the south-western side, butting against Phase 3 wall **214**. This structure, formed of curving walls **202** and **203**, was built on dressing waste layer **205** and was most probably a lambing shelter used by shepherds on the hills and unconnected with mining activity (**Figure 4, Plate 4**). The interior of the shelter was infilled with a rubble deposit, **217**, derived from the collapse of walls **202** and **203**.

Site B: Cobbler's Level or Low/First Works

Trench 5: Building C (Figures 7 and 8)

- 5.3.28 Trench 5 investigated the standing remains of Building C, aligned north-west to south-east, and located some 50m north of the Cobbler's Level. Building C was approximately 10m long by 4.5m wide, with internal dimensions of approximately 8m by 3m. The northern wall, **522**, was butted by walls **521** and **525** forming the western and eastern gable ends with two internal walls **523** and **524** dividing the interior into three distinct bays. The southern wall, **520**, curved to the north (**528**) to join with **524**. The walls were in various states of survival, surviving to a maximum height of 1.5m (14 courses), while others were less than 0.50m and three courses high. The walls were on average 0.6m thick. A number of phases of development were defined within Building C.

Phase 1

- 5.3.29 The northern wall, **522**, was the earliest. It is likely initially to have been a retaining wall for a working platform on which the building was later constructed. There are a number of similar platforms and retaining walls in the vicinity. A sondage dug inside the building revealed the natural geology (**512**), sealed by **511/527**, a levelling deposit for the working platform. Post-hole **513** cut through **511/527**, although it is unclear as to which structure the post-hole belonged.

Phase 2

- 5.3.30 The addition of gable walls **521** and **525**, internal walls **523** and **524** and southern wall **520** marked the second phase of activity in Building C (**Figure 8, Plate 14**).
- 5.3.31 Within the sondage in Trench 5, stone structure **507** overlay layer **511/527**. This was interpreted as possible further levelling material or perhaps the footing for wall **523**. At the southern end of Trench 5 further levelling deposits were revealed - **519** overlain by **518**, which also butted against **507**.
- 5.3.32 Sealing layer **511** and butting against structure **507** was trample layer **510** (recorded as **517** overlying **518**), deposited during the construction of Building C, and prior to the laying of the flagged floor **508** which sealed it. Occupation layer **506** lay at the end of wall **523** sealing layer **517** (**Figure 8, section**). A clay pipe stem from layer **506** has been tentatively dated (on stem bore diameter) as 18th century or later.

Phase 3

- 5.3.33 The building was later abandoned, and decayed - the walls collapsed (deposit **509**) and deposits **502–505** subsequently accumulated. A clay pipe stem from layer **504** has been tentatively dated (on stem bore diameter) as 17th century, but may well be redeposited here.

Phase 4

- 5.3.34 Later, there appears to have been a period of rebuilding, with wall **528** (the rebuild of **520**) curving to the north to meet wall **524**. It is probable that this marks a post-abandonment alteration associated with animal husbandry, perhaps a sheep enclosure of some kind.



Trench 6 (Figure 9)

5.3.35 Trench 6 (a 1m by 1m test pit) was located on the Cobbler’s Level to the south of revetting wall **605**. Following the removal of topsoil and turf layer **602**, a waterborne deposit **601** was revealed, sealing a cobbled surface, **603 (Figure 9, Plate 17)**, the remains of the surface on which the supposed stamp mill was located. No evidence of the stamp mill was, however, revealed. The cobbled surface was set into a layer of dressing waste debris (**604**), indicating earlier activity.

6 FINDS

6.1.1 A small quantity of finds was recovered from the Site, consisting largely of stone (roofing slate and material probably associated with mining activities). Domestic refuse was virtually absent. **Table 2** gives the quantities of finds by material type and by context.

Table 1: All finds by context (number / weight in grammes)

Context	Clay Pipe	Slag	Slate	Other Stone	Other Finds
103	3/7				1 iron
205			3/93		
302		3/187	14/2308	6/866	
303		2/22		3/468	
305		3/7		2/20	
312	1/5				
401			2/1738		
502			1/262		1 animal bone
503		22/787	2/1141	3/355	1 iron
504	1/3	6/276			
506	2/4				
604				2/93	
Unstrat.			1/711		1 leather
Total	7/19	36/1279	18/5974	21/2081	

6.2 Mining debris

6.2.1 Hand specimen comparative analysis of the worked stone and minerals from the open-cast copper mines Back strings, Coniston, Lake District has identified materials that were extracted or quarried from the immediate area (Coniston-Torver).

6.2.2 Examples of underlying bedrock, including green metavolcanic tuff (layer **503**) and andesite and rhyolite lavastone (layer **302**) from the Ordovician Low Water Formation, Borrowdale Volcanic group (Millward *et. al.* 2000, 103), had attached slag attached and so were presumably waste associated with the copper smelting process. Other slag comprised bloomery slag waste.

6.2.3 Mineral deposits are characterised by a white heavy mineral presumably Barytes (Ba SO₄) or heavy spar (Rutley 1988). This mineral (examples from layers **302** and **303**), associated with Devonian/ Carboniferous copper/ tin/ lead mineralization from this part of the southern Borrowdales forms distinctive veins that cross through the Coniston Copper Mine area. Also present are traces of possible weathered copper from layer **303**. Both of these minerals are associated with the smelting process as slag and industrial residue is found attached.



6.2.4 Coal, from layer **503**, used in the smelting process, probably came from local Cumbrian deposits along the coast at Whitehaven.

6.3 Building materials

6.3.1 The roofing slate material is worked from a grey-blue to grey-green banded metasiltstone, almost certainly from the Seathwaite Formation of the Ordovician Borrowdale Volcanic Group (Millward *et al.* 2000). Known as Westmorland Slate, it may have come from the large mines at Torver or more probably the more local 'Blue Quarries'.

6.4 Domestic refuse

6.4.1 This is limited to one animal bone from Trench 5 (sheep), and seven fragments of clay tobacco pipe, all plain stems. In the absence of any datable bowls, the clay pipe stems have been tentatively (and broadly) dated by stem bore diameter. One fragment from post-abandonment deposit **504** (Building C), with a thicker bore, is broadly dated as 17th century, while one from possible stone revetment **312** (Building B) is dated as later 17th or early 18th century. The remaining fragments, from post-abandonment deposit **103** (Building A) and possible occupation deposit **506** (Building C) are of 18th century date or later.

6.5 Leather flying helmet

6.5.1 A leather flying helmet was recovered from within Simon's Nick during the geophysical survey. The origin of this helmet is not clear though there have been a number of plane crashes close to Levers Water from where it may have come.

6.5.2 On 23rd April 1943, two RAF Hurricanes (AG275 and AG264) crashed in the Brim Fell/Raven Tor area to the south-east of Simon's Nick and both the Australian pilots (Flt Sgt Henry Atherton and Flt Sgt Leonard Cook) were killed (http://www.aircrashsites-scotland.co.uk/hurricane_brim-fell.htm). Then on 22nd October 1944 a Halifax bomber (LL505) crashed on Great Carrs, north-west of Levers Water with all eight Canadian crewmen (F/Os John Johnston, Francis Bell, Robert Whitley and Sgts Harvey Pyche, William Ferguson, Calvin Whittingshall, Donald Titt and George Riddoch) killed (http://www.aircrashsites-scotland.co.uk/halifax_great-carrs.htm).

7 ENVIRONMENTAL

7.1.1 No archaeological deposits suitable for environmental sampling were present on the Site.

8 RADIOCARBON DATING

8.1.1 A sample of mature oak wood from timber **215** was subjected to radiocarbon dating. The timber formed a sill beam, part of a timber doorway into Building B at Site A. Due to a paucity of finds from the Site the sample was taken to help to provide a date for the structure.

