



AXE WORKING SITES ON PATH RENEWAL SCHEMES, CENTRAL LAKE DISTRICT

CUMBRIA

**Archaeological
Survey Report**



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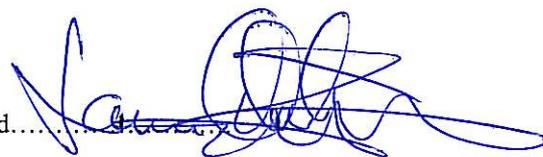
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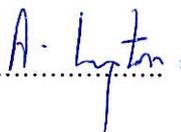
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SUMMARY

An archaeological landscape survey was undertaken of five areas of footpath erosion/renewal (3100m in length) and associated stone picking areas (0.98km² in extent) within the central Lake District, at Piers Gill, Wasdale (NY 21390 07921), Greta Gill, Wasdale (NY 21891 08551), Three Shires Stone to Wet Side Edge, Duddon (NY 27514 02410), Angle Tarn to Esk Hause, Great Langdale (NY 23676 08230) and Fairfield Summit, Grasmere (NY 36361 11654) by Oxford Archaeology North (OA North) at the request of the Lake District National Park Authority (LDNPA) and The National Trust. The programme of work was intended to inform and guide forthcoming upland footpath conservation work and, specifically, to ensure that the winning of stone for nearby path repair does not affect any archaeological resource. The survey was undertaken as an enhanced identification survey, which entailed checking of existing LDNPA Historic Environment Record (HER) and National Trust Sites and Monument Records (SMR) records. It comprised systematic examination of the upland terrain and the identification and recording of the monuments using GPS.

In total, 21 sites of archaeological interest were identified within the study area. Of these, eleven were already recorded in the LDNPA HER and/or National Trust SMR, and a further two were recorded as hazard areas within the Lake District National Park HER. One of the principal archaeological resources, were groups of Neolithic axe factories on Scafell Pike, Great End, and Fairfield Summit. Most of the sites represent primary working of naturally detached rock but, significantly, some of the sites were physically removed from the source outcrop, and the source rock was probably carried to the site. As such, they would appear to reflect camp sites, and the presence of one of them on an easterly-orientated access route, would suggest that this was a route used in antiquity.

In addition, one of the sites within the study area, the Roman road running from Hardknott fort to Wrynose Bottom, is presently subject to statutory designation, with the separate upstanding earthworks of the site being defined and protected as Scheduled Monuments (CU 243, CU 247 and CU 264). A further two LDNPA Hazard Areas, located around the axe flaking site complexes on Scafell Pike and Great End, are defined within the vicinity of proposed footpath renewal, but are not directly affected by it.

There was also a wealth of features relating to boundary markers, including numerous cairns and/or walker's cairns, the 'Three Shires Stone' marker in Duddon and the putative 'Packhorse Woman's Grave' commemorative marker in Great Langdale.

It is recommended that a scheme of further mitigative works should be undertaken on and adjacent to, the footpaths where there are axe flaking sites currently exposed on Fairfield Summit. These type of sites in particular should be highlighted as suitable for further research and investigation. At Fairfield Summit the resource is extremely fragile and susceptible to erosion and is of extreme importance due to its location isolated from all other axe working areas.

ACKNOWLEDGEMENTS

Oxford Archaeology North would like to thank Richard Fox, the Fix the Fells Project Officer at the Lake District National Park Authority (LDNPA) for commissioning the project, and for considerable support and advice in the course of the project. We would also like to thank Jamie Lund, archaeologist at The National Trust and Eleanor Kingston, archaeologist at the Lake District National Park Authority (LDNPA) for their valuable input.

The desk-based study was undertaken by Peter Schofield. The field survey was undertaken by Jamie Quartermaine, Peter Schofield, Alastair Vannan and Will Gardner. The report was written by Peter Schofield, with contributions for the historical background by Vin Davis. The illustrations were produced by Peter Schofield and Ann Stewardson. The report was edited by Jamie Quartermaine, who also managed the project.

1. INTRODUCTION

1.1 CIRCUMSTANCES OF THE PROJECT

- 1.1.1 An archaeological landscape survey was undertaken of five areas of footpath erosion/renewal (3100m in length) and associated stone picking areas (0.98km² in extent) within the central Lake District, at Piers Gill, Wasdale (NY 21390 07921), Greta Gill, Wasdale (NY 21891 08551), Three Shires Stone to Wet Side Edge, Duddon (NY 27514 02410), Angle Tarn to Esk Hause, Great Langdale (NY 23676 08230) and Fairfield Summit, Grasmere (NY 36361 11654) by Oxford Archaeology North (OA North) at the request of the Lake District National Park Authority (LDNPA) and The National Trust. The programme of work was intended to provide information to inform and guide forthcoming upland footpath conservation work and specifically to ensure that the winning of stone for nearby path repair does not affect the archaeological resource. A further site was discovered within erosion at Martcrag Moor, Great Langdale, however the archaeological investigation of this site forms the basis of a separate report (OA North forthcoming a).
- 1.1.2 The survey was undertaken in accordance with a project design (*Appendix 2*) prepared by OA North, which was itself based on a project brief (*Appendix 1*) by the Lake District National Park Authority (LDNPA).

1.2 OBJECTIVES

- 1.2.1 The primary purpose of the project is to inform future management decisions with regard to path repair work in six locations: Piers Gill, Greta Gill, Three Shires to Wet Side Edge, Angle Tarn to Esk Hause and Fairfield Summit. The proposed study is intended as an initial exploration of the archaeological resource, rather than as a definitive and comprehensive study. The aims of the initial project are broadly as follows:
- to provide sufficient information to establish the location, extent, character, period, condition, fragility and potential of the surviving archaeological features;
 - to provide an accurate Level 1 survey of all identified monuments;
 - to provide a preliminary grading of all recorded sites and features to indicate relative significance (*Appendix 3*);
 - to inform the process of extracting source rock for the maintenance and repair of the six paths and ensure that archaeological monuments and their source geology are not impacted by this process.
- 1.2.2 The programme of work has been designed to provide an accurate archaeological survey of the study area, set within its broader landscape context. It is important that the individual sites are not viewed simply 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 study area.

- 1.2.3 **Implementation:** to achieve these objectives a rapid desk-based assessment was undertaken, followed by an identification survey that covered the entirety of the study area. The desk-based assessment, carried out in June 2008, consisted of a search of both published and unpublished records held by the Lake District National Park Authority Historic Environment Record (HER), The National Trust Sites and Monuments Record (NT SMR) and the library and archives at OA North's offices in Lancaster. The identification survey phase followed and was carried out between June and October 2008.
- 1.2.4 This report sets out the results of the work, followed by a discussion of the archaeological significance and potential of the area. In addition, the potential impacts of the stone collection and footpath renewal are discussed, together with overall management recommendations for the study area as a whole.

2. METHODOLOGY

2.1 PROJECT DESIGN

2.1.1 A project design (*Appendix 2*) was submitted in April 2008 by OA North in response to a brief prepared by the LDNPA Fix the Fells Project Officer (*Appendix 1*) for a programme of survey to record the archaeological landscapes within a 100m buffer zone around five areas of footpath erosion/renewal and stone picking areas within the central Lake District Fells (Figs 1 and 2). This was in order to enhance the existing archaeological record, and to enable appropriate management strategies to be enacted. The work was carried out in accordance with the project design.

2.2 THE SURVEY

2.2.1 ***Desk-Based Assessment:*** a rapid investigation was conducted of pertinent records and primary data held within both the LDNPA HER and NT SMR. This included information on all of the previous investigations into the archaeology of the study area, including the relevant SMR/HER records and also additional site visit photos and survey information. Historic Ordnance Survey mapping was examined to provide an indication of later activity within the area. In addition, the OA North library and archives were consulted for pertinent secondary sources and also primary documentary material from the original axe factory survey undertaken in 1985 (Claris and Quartermaine 1989), which included the site catalogues.

2.2.2 ***Identification Survey:*** the survey was undertaken as an enhanced Level 1 type survey (*Appendix 2*). Those sites that had already been identified on the NT SMR and the LDNPA HER were checked and recorded at the same level of consistency as other newly-discovered monuments. The survey involved four elements: Reconnaissance; Mapping; Description; and Photography.

2.2.3 The reconnaissance consisted of close field walking, varying from 10m line intervals dependent on visibility and safety considerations. The survey aimed to identify, locate and record archaeological sites and features on the ground. The aim of the survey was predominantly to investigate axe manufacturing sites and the reconnaissance strategy was tailored accordingly. The survey examined all areas of outcropping to examine the potential for sources of the fine-grained tuff. In addition, all exposures through the turf were examined for lithic material, including stream cuttings and footpath erosion. Where axe flaking sites were identified, the density and size of the flakes were measured and recorded. The flakes were categorised into small, medium and large, and the numbers of flakes were counted within a 0.4m x 0.4m grid. This provides consistency with the strategy employed in the original axe factory survey (Claris and Quartermaine 1989).

2.2.4 The archaeological sites were mapped using a combination of Leica differential GPS equipment which used real-time EGNOS corrections from geo-stationary satellites to achieve an accuracy of $\pm 0.5\text{m}$, and Leica differential GPS equipment, using real-time (RTK) corrections and equipped with mobile SmartNet technology to achieve an accuracy of $\pm 0.01\text{m}$ for defining the extents of the axe flaking scatters observed on Fairfield Summit. The digital survey data was transferred as

shapefiles into a GIS system (ArcGIS 9.3), and was superimposed onto the embedded digital Ordnance Survey data (Figs 3-7). The descriptive records were input on-site into a database on a Psion palm computer. A photographic record of the sites was maintained in 35mm black and white print format and also digital colour photography (8 megapixel camera), which have been used to accompany the present report.

2.3 GAZETTEER OF SITES

- 2.3.1 All of the information concerning archaeological sites within the study area has been collated into a gazetteer (*Appendix 3*), which provides details of their location, period, character and significance. Locations are given as ten-figure National Grid References where possible, and the position of each site is indicated on maps of the study area (Figs 3-7). In addition, a sample of axe working flakes were catalogued and retained for possible future analysis from both the present survey and initial survey of Fairfield Summit in 2002 (*Appendix 4*).

2.4 ARCHIVE

- 2.4.1 A full archive has been produced to a professional standard in accordance with current English Heritage guidelines (Management of Archaeological Projects, 2nd edition, 1991) and is provided in the English Heritage Centre for Archaeology format, both as a printed document and digitally. Digital survey data is provided in a suitable format for incorporation into the respective NT HER and LDNPA SMR Geographical Information Systems (GIS). A synopsis (normally the index to the archive and the report) will be deposited in the LDNPA HER.

3. TOPOGRAPHIC AND HISTORICAL BACKGROUND

3.1 LOCATION AND TOPOGRAPHY

- 3.1.1 The eventual study area comprised five sections of footpath erosion/renewal (3100m in length) and associated stone picking areas (0.98km² in extent) within the central Lake District, at Piers Gill, Wasdale; Greta Gill, Wasdale; Three Shires Stone to Wet Side Edge, Duddon; Angle Tarn to Esk Hause (Plate 1), and Fairfield Summit, Grasmere (Figs 1 and 2). The wider area is one of spectacular mountain scenery comprising a mosaic of high craggy peaks with scree slopes, heaths, mires, peatland, heath moorland, acid grassland, bracken, fast-flowing streams and tarns (Countryside Commission 1998, 31).
- 3.1.2 The main core of the study area encompassed elevated upland paths with associated craggy stone picking areas located on elevated, mountainous land to the west of the Langdale valley. This incorporated areas on the northern flanks of Scafell Pike (Piers and Greta Gill) and Bow Fell (Angle Tarn/ Esk Hause). The study area also encompassed two outlying areas; the first incorporating a steep footpath ascending Wet Side Edge and located above the west side of Little Langdale valley on the route crossing Hardknott Pass, and the second incorporating a footpath and stone picking area at the extreme top of Fairfield Summit, which is located above the east side of Grasmere valley.

3.2 GEOLOGY AND GEOMORPHOLOGY

- 3.2.1 The geology of the area is dominated by the igneous rocks of the Ordovician period (500 to 440 million years ago) known as the Borrowdale Volcanic Group. The Borrowdale Volcanic Group comprise a series of mainly volcanic rocks, including lava flows, tuffs and agglomerates (Taylor *et al* 1971, 12-17). The hard form of this geology has contributed to the elevated, and rugged form of the mountain landscapes in the central Lake District. By contrast, a much gentler landscape has developed out of the Silurian rocks south of Coniston and Ambleside, which includes Windermere and the Howgill Fells. A near complete 'collar' of carboniferous rock exists around the central fells, only broken on its south-western coastal flanks by Upper Permian Triassic rocks. The carboniferous rocks that were once present in the central fells have all but eroded away since the central Tertiary uplift that created the domed structure of the Lake District (Moseley 1978).
- 3.2.2 The source rock of the axe manufacturing sites is a fine-grained tuff of the Seathwaite Fell Tuffs, itself an upper band of the Borrowdale Volcanic Group (Claris and Quartermaine 1989, 3). The tuff was formed by the deposition of volcanic ash under water, and this, and other narrow bands of tuff, are interspersed with bands of ignimbrite, resultant from the deposition of lava (Taylor *et al* 1971). Although originally horizontal bands, these now slope down to the north, and outcrop mainly on the faces of Pike of Stickle and Harrison Stickle in the Langdale area. They outcrop in a horseshoe-shaped band that extends from Langdale Pikes, via Bowfell, Scafell Pike, Seathwaite Fell and thence to Glaramara.