Table 3: Radiocarbon date

Material Identification	Laboratory Code	Radiocarbon Age (BP)	$\delta^{13}\text{C}$ (‰)	Calibrated Date Range (95.4% confidence)
Mature <i>Quercus</i> wood	UB-21055	407±25	-32.0	cal. AD 1435-1515 (86.5%) cal. AD 1595-1620 (8.9%)



- 8.1.2 The date is calibrated against the IntCal09 Northern Hemisphere radiocarbon curve (Reimer et al. 2009) using the program OxCal 4.1 (Bronk Ramsey 1995; 2001). The calibrated date is quoted as calibrated years AD, with date ranges quoted using the 2 σ calibrated range (95.4%) and end point rounded outwards to 5 years as the error range is less than ± 25 years (Bayliss *et al.* 2008).
- 8.1.3 The timber produced a date range of AD 1435–1515 with an 86.5% probability giving it a medieval date, most probably from the early Tudor period although there is an 8.9% chance that it dates to between AD 1595–1620 and is Elizabethan or early Stuart period. However, the sample comes from a piece of mature oak and thus the date might not be a true reflection of the time when the tree was felled. The material dated could be from an inner part of the tree and could therefore be a century or more older than the felling date. Moreover, it is possible that the timber may have been reused at a later time and the date may therefore not be truly contemporaneous with its excavated features. Consequently, this date should be seen as a maximum limiting age – ie the wood can be no older than this date.

9 DISCUSSION

- 9.1.1 The programme of works undertaken by ‘Time Team’ at the Coniston Copper Works Complex was only partially successful in its stated aims of enhancing and informing on the previous archaeological works. The evaluation was unable to identify a clear function or date for any of the buildings investigated. However, as the landscape is littered with structures dating from a number of periods, all constructed in a similar manner and of the same material and with very little associated dating evidence, this was not unsurprising.
- 9.1.2 Despite this, the evaluation did provide a scientific date for part of one of the structures (Building B), and successive periods of activity and construction were recorded in all three buildings investigated.
- 9.2 Research Question 1: Are the structural remains at the ‘Back Strings’ 16th/17th century in date and what was their function?**
- 9.2.1 The historical evidence indicates that ‘*The Germans opened new working beside the old mine*’ in the late 16th century, a clear indication that there were pre-existing (and therefore potentially pre-Elizabethan) works upon the fells. Possible evidence of these earlier works comes from the mortar stones reused in the construction of Building B, but also from the radiocarbon date on a timber sill beam from the same building. We know that the construction of Building B was not the first phase of activity on this site, as an earlier layer of dressing waste was recorded, cut through by the construction hollow for the building.
- 9.2.2 The timber sill beam was dated to 1435-1515 (86.5% probability), making it late medieval or early Tudor, although there is also an 8.9% chance that it dates to between 1595-1620 and is therefore Elizabethan or early Stuart. Whichever is the accurate date and despite the caveats, that it is from a piece of mature oak and the date may not be a true reflection of the felling date, or that the timber may have been reused at a later date, this date does imply some activity during the 16th or 17th century, or possibly even earlier, but the building itself may be later, perhaps 17th or early 18th century.
- 9.2.3 Building A more probably dates to the 18th century, from the identification of the blast holes in stones within rubble derived from the walls of the structure. Further evidence of 18th century activity at Building A comes from the tentatively dated pipe stems.

- 9.2.4 As previously stated, the first historically recorded date for the use of gunpowder at Coniston comes from 1693 when in Roger Le Flemming’s account for that year a payment of £2-5s-8d was made to a Hr Whinforth for ‘powder’ (Matheson 1994, 113). A year later an entry made in the Hawkshead register records a man called Michael Nolon, a ‘workerman’ of the mines on Coniston Fell, being killed while bursting a crag with gunpowder.
- 9.2.5 The use of gunpowder in mining was reputedly first employed in a Venetian mine in the later 16th century and the technique spread across Europe in the early 17th century (Wild 1996). The earliest documented use was before 1685 at the Ecton copper mines in Staffordshire, where the introduction was ascribed to Dutch or German specialists (Plot 1686, 165; Hollister-Short 1985, 31-66). Despite this, the demand for gunpowder for mining appears to have remained at a fairly low level and did not become a significant locational factor for powder mills until the end of the 18th century (Cocroft 2000, 16).
- 9.2.6 In the 18th to 19th century there were seven known gunpowder mills in the vicinity of Coniston, including those at Old and New Sedgewick, Gatebeck and Basingill near Kendal, the works at Elterwater and Black Beck works near Bouth, and at least one of these mills was supplying the Coniston Copper Works with powder, from records kept by the Low Wood Mill near Haverthwaite between 1800 and 1807 (Palmer 1998).

9.3 Research Question 2: Are there 16th/17th century structural remains at Cobbler’s Level? Does anything survive of the potential 17th century stamp mill at this location

- 9.3.1 There was an almost complete absence of dating evidence from Building C – no finds other than clay pipe stems (17th to 18th century or later), and nothing in the structural remains to provide either a date or an idea of its function. However, as for Buildings A and B, there were clearly different phases of activity here.
- 9.3.2 It is also unsurprising that no traces of the stamp mill were revealed at Cobbler’s Level, as this structure would have been built predominantly of wood. Once it was no longer required, the structure would have been dismantled and the timber reused.

10 STORAGE AND CURATION

10.1 Museum

- 10.1.1 It is recommended that the project archive resulting from the evaluation will be deposited with The Ruskin Museum, Coniston. The Museum has agreed in principle to accept the project archive. In the interim the archive will be held at the offices of Wessex Archaeology at Old Sarum, Salisbury, Wiltshire, under the project code **85208**.

10.2 Preparation of archive

- 10.2.1 The complete site archive, which will include paper records, photographic records, graphics and digital data, will be prepared following the standard conditions for the acceptance of excavated archaeological material by the local museum, and in general following nationally recommended guidelines (SMA 1995; ClfA 2014; Brown 2011; ADS 2013).
- 10.2.2 All archive elements are marked with the project code **85208** and a full index will be prepared. The physical archive comprises the following:
- 1 file of paper records



- 3 cardboard boxes or airtight plastic boxes of artefacts ordered by material type

10.3 Copyright

10.3.1 The full copyright of the written/illustrative archive relating to the Site will be retained by Wessex Archaeology Ltd under the *Copyright, Designs and Patents Act 1988* with all rights reserved. The recipient museum, however, will be granted an exclusive licence for the use of the archive for educational purposes, including academic research, providing that such use shall be non-profit making, and conforms with the *Copyright and Related Rights Regulations 2003*.

10.4 Security Copy

10.4.1 In line with current best practice (e.g. Brown 2011), on completion of the project a security copy of the written records will be prepared, in the form of a digital PDF/A file. PDF/A is an ISO-standardised version of the Portable Document Format (PDF) designed for the digital preservation of electronic documents through omission of features ill-suited to long-term archiving.



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12 APPENDIX 1: TRENCH AND CONTEXT SUMMARIES

Bgl: Below Ground Level
aOD above Ordnance Datum

Trench 1	Dimensions :		Ground surface level:	489.8m aOD
	Centre point Coordinate (NGR):	3.8m long by 1.3m wide by 0.30m deep		
101	Topsoil	Current topsoil and turf, dark grey-brown silty loam. Seals 102.	0.05m thick	
102	Layer	Dark grey-brown silty loam with common large stone blocks <0.19 in size. Collapse deposit within the interior of Building A, material derived from walls 104, 105, 106, and 107. These stones have been mined; of clearly different geology to that evident on the ground surface. One stone shows evidence of a hole to receive gun powder or dynamite. Unclear if the holes have been drilled or pecked out using hammer and chisel. Several other stones within the piles of mining debris in the vicinity of Building A show evidence of these gunpowder/dynamite holes. 102 is sealed by 101 and overlies 103; post-dates 108.	0.19m thick	
103	Layer	Very dark grey-brown-black silty loam with rare small fragments of dressing waste (c. 0.02m in size). Deposit accumulated post-abandonment of Building A. Natural topsoil/peat formation type material, organic natural build-up which overlies 111 and is sealed by blocking wall 108; ultimately sealed by deposits 102 and 101.	0.14m thick	
104	Structure	Western wall of Building A; bonded and contemporary with 105 to the north. Wall 3.60m long by 0.86m wide and 0.75m high. Constructed in hollow 116. Roughly north-south aligned; six rough horizontal courses in dry stone construction, of mined material. Foundation appears to be natural bedrock, visible at the ground surface and used for footings.	0.75m high	
105	Structure	Northern curving wall of Building A, bonded and contemporary with 104 to the west and 106 to the east. Built of ten courses of mined stone in the same manner as 104. Approx. 4m long by 0.82m wide and 1.27m high; constructed in hollow 116.	1.27m high	
106	Structure	Eastern wall of Building A; bonded to and contemporary with 105 to the north and 107 to the south. Built of five courses of mined stone in the same manner as 104; 3.60m long by 0.94m wide and 0.90m high. Constructed in hollow 116.	0.90m high	
107	Structure	Southern wall of Building A. Doorway located in this wall with southern end of wall 104. Bonded at its eastern end to the southern end of 106. Constructed in the same manner as 104; four courses, 1.80m long by 0.84m wide and 0.45m high. In construction hollow 116.	0.45m high	
108	Structure	Blocking wall located in the doorway between walls 104 and 107. Constructed of roughly hewn, mined stones; 1.20m long by 0.70m wide and 0.20m high. This blocking wall built on 103 - very late in the sequence. Unclear why the door way would be deliberately blocked following the abandonment of Building A - possible that 108 is a collapse deposit.		
109	Topsoil	Current topsoil and turf, dark grey-brown silty loam recorded in test pit excavated to the south of Trench 1 to investigate	0.10m thick	



		the location of a possible buddle (circular trough which uses centrifugal force and water to separate impurities from crushed ore). Sealed dressing waste deposit 110.	
110	Layer	Thin spread of very dark brown-black silty loam with common small fragments of stone (dressing waste), 0.02m in size. Thin spread of material which overlies the natural degraded upper geology 121.	0.03m thick
111	Layer	Compact orange gravel deposit in silty clay matrix. Represents mined stone which has been processed and dressed and crushed into gravels <0.01m in size to form possible surface inside Building A. Uppermost of a series of laminated floor layers and trample deposits within the building. Sealed by 103 and overlies 112.	0.06m thick
112	Layer	Dark organic brown-black silty loam with occasional small dressed stone <0.02m. Trample deposit which seals floor surface 113 and is sealed by floor surface 111 in Building A.	0.11m thick
113	Layer	Compact orange gravel deposit in silty clay matrix. Represents mined stone which has been processed and dressed and crushed into gravels <0.01m in size to form possible surface inside Building A. Sealed by 112; overlies 114.	0.04m thick
114	Layer	Dark organic brown-black silty loam with occasional small dressed stone <0.02m. Trample deposit which seals upper geology 115 and is sealed by floor surface 113 in Building A.	0.04m thick
115	Natural	Glacial till; magnesium deposit which seals the natural geological bedrock. This deposit would have initially formed the floor surface within Building A before being sealed by trample 114.	-
116	Cut	Cut number allocated to construction hollow in which Building A was built. Cut (not visible) inferred from distinct change in ground level from the exterior to interior of the building. It may have pre-dated Building A, initially a working hollow reused? Walls of Building A not very well constructed; possible that the hollow was used to reduce the necessary height of the walls.	0.24m deep+
117	Structure	Roughly east–west wall forming small structure or shelter with wall 119 on the eastern side of Building A (wall 106). Six rough horizontal courses; 0.68m long by 0.50m wide and 1m high. This structure is a single stone wide, supported and/or revetted by the addition of dressing waste 120. Function of structure unclear, but is associated with mining activity and maybe a small shelter or perhaps an ore bin.	1m high
118	Bedrock	Natural bedrock visible at the surface; clearly different to the mined stone which forms the walls of Building A and is visible in piles of dressing waste dotted around the Back Strings area.	
119	Structure	Roughly north–south wall forming small structure or shelter with 117; supported/revetted by the addition of 120. 1.10m long by 0.45m wide and 1m high. Possible shelter or ore bin.	
120	Layer	Rubble deposit banked up on the northern side of walls 117 and 119 to add support to this shelter/store structure. This rubble is partially dressed or processed mined material; 7.4m long by 3.3m wide. Partially mixed with collapse material 122 from walls 104, 105, 106 and 107 on the exterior of Building A.	1 m+ thick
121	Natural	Upper degraded, weathered natural revealed below dressing waste 110 in test pit.	-
122	Layer	Rubble collapse from walls 104, 105, 106 and 107 which has	-



		collapsed to the exterior of Building A.	
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Trench 2	Dimensions :	3.4m long by 2.70m wide by 0.80m deep	Ground surface level:	486.67m aOD
	Centre point Coordinate (NGR):	328059.96, 499047.65		
Context	Category	Description	Depth (bgl)	
201	Topsoil	Current topsoil and turf, dark grey-brown silty loam. Seals 217.	0.07m thick	
202	Structure	Slightly curving SW–NE wall which butts the western end of Building B (wall 208) and forms a small 'C' shaped shelter with wall 203. 1.4m long by 0.70m wide and 0.75m high max and constructed of four rough horizontal dry-stone courses of mined stone; this material derived from collapse of Building B. Probably represents the remains of small lambing shelter, unconnected with mining activity in the area.	0.70m high	
203	Structure	Slightly curving SW–NE wall which butts the western end of Building B (wall addition 214) and forms a small 'C' shaped shelter with wall 202. 1m long by 0.90m wide and 0.60m high; constructed of three rough dry-stone courses of mined stone. Probable lambing shelter.	0.60m high	
204	Layer	Dark grey-black silty clay with abundant small angular stones; layer of dressing debitage from processing of mined stone to extract ore. Stone 0.02 – 0.04m in size. Debris located outside Building B to the west, with possible lambing shelter 202/ 203 constructed on it. Seals 205.	0.05m thick	
205	Layer	Dark grey-black silty loam with common, very small angular fragments of dressing waste incorporated. Fine working debris. Sealed by 204 and overlies 213.	0.05m thick	
206	Layer	Mid-yellowish-orange gritty clay with c. 2% sub-angular inclusions. Possibly natural geology, but clearly different to exposed bedrock in the vicinity and the glacial till natural observed in Trench 1. Possibly very fine dressing waste compacted into a surface. Cut by 210.	-	
207	Layer	Equivalent to 205.	-	
208	Structure	NE–SW wall forming the main back wall of Building B. Approx. 7m long, 0.90m wide and 1.5m high max; constructed of eight good dry-stone courses of worked stone. Inside Building B, 208 formed a doorway with wall 310, (subsequently blocked by wall 311); at this junction was recess or alcove built into 208. Recess 0.65m wide by 0.33m deep and 0.37m high. No stone wall at the south–western end of Building B, though the remains of a possible timber sill beam 215 corresponded to a slot cut into a natural boulder forming part of the wall. At north-eastern end of 208 wall 313 formed a staggered entrance into Building B, with wall 408. At the junction of 208 and 313 were three small stone mortars, possibly collapsed from wall 208. At the south-western end of 208 on the southern side, wall butted by wall 214 which formed a small dressing platform or room with walls 218 and 219.	1.5m high	
209	Layer	Mid-orange-brown silty sand with common small gravels and occasional stones <0.30m in size. Deposit banked up against wall 208 with cut 210; represents deliberate deposit of packing material.	0.28m high	
210	Cut	Cut number allocated to construction hollow in which Building B was built. Cut (not visible) inferred from distinct	0.30-1m+ deep	



		change in ground level from exterior to interior of building; partially revealed cutting 206. As with cut 116, possible that the hollow pre-dated Building B and was initially a working hollow, reused to reduce the necessary height of the walls. Cut sloped down from SW to NE. At least 1.30m wide and 0.30m deep at SW; over 1m deep to the NE.	
211	Layer	Mid-orange silt with common small sub-angular gravels. Mined stone which has been processed and dressed and ultimately crushed into gravels <0.01m in size to form possible surface inside Building B. Located in corner of building at junction of timber sill beam 215 and wall 208. Seals trample deposit 212. Probably equivalent to 306 in Trench 3.	0.04m thick
212	Layer	Dark grey-black silt with common charcoal flecks. Trample layer in Building B; probably equivalent to 307 in Trench 3. Located in corner of building at junction of timber sill beam 215 and wall 208. Sample of 212 analysed by XRF: produced rating of 10% copper compared to natural background reading of 1%, indicating evidence of ore crushing. Probable that copper was derived from the soles of the miners' boots while working in Building B.	0.03m thick
213	Layer	Mid-brownish-grey silty gravel; working debris/ dressing floor waste which has been dumped in cut 210 against packing material 209.	0.38m thick
214	Structure	NW-SE wall butting southern side of wall 208 to form probable dressing platform or room with walls 218 and 219 on south side of Building B. 2.3m long by c. 0.40m wide and 0.70m high max. Dry-stone construction of mined stone; five rough horizontal courses.	0.70m high
215	Timber structure	Possible sill beam formed of two parallel timbers; 0.45m long by 0.10m wide and 0.10, high. Possibly received timber uprights to form the SW wall of Building B. Slot cut into one of the large stones of wall 208 to receive timber post.	
216	Layer	Mid-orange silt with common small sub-angular gravels. Mined stone which has been processed and dressed and crushed into gravels <0.01m in size. In-fills cut 210; sealed by 213.	0.22m thick
217	Layer	Rubble collapse derived from 202 and 203 which in-filled the interior of the small lambing shelter. 201 built up in and around 216.	
218	Structure	SW-NE wall; 1.9m long by c. 0.40m wide. Formed part of dressing floor or structure with 214 and 219 on southern side of Building B.	-
219	Structure	NW-SE wall; 0.70m long by c. 0.40m wide. Formed part of dressing floor or structure with 214 and 218 on southern side of Building B.	-