- 3.2.3 The fine-grained tuff are formed of bands of rock that are up to 30m thick, with two of these bands being pertinent to the present study (Claris and Quartermaine 1989). The lowest of these two bands is the most coarse tuff and is the principal source for Neolithic axe manufacture (Group VI). It outcrops on the shoulder of Pike of Stickle, and Harrison Stickle, as well as the lower northern shoulder of Scafell Pike and near the summit of Glaramara (Hartley 1932). The finer grained tuff is a high band and outcrops on the plateau behind (north) the Langdale Pikes and near the summit of Scafell Pike. It also outcrops on the summit of Fairfield (Davis and Quartermaine 2007). This rock was only occasionally used for axe manufacture and there are few working sites exploiting it and few dispersed axes using the rock (Group XI). The bands have been eroded by glacial action and detached blocks of the tuff are present within morainal mounds, as well as scattered as scree across the slopes of the Great Langdale valley (Fig 8).
- 3.2.4 The doming of the central fells played a major role in the development of its radial drainage pattern. This drainage pattern was enhanced by subsequent glacial activity, which formed the major glacial lakes and valleys that radiate out from the centre of the Lake District (Pennington 2003), and includes the Langdale Valley. Due to the high relief and good drainage of the central fells, peat development has been hindered and tends to occur mainly on the gentler slopes of the north and on the West Cumbrian coastal plain, such as at Black Moss and Williamson Moss (Hodgkinson *et al* 2000). Therefore, due to the lack of extensive peat in the uplands much of the earlier vegetation history of the central fells has come from lake deposits (Pennington 1965a; 1965b; 1970; 1975). On present evidence, it appears that peat development occurred in the central uplands in the second half of the post-glacial period but, initially, this was confined to shallow basins and areas of impeded drainage (*ibid*). This peat growth was for the most part initiated following a long period of human activity on the central uplands, which was associated, at least in part, with the Langdale axe production during the Neolithic period (OA North forthcoming b).

3.3 HISTORICAL BACKGROUND

- 3.3.1 **Introduction:** the Great Langdale valley and mountains of the Central massif are characterised by some of the most significant archaeological remains in the Lake District, notably well documented axe factory remains around the higher summits of the Langdale Pikes, Scafell Pike and Glaramara (Claris and Quartermaine 1989); however, there is also an extensive cairnfield at the base of the Mickleden Valley, which, on this scale, is unusual for the Central Lake District. Presented below is a background to the principal site groups within the environs of the study area.
- 3.3.2 **Axe Factories - history of investigation:** the initial identification of axe production in the area was made at Martcrag Moor Crag by a Professor Watson, between Stake Pass and Pike of Stickle (Bunch and Fell 1949) and the industry was initially named after Stake Pass. Then in 1948 Clare Fell, along with Brian Bunch, discovered the enormous working deposits in South Scree gully (*ibid*), and further research by Clare Fell was able to highlight the very substantial scale of the workings across Great Langdale, which led to a corresponding change in name to the Langdale Axe Factories (Fell 1950 and 1954). Dick Plint (1962) and Chris Houlder (1979) were then able to demonstrate further working around the area of Scafell Pike and Glaramara. An attempt to schedule the monuments in the early

1980s by Tom Clare (then Cumbria County Archaeologist) was thwarted by the lack of reliable mapping for the monuments, and this prompted the establishment of a detailed survey of the axe remains by The National Trust in conjunction with the Cumbria and Lancashire Archaeological Unit (now OA North). This survey extensively explored the Langdale and Scafell Pike areas, but also examined areas above and below lines of outcropping of the fine-grained tuff, and this recorded numerous axe-working sites (Claris and Quartermaine 1989) (219 sites in Great Langdale and 357 from Scafell Pike / Glaramara).

- 3.3.3 Excavations of axe factory sites are relatively few, the earliest documented example being the excavation of an isolated site, between 1969-1970, at Thunacar Knott. This site revealed a single flake layer with associated broken rough-outs beneath 0.10m to 0.25m of peat and above a natural inorganic or mineral soil (Clough 1973, 21-31). Importantly, this site produced a radiocarbon date of 3350–2923 cal BC (4474 BP; BM 676), and also a tentative posthole. A second trial trench produced a further scatter of many thousands of small trimming flakes (*ibid*). More recently Richard Bradley and Mark Edmonds, then at Reading University, excavated six sites at Stake Beck, Dungeon Gill, Harrison Stickle, two quarry sites on Top Buttress and one on Loft Crag (Bradley and Edmonds 1993). A further quarry at Dungeon Gill was also excavated, as were isolated sites on Stake Beck and on the shoulder of Harrison Stickle (*ibid*).
- 3.3.4 A programme of recording was undertaken by Lancaster University Archaeology Unit (now OA North) in 1991 in advance of path repair work undertaken by The National Trust. This entailed detailed mapping of sites affected by the path repair work on the face of Pike of Stickle and also the sites on Top Buttress, even though they were not affected by path repair. This also included mitigative excavations of a site on the shoulder of Harrison Stickle and another on the shoulder of Thorn Crag. The most recent excavation to be conducted on the Langdale Pikes was undertaken by OA North, on behalf of The National Trust, on Site 123 in May 2003 again in response to footpath erosion effecting the site. Site 123 is located on the plateau behind the faces of Pike of Stickle and Loft Crag, and is set above the outcropping band of Group VI bedrock (OA North 2004), but is near to an outcrop of Group XI.
- 3.3.5 A further programme of recording was undertaken by OA North in 2005 again in advance of path repair work undertaken by The National Trust. This entailed the detailed mapping of axe flaking sites located in and around the Stickle Tarn and Pavey Ark area, which is located on the eastern limit of the main Langdale production areas axe work (OA North 2005). The survey revealed that the band of Seathwaite Fell Tuff used elsewhere for axe manufacture (Group VI) extends through the face of Pavey Ark crag and then peters out on the western side of Bright Beck. Despite intensive searching of the extensive area of crags to the east of Bright Beck no outcropping of this or any other of the bands of Seathwaite Fell Tuff were identified.
- 3.3.6 In addition to these projects, pollen analysts have done a great deal of work in the area surrounding the stone source, with the result that the basic vegetational history of this region is known in greater detail than in most parts of upland Britain (Pennington 1970 and 1975).
- 3.3.7 In 2003 a programme was initiated to investigate the archaeological potential beneath and within the upland peats and to determine the threats to the archaeology

and peatlands (OA North forthcoming b). This entailed detailed investigations in four study areas, of which one was Great Langdale. Langdale was selected because it had a well documented archaeological resource beneath peat and because it was envisaged that it would allow an assessment of the impact of visitor pressure on the peats. The programme entailed detailed surveys of the elevated peatland areas behind the Langdale Pikes looking for artefacts within the peat scars. It also entailed an investigation of the peat condition and development of the peats, entailing dating of upper and lower deposits to determine the chronology of the peats inception and truncation.

- 3.3.8 **The Axe Factories:** the 'Great Langdale' axe factories were the largest producers of stone axes in Britain with the exploited rock, petrological Group VI and variant Group XI, being recognised as the most commonly represented raw material of British Neolithic stone axes (Chappell 1987; Clough and Cummins 1988; Annable 1987). The 'Great Langdale' axe factories comprise a range of Neolithic axe production sites grouped at intervals near the Seathwaite Fell Tuff outcrops which continue west from Great Langdale to Scafell Pike and north to Glaramara. The axe making sites are widely distributed, covering some five square kilometres of fell, and range from places where very small quantities of parent material had been prised from the ground in order to make a few artefacts to large-scale quarries and associated major spoil mounds. The largest of these axe production sites, and the site made famous by the discoveries of Bunch and Fell (1949), is at Great Langdale itself, hence the name enshrined in archaeological literature. Axes were, however, made at several other locations, in particular at Glaramara and Scafell Pike (Claris and Quartermaine 1989). Here the tuff, which has the same mechanical properties as flint, and can be worked in a regular and controlled manner, was prepared to rough-out stage for subsequent polishing away from the mountain zone, notably on the Cumbrian coastal plain, as represented by the Ehenside Tarn settlement site (Darbishire 1873).
- 3.3.9 A typology for the axe production sites was defined (Claris and Quartermaine 1989) comprising Types A to D. Type A sites are where there is clear evidence of quarrying. Type B sites are where the production is located on scree slopes or block fields adjacent to the outcrop of the bedrock and production reflects the working of naturally detached blocks. Type C sites reflect the exploitation of scree slopes far below from the outcrop of bedrock; and Type D, working floors, are located away from the source material implying that the material was carried to the site, although there also remains the possibility that suitable glacial drift material was used (Claris and Quartermaine 1989, 5).
- 3.3.10 **Great Langdale:** the largest area of working on the Langdale pikes is around the south face of Pike O'Stickle (Types A and B), and to a lesser extent the south face of Harrison Stickle. Here the fine-grained tuff has been quarried directly from the rock face, often exploiting natural fissures, leaving clear signs of conchoidal fracturing and, in some cases, creating small artificial caves (*eg* on South Scree). The Top Buttress sites are located on a series of narrow ledges, situated one above the other on the face of Pike O'Stickle. Accompanying these quarries are very large quantities of debitage, ranging in size from angular blocks, which have evidently been detached from the rock face, to the characteristic flake debitage of axe manufacture. This raw material is a major feature of the screes seen on the flanks of the mountain. Type C sites are usually located on lower scree slopes, where frost-

fractured blocks have come to rest, and were subsequently worked for axes. These sites typically comprise worked flakes but few indications of worked blocks (*ibid*).

- 3.3.11 It was found during one recent survey (OA North 2005) that a site previously discovered on the north shore of Stickle Tarn (Site 193) was in fact part of a Type C axe production site and related to the newly discovered exposure of Group VI rock exposed above the scree of Pavey Ark. Two substantial working floors comprising medium to large flakes were identified underneath large boulders that had fallen from Pavey Ark and which had come to rest subsequent to the axe production. The local geology is a coarse welded tuff, comprising pyroclastic breccia and agglomerate which varies in composition from basaltic to andesitic (Millward *et al* 1978). The source material for these flakes was fine-grained tuff that had detached from the Pavey Ark crag as a result of frost fracturing and come to rest on the slopes below.
- 3.3.12 A limited number of potentially significant sites have been identified away from the principal stone sources and are on access routes leading out from the main working areas and extend down to the major valley floors (Type D sites). These sites represented either the working of glacial erratics or material that was physically carried to these locations. These sites occur on the northern flanks of the Langdale Pikes in the area of Harrison Combe and Thunacar Knott, where there is an implied access route that leads out from the Pikes by way of Langstrath into Borrowdale. There are also sites on the lower shoulder of Harrison Stickle, along the main paths leading down into the Great Langdale valley and from where access is afforded into the southern Lake District and beyond. These sites consist of chipping floors well beyond the known distribution of the rock used for making axes, and imply that they used chance finds of glacially-distributed rock or rock brought to the sites by human agency. In either instance, the linear spread of these monuments are an indication of routeways used in antiquity. It is the sites of this type that are of most interest to the present study, as the majority of the study areas are remote from the parent geology. A new Type D site (OAN78) was identified located on the putative high-level route running away to the east of the axe factories and on the east side of Stickle Tarn during a recent survey (OA North 2005). OAN78, along with the previously discovered Site 194 (NY 28869 07690), comprised flakes that were typically small in size and reflect the fine working of an axe, rather than the course reduction of a block. As such, it is possible, indeed probable, that the source rock was brought to the sites as partly worked rough-outs. Site 194 is on the shore Stickle Tarn and was a logical place for a camp site, being adjacent to a water supply and relatively sheltered from the elements by the crag of Pavey Ark. Similarly, Site OAN78 was on relatively flat ground, on the top of a small knoll, and, significantly, is one of the few areas in the very undulating, local landscape that is both relatively flat and also well drained.
- 3.3.13 The presence of further Type D sites on the line of a natural communication route that extends east from Great Langdale is potentially significant. The possibility of a northerly access route to Great Langdale through Borrowdale, Langstrath and Stake beck has already been mooted (Claris and Quartermaine 1989), as has an easterly route that extends down into Langdale Valley along Harrison Path (Blamires 2005, 8). This now provides possible evidence for an easterly high level route and reinforces the tentative supposition that the axe factories were in part exploited by populations deriving from the eastern side of the working sites (Bradley and Edmonds 1993).

- 3.3.14 The programme of fieldwalking and peat scar prospecting in the Langdale study area of the Upland Peats Project (OA North forthcoming b) identified 101 peat scars and, of these, eight were found to contain archaeological remains (Sites L1, L2, L12, L15, L21, L22, L24 and L28). These find spots were all in the area around the Langdale Pikes and Harrison Combe, in the general area of the Langdale axe factories, and the finds were mainly flakes or rough outs. The distribution of the sites identified in the survey suggested that they were within a relatively localised area, typically on the plateau immediately behind the Langdale Pikes or in a line extending out from the area of Loft Crag towards Stake Beck. The implication is that these sites defined a broad band of activity that followed a potential route into Borrowdale. Because the identified sites were in peat scars their distribution was inevitably biased towards those areas with greatest erosion; however, there was a substantial number of scars, from which no sites were recorded, on the gentle moorland of Thunacar Knott and High Raise.
- 3.3.15 **Excavation:** intrusive investigation at the axe factory sites are relatively few, the earliest being that of a Type D site excavated between 1969-1970, at Thunacar Knott. This site revealed a single flake layer, or chipping floor, with associated broken rough outs beneath 0.10m to 0.25m of peat and above a natural inorganic or mineral soil (Clough 1973, 21-31). The site revealed a tentative posthole, suggesting that this may have been a camp site. A second trial trench produced a further scatter of many thousand small trimming flakes (*ibid*).
- 3.3.16 More recently Richard Bradley and Mark Edmonds excavated six sites at Stake Beck, Dungeon Gill (Site 148), Harrison Stickle, two sites on Top Buttress (Sites 95 and 98), and one on Loft Crag (Site 87). Summary results of these excavations may be found in Bradley and Edmonds (1993, 105-130) from which the descriptions below are taken (*Sections 3.3.24 to 3.3.26*).
- 3.3.17 The two sites at Top Buttress are both Type A sites. Site 98 is suggested to have formed reasonably quickly, with clearly defined layers of quarrying by fire setting followed by layers of axe production, although the initial layer provides evidence for both activities. A high degree of control over the working of axes is suggested by the debitage and rough outs collected, with attempts to correct errors in working to avoid wasted effort. In contrast, Site 95, which is the extraction of material from a cave, was believed to represent more intermittent activity of quarrying and axe production. The initial extraction and working was followed by a period when the cave was used as a dump for stone working waste material. This was succeeded by a return to the cave for *in-situ* working of stone brought to the site, and reflects a period when the cave served as a convenient position for preparing rough outs, presumably during adverse weather conditions.
- 3.3.18 Dungeon Gill (Site 148) is a Type A site, an extraction pit effectively forming an open-cast quarry, with no evidence of fire setting, and with blocks simply prised out of the ground where possible. Two phases of activity were identified, separated by a thin soil horizon. The initial phase of the site only provides evidence for the earlier stages of axe production, with few flakes recovered associated with the final stage of the reduction process. There is also little evidence for the development of unworkable flaking angles, indicative of a high degree of wasted effort when the rough out became difficult to finish off. In contrast, the second phase of activity has all stages of the reduction process with greater effort made to develop flaking angles, including the working of material abandoned in the earlier phase.

- 3.3.19 Stake Beck and Harrison Stickle are both Type D sites, with the emphasis on the latter stages of production with material brought to them as large or partially worked blocks. Trench 4 of Harrison Stickle shoulder contained flakes predominantly associated with the final finishing of crude rough outs.
- 3.3.20 The most recent excavation was on a Type D site (Site 123; OA North 2004). The site is located on the plateau behind the faces of Pike of Stickle and Loft Crag, and is set above the outcropping band of Group VI bedrock. The flakes from the excavation appeared to be Group VI but this has not been confirmed by thin sectioning; however, the adjacent outcrop comprises Group XI tuff.
- 3.3.21 The stratigraphy recorded from within the trench and from the section of the eroded peat hag demonstrates a single layer of fine-grained tuff waste flakes associated with the preparation of rough out axes; two failed rough outs were recovered from the excavation of the trench. The archaeological deposits had, however, been substantially impacted upon by footpath erosion, and the working floor was evidently more extensive than that recorded in the trench. The recorded section of peat hag had only occasional waste flakes, suggesting that this location may have been near to the eastern limit of the *in-situ* flakes.
- 3.3.22 The site was classed as Type D (a rare site type, representing only 0.5% of Langdale axe production) because it appears to be utilising Group VI, rather than the locally available Group XI source material and may reflect a use of the site as a camp. Site 123 is the largest known Type D working site and, by virtue of its rarity and in terms of how it can contribute to an understanding the working practices at Langdale, it is one of the more important Langdale Neolithic axe factory working sites (OA North 2004).
- 3.3.23 **Chronology:** radiocarbon dates from Type A sites have a relatively late chronology. Site 95, a quarry site on Top Buttress close to the summit of Pike O'Stickle produced two dates from within the sequence of debitage build up, the one from lower down giving a date of 3370-3690 Cal BC (BM 2628) and the higher one giving a date of 3100-3500 Cal BC (BM 2627) (Bradley and Edmonds 1993).
- 3.3.24 Radiocarbon dates have been obtained from several Type D sites at Langdale. Charcoal obtained from the excavated Type D site at Thunacar Knott, located some way from the stone source and probably an ancillary working floor doubling as a temporary camp, has given a radiocarbon date of 3040-3777 Cal BC (BM 281) (Clough 1973, 21-31). A further Type D site on the shoulder of Harrison Stickle produced a date of 3532-3780 Cal BC (BM 2625) (Bradley and Edmonds 1993). The Reading University project also undertook excavations of a Type D site and putative temporary camp at Stake Beck which produced a date of 3410-3730 Cal BC (OXA 2181).
- 3.3.25 Excavations at Thorn Crag (Site 187) were conducted by Lancaster University Archaeology Unit (now OA North) in 1991, a Type C site. This produced a radiocarbon date from charcoal recovered from directly below a layer of waste flakes of 4041-3662 BC (OxA-4212; Hedges *et al* 1994, 360-361). This date provides a *terminus post quem* for Site 187, which coincides with the beginnings of forest clearance identified in the pollen sequence at Blea Tarn (Pennington 1975).
- 3.3.26 Potentially, one of the most significant dates comes from a Type D site, Site 123, on the plateau behind the faces of Pike of Stickle and Loft Crag (OA North 2004).

It is set above the outcropping band of Group VI bedrock and may exploit a separate higher band of tuff which is of a distinct petrographic group (probably Group XI). The flakes were within a very humified organic soil at the base of the peat and a radiocarbon date from a sample taken from a charred *Empetrum nigrum* seed from within the flake deposit produced a date of 5968-5732 cal BC (6965 ± 30BP; KIA23485). This suggests a Mesolithic date for this deposit of waste flakes associated with the preparation of axe rough-outs, and is potentially of considerable importance, but as only one sample was dated further dates are needed to confirm the antiquity of the sample.

- 3.3.27 **Peat Development:** the results of the palaeoecological survey of the Upland Peats in the Langdale study area demonstrated that peat initiation occurred at 2470-2200 cal BC (3865±35 BP; SUERC-4521/GU-6076) at Site 123 adjacent to the Pike O' Stickle axe factories and later at 1380-1050 cal BC (2980±35 BP; SUERC-4517/GU-6074) at the more distant Sampling Site 2 on the slopes of High Raise (NY 27837 09020) (OA North forthcoming b). Pollen analysis from sites at the southern end of the study area suggests that heather had already become established prior to peat inception at 2470-2200 cal BC. It would also appear that the landscape had been subject to burning activity at, and before, this date as evidenced by the charred *Empetrum nigrum* seeds from Site 123 (*Section 3.3.26*). These results, together with those from the programme of radiocarbon dating, suggest that peat formation occurred sometime after the woodland clearance at the site and for the most part axe working post-dated the clearance, but pre-dated peat formation.
- 3.3.28 Perhaps the most striking feature from Sampling Sites 1 and 4 was the apparent similarity in the pollen record in the transition from the mor humus to peat with no major changes in the pollen assemblages. The development of the mor humus itself, plus the presence of an iron pan at the very base of the peat at Sampling Site 1, suggest that waterlogging and podsolisation would have inhibited vertical drainage and facilitated the development of blanket mire (Birks 1988). The high values of *Sphagnum* spores within the iron-rich deposit at Sampling Site 1 suggest that local conditions had become wetter. The evidence suggests that the vegetation and soil conditions on the Langdale Fells underwent a great deal of modification, for a long time prior to the initiation of the peat, and this may have been in part, anthropogenically driven. Peat formation began some time after the main period of forest clearance of the uplands, and represents a period when certain environmental thresholds had been reached. This goes some way towards explaining the age differential between the Mesolithic radiocarbon date for the Site 123 axe flaking deposit, and the Late Neolithic to Early Bronze Age peat/humus interface just above it. Evidently, given the elevated character of the terrain, no soil or peat formation developed over the axe debitage for some considerable period following the axe production episode. However, peat formation did not post-date axe manufacture in all areas. A few of the flakes located in the Harrison Combe area (Sites L15, L21 and L28; OA North forthcoming b) were embedded within the peat/mor humus, and not at the interface with the mineral soil, as had previously been expected. The flake layer at Site 123 was also embedded in this organic material, the potential dating of this layer (*Section 3.3.32*), together with the pollen data from Sampling Sites 1 and 4, suggest that these basal deposits accumulated very slowly.
- 3.3.29 **Scafell Pike:** the axe production sites on Scafell Pike are closely related to the bands of outcropping tuff. Just below the summit is an almost level natural bench

upon which there were working floors which used the upper band of Group XI rock. Below this bench is a lower, gentle sloped, expansive shoulder, which is covered in a blockfield, and across this extends the lower band of Group VI tuff. Numerous small working sites extend across this area, each reflecting the production of often only one or two axes. Although the sites are extremely numerous, more so than at Langdale, the scale of production is only a small fraction of that at Langdale (Claris and Quartermaine 1989). The lower band of tuff was observed to extend around the north-western side of Scafell Pike, approximately following the line of the Corridor Route. This corridor was investigated during the 1985 survey but no working sites were identified.

- 3.3.30 **Fairfield:** Vin Davis has for many years been expounding the belief that the fine-grained tuff used by these axe workings (characterised as Group VI rock) outcrops around much of the Lake District and not just within the Glaramara, Scafell Pike, Langdale horseshoe (Davis 1985; Fell and Davis 1989) and that there is a potential that the distribution of Neolithic axe working may be considerably more extensive. However, it was not until relatively recently that worked material was found away from the central massif, with a casual discovery on the summit of Fairfield (NGR NY 36015 11584); in the eastern Lakeland fells to the south of Helvellyn (Davis and Quartermaine 2007).
- 3.3.31 It is wrong to assume that the volcanic sequence exposed at Fairfield is simply an eastward extension of the rocks which outcrop in the vicinity of the Great Langdale axe factory sites. A good range of the extrusive rock types can be seen along the footpath between Dunmail Raise and the summit of Fairfield summit. The bulk of the rocks exposed around Fairfield are bedded airfall tuffs forming north-facing cliffs. On Fairfield summit, these tuffs are capped by basaltic andesite. Outcropping slightly below the summit, on the plateau which slopes gently eastwards, is a flow unit of rhyolite which overlies the andesite, and it is this rhyolite that was utilised for tool making (*ibid*). The contact between the andesite and rhyolite is exposed along the south-eastern flanks of Fairfield, just below the summit, where it forms scatters of small scree deposits. On the eastern part of the summit plateau, where the flakes have been discovered, the rock is easily recognised by its distinctive white-cream coloured patina, smooth feel and fine-grained texture.
- 3.3.32 Flakes have been located within four distinct concentrations on either side of the broad erosion scar caused by the footpath that extends east from the Fairfield Summit (NGR NY 36015 11584; This report Site 3). Two of the concentrations were within the path erosion scar, and form linear spreads (both *c* 12m long), reflecting a certain amount of spread from the erosive effects of pedestrian traffic. However, two of the sites were within an area of thin, turf-covered ground that has not yet been subject to footpath erosion, and there the scatters were very much more localised, being only about 2m across. The density of flakes at each concentration was relatively low and no more than *c* 3 flakes per square metre. This part of the summit, with the outcropping fine-grained tuff, extends across an area of about 100m x 50m, and within this there were numerous exposures of the ground through the thin turf. This was intensively examined for flakes and only the four flake concentrations were revealed. While it is possible, indeed probable, that there are further small, low-density scatters that may yet be revealed within this area if further disturbance to the thin turf cover occurs, it is extremely unlikely that there are any large and expansive scatters to be revealed, given the intensity of the search and the amount of ground presently available for examination.

- 3.3.33 The flakes were small to medium in size and there was a notable absence of larger flakes. While the flake densities were low, they all fulfilled the standard criteria employed in earlier surveys (Claris and Quartermaine 1989) of there being at least eight flakes located within a 2m radius, which served to discriminate anthropogenic working from a natural background scatter. The relative flake quantity, using the criteria defined in the earlier surveys of Neolithic axe factories (*op cit*, 21), was within the lowest category (Code 1) and indicates that the amount of material represented is very low by comparison with sites from Langdale or Scafell Pike.
- 3.3.34 There is a considerable amount of naturally-fractured tuff in the general area, and so it was important to confirm that the flakes were not a product of natural conchoidal fracturing. Eight flakes were eventually sampled from the scatters, each unequivocally of anthropogenic origin; each had been bifacially struck and in some cases had the scars of three conchoidal strikes prior to their removal from the core (three of these flakes are retained within the archive of the present report, see *Appendix 4*).
- 3.3.35 There were no tools found; indeed none would be expected from sites of such diminutive size. The source material for the working of the tools is a naturally-fragmented fine-grained tuff and, while there were small blocks of well-jointed rhyolite occurring away from the contact fracture zone that responded well to flaking techniques, their occurrence appears to be limited. There are now no large blocks on the surface that would be suitable for producing large implements, which contrasts with the present day situation at Langdale.
- 3.3.36 Two of the flakes were thin-sectioned and examined under a microscope. Both were found to be similar and were revealed as a fine-grained silicified rhyolitic tuff. Initial indications are that the Fairfield worked stone is not close to Group VI or Group VIII, but does have similarities to Group XI. Certainly, the microscopic examination of the two flakes revealed white spotting, which is a characteristic of Group XI rock.
- 3.3.37 In addition, an outcrop of bedded tuff in Raise Beck valley (NY 3359 1197 (c 450m AOD)), approximately 415m below the Fairfield summit, was sampled. Macroscopically, the tuff resembles horizons in the Seathwaite Fell Tuff commonly encountered in and around the Great Langdale axe factory sites and which have previously been identified as Group VI.

4. SURVEY RESULTS

4.1 INTRODUCTION

- 4.1.1 In total, 21 sites of archaeological interest were identified within the study area. Of these eleven had already been recorded in the National Trust SMR (NT SMR), or within the Lake District National Park Historic Environment Record (LDNPA HER). Of the eight axe working sites recorded during the survey, two had been identified at Lingmell and Scafell Pike as general findspots from within the LDNPA HER (Sites 4 and 6), three were complexes of axe flaking sites that had first been recorded during the Langdale Axe Factory Survey (CLAU 1985; Claris and Quartermaine 1989) at Great End and Scafell Pike (Sites 5, 7 and 19). One site complex was located on Fairfield Summit (Site 3; Davis and Quartermaine 2007) and this was subsequently split into two axe flaking scatters (Sites 14 and 15). Summary of the 21 sites identified is presented by monument type in Table 1 below (*Section 4.3.1*), and the sites are shown on Figures 3-7.
- 4.1.2 One of the sites within the study area, the Roman road running from Hardknott fort to Wrynose Bottom, is presently subject to statutory designation, with the separate upstanding earthworks of the site being defined and protected as Scheduled Monuments (CU 243, CU 247 and CU 264; Fig 4). The site is itself also centred within a larger, linear Hazard Area, defined by the LDNPA, which is crossed by the proposed footpath renewal at Three Shires Stone to Wet Side Edge. A further two LDNPA Hazard Areas located around the axe flaking site complexes on Scafell Pike and Great End are defined within the vicinity of proposed footpath renewal, but are not directly affected by it (Figs 3 and 5).