Trench 3	Dimensions :	2.60m long by 0.90m wide 1.50m deep	Ground surface level:	487.35m aOD
	Centre point Coordinates (NGR):	328061.84, 499051.69		
Context	Category	Description	Depth (bgl)	
301	Layer	Deliberate dump /layer of stone dressing waste in-filling interior of SW room of Building B following its abandonment. Stone dressing fragments measured c. 0.05m–0.20m in size. Uppermost of a number of deliberate dumping events into interior of Building B. Seals 302.	0.10m thick	



302	Layer	Very dark grey-black silt with abundant fragments of stone dressing waste, c. 0.03m–0.10m in size. Evidence of ash material within this deposit but stone dressing material not burnt. No evidence of hot works, smelting etc on site. Sealed by 301 and overlies 303.	0.20m thick
303	Layer	Mixed and mottled orange-brown and orange-grey silt with abundant dressed stone fragments; the orange nature of the deposit derived from crushed mined material. Dressing waste 0.02-0.06m in size. Sealed by 302 and overlies 304.	0.21m thick
304	Layer	Orange-brown silt with abundant stone dressing waste fragments 0.06m–0.15m in size. Thickest of a number of deliberate dumped deposits. Material concentrated against southern wall 208 as if thrown up against the wall. Dumped material supported by addition of revetting wall 312. Sealed by 303 and overlies 312.	0.88m thick
305	Layer	Orange-brown silt with abundant dressing waste fragments up to 0.05m in size. Earliest in a sequence of dumped deposits in Building B. Sealed by 312 and overlies 306.	0.06m thick
306	Layer/surface	Brownish-orange, compact crushed stone layer. Mined stone which has been processed and dressed and crushed into gravels <0.01m in size; brownish tinge is a possible indication of trample over the surface, but inconclusive. Sealed by 305 and overlies 307.	0.04m thick
307	Layer	Blue-green-grey clay deposit with rare small stone dressing waste fragments <0.01m. Interpreted as trample layer, equivalent to 212 in Trench 2. Located at the doorway leading through wall 310 from SW room to NE room in Building B. Sample of 307 was tested by XRF and produced reading of 20% copper compared to the natural background reading of 1%, indicating evidence of ore crushing. Probable that copper was derived from soles of miners' boots while working in Building B. Sealed by 306 and overlying surface 308.	0.02m thick
308	Layer/surface	Orange silt with abundant, very small crushed stone fragments c. 4mm in size. Mined stone which has been processed and dressed and crushed into gravels and dumped to create a level surface inside Building B. Sealed by 307 and overlies 309.	0.08m thick
309	Natural	Natural bedrock, cream coloured with the remains of glacial till and early peat/topsoil formation within fissures. Sealed by 308.	-
310	Structure	NW-SE internal wall in Building B. Doorway located at southern end with wall 208 (subsequently blocked by 311). Wall extends to the northern wall of Building B; formed of glacial erratics 406 and wall 402. Approx 2.70m long by 0.65m wide and 1.03m high; six rough dry-stone courses .	1.03m high
311	Structure	Doorway blocking wall located at the end of 310 against 208. Mix of mined stone and material gathered from ground surface, no coursing, rough dry-stone construction, 0.66m long and 1.16m high.	1.16m high
312	Structure	Rough stone revetment placed inside Building B during deliberate in-filling with dressing waste. Not a true wall, just piled stones.	0.60m high
313	Structure	Number assigned to the small stub of NW-SE wall at the end of wall 208, forming possible entrance into NE room of Building B. Not investigated.	-
314	Layer	Rubble deposit in NE room of Building B. Not investigated.	-



Trench 4	Dimensions :	1.5m long by 0.5m wide by 0.35m deep	Ground surface level:	485.77m aOD
	Centre point Coordinate (NGR):	328064.51, 499056.77		
Context	Category	Description	Depth (bgl)	
401	Layer	Rubble deposit, material which had collapsed from walls 402 and 408, which overlay 403.	0.66m thick	
402	Structure	Roughly NE-SW wall butting glacial erratic 406, formed corner of Building B with 408. Constructed of roughly squared mined stone. Four rough dry-stone horizontal courses; 0.76m wide and 1.50m high. Due to extent of collapse from 402, unclear on what surface 402 was built.	1.50m high	
403	Layer	Layer of dressing waste outside Building B, butting wall 402. Sealed by 401 and overlies 404. Dressing waste 0.02-0.05m in size.	0.06m thick	
404	Layer	Orange-brown silt with fine, very small dressing waste. Mined stone which has been processed and dressed and crushed into gravels <0.01m in size. Sealed by 403 and overlies 405. Possibly formed rough surface outside building, or may just be dumped dressing waste.	0.02m thick	
405	Layer	Very dark brown-black organic silty loam, peat formation deposit sealing natural bedrock 407; overlain by 404.	0.07m thick	
406	Boulder	Two large glacial erratic stones used to form northern wall of Building B; butted by 402 to form wall.	-	
407	Natural	Natural basal bedrock, cream coloured igneous rock.	-	
408	Structure	NW-SE wall bonded to and contemporary with 402; formed eastern wall of Building B, and staggered entrance with 408. Not investigated.	-	

Trench 5	Dimensions :	2.8m long by 0.9m wide and 0.35m deep	Ground surface level:	320.26m aOD
	Centre point Coordinate (NGR):	328814.36, 498990.97		
Context	Category	Description	Depth (bgl)	
501	Layer	Current topsoil and turf, dark grey-brown silty loam. Seals 502.	0.06m thick	
502	Layer	Dark brown silty sand with common stone rubble, derived from the walls of Building C. Sealed by 501 and overlies 503.	0.11m thick	
503	Layer	Yellow-orange sandy gravel deposit with common fragments of collapsed stone rubble from walls of Building C; continuation of 502, though more compact and mixed with material possible redeposited natural. Sealed by 502 and overlies 504.	0.15m thick	
504	Layer	Layer of redeposited natural geology, orange-yellow sandy clay with natural gravel inclusions, considerable iron panning. Sealed by 503 and overlies 506 and 505.	0.04m thick	
505	Layer	Mid grey to dark grey-black silty sand with small gravels, possible trample layer sealed beneath 504 and overlies stone surface 508.	0.05m thick	
506	Layer	Mid grey-brown sandy clay layer with occasional small stones and roofing slate. Possible occupation deposit mixed with collapse material. Sealed by 504 and overlies 517.	0.08m thick	
507	Structure	Stone structure below 518 in sondage. Nature unclear - possibly stone levelling for floor 508 or foundation material for wall 523.	-	