4.2 DESK-BASED ASSESSMENT

- 4.2.1 ***Previous Archaeological Work:*** the rapid desk-based assessment identified the locations of archaeological sites recorded within the study area (from the LDNPA HER and NT SMR). For the most part the sites were identified by a coherent succession of archaeological surveys on behalf of the Lake District National Park Authority and The National Trust. This reflects that there is an overlap between the present survey and the intensive surveys by The National Trust and the Cumbria and Lancashire Archaeological Unit (now OA North) of the Langdale and Scafell Pike axe factories. The current study aims to incorporate these disparate elements and produce a definitive preliminary distribution of all of the sites within the respective study areas. The sites identified by the desk-based assessment are discussed thematically below.
- 4.2.2 ***Axe Flaking Sites:*** the 1985 axe factory survey (CLAU 1985; Claris and Quartermaine 1989) produced three discrete axe flaking site complexes that were in the vicinity of the individual study areas (Fig 3) (*op cit*, 23). They were located on north side of Scafell Pike (Site 5; CLAU site complex groups VII, VIII and XI) and at Great End (Sites 7 and 19; CLAU sites 400 and 401). A further two possible sites were identified within the LDNPA HER (Sites 4 and 6) as being located slightly to the north of the Scafell Pike axe factory site complexes.

4.2.3 With the exception of the axe working sites, there were few other types of sites identified within the immediate environs of the proposed footpath renewal and stone picking areas. The most notable was the earthwork remains of the Roman road running between Hardknott and Wrynose Bottom (Site 8; Fig 4). This is a statutorily protected Scheduled Monument (CU 243; CU 247; CU 264), although its defined area misses the proposed impact area of the footpath renewal. Other monuments are limited to four sites, with two of them being marker stones. The first is a county boundary marker stone known at the 'Three Shires Stone' which marks the convergence of three counties in the Duddon valley (Site 9; Fig 4), the second being a commemorative marker stone, known as the 'packhorse woman's grave' located in the Angle Tarn area of Great Langdale (Site 10; Fig 5). The final two sites are both located at the top of Fairfield summit, and consist of the site of rain gauges (Site 1; Fig 7) and a possible ring cairn/pen-annular structure (Site 2). The latter site would be extremely interesting as one of a new possible type of pen-annular enclosure monuments, identified by Peter Rodgers in the central Lake District fells (OA North 2005); however, it seems to reflect a mislocated grid reference as the site is apparently located on a steep cliff edge.

4.3 FIELD SURVEY

4.3.1 In addition to identifying new archaeological sites, the field survey checked the locations of all archaeological sites previously identified, using their respective grid reference co-ordinates. NT SMR sites that have been definitively located have been given revised grid co-ordinates within the site gazetteer (*Appendix 3*).

Site Type	Number of Sites	Sites Numbers (those previously identified are italicised)
Axe Flaking Site	8	<i>3, 4, 5, 6, 7, 14, 15, 19,</i>
Boundary/Commemorative Stone	2	<i>9, 10</i>
Marker/Walkers Cairn	8	<i>11, 12, 13, 16, 17, 18, 20, 21</i>
Rain Gauge	1	<i>1</i>
Ring Cairn	1	<i>2</i>
Roman Road	1	<i>8</i>

Table 1: Identified Sites by Type

4.3.2 The identified monuments have been grouped by location and these are discussed below with further reference to perceived locational groupings of monuments and their potential period.

4.3.3 ***Piers Gill and Greta Gill, Wasdale (Fig 3)***: no new archaeological sites were identified within the buffer zones surrounding the proposed footpath renewal area or the stone picking areas at this location. None of the five axe flaking sites/complexes identified in the desk-based assessment were within the immediate environs of the path renewal areas and, as such, were not visited during the present project.

4.3.4 ***Three Shires Stone to Wet Side Edge, Duddon (Fig 4)***: the two existing archaeological sites within the general environs of the survey area were located. There was a discrepancy in the given locations between the LDNPA HER and NT SMR of the 'Three Shires Stone' but it was found to be extant and was located on the north side of the road over Wrynose Pass where the road kinks to the south, just adjacent to the proposed footpath renewal buffer zone. The earthworks of the

Roman Road to Hardknott fort were found to be extant, but a little removed from both the west and east sides of the proposed footpath renewal buffer zone. Despite extensive exploration the line of the road, in the form of upstanding earthwork remains, could not be discerned within the buffer zone. It seems probable that the current paved road follows the alignment of the Roman road at this location, as this is the only obvious route circumventing two areas of standing water in what is a narrow and elevated raised gap at the highest point of the road in the immediate vicinity. The road may, alternatively, be present as sub-surface archaeological remains surviving on the north, or south of the current paved road. A single new archaeological site, a boundary marker/walker cairn, was identified (Site 11). This was located upon the footpath on Wet Side Edge at a junction of two footpaths, where one continues down Wet Side Edge and onto High End/Rough Crag, whilst the other follows the proposed footpath renewal down towards Three Shires Stone.

- 4.3.5 ***Angle Tarn to Esk Hause, Great Langdale (Fig 5)***: one documentary site, the 'packhorse woman's grave' commemorative stone (Site 10), had been reported within the easternmost stone picking area on the east side of Angle Tarn. Despite extensive exploration, the site could not be identified at the given NGR coordinates. Two new archaeological sites, comprising single substantial boundary marker/walkers cairns were identified in the study area and were located upon the footpath running up Esk Hause from the Great Langdale valley. One was located to the south-east of Angle Tarn (Site 12) and one was located at the crossroads of two footpaths on the north-east side of Esk Hause (Site 13; Plate 2). The latter site lies within the buffer zone surrounding the proposed footpath renewal area at this location.
- 4.3.6 ***Fairfield Summit, Grasmere (Figs 6 and 7)***: two general areas of axe working flakes were defined as a site complex on the top of Fairfield Summit within the LDNPA HER (Sites 14 and 15; Plate 3). The site had been previously discovered and reported upon (Davis and Quartermaine 2007). The main site on the path is a substantial area with well-patinated white fragments of what looks to be Group XI material, when fractured. This is a relatively localised area of outcropping raw material which takes the form of dispersed fragments of fine-grained tuff exposed within the extensive peat scar. There is no evidence of any comparable tuff within the path exposure further than 25m beyond the observed working floor in either the eastern or western directions. The fragments are not particularly big, and would never have served effectively as cores. The fragments of group XI are mixed with a more conventional geology of welded tuff. A scattering of flakes was found across the area, which included some diagnostic worked flakes that did not correspond with natural conchoidal fracturing. During the present survey the complex was further refined, with the limits of both axe flaking spreads being defined as two separate entities (Sites 14 and 15).
- 4.3.7 Site 14 (FF1; Plates 3 and 4): the overall dimensions of the flake scatter were 58.7m long by 21.4m wide. This is the main scatter on the path and is a substantial area with well-patinated white fragments of what looks to be Group XI material, when fractured. The spread of natural outcropping fragments of fine-grained tuff, approximately corresponded with the smaller area of worked flakes, extending no more than 25m beyond the observed limits of flake scatter. A scattering of flakes was found across the area comprising 10 diagnostic worked flakes, which were sampled, and a larger number of undiagnostic worked flakes,

that were not. The turf overlying the mineral soil with the flakes was no more than 50mm thick, and had eroded back leaving a wide path that was up to 10m wide. The worked flakes were well scattered and for the most part there were no high concentrations of flakes more than five within a square metre (three within a 0.4m x 0.4m frame (Relative Flake Quantity Code 1 (Claris and Quartermaine 1989, 21)). This low density, coupled with the large extent of the scatter, probably reflects that the material had been dispersed by the footpath erosion. However, most of the flakes sampled could not have been a product of natural conchoidal flaking. Some flakes, recovered from earlier sorties, are larger than the size of raw material that is now presently available, suggesting either that the base stone has become weathered or that the largest stones of Group XI have already been worked. The survey recorded the location of the diagnostic worked flakes and also the extent of the scatter of raw material and undiagnostic flakes (Fig 7).

- 4.3.8 Site 15 (FF2): the overall dimensions of the site were 22.5m long by 16m wide. A small site, within an area of partly turfed ground. There was some group XI unworked rock in the area, but the main characteristic was the finding of diagnostic worked flakes within a localised area. This area has not been disturbed by footpath action and, correspondingly, the flakes are all fairly localised, by contrast with those on the main path. Again, the source rock is small, fragmentary, and frost-fractured; it is generally unsuitable for working.
- 4.3.9 Two archaeological sites, identified in the desk-based assessment at this location were visited. Whilst the rain gauges site was extant (Site 1), the putative ring cairn/pen-annular enclosure (Site 2) could not be located at the given NGR coordinates. The present survey did reveal at least five small- to medium-sized boundary marker/walkers cairns located following the paths up to the top of Fairfield Summit, including the footpath which is proposed for renewal (Sites 16-18, 20 and 21; Plate 5). The recorded cairns had an earthfast base and were seemingly of greater antiquity than the majority of the walkers cairns.

5. DISCUSSION

5.1 CORRIDOR ROUTE

- 5.1.1 The Greta Gill and Piers Gill areas, on the line of the Corridor Route to the north-west of Scafell Pike and Great End approximately follows the band of outcropping Group VI rock. The 1985 survey (Claris and Quartermaine 1989) examined the Corridor Route, finding no working and the present survey has reinforced this. In one sense this would seem surprising, but there are other areas of known outcropping which have never been exploited, specifically, the area of Bowfell Links, to the south of Bowfell, where there are extensive screes with large boulders of Group VI rock but no evidence of any axe working in the environs. Either the geology in this area was not known to the prehistoric workers or possibly vegetation covered the outcropping at that time.

5.1 FAIRFIELD

- 5.1.1 The source material for axe production on Fairfield was seemingly little used for large-scale axe working; the rock is a Group XI type, which was not particularly favoured at Langdale, and the available block material was very small and fragmentary, although of course there may have been larger blocks available in antiquity. Given how little material was found here the presumption must therefore be that this rock source was either used for small axes or even blades. While the presence of four scatters would indicate that at least four implements were produced, overall the scale is extremely low, and this was more probably a trial working site rather than a full production site. As such, it is closely comparable to the small workings on Great End, on the Central Massif (Claris and Quartermaine 1989, 23), where there were two small adjacent workings that exploited an unsuitable friable tuff remote from any other axe production. Despite the apparent lack of success of this putative trial, it does indicate a prehistoric presence on the summit of Fairfield, and raises the possibility that there are further axe working sites elsewhere on the Fairfield/Helvellyn range where there is comparable or superior material outcropping.

6. IMPACTS AND RECOMMENDATIONS

6.1 IMPACTS

- 6.1.1 **Archaeological Impacts:** Table 2 below shows the number of sites which may potentially be impacted by the proposed footpath renewal and stone collecting areas, which are located within the study area (Figs 3-7).

Footpath / Stone Picking Area	Number of Sites	Sites Potentially Impacted Upon
Piers Gill	0	-
Greta Gill	0	-
Angle Tarn to Esk Hause	2	10, 13
Three Shires Stone to Wet Side Edge	1	11
Fairfield Summit	6	3, 14, 15, 17, 18, 20, 21

Table 2: Sites potentially impacted upon by the proposed footpath renewal and stone collecting areas.

- 6.1.2 **Axe-Working Sites:** the field survey has identified an axe-flaking resource at the top of Fairfield Summit (Site 3), of which two areas may be directly affected by the proposed development (Sites 14 and 15; Fig 7). To an extent, the identification of axe-working sites is a symptom of visibility caused by erosion of the ground surface; where exposed this type of archaeological resource is extremely fragile and susceptible to further erosion. When the sites were originally identified, there were two further scatters located within turf-covered areas (Davis and Quartermaine 2007); these are no longer evident. Although the axe-flaking sites are of a small-scale at this location, it is likely there are further sub-surface deposits within the immediate vicinity.
- 6.1.3 **Boundary Marker / Walkers Cairns:** the field survey identified numerous examples of these types of cairn, which is not surprising as they generally reside on or are adjacent to footpaths, footpath junctions, hill summits and parish boundaries. The nature of the proposed developments on or adjacent to well-used footpaths in the central Lake District Fells has meant that these cairns are invariably adjacent to the paths and are vulnerable to erosion, enhancement and direct impact by path repair, there are examples on Esk Hause (Site 13; Fig 5), Wet Side Edge (Site 11; Fig 4) and Fairfield Summit (Sites 16, 17, 18, 20 and 21; Figs 6 and 7). There is some uncertainty as to the date of manufacture of these type of cairns, they are often overlooked as purely modern constructs, as part of a thriving hiking/mountaineering tradition; however, the more substantial of these, with earthfast bases, may have served as boundary markers. The final site potentially impacted upon is the putative commemorative stone/marker known as the 'packhorse woman's grave' which is located within the stone picking area to the east of Angle Tarn. The site could not, however, be located during the present survey.

6.2 MANAGEMENT RECOMMENDATIONS

- 6.2.1 **Management for Proposed Footpath Works:** it is recommended that, in the first instance, members of the footpath team are taken around each of the potential stone collecting sites by archaeologists immediately prior to the commencement of stone picking. This would enable the definition of the limits of the archaeological sites for

the benefit of the footpath team so that they may be able to avoid them. In addition, stone picking should be conducted away from the boundary marker/walkers cairns which have been defined as potentially impacted upon. Most of these sites are easily recognisable as monuments and, therefore, are at reduced risk from inadvertent damage by stone-picking.