508	Surface	Flagged floor surface up against wall 523, formed of sub-angular flat stones. Did not extend across whole trench due to truncation. Sealed by 505 and 509 and overlies 510.	0.04m thick
509	Layer	Layer of large stones c. 0.50m long by 0.15m wide and 0.10m thick. Overlies surface 508. Function unclear - possible floor repair or collapsed walling material. Seals 508 and sealed by 505.	0.05m thick
510	Layer	Dark grey-black-brown silty clay with small sub-angular stones <0.05m in size, below surface 508. May represent trample during construction of building and floor surface. Sealed by 508 and overlies 511.	0.06m thick
511	Layer	Layer of mixed orange and grey-yellow silty sand with clay patches and occasional sub-angular stones <0.10 in size. Redeposited natural material used to level ground prior to construction of floor surface 508. Most likely associated with the working platform. Sealed by trample layer 510 and overlies 512.	0.15m thick
512	Natural	Yellow-orange clay deposit with sandy gravel inclusions. Probable natural geology revealed in sondage. Sealed by 511.	-
513	Cut	Cut of post-hole; 0.15m in diameter and 0.30m deep; filled with packing material 526 and post pipe infill 514, which cuts layer 527 (equivalent to 511).	0.30m deep
514	Fill	Secondary fill of post-hole 513, filling post-pipe, within packing material 526. Dark brown silty sand, no inclusions or finds; probably represents decaying of wood <i>in situ</i> .	0.25m thick
515	Layer	Spread of large flat stones; 0.50m long by 0.40m wide and 0.15m thick. Function unclear, possibly part of 509.	-
516	Cut	Possible foundation trench for wall 523, backfilled with 527. Only partially revealed; 0.80m long by 0.26m wide. Not excavated.	-
517	Layer	Dark blackish-grey silt clay with infrequent coal inclusions and some dressing waste; overlies 518 and sealed by 506.	0.06m thick
518	Layer	Mid-yellow-orange sandy clay with occasional sub-angular and sub-rounded stones; sealed 519 and butted 507. Probably redeposited natural.	0.25m thick
519	Layer	Light yellow sandy clay layer, probably redeposited natural. Not fully excavated.	0.06m thick
520	Structure	Southern wall of Building C; bonded to south end of wall 521. At some point partially rebuilt so that it curved around to the north at eastern end to join 524 (curving wall recorded as 528).	-
521	Structure	Western wall of Building C; gable end butting 522; contemporary with 520. Not investigated.	-
522	Structure	Main northern wall of Building C. Appears to have been a pre-existing structure in the landscape - walls 521, 523, 524 and 524 added on southern side to create Building C. Probable that 522 formed a revetting structure for a working platform, and building constructed at a later date. Not investigated.	-
523	Structure	Internal wall in Building C, built in footing trench 516; 527 deposited against it. Not investigated.	-
524	Structure	Internal wall in Building C, butted by curving wall 528.	-
525	Structure	Wall forming the eastern gable end of Building C. Not investigated.	-
526	Fill	Packing material in post-hole 513, formed of thin slabs of stone and sealed by 514.	-
527	Layer	Equivalent to 511.	-



528	Structure	Curving wall, rebuild of southern wall 520, most likely following abandonment of Building C. Possibly associated with animal husbandry. Not investigated.	-
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Trench 6	Dimensions :	1m long by 1m wide by 0.4m deep	Ground surface level:	295.22m aOD
	Centre point Coordinate (NGR):	328825.70, 498938.06		
Context	Category	Description	Depth (bgl)	
601	Layer	Dark brown-black silty clay with common small sub-angular stones <0.02m in size; material deposited as result of water action associated with nearby stream. Sealed by 602 and overlies 603.	0.09m thick	
602	Topsoil	Topsoil and turf, light brown silty clay with common small sub rounded stones. Seals 601.	0.08m thick	
603	Surface	Cobbled surface formed of sub-rounded, water-rolled stones <0.15m in size. Probable surface associated with stamp mill for the crushing of mined stone (no trace of stamp mill structure itself observed). Sealed by 601 and overlies 604.		
604	Layer	Light brown silty clay containing abundant small stone fragments, dressing waste on which cobbles were set. Evidence of early activity prior to creation of cobbled surface.	0.22m thick+	
605	Structure	Revetting wall of cobbled surface, area of stamp mill. Not investigated.	-	
606	Structure	Revetting wall of stream which runs past the Cobbler's Level. Indication of water management in this area and probable use of water to power the stamp mill.	-	

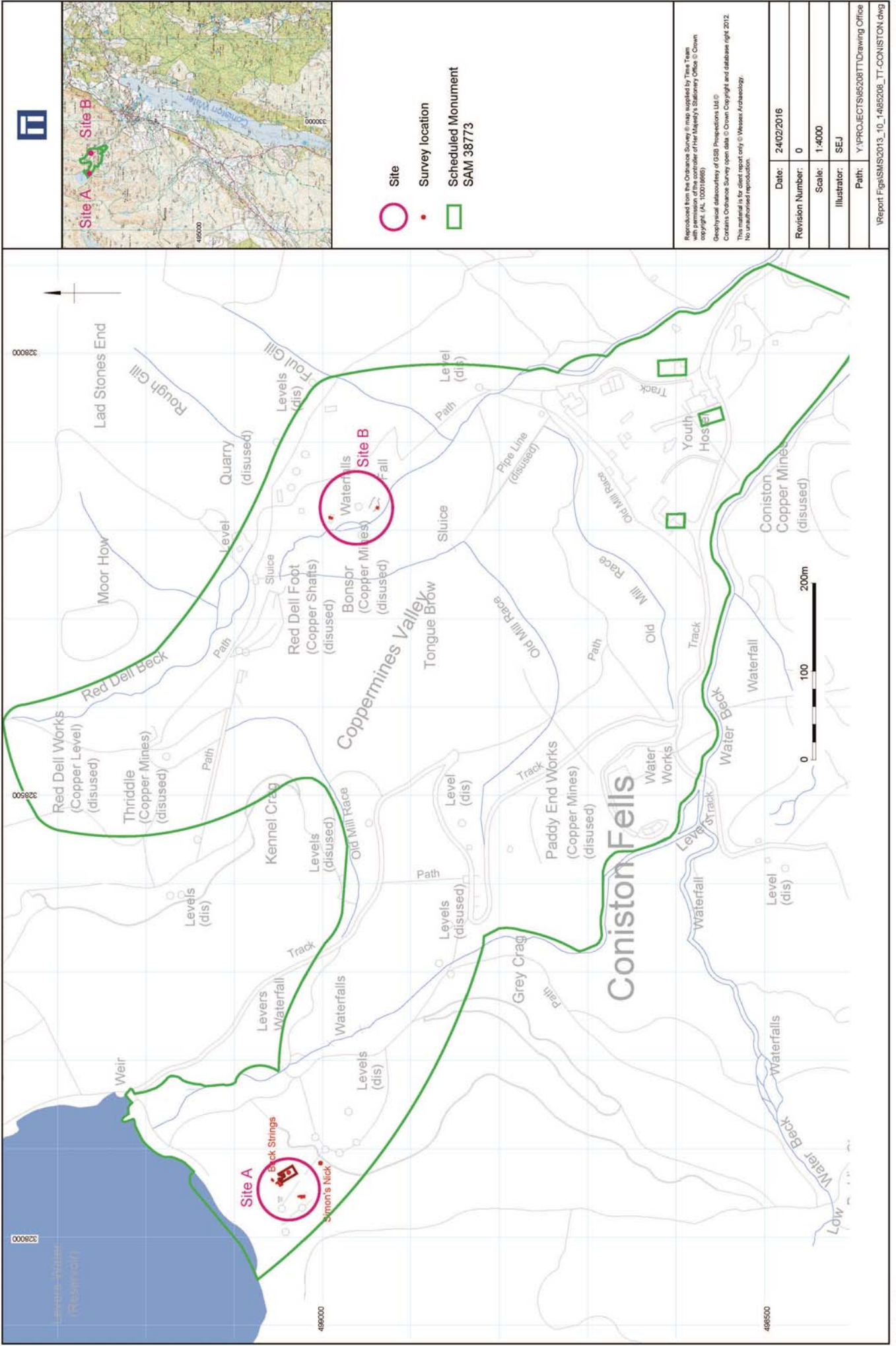
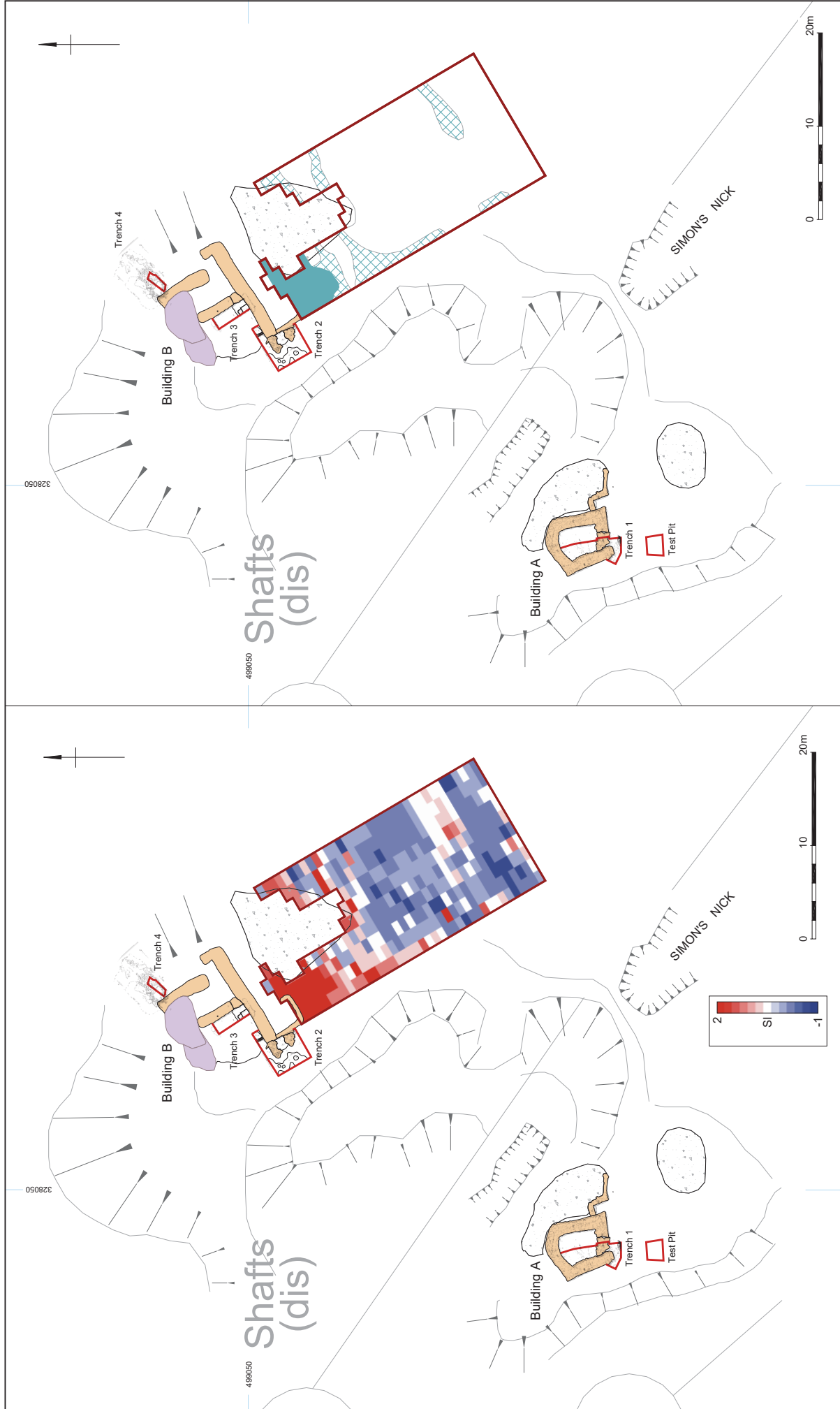


Figure 1

Site location



<p>Reproduced from the Ordnance Survey map supplied by Time Team with permission of the controller of Her Majesty's Stationery Office © Crown copyright. (AL 100018665)</p> <p>Geographical data courtesy of GSB Prospections Ltd. All other data are the property of the author and database right 2016. This material is for client report only © Wessex Archaeology. No unauthorised reproduction.</p>		Date:	24/02/2016	Revision Number:	0
<p>Interpretive results of magnetic susceptibility survey:</p> <p>High Susceptibility</p> <p>Increased Susceptibility</p>		Scale:	1:400	Illustrator:	SEJ
<p>Excavation trench</p> <p>Archaeological feature</p> <p>Wall</p> <p>Boulder</p>		Path:	Y:\PROJECTS\85208\TT\Drawing Office\Report Figs\MS\2013_10_14\85208_TT-CONISTON.dwg		

Site A: Lever's Water or Back Strings; results of geophysical survey

Figure 2

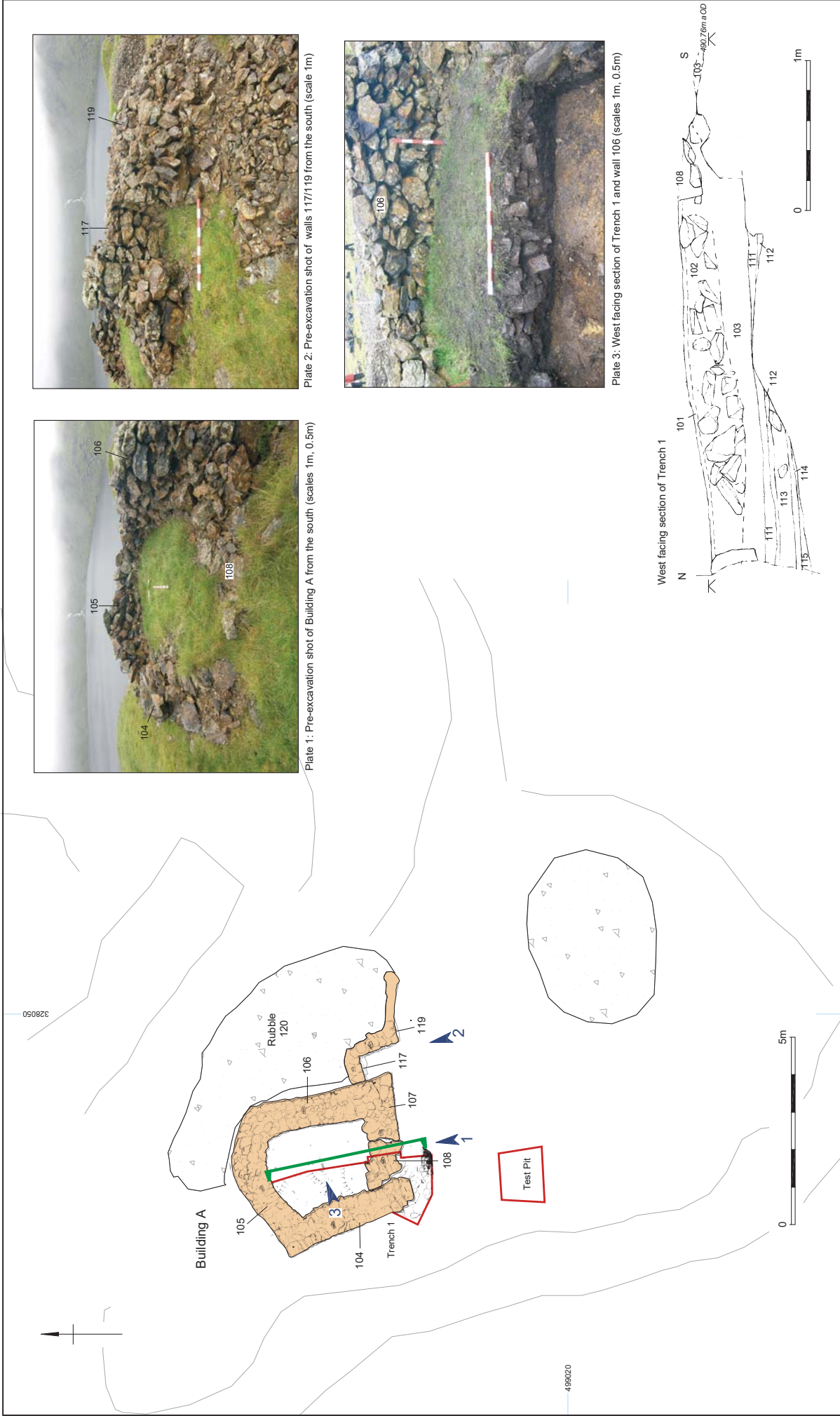


Plate 2: Pre-excavation shot of walls 117/119 from the south (scale 1m)




Plate 1: Pre-excavation shot of Building A from the south (scales 1m, 0.5m)



Plate 3: West facing section of Trench 1 and wall 106 (scales 1m, 0.5m)

West facing section of Trench 1

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-  Excavation trench
-  Archaeological feature
-  Wall