- 6.2.2 The northern end of the proposed footpath renewal on the Three Shires Stone to Wet Side Edge path (Fig 4) impinges upon the Hazard Area (as defined by the LDNPA) surrounding the Roman Road running through the valley. There are no upstanding earthwork remains recorded at this location and the statutorily protected Scheduled Monument Areas are not crossed by the proposed development. Should sub-surface excavation be required in advance of the footpath pitching on the northern end of the footpath, this should be undertaken under close archaeological supervision in the form of a watching brief.
- 6.2.3 There should be a scheme of further mitigative works located on exposed on Fairfield Summit (Fig 7), adjacent to, the footpath where there are surviving axe-flaking sites currently exposed. To this end, archaeological recording similar to that undertaken at Martcrag Moor (OA North forthcoming a), including rectified digital photographic planning of the axe flaking scatters and survey of the extents of the main areas of footpath erosion should be undertaken.
- 6.2.4 ***Further Management and Research Potential:*** it is clear from recent archaeological investigations, with this project being but one, that the nature and extent of the axe-flaking sites making up the Langdale Axe Factory complex are still being refined (Fig 8). Flaking sites have been identified recently at some distance from the main outcropping source rock at Fairfield Summit (Davis and Quartermaine 2007) and further new sites recorded at, or adjacent to, the main complex at Langdale Pikes, to the north (OA North forthcoming a and b), and to the east at Stickle Tarn (OA North 2005). These areas should, in particular, be highlighted as suitable for further research and investigation. At Fairfield Summit the resource is extremely fragile and susceptible to erosion and is of extreme importance due to its so far unique and removed nature.

7. BIBLIOGRAPHY

7.1 PUBLISHED CARTOGRAPHIC SOURCES

Ordnance Survey c 1982, 1:10000, NY20NW; NY20NE; NY20SE and NY31SE

Ordnance Survey 2002, 1:25000 Explorer (OL6) The English Lakes: South Western Area

Ordnance Survey 2002, 1:25000 Explorer (OL7) The English Lakes: South Eastern Area

7.2 SECONDARY SOURCES

Annable, R, 1987 *The Later Prehistory of Northern England*. Oxford: British Archaeological Reports, British Series **160**

Association of County Archaeological Officers (ACAO), 1993 *Model briefs and specifications for Archaeological Assessments and Field Evaluations*, Bedford

Birks, HJB, 1988 Long-term ecological change in the British uplands in Usher, MB, and Thompson, DBA, (eds) *Ecological change in the uplands*, British Ecological Society Special publication, **7**, 37-56

Blamires, GM, 2005 *Guidestones to the Great Langdale Axe Factories: Ancient ways to stone axe working sites in the English Lake District*, Carlisle

Bradley, R, and Edmonds, M, 1993 *Interpreting the Axe Trade, Production and exchange in Neolithic Britain*, Cambridge

Bunch, B, and Fell, C, 1949 *A stone axe factory at Pike of Stickle, Great Langdale*, Proc Prehist Soc, **15**, 1-20

Cumbria and Lancashire Archaeological Unit (CLAU), 1985 *Scafell Pike, Axe Factory Survey Catalogue*, unpubl doc

Chappell, S, 1987 *Stone Axe Morphology and Distribution in Neolithic Britain*. British Archaeological Reports, British Series **177**, Oxford

Claris, P, and Quartermaine, J, 1989 The Neolithic quarries and axe factory sites of Great Langdale and Scafell Pike: A new field survey, *Proc Prehist Soc*, **55**, 1-25

Clough, THMcK, 1973 Excavations on a Langdale axe chipping site in 1969 and 1970, *Trans Cumberland Westmorland Antiq Archaeol Soc, n ser*, **73**, 25-46

Clough, THMcK, and Cummins, WA, 1988 *Stone Axe Studies Vol 2, The petrology of prehistoric stone implements from the British Isles*, CBA Res Rep 67, London

Countryside Commission 1998 *Countryside Character Volume 2: North West*, Walgrave

Darbishire, R, 1873 Notes on Discoveries at Ehenside Tarn, Cumberland, *Archaeologia*, **44**, 273-92

Davis, RV, 1985 Implement petrology: the state of the art - some problems and possibilities, in P Phillips (ed), *The archaeologist and the laboratory*, CBA Res Rep 58, 33-5, London

Davis, V and Quartermaine, J, 2007 Widening the Horizons, Recent Discoveries of Axe Factories in the Lakeland Fells, in Cherry, P, (ed) 2007 *Studies in Northern Prehistory*:

- Essays in Memory of Clare Fell, Trans Cumberland Westmorland Antiq Archaeol Soc, Extra ser, 33, 141-151*
- English Heritage, 1991 *Management of Archaeological Projects, 2nd edition*, London
- Fell, CI, 1950 The Great Langdale stone axe factory, *Trans Cumberland Westmorland Antiq Archaeol Soc, n ser, 50, 1-13*
- Fell, CI, 1954 Further notes on the Great Langdale axe factory, *Proc Prehist Soc, 20, 238-39*
- Fell, CI, and Davis, RV, 1988 The petrological identification of stone implements from Cumbria, in TH Mck, Clough and WA, Cummins (eds) *Stone Axe Studies, CBA Res Rep, 23, 87-9*, London
- Hartley, JJ, 1932 The volcanic and other igneous rocks of Great and Little Langdale, *Proc Geol Assoc, 43, 32-69*
- Hedges, R, Housely, C, Bronk Ramsey and Van Klinken, G, 1984 Radiocarbon dates from the Oxford AMS System: *Archaeometry Datalist 18, Archaeometry, 36, 337-374*
- Hodgkinson, D, Huckerby, E, Middleton, R, and Wells, CE, 2000 *The Lowland Wetlands of Cumbria*, Lancaster Imprints, **8**, Lancaster
- Houlder, CH, 1979 The Langdale and Scafell Pike axe factory sites: a field survey, in THMcK Clough and WA Cummins (eds) *Stone Axe Studies, CBA Research Report 23*, London
- Milward, D, Moseley, F, and Soper, NJ, 1978 The Eycott and Borrowdale Volcanic rocks, in Moseley, F, (ed) *The Geology of the Lake District* Yorkshire Geological Society, Occ Pub 3, 105-20, Leeds
- Moseley, F, 1978 *The Geology of the Lake District*, Yorkshire Geological Society, Occ Pub 3, Leeds
- OA North, 2004 *Site 123, Harrison Coombe, Great Langdale, Cumbria: Archaeological Excavation*, unpubl rep
- OA North, 2005 *Stickle Tarn, Great Langdale, Cumbria: Archaeological Survey Report*, unpubl rep
- OA North forthcoming a *Martcrag Moor Axe Factory Sites, Great Langdale, Cumbria: Archaeological Recording Survey Report*, unpubl rep
- OA North forthcoming b *The results of the North West Upland Peats pilot study*, unpubl rep
- Pennington, W, 1965a Pollen Analyses from the Deposits of Six Upland Tarns in the Lake District, *Phil Trans Royal Soc London, Series B, 248, 205-243*
- Pennington, W, 1965b The interpretation of some post-glacial vegetation diversities at different Lake District sites. *Proc Royal Soc London, Series B, 161, 310-323*.
- Pennington, W, 1970 Vegetational History in the north-west of England: a regional synthesis. In Walker and RG West (eds), *Studies in the vegetational History of the British Isles*, London
- Pennington, W, 1975 The effect of Neolithic man on the environment in north-west England: the use of absolute pollen diagrams. In JG Evans, S, Limbrey and H, Cleere

(eds), *The Effect of Man on the Landscape: The Highland Zone*. CBA, Res Rep **11**, London

Pennington, W, 2003 Evidence from the tarns of vegetation, soils, climate and human settlement, in E Haworth, G, de Boer, I, Evans, H, Osmaston, W, Pennington, A, Smith, P, Storey, and B, Ware (eds) 2003 *Tarns of the Central Lake District*, Brathay Exploration Group Trust Ltd, 20-28

Plint, RG, 1962 Stone axe factory sites in the Cumbrian Fells, *Trans Cumberland Westmorland Antiq Archaeol Soc nser*, **62**, 1-26

Taylor, BJ, Burgess, IC, Land, DH, Mills, DAC, Smith, DB and Warren, PT, 1971 *British Regional Geology: Northern England*, London

APPENDIX 1

PROJECT BRIEF

Invitation to Quote: Archaeological survey and assessment of possible early stone tool working sites, in Great Langdale, Wasdale and Grasmere, Cumbria.

Introduction

The Lake District National Park Authority and The National Trust wish to commission an archaeological survey and assessment of land affected by a program of upland footpath repair planned for 2008. The areas of land affected are located near Greta Gill and Piers Ghyll, Wasdale; Angle Tarn, Great Langdale; Wet Side Edge, Duddon and Fairfield Summit, Grasmere.

The aims of the archaeological survey and assessment are twofold; firstly, it would improve our understanding of the archaeological resource in these areas and secondly, it would help us to identify and mitigate any potential impacts of the proposed scheme of footpath improvement and stone collecting planned for these areas in 2008.

Background

This batch of footpath improvement works are the latest to be funded by the 'Fix the Fells' project, a partnership project between the Lake District National Park Authority and National Trust that aims to upgrade and improve existing footpaths to provide safe and sustainable access into upland areas. The project is funded by the Heritage Lottery Fund.

The footpath improvement work will be undertaken using an established technique known as 'pitching'. Pitched paths have become a common sight in the Lake District National Park over the last 30 years and have been used successfully to tackle erosion on many popular upland routes. The traditional method of pitching involves the creation of a stepped stone surface that is resistant to erosion from both water and visitors. Wherever possible local stone is used to ensure that the new route blends in with their surroundings over time. To this end areas of natural stone screes have been identified by the upland footpath teams as part of their preparations to undertake the work with the aim of finding suitable, local stone. The location of the footpaths identified for improvement, together with the areas where stone will be removed, have been identified on a series of maps (see attached maps).

The Lake District National Park Authority and National Trust archaeologists have put together a brief impact assessment of all upland footpath improvement projects planned for 2008. Out of the twenty three projects to go forward, five have been identified as requiring further assessment and survey to better understand the archaeological resource and the threat posed to it by the proposed work.

In four of the five cases put forward for assessment and survey, the footpath or stone collecting area is located close to known Neolithic axe factory sites. Given the erosion from footpaths and the loss of peat cover in some areas it is possible that new quarries or working floors associated with axe manufacture might now be visible in or close to the working areas. While our understanding of the central Lake District axe factories is already extensive as a result of previous investigations, the areas put forward for survey

have never been surveyed in detail. The fourth area (Wet Side Edge) is located close to the line of a Roman Road and Scheduled Monument. This designation of this site means that a good understanding of its exact location and extent is needed before work continues.

In recent years the archaeological potential of upland areas has further increased with the discovery of a number of enigmatic stone built features such as ring cairns and tor cairns in Great Langdale, Borrowdale and the Duddon. A program of investigation of these features is now underway and is likely to assist with their interpretation, however it is believed that these features are likely to be prehistoric in date and have much in common with ring-cairns found in similar upland settings. It is important that any such features located within the working areas are identified now so that there are not accidentally robbed by the footpath teams.

This area also contains numerous other archaeological features including ruined walls, shielings, sheepfolds and biolds. Again we will require all archaeological features to be recorded and marked on a survey plan so that they may be protected.

Project aims

The aim of the proposed project would be to provide the Lake District National Park Authority and National Trust with the information they need to assess the likely impact of the proposed work on the local archaeological resource. It is hoped that this assessment will enable identification of areas where sufficient stone can be removed by the Upland Footpath Team while also minimising the risk to the historic landscape.

In order to achieve this aim a detailed archaeological assessment and survey of the specified area is required for the following areas:

- Piers Gill, Wasdale
- Greta Gill, Wasdale
- Three Shires to Wet Side Edge, Duddon
- Angle Tarn to Esk Hause, Great Langdale
- Fairfield summit, Grasmere

In each case the footpaths to be improved are shown in red while the stone collecting areas are shown in yellow on the attached maps.

Information collected during this survey would then be presented in a report giving a comprehensive description of the local archaeological resource and would also identify those areas on the fell from which stone should and should not be taken.

Description of work to be undertaken

The project will consist of the following components.

Field Survey

- The main aim of the proposed project is to undertake a detailed archaeological survey of the footpaths and stone collecting areas (plus a 100m buffer zone wherever topography allows) as defined on the attached maps in order to identify and record the location, nature and form of all extant archaeological and historic features.

- 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.
- A detailed description of each site should be made in the field to enable the creation of a gazetteer.

Survey Outputs

- Information collected during the survey and assessment should be presented in the form of an illustrated report.
- The report should contain an introduction, background information, a methodology, a description and interpretation of the recorded archaeology, a gazetteer of recorded sites and monuments along with a clear set of recommendations relating to the collection of stone from within the survey area.
- Information collected during the survey and described in the report should be presented on a series of printed digital maps that shows the location of all recorded sites and monuments; any areas of archaeological importance or potential; and those areas from which stone can and cannot be taken. This information should be presented as overlays on a background map at a suitable scale to allow easy navigation and practical use in the field.
- 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 LDHER and NTSMR. The gazetteer should be compiled using MIDAS standards and include the following list of mandatory fields; name, description, NGR, SAM number, survey number, LDHER ref, NTSMR ref, site type, period, certainty of interpretation, management issues, vulnerability and condition.

The contractor should be prepared to visit significant sites with a member of the 'Fix the Fells' project team if required. This is only likely to be necessary if a number of significant sites are found at one or more locations or if the impacts from the proposed work are unclear.

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

Further information about the required survey standards is contained in '*Archaeology and the Historic Environment: Historic Landscape Survey Guidelines*' (NT, 2000) – downloadable from the National Trust website.

Survey products

At the conclusion of the survey, the contractor will provide the Lake District National Park Authority and National Trust with the following products:

- Five bound paper copies of the report and a sixth unbound copy. Each copy should be accompanied by a set of paper plans if not included in the report.
- Two complete digital copies of the report will also be supplied. The report should appear as a locked PDF format and as a Word file that will allow extraction of blocks of text, images and maps etc.

- 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
- Copies of the digital files from the photographic recording should also be supplied as J.pegs.

Current site conditions

The survey area is unenclosed and has open public access.