-  2 Direction and number of plate
-  3 Line of section/ elevation



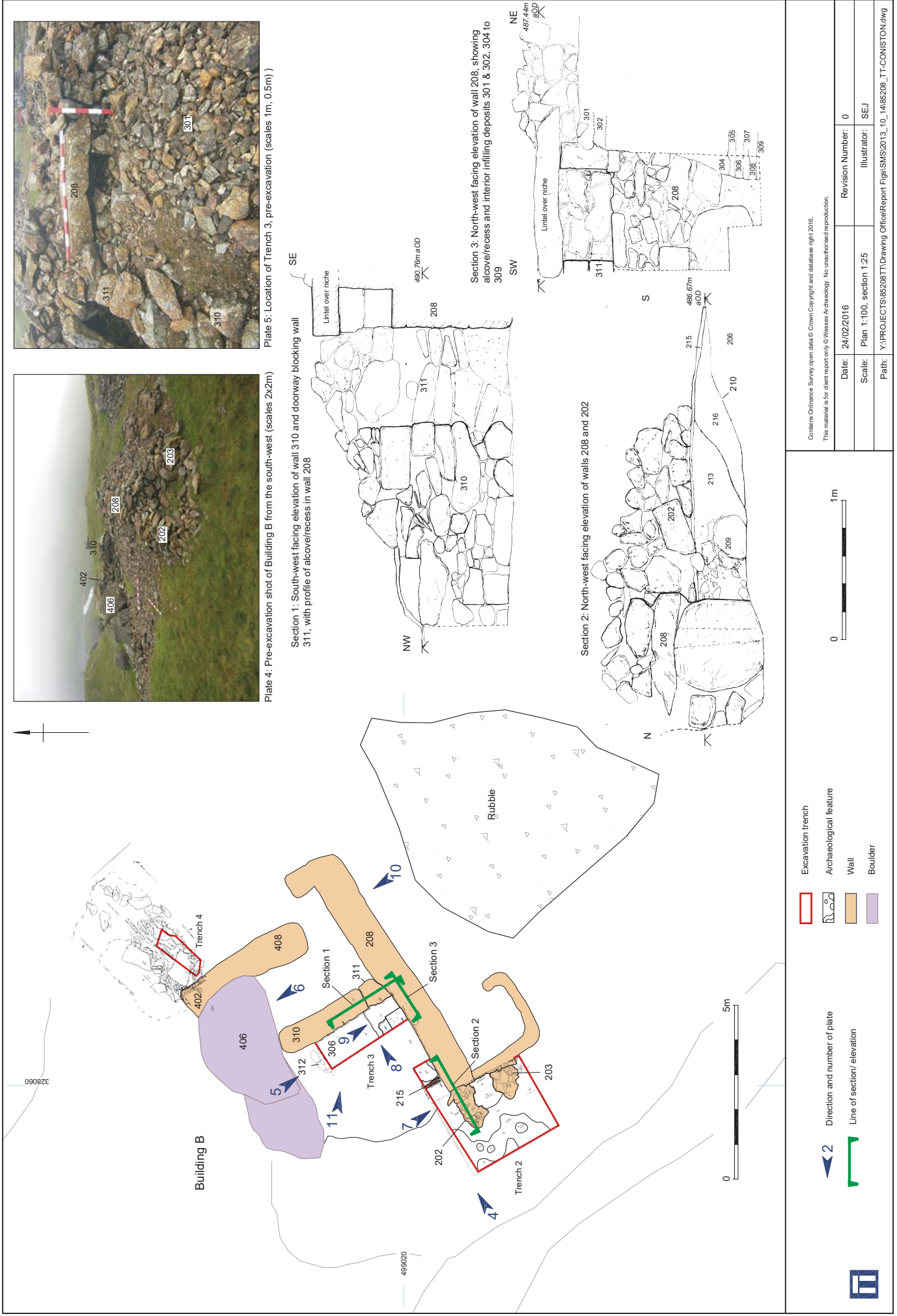


Figure 4



Plate 6: South-east facing elevation of erratics 406 and wall 402 (scale 1m)



Plate 7: North-west facing elevation of walls 208 and 202 and timber sill-beam 215 (scales 1m, 0.5m)



Plate 8: South-west facing elevation of wall 310 and doorway blocking wall 311 (scale 1m)



Plate 9: North-west facing elevation of wall 208 with alcove/recess, wall 310, blocking wall 311 and surface 306 (scale 1m)



Plate 10: Three re-used mortar stones derived from wall 208 (scales 1m, 0.5m)



Plate 11: Excavation of Trench 3



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Plate 12: Working shot of Building B