Contract Conditions

The Lake District National Park Authority and National Trust will retain joint copyright over the information produced during the course of these investigations and all information that appears in the final report. The Lake District National Park Authority and National Trust fully recognise 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, in this case the offices of the Lake District National Park Authority and National Trust. 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.

Further information about the National Trust guidelines and requirements on insurance and health and safety issues is contained in '*Appendix 2 – Agreement for Provision of Archaeological Services*', supplied separately.

Timescales

Ideally the survey work should be undertaken in March 2008 and the draft report passed onto the Lake District National Park Authority and National Trust within two months of the completion of fieldwork.

The Lake District National Park Authority and National Trust also ask that a preliminary report should be produced outlining the general archaeological sensitivity and if it will be possible to collect stone from this area as planned. This preliminary report could take the form of a simple letter and should arrive within a fortnight of the end of fieldwork.

Quotes for the above project (including a breakdown costing) should be returned as soon as possible to allow any final changes to be negotiated before the required start date.

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APPENDIX 2 PROJECT DESIGN

**Oxford
Archaeology
North**

April 2008

AXE WORKING SITES GREAT LANGDALE, WASDALE, AND GRASMERE CUMBRIA

ARCHAEOLOGICAL SURVEY

PROJECT DESIGN

Proposals

The following project design is offered in response to a request from the Lake District National Park Authority in accordance with a brief from LDNPA for a programme of archaeological survey of path sites which have the potential for axe working material in the central Lake District. The purpose of this study is to ensure that the proposed path work does not impact on archaeological monuments.

1. INTRODUCTION

1.1 CONTRACT BACKGROUND

- 1.1.1 Richard Fox of Lake District National Park Authority has invited Oxford Archaeology North (OA North) to submit a project design for a programme of landscape survey on the lines of proposed path repair within the central Lake District in areas which have the potential for axe production. The proposed programme is in accordance with a project brief by LDNPA and is intended to inform the conservation management of the landscape and to ensure that the winning of stone for path repair and the path repair does not affect the archaeological resource.

1.2 ARCHAEOLOGICAL BACKGROUND

- 1.2.1 Outcropping in a narrow band around the central lakes is a fine grained volcanic tuff, which was ideally suited for axe production. It had the advantage that it could be easily worked and polished sufficient to produce some substantial tree felling axes (Claris and Quartermaine 1989). The quality of the axes were such that they acquired a value greatly exceeding their functional value and appear to have been status objects and may have served as a form of currency (Bradley and Edmonds 1993). Considerable work undertaken by OA North (then called Lancaster University Archaeological Unit) entailed extensive surveys around most of the higher fells and specifically traced the outcropping band of source geology (Claris and Quartermaine 1989). Although this axe factory working is in common parlance called the Langdale Axe Factories, there are actually small scale workings around many of the summits of the central Lake District and consequently an extremely expansive area of the Central Fells is now being proposed for scheduling by English Heritage. In particular recent discoveries on Fairfield (Davis and Quartermaine 2007) have highlighted that small scale trial working was taking place on rocks sources that were remote from the principal horse shoe shaped band of rock, and highlights that there is potential for axe material across much of the high level summits where there are outcropping fine grained tuffs. Significantly the lower area of proposed source rock for the Fairfield path is near to where an outcrop of the Group VI rock has previously been identified, although no working sites have yet been identified in association with it.
- 1.2.2 Some of the areas that will be affected by path work or the winning of source stone have previously been examined during the 1984 and 1985 survey seasons, and include Stake Pass, Rossett Ghyll, Esk Hause and Piers Gill. However, previous experience in Langdale has shown that axe factory sites are constantly being revealed as a result of erosion exposing the underlying mineral soils, and as a result substantial numbers of axe factory working sites have been recorded subsequent to the original surveys, and are usually on the lines of footpaths. Consequently there is nevertheless a need to check these areas again to see if any axe working sites have been revealed since the 1985 survey. Other areas, such as on Wetherlam, Wet Side Edge, Dollywaggon and Helvellyn have never been examined. In the case of Dollywaggon and Helvellyn the same rock that outcrops on Fairfield, has the potential to outcrop on Dollywaggon. In these areas the emphasis on the survey would be in part be looking for axe working material, but principally would be to examine the outcropping geology to examine areas that may have served as a source for axe production.
- 1.2.3 The area of the Angle Tarn to Esk Hause path is remote from the main band of Group VI rock but is characterised by an outcrop of Esk Pike hornstone. This was found to be a generally unsuitable rock being for the most part severely frost fractured and a relatively coarse tuff; however, there is the potential for a trial working using it and there was one such site found on the face of Great End, which used a similar geology.

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 19 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 (Jamie Quartermaine, BA,

DipSurv, MIFA) who has many years experience of the identification and survey of upland landscapes, having worked closely with the RCHM(E), the Lake District National Park Authority and the National Trust on a large number of projects. In particular Jamie has undertaken or managed all the survey and excavation projects on Langdale and Scafell Pike undertaken by OA North (formerly Lancaster University Archaeological Unit) since 1984. Jamie undertook the recent survey of Stickle Tarn for the National Trust which revealed a number of new axe working sites on Pavey Ark, and also undertook the investigations on the summit of Fairfield (Davis and Quartermaine 2007). Jamie has particular experience of the recognition and recording of the axe factory monuments and the associated geology and it is proposed that he has an active role in the implementation of the present survey.

- 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, the surveys of the axe factories on Langdale and the Lakeland central massif, and a multitude of smaller landscape projects in the Lake District National Park. To date OA North has undertaken archaeological field surveys of over 810sqkm 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 claim to be one of the foremost specialists in the field of upland landscape recording.

2. OBJECTIVES

- 2.1 The primary purpose of the project is to inform future management decisions with regard to path repair work in five locations: Piers Gill, Greta Gill, Wet Side Edge, Esk Hause and Fairfield Summit. The proposed study is intended as an initial exploration of the archaeological resource, rather than as a definitive and comprehensive study. The aims of this initial project are broadly as follows:

- to establish sufficient information to establish the location, extent, character, period, condition, fragility and potential of the surviving archaeological features;
- to provide an accurate level 1 survey of all identified monuments;
- to provide a preliminary grading of all recorded sites and features to indicate relative significance.
- to inform the process of extracting source rock for the maintenance and repair of the five paths and ensure that archaeological monuments and their source geology are not impacted by this process.

- 2.2 The following programme has been designed to provide an accurate archaeological survey of the study area, set within its 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 two elements: archaeological field survey, and reporting.

3.2 FIELD SURVEY METHODOLOGY

- 3.2.1 The survey will be undertaken as an enhanced Level 1 type survey (details of OA North's survey levels are contained in *Appendix 1*). The survey study area is as defined in the project brief. The sites already identified on the National Trust SMR and the LDNPA Historic Environment Record (HER) will be checked and recorded at the same level of consistency as other newly discovered monuments. The survey will involve four elements: Reconnaissance, Mapping, Description and Photography.

- 3.2.2 **Reconnaissance:** the reconnaissance will consist of close field walking, varying from 10m line intervals dependent on visibility and safety considerations. The survey will aim to identify, locate and record archaeological sites and features on the ground and thus all sites noted will be recorded. The extent of any areas where there is no access will be defined on maps and depicted on the CAD

mapping. All sites identified from the National Trust SMR and Lake District HER will be examined. Given that the aim of the survey is to investigate axe manufacture, the reconnaissance strategy will be tailored accordingly. The survey will examine all areas of outcropping to examine the potential for sources of the fine grained tuff. In addition all exposures through the turf will be examined for lithics, and will include stream cuttings. Because of the intensive nature of this reconnaissance it will be more time consuming than the equivalent survey searching for structural archaeological features.

- 3.2.3 Subject to the results of the survey and the discovery of sites, one day in each area with axe material will be spent with members of the 'Fix the Fells' project team to discuss the potential stone sources and establish the protocols for dissemination of the results to the team.
- 3.2.4 **Survey mapping:** a Satellite Global Positioning System (GPS) will be utilised to satisfy the Level 1 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 differential system and uses a base station in conjunction with a roving station to correct the raw data and thereby achieve much greater accuracies than can be achieved with a hand held GPS. The accuracy of the OA North GPS system is capable of +/- 0.5m and provides for a quick and effective means of recording the position and extent of sites. The GPS techniques will be used to record the extent of the site. Where possible the approximate extent of the outcropping fine grained tuff will be defined, although it should be born in mind that the present study is an archaeological survey rather than a geological one, and consequently this can only be in outline.
- 3.2.5 **Site Description and Assessment:** the key to economy of survey is being able to compile a descriptive record for each site in a fast and accurate manner, which can be implemented in all weather conditions. It is proposed that the data be directly input on site into a palm computer, which is within a weatherproof case. The data will be incorporated into an Access 97 compatible database. The data will be backed up daily onto a portable computer running Access 97. The proposed 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.
- 3.2.6 All existing records with the National Trust SMR and the LDNPA HER will be checked, the NGRs will be refined and the entries will be updated. The input into the system will be guided by a proforma to ensure uniformity and consistency of input, and will provide input for the following fields. A gazetteer of all recorded sites and monuments will be created and will include various description fields to allow easy transference of information to the LDHER and NTSMR. The gazetteer will be similar to that used on the Stickle Tarn Survey (OA North 2005) and will be compiled using MIDAS standards and include the following list of mandatory fields: Name, Description, NGR, SAM number, Survey number, LDHER ref, NTSMR ref, Site type, Period, Certainty of interpretation, Management issues, Vulnerability, Stability and Condition.

Fields for gazetteer

OA North No	NTSMR No
LDHER NAME	
EASTING	NORTHING
NGR	SAM
SITE TYPE	SOURCE
PERIOD	STABILITY
SURVIVAL	VULNERABILITY
SIGNIFICANCE	
DESCRIPTION	CERTAINTY OF INTERPRETATION

Condition terms area as follows: Good, Medium, Poor, Very Bad or Uncertain

Stability terms are as follows: Stable, Slow deterioration, Rapid deterioration or Unknown, Vulnerability (High, Medium, Low or Unknown) (Low, Medium or High).

Certainty of interpretation:

- Grade 1: Archaeological sites of the highest importance, and will include Scheduled Ancient Monuments and sites of national importance.
- Grade 2: Archaeological Sites of regional significance
- Grade 3: Archaeological Sites of local significance
- Grade 4: Non extant sites or sites which are not authentic

- 3.2.7 Where axe factories are identified, the density and size of the flakes will be measured and recorded. The flakes will be categorised into small, medium and large, and the numbers of flakes will be counted within a 0.4m x 0.4m grid. This will provide consistency with the strategy employed in the original survey
- 3.2.8 The description will incorporate a provisional interpretation of the function and purpose of a site, where possible, and similarly will provide a provisional interpretation of the site's chronology where possible.
- 3.2.9 **Photographic Survey:** a photographic archive will be generated in the course of the field project, comprising landscape and detailed photography. Detailed photographs will be taken of all sites using a scale bar. All photography will be recorded on photographic pro-forma sheets which will show the subject, orientation and date. The photography will be primarily undertaken within black and white 35mm format for archival purposes and will be maintained to archival standards. Photography will also be undertaken within digital formats for presentation purposes. The use of a digital camera (8mega pixels) will allow the incorporation of a digital image of specific sites into the Access database form, if required. The use of photography in this way considerably enhances the usability of a database and greatly assists the analysis of the landscape.
- 3.2.10 **Site Interpretation:** at the completion of the field survey a field assessment will be made by the Project Manager (Jamie Quartermaine) to review the archaeological resource identified by the survey and to revisit the site interpretation on the basis of the results of the overall survey.

3.3 PROJECT ARCHIVE

- 3.3.1 **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 Lake District HER and National Trust SMR.
- 3.3.2 **Digital Presentation:** the survey data will be digitally transferred into a CAD system (AutoCAD) and superimposed with digital 1:10,000 OS data. The dimensioned site drawings will be digitally superimposed onto the raw survey data, thereby ensuring a high level of both numeric and representational accuracy. The use of CAD dispenses with the manual production of drawings and considerably increases the efficiency of the preparation of completed drawings, as well as enhancing the flexibility of map output. The final output drawings will be output in MapInfo and Autocad formats. 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 1:2000. The archive will be passed to the Cumbria Record Office and a digital copy will be passed to the client on completion of the survey alongside the final report. The database will be created in Access and will be undertaken in fields compatible with the Lake District HER and NT SMR.
- 3.3.3 **Photographic Presentation:** sets of black and white prints (7" x 5") will be provided and the report will incorporate high quality prints of digital images in colour and black and white. The photographs will be numbered with site details, orientation, negative numbers and date. The negatives will be deposited with the Cumbria Record Office.

3.4 REPORTING

- 3.4.1 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. The potential for further archaeological fieldwork

will be examined both in relation to individual sites and for the estate as a whole. The report will make a clear statement of the archaeological potential of the individual sites within the study area.

- 3.4.2 **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, geomorphological and historical background, interpretative account of remains found, conclusions, a gazetteer of sites with grading of significance, assessment of potential for future work (in accordance with Management of Archaeological Projects, 2nd edition, 1991), list of archive contents and bibliography. Illustrative material will include location maps and plans.
- 3.4.3 **Report:** the report will be presented on the basis of the results of the field and documentary study. It will examine the factual evidence for all periods of activity and in the absence of any environmental or absolute dating an attempt will be made to identify the date, character and function of the principal monument groups on the basis of local and national typologies.
- 3.4.4 Illustrative material will include a location map, site map, historic maps, survey plans and also pertinent photographs. It can be tailored to the specific requests of the client (eg particular scales etc), subject to discussion.
- 3.4.5 The report will include a frontispiece showing the planning number and the grid reference. It will have a summary and a methodological statement, and it will define any variations to the defined programme. It will include recommendations for further work.
- 3.4.6 **Assessment of Potential for Further Work:** the report will examine the archaeological condition, survival, stability and significance of the archaeological monuments and landscapes. On this basis the report will make recommendations for further recording or archaeological investigation that will be compatible with the overall research and management aims for the survey areas. These proposals may include selective excavation or more detailed survey works in specific areas of the landscape, geochemical works or environmental analysis, use of GIS and Digital Terrain Models to enhance the understanding and perception of the archaeological resource and the landscape.
- 3.4.7 **Output:** five bound and one unbound copies of the full report will be submitted to the client, for inclusion in the Lake District HER and National Trust SMR. A digital copy of the data and report will also be submitted. Two complete digital copies of the report will also be supplied. The report will appear as a locked PDF format and as a Word file that will allow extraction of blocks of text, images and maps etc.

Copies of the digital survey information will also be supplied in a CAD compatible format as a .dwg file and as a .tab file compatible with MapInfo Version 6

Copies of the digital files from the photographic recording will be supplied as .JPG files).

- 3.4.8 **Publication:** a summary report of the results will be submitted to a regional journal, and information from the project will be fed into the OASIS project (On-line Access to Index of Archaeological Investigation). A summary of the results will be prepared for publication in an appropriate journal.

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 OA North will have unrestricted pedestrian access to the study area for the duration of the survey, and that access will be negotiated with tenants by the National Trust where appropriate.

4.2 HEALTH AND SAFETY

4.2.1 Full regard will, of course, be given to all constraints (services) during the survey, 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 PROJECT MONITORING

4.4.1 Monitoring meetings will be established with the Fix the Fells manager and Lake District National Park and National Trust Archaeologists at the outset of the project. It is anticipated that these will involve a preliminary meeting at the commencement of the project and possibly progress meetings during fieldwork.

4.4.2 OA North will inform the client of all significant developments, and any potential departures from the agreed programme will be discussed and agreed with them prior to implementation.

5. WORK TIMETABLE

5.1 The phases of work will comprise:

5.1.1 *Field Survey*

6 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 The project can be undertaken at short notice, subject to the requirements of the client and it is proposed that the survey be undertaken in May / June 2008.

6. OUTLINE RESOURCES

6.1 STAFFING

6.1.1 The project will be under the management of and will be directed by **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. Jamie will provide a post-survey assessment of the results. It is proposed that he will undertake the field survey of the study areas where there is the potential for axe factories.

6.1.2 The survey will be assisted by **Peter Schofield BA** (OA North Project Officer) 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 part of the survey at Hartley, near Kirkby Stephen, was involved in a recent survey at Ennerdale in West Cumbria, undertook the survey of St Catherine's Windermere, and Borrowdale.

APPENDIX 3 SITE GAZETTEER

OAN Site	1	Name	Fairfield Summit, Grasmere, Rain Gauges
LDNPA HER	12952	NT SMR Number	
SAM		NGR	NY 35865 11730
Monument Type	Rain Gauge	Period	Post-medieval
Source	LDNPA HER	Stability	Unknown
Survival	Uncertain		
Vulnerability	Unknown	Significance	2
		Certainty	Medium

Description

Fairfield Rain Gauges. The site of rain gauges (instruments for gauging the amount of rain which has fallen over a stated period) of Post-medieval (Victorian) date.

Assessment

The site lies outside of the proposed footpath renewal and will not be affected by the works.

OAN Site	2	Name	Rydal Valley, Ring Bank Enclosure
LDNPA HER	32573	NT SMR Number	
SAM		NGR	NY 36210 11740
Monument Type	Putative Ring Cairn	Period	Neolithic
Source	LDNPA HER	Stability	Unknown
Survival	Uncertain		
Vulnerability	Unknown	Significance	4
		Certainty	Low

Description

The site of a ring bank (circular enclosure featuring an enclosing bank with no accompanying ditch) of Prehistoric date. A ring bank structure, approximately 4-5 metres in diameter (P. Rodgers). OAN Survey 2008. The site was not located, possibly reflects a mislocated grid-reference?

Assessment

The site lies outside of the proposed footpath renewal and will not be affected by the works.

OAN Site	3	Name	Fairfield Summit, Grasmere, Stone Axe Factory Complex
LDNPA HER	32737	NT SMR Number	
SAM		NGR	NY 36015 11584
Monument Type	Stone Axe Factory	Period	Neolithic
Source	LDNPA HER; Davis and Quartermaine 2007; OA North Field Survey 2008	Survival	Good
Stability	Slow deterioration	Significance	2
Vulnerability	High	Certainty	Absolute

Description

Axe Factory (source from which stone utilised for the manufacture of non-flint artefacts such as axes was obtained) of prehistoric date. The flakes associated with stone axe production at Fairfield have been located within four distinct concentrations on either side of the broad erosion scar caused by the footpath that extends east from Fairfield Summit. Two of the concentrations were within the footpath erosion scar and form linear spreads (c 12m long), reflecting a certain amount of spread from the erosive effects of pedestrian traffic. There are two sites within an area of thin turf-covered ground that has not yet been subject to footpath erosion and these scatters are more localised (c 2m across). The density of flakes at each concentration was relatively low with no more than c 3 flakes per square metre. The ground was extensively examined for flakes but only the four flake concentrations were revealed. However, it is possible that there may be smaller low density scatters that have not yet been revealed within the vicinity. The flakes were small to medium in size, with a notable lack of larger flakes. The amount of material is very low by comparison with sites from Langdale or Scafell Pike. Two of the flakes were thin sectioned and examined under a microscope, which indicated they were both the similar fine-grained silicified rhyolitic tuff. The analysis suggested that the worked stone was not similar to Group VI or Group VIII but did share similarities with Group XI (Davis and Quartermaine 2007). OA North Survey 2008: two areas of flakes (FF1: Site 14; FF2: Site 15). The main one on the path is a substantial area with well patinated white fragments of what looks to be Group XI, when fractured. This is a relatively localised area of outcropping, and there is no evidence in either direction along

the path. The fragments are not particularly big, and would never have served effectively as cores. The fragments of group XI are mixed with a more conventional geology of welded tuff. A scattering of flakes were found scattered across the area, all were reasonably diagnostic flakes and did not correspond with natural conchoidal fracturing. There were 10 flakes over all and non diagnostic flakes were not sampled. There was turf over-lying the mineral soil with the flakes

Assessment

Part of the site lies along the proposed footpath renewal route and will be affected by the works.

OAN Site	4	Name	Lingmell, Eskdale, Axe Flaking Site
LDNPA HER	1371	NT SMR Number	
SAM		NGR	NY 21300 07500
Monument Type	Stone Axe Factory	Period	Neolithic
Source	LDNPA HER	Stability	Unknown
Survival	Uncertain		
Vulnerability	Unknown	Significance	2
		Certainty	Low

Description

Roughout axes, flakes and two hammerstone finds of Neolithic date. There were several broken axe roughouts, quantities of flakes, and two hammerstones which were found May 1959 beside the track ascending Scafell Pike on the Lingmell side. This was suggested as the possible site of an axe factory. A triangular shaped flake of volcanic tuff with blue-grey core and thick grey white surface skin was found on the surface by the footpath (c NY214075). The dorsal exhibits flake scars in one area, while the ventral is smooth. All the edges show signs of secondary working. Max. l. 101mm, max. w. 68mm, max. t. 16mm. Carlisle Museum Acc date August 1983 (CW90).

Assessment

The site lies outside of the proposed footpath renewal and will not be affected by the works.

OAN Site	5	Name	Scafell, Eskdale, Axe Flaking Site
LDNPA HER	1355	NT SMR Number	
SAM		NGR	NY 21101 07432
Monument Type	Stone Axe Factory	Period	Neolithic
Source	LDNPA HER, CLAU 1985	Stability	Unknown
Survival	Uncertain		
Vulnerability	Unknown	Significance	2
		Certainty	Absolute

Description

A group of two axe factory complexes (Numbers VIII and IX) which were surveyed in the 1980s as part of the CLAU axe factory survey. The information was compiled in the Scafell Pike Axe Factory Catalogue (CLAU 1985).

Group Descriptions:

Scafell Pike VIII - the sites are on a natural bench at the base of a fine-grained tuff crag, in an extensive area of scree. There is an adequate supply of raw material within the scree. CLAU individual site survey numbers 653-686.

Scafell Pike IX - some of the sites are on a bench adjacent to a small fine-grained tuff outcrop (693-706), while others are within areas of blockfield. There is an adequate supply of raw material within the scree and blockfield. The group is on the line of an access route to the mountain. CLAU individual site survey numbers 687-716.

Assessment

The site complexes lie outside of the proposed footpath renewal and will not be affected by the works.

OAN Site	6	Name	Scafell, Eskdale, Axe Flaking Site
LDNPA HER	15240	NT SMR Number	
SAM		NGR	NY 21590 07600
Monument Type	Stone Axe Factory	Period	Neolithic
Source	LDNPA HER	Stability	Unknown
Survival	Uncertain		
Vulnerability	Unknown	Significance	2
		Certainty	Low

Description

A scatter of flakes from stone axe production of Prehistoric date. Four small flakes found by Mr R Balcomb in 1993 in a relatively sheltered small grassy valley a few hundred feet below Scafell Pike. According to C Tolan-Smith they are waste flakes possibly of Group VI source. The flakes were retained by the finder. Originally described as 'flints' of prehistoric date the description suggests that they are in fact flakes of volcanic tuff from stone axe manufacture (JCH 2008).

Assessment

The site lies outside of the proposed footpath renewal and will not be affected by the works.

OAN Site	7	Name	Great End, Eskdale, Axe Flaking Site	
LDNPA HER	6365	NT SMR Number		
SAM		NGR	NY 22823 08153	
Monument Type	Stone Axe Factory	Period	Neolithic	
Source	LDNPA HER, CLAU 1985	Stability	Unknown	
Survival	Uncertain			
Vulnerability	Unknown	Significance	2	Certainty Absolute

Description

An axe flaking site surveyed in the 1980s as part of the CLAU axe factory survey. The information was compiled in the Scafell Pike Axe Factory Catalogue (CLAU 1985).

Site 401: this site is located amongst a loose scatter of small to medium-sized stones, below an area of turf-covered scree. The flakes are mainly medium to large and are concentrated between NY 2281408162 and NY 2281808160, although there is also a low concentration spilling downslope from this area. The flakes lie on the surface of the scree, and also on the matt grass which suggests a recent movement of the debitage. Some of the flakes are earthfast and not patinated. This is a Type B site, the material of the flakes being the same as that in the nearby outcrops, it is a relatively dark fine-grained tuff and according to R Oliver is Esk Pike hornstone. This site and the dubious site 400 are the only working sites in the area and it is probable that this working is exploratory flaking to test the suitability of the rock. To judge by the absence of other sites around, the rock must have been unsuitable. Size: 4m x 4m Concentration: 2 (33) Flake size: Medium and large

TYPE/PERIOD-GEN/PERIOD-SPEC/FORM = Flake site-b/Prehistoric/Neolithic/CLAU SURVEY NO. = 401 VISITS = Gale D/3/7/1985 SOURCES = Desc Text//Oliver R L//1961/Quart Journal Geol Soc 117, pp 377-417

Assessment

The site lies outside of the proposed footpath renewal and will not be affected by the works.

OAN Site	8	Name	Hardknott Fort to Wrynose Bottom, Roman Road	
LDNPA HER	3599	NT SMR Number		
SAM	CU 243; CU 247; CU 264	NGR	NY 23500 00940	
Monument Type	Road	Period	Roman	
Source	LDNPA HER	Stability	Slow deterioration	
Survival	Medium			
Vulnerability	Medium	Significance	1	Certainty Absolute

Description

A road of Roman date. Scheduled Ancient Monument no. 22902. Also AM no 243, NY271025-278028, AM no 264 (site no 15699), NY278028-288032. It is part of the Roman road from Ambleside to Ravenglass which runs through grid squares NY20SW, NY20SE and through Ulpha, Eskdale, Lakes parishes, from Wrynose Bottom to Hardknott Fort.

The road was followed and described by IA Richmond and his line is scheduled. In general it is 21 ft wide on a terrace and an agger varies according to the changing nature of the road. In places it underlies modern metalled road. It enters a guardianship area near Hardknott Fort.

It was also recorded by M Davies-Shiel During 2002 part of the Roman road between Hardknott Fort and Wrynose Pass. No remains were identified during the survey. The line of the road is actually further to the north and in places it partly underlies the present Wrynose Bottom road. Consequently, it would appear that the coordinates given in the original SMR are inaccurate

During a field survey in 2007, prior to footpath repairs, the Roman Road was visible as a low, grass-covered linear mound that was clear in the eastern section of the survey area but became less distinct towards the south-west of Blackhall Farm. It is suggested that the road was designed to be as level as the terrain permitted with parts of the road being artificially elevated through terraces in the north-eastern area of the survey.

Assessment

The site lies adjacent to the proposed footpath renewal route and maybe affected by the works.

OAN Site	9	Name	Three Shire Stone, Duddon, Boundary Stone	
LDNPA HER	14968	NT SMR Number	20106	
SAM		NGR	NY 27730 02750	
Monument Type	Boundary Stone	Period	Post-medieval	
Source	LDNPA HER; National Trust HER	Stability	Stable	
Survival	Good	Vulnerability	Low	Significance 2
Certainty	Absolute			

Description

Site of a boundary stone called the 'Three Shires Stone' of Post Medieval (Victorian) date. The stone marks the junction of the boundaries of Westmorland, Cumberland and Lancashire on Wrynose Pass. The Three Shire Stone was erected *c* 1870 by John Field, to replace the original Shire Stones, long disappeared, which marked the junction of the boundaries of Westmorland, Cumberland and Lancashire on Wrynose Pass. These were mentioned by Fleming (1671) and Nicolson and Burn (1777). The present monolith marks Lancashire only. It is also known as Threefoot Brandreth. Cumbria HER Entry: The Shire Stone is a conspicuous pillar erected shortly before 1860 by an Ambleside resident who thought that the original Shire Stones were too inconspicuous. These were three separate stones no more than 6 foot apart, each placed within the counties of Cumberland, Westmorland and a detached portion of Lancashire (Whellan, T. 1860, page 39). The "Shirestones upon Wrenose" are mentioned in 1576, Brandreth was an Old Norse word meaning grate, gridiron or tripod (English Placename Society, 1943-4, 21). Apparently moved or re-erected in the 1970's (pers comm Patrick Watson, 1984).