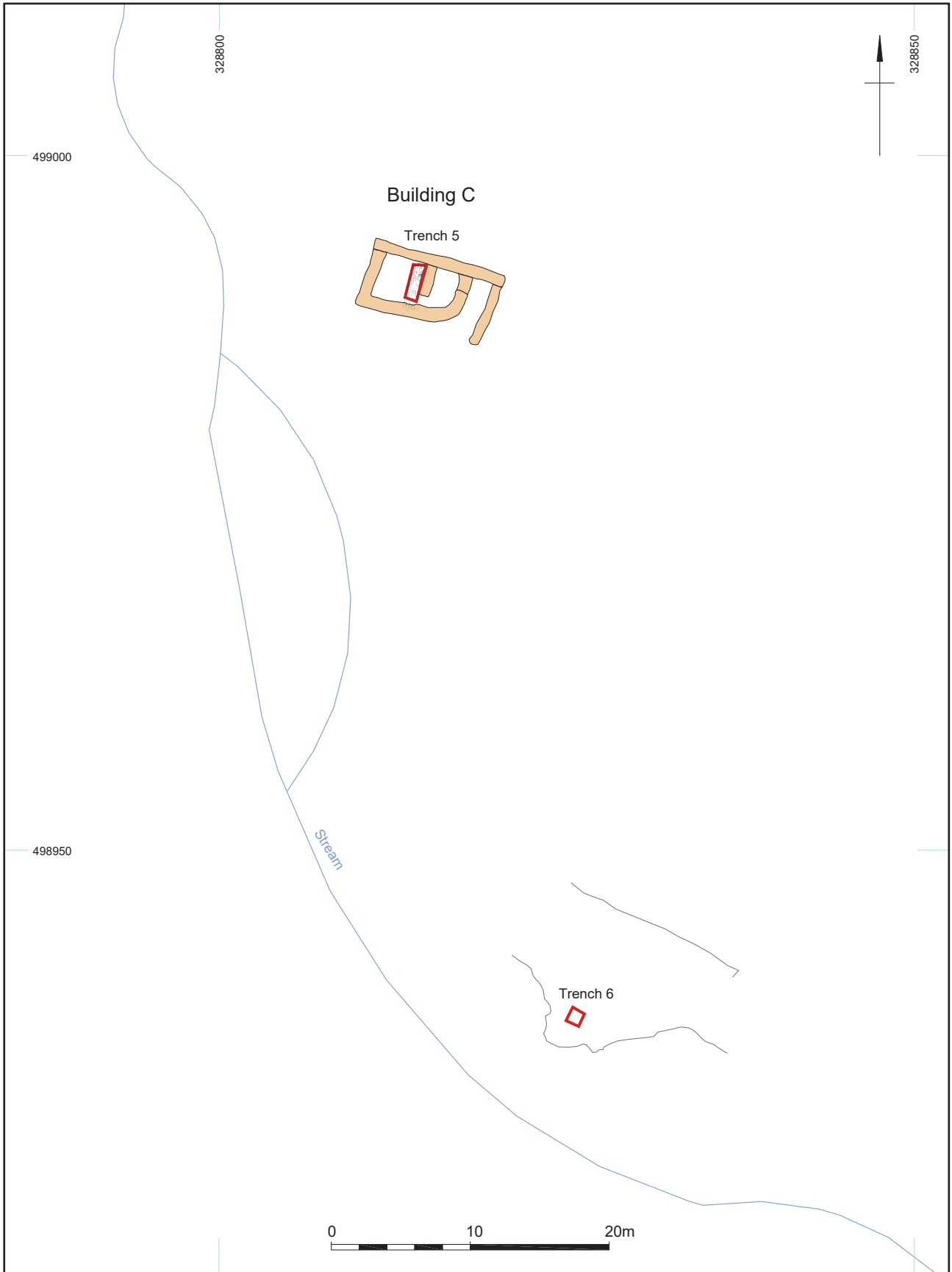


Plate 13: Geophysical survey in Simon's Nick



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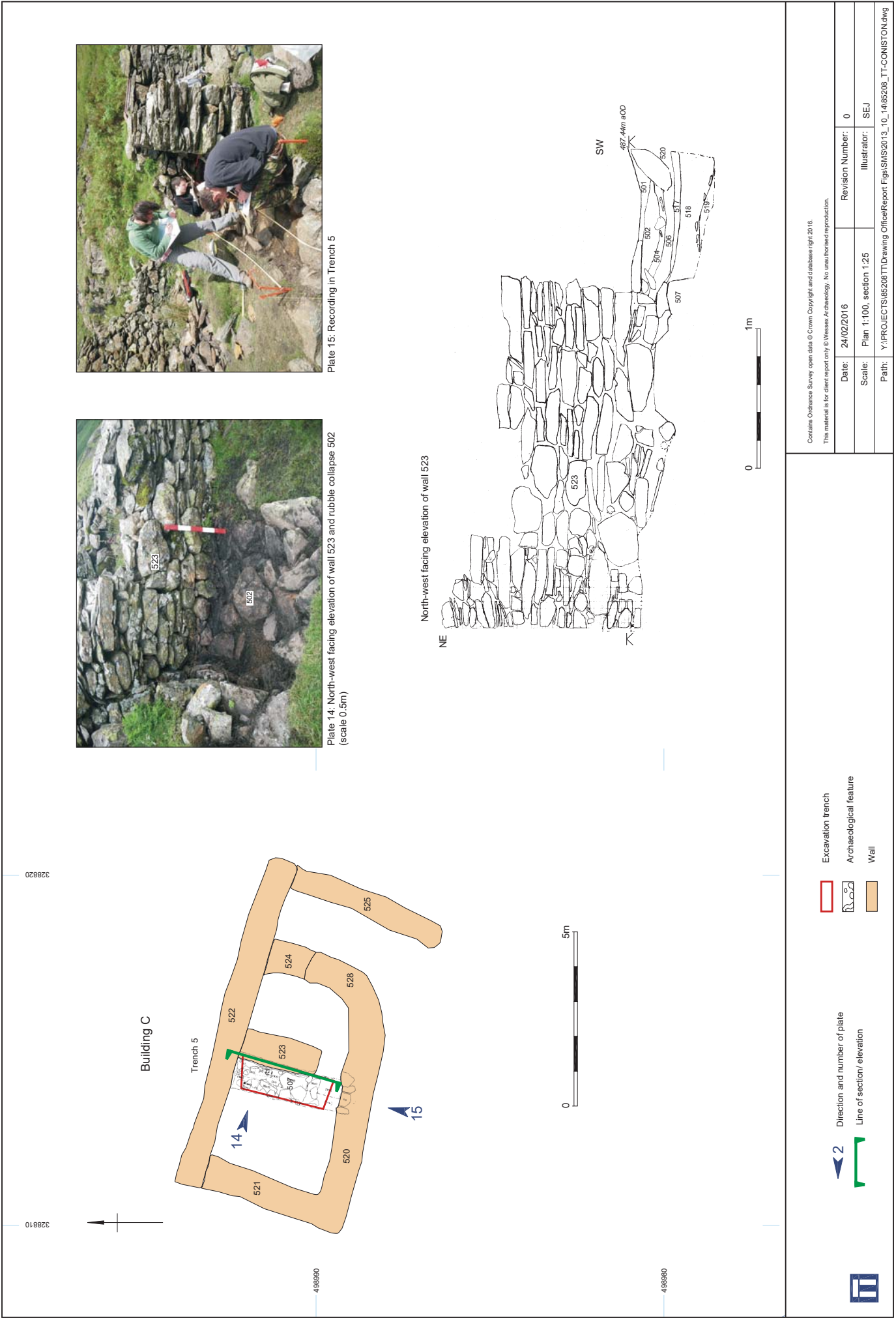
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	Archaeological feature	Date:	24/02/2016	Revision Number:	0
	Wall	Scale:	Scale 1:400	Illustrator:	SEJ
		Path:	Y:\PROJECTS\85208TT\Drawing Office\Report Figs\SMS\2013_10_14\85208_TT-CONISTON.dwg		

Site B: Cobbler's Level or Low/First Works

Figure 7



Building C: (Trench 5) plan, section and plates

Figure 8

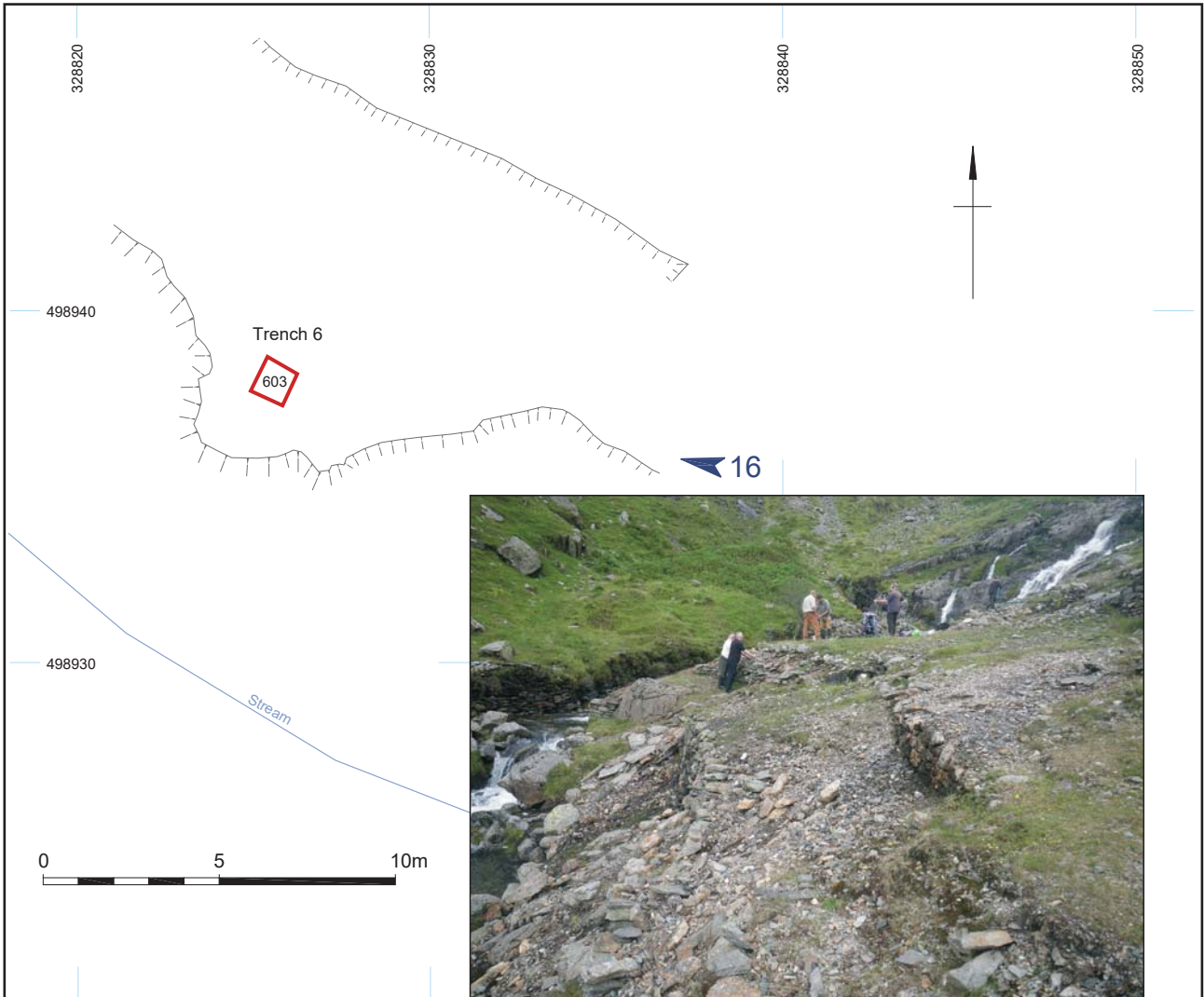





Plate 16: Location of trench 6 and series of stone terraces; view from south-east



Plate 17: Cobbled surface 603 in Trench 6. (scale 1m, 0.5m)

-  Excavation trench
-  Archaeological feature
-  Direction and number of plate

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WESSEX ARCHAEOLOGY LIMITED.

Registered Head Office: Portway House, Old Sarum Park, Salisbury, Wiltshire SP4 6EB.

Tel: 01722 326867 Fax: 01722 337562 info@wessexarch.co.uk

Regional offices in **Edinburgh, Rochester and Sheffield**

For more information visit www.wessexarch.co.uk



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