Assessment

The site lies outside of the proposed footpath renewal and will not be affected by the works.

OAN Site	10	Name	Rossett Pike, Great Langdale Packhorse Woman's Grave Monument	
LDNPA HER		NT SMR Number	28890	
SAM		NGR	NY 24947 07770	
Monument Type	Commemorative Monument	Period	Post-Medieval	
Source	National Trust HER	Stability	Slow deterioration	
Survival	Uncertain			
Vulnerability	Unknown	Significance	2	Certainty Low

Description

A simple stone arrangement to mark the spot where a packhorse woman was found after being caught out on the fells. It is not know if her body is buried beneath the stones although this is thought to be unlikely. The National Trust was attacked in print for destroying this monument in 2006 although the feature remains intact on the fellside.

Assessment

The site lies within a proposed stone picking area route and may be affected by the works.

OAN Site	11	Name	Wet Side Edge, Duddon, Marker Cairn	
LDNPA HER		NT SMR Number		
SAM		NGR	NY 27451 02137	
Monument Type	Marker Cairn	Period	Post-medieval	
Source	OA North Field Survey 2008	Stability	Slow deterioration	
Survival	Medium			
Vulnerability	Low	Significance	3	Certainty Absolute

Description

A sub-circular marker/walkers cairn located on the ridge running up Wet Side Edge. It is shown on the current OS mapping and is at the junction of two footpaths. It measures approximately 3m in diameter by up to 1m high.

Assessment

The site lies adjacent to the proposed footpath renewal route and maybe affected by the works.

OAN Site 12 **Name** Rossett Pike, Great Langdale, Marker Cairn
LDNPA HER **NT SMR Number**
SAM **NGR** NY 24689 07555
Monument Type Marker Cairn **Period** Post-medieval
Source OA North Field Survey 2008 **Stability** Slow deterioration
Survival Medium
Vulnerability Low **Significance** 3 **Certainty** Absolute

Description

An oval marker/walkers cairn located on the side of the Rossett Gill/Angle Tarn footpath on the top break of slope above the steep valley side. It measures approximately 4m long by 3m wide and is up to 1.2m high.

Assessment

The site lies outside of the proposed footpath renewal and will not be affected by the works.

OAN Site 13 **Name** Esk Hause, Great Langdale, Marker Cairn
LDNPA HER **NT SMR Number**
SAM **NGR** NY 23489 08262
Monument Type MARKER CAIRN **Period** Post-medieval
Source OA North Field Survey 2008 **Stability** Slow deterioration
Survival Medium
Vulnerability Low **Significance** 3 **Certainty** Absolute

Description

A circular boundary marker/walkers cairn located adjacent to junction of footpaths on the shoulder of land between Esk Hause and Allen Craggs. It measures approximately 2m in diameter by up to 0.6m

Assessment

The site lies adjacent to the proposed footpath renewal route and maybe affected by the works.

OAN Site 14 **Name** Fairfield Summit, Grasmere, Axe Flaking Site
LDNPA HER **NT SMR Number**
SAM **NGR** NY 36012 11606
Monument Type Stone Axe Factory **Period** Neolithic
Source Davis and Quartermaine 2007; OA North Field Survey 2008
Stability Slow deterioration **Survival** Good **Vulnerability** High
Significance 2 **Certainty** Absolute

Description

An axe flaking site FF1, overall dimensions 58.7m long by 21.4m wide. This is the main scatter on the path and is a substantial area with well patinated white fragments of what looks to be Group XI, when fractured. This is a relatively localised area of outcropping, and there is no evidence in either direction along the path of other areas of the material present. The fragments are not particularly big, and would never have served effectively as cores. The fragments of group XI are mixed with a more conventional geology of welded tuff. A scattering of flakes were found scattered across the area, all were reasonably diagnostic flakes and did not correspond with natural conchoidal fracturing. There were 10 flakes over all, and these were all diagnostic. Non diagnostic flakes were not sampled. The turf over lying the mineral soil with the flakes was no more than 0.05m thick, and had eroded back leaving a wide path that was up to 10m wide. The location of worked flakes were well scattered and for the most part there were no high concentrations of flakes that is more than five within a square metre. This could reflect that they have been dispersed by the footpath erosion. However, most of the flakes sampled could not have been a product of natural conchoidal flaking. Some of the flakes, principally from earlier sorties, are larger than the available size of raw material available, suggesting either that the base stone has become weathered or the largest stones of Group XI have already been worked. The survey recorded the location of the identified flakes and also the extent of the scatter of raw material.

Assessment

The site lies along the proposed footpath renewal route and will be affected by the works.

OAN Site 15 **Name** Fairfield Summit, Grasmere, Axe Flaking Site
LDNPA HER **NT SMR Number**
SAM **NGR** NY 36058 11579
Monument Type Stone Axe Factory **Period** Neolithic

Source Davis and Quartermaine 2007; OA North Field Survey 2008

Stability Slow deterioration **Survival** Good **Vulnerability** High

Significance 2 **Certainty** Absolute

Description

Axe flaking site FF2, with overall dimensions 22.5m long by 16m wide. It is a small site, within an area of partly turfed ground. There were some outcropping group XI rock in the area, but the main characteristic was the finding of diagnostic worked flakes within a localised area. This area has not been disturbed by foot path action, and correspondingly the flakes are all fairly localised, by contrast with those on the main path. Again the source rock is small and fragmentary, and frost fractured and is generally unsuitable for working.

Assessment

The site lies adjacent to the proposed footpath renewal route and maybe affected by the works.

UAN Site 16

LDNPA HER

SAM

Monument Type Marker Cairn

Source OA North Field Survey 2008

Survival Medium

Vulnerability Low

Name Fairfield Summit, Grasmere, Marker/Walkers Cairn

NT SMR Number

NGR NY 35866 11565

Period Post-medieval

Stability Slow deterioration

Significance 3 **Certainty** Absolute

Description

A circular boundary/walkers cairn located on the crest of Fairfield Summit. It measures approximately 2m in diameter by up to 0.5m high.

Assessment

The site lies outside of the proposed footpath renewal and will not be affected by the works.

UAN Site 17

LDNPA HER

SAM

Monument Type Marker Cairn

Source OA North Field Survey 2008

Survival Medium

Vulnerability Low

Name Fairfield Summit, Grasmere, Marker/Walkers Cairn

NT SMR Number

NGR NY 35875 11697

Period Post-medieval

Stability Slow deterioration

Significance 3 **Certainty** Absolute

Description

A circular boundary/walkers cairn located on the crest of Fairfield Summit and immediately adjacent to the footpath. It measures approximately 2m in diameter by up to 0.5m high.

Assessment

The site lies outside of the proposed footpath renewal and will not be affected by the works.

UAN Site 18

LDNPA HER

SAM

Monument Type Marker Cairn

Source OA North Field Survey 2008

Survival Medium

Vulnerability Low

Name Fairfield Summit, Grasmere, Marker/Walkers Cairn

NT SMR Number

NGR NY 35927 11637

Period Post-medieval

Stability Slow deterioration

Significance 3 **Certainty** Absolute

Description

A circular boundary/walkers cairn located on the crest of Fairfield Summit and immediately adjacent to the footpath. It measures approximately 2m in diameter by up to 0.5m high.

Assessment

The site lies adjacent to the proposed footpath renewal route and maybe affected by the works.

UAN Site 19

LDNPA HER 8639

SAM

Monument Type Stone Axe Factory

Source LDNPA HER, CLAU 1985

Name Great End, Eskdale, Axe Flaking Site

NT SMR Number

NGR NY 22898 08329

Period Neolithic

Stability Unknown

Survival Uncertain
Vulnerability Unknown **Significance** 2 **Certainty** High

Description

An axe flaking site surveyed in the 1980s as part of the CLAU axe factory survey. The information was compiled in the Scafell Pike Axe Factory Catalogue (CLAU 1985).

Site 400

Axe Factory Catalogue (CLAU 1985) Site 400. This site has a very low scatter of flakes, mixed with natural scree in a narrow stream gully that leads down Great End. There is no sign, despite much searching, of a point where the concentration of flakes is greater and hence indicative of the flaking area. The density of flakes is so low that there is a good possibility that the flakes are the result of natural conchoidal fracturing. The rock is a dark grey, almost black, tuff which is called Esk Pike hornstone by R Oliver <1>. There are some outcropping patches of the tuff in the area, but as the flaking area has not been traced, it cannot be assigned safely to either Types B or C, though it is most probably of Type B. The stream of flakes spills into a large area of scree where the concentration is similarly low. Size: c 40m x 2m Concentration: 1 (1) Flake size: Small and medium.

TYPE/PERIOD-GEN/PERIOD-SPEC/FORM = Flake site-bc/Prehistoric/Neolithic/CLAU SURVEY NO. = 400 VISITS = Quartermaine J/3/7/1985 SOURCES = <1> Desc. text//Oliver R/1961/Quart Journal Geol Soc 117, pp 377-417

Assessment

The site lies outside of the proposed footpath renewal and will not be affected by the works.

OSAN Site 20 **Name** Fairfield Summit, Grasmere, Marker/Walkers Cairn IV
LDNPA HER **NT SMR Number**
SAM **NGR** NY 36185 11628
Monument Type Marker Cairn **Period** Post-medieval
Source OA North Field Survey 2008 **Stability** Slow deterioration
Survival Medium
Vulnerability Low **Significance** 3 **Certainty** Absolute

Description

A circular boundary/walkers cairn located on the crest of Fairfield Summit and immediately adjacent to the footpath. It measures approximately 2m in diameter by up to 0.5m high.

Assessment

The site lies along the proposed footpath renewal route and will be affected by the works.

OSAN Site 21 **Name** Fairfield Summit, Grasmere, Marker/Walkers Cairn V
LDNPA HER **NT SMR Number**
SAM **NGR** NY 36166 11624
Monument Type Marker Cairn **Period** Post-medieval
Source OA North Field Survey 2008 **Stability** Slow deterioration
Survival Medium
Vulnerability Low **Significance** 3 **Certainty** Absolute

Description

A circular boundary/walkers cairn located on the crest of Fairfield Summit and immediately adjacent to the footpath. It measures approximately 2m in diameter by up to 0.5m high.

Assessment

The site lies along the proposed footpath renewal route and will be affected by the works.

APPENDIX 4 FINDS CATALOGUE

Axe working flakes retained by OA North from the surveys at Fairfield Summit:

(Site Code LAX08)

OR No	Context No	Count	Description	Easting	Northing
1000	FF01	1	Within Site 14	336008.71	511610.45
1001	FF02	2	Within Site 15	336055.91	511591.05
1002	FF03	1	Within Site 15	336053.13	511586.46
1003	FF04	2	Within Site 15	336052.67	511581.42
1004	FF05	1	Within Site 15	336056.41	511580.33
1005	FF06	1	Within Site 15	336014.07	511607.19
1006	FF07	2	Within Site 14	336103.03	511617.35
1007	FF General	3	Within Site 03 Flakes retained as part of the initial survey 09/09/2002	Not located	Not located

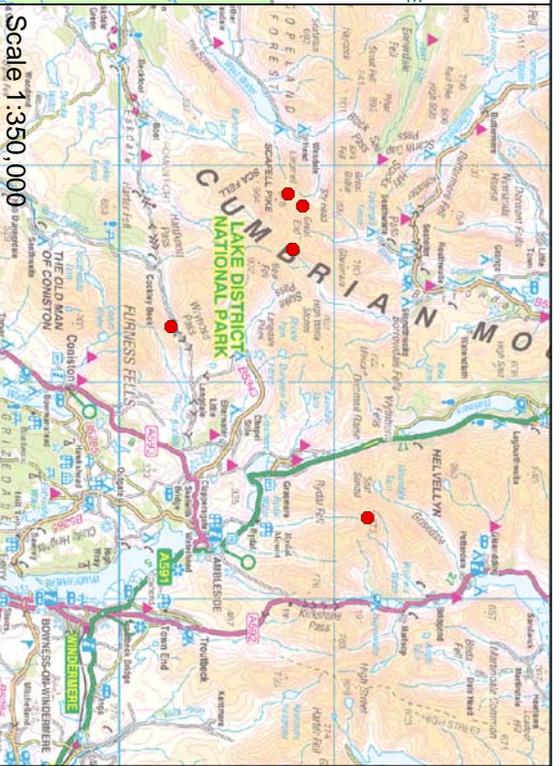
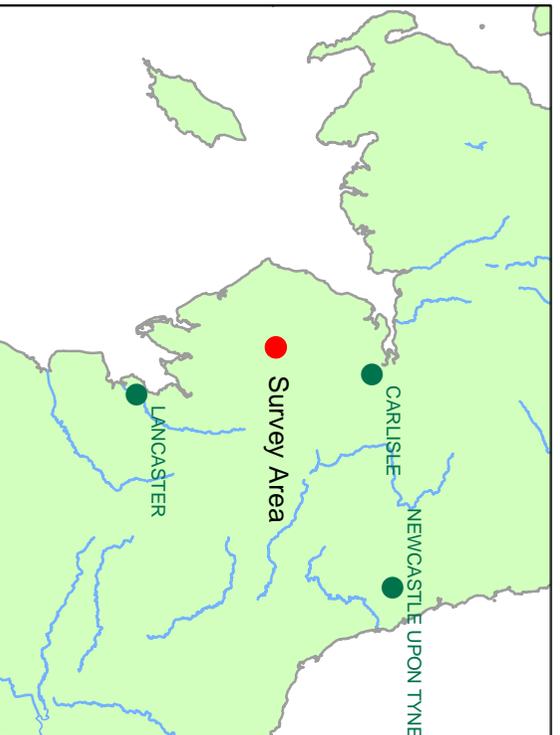
ILLUSTRATIONS

FIGURES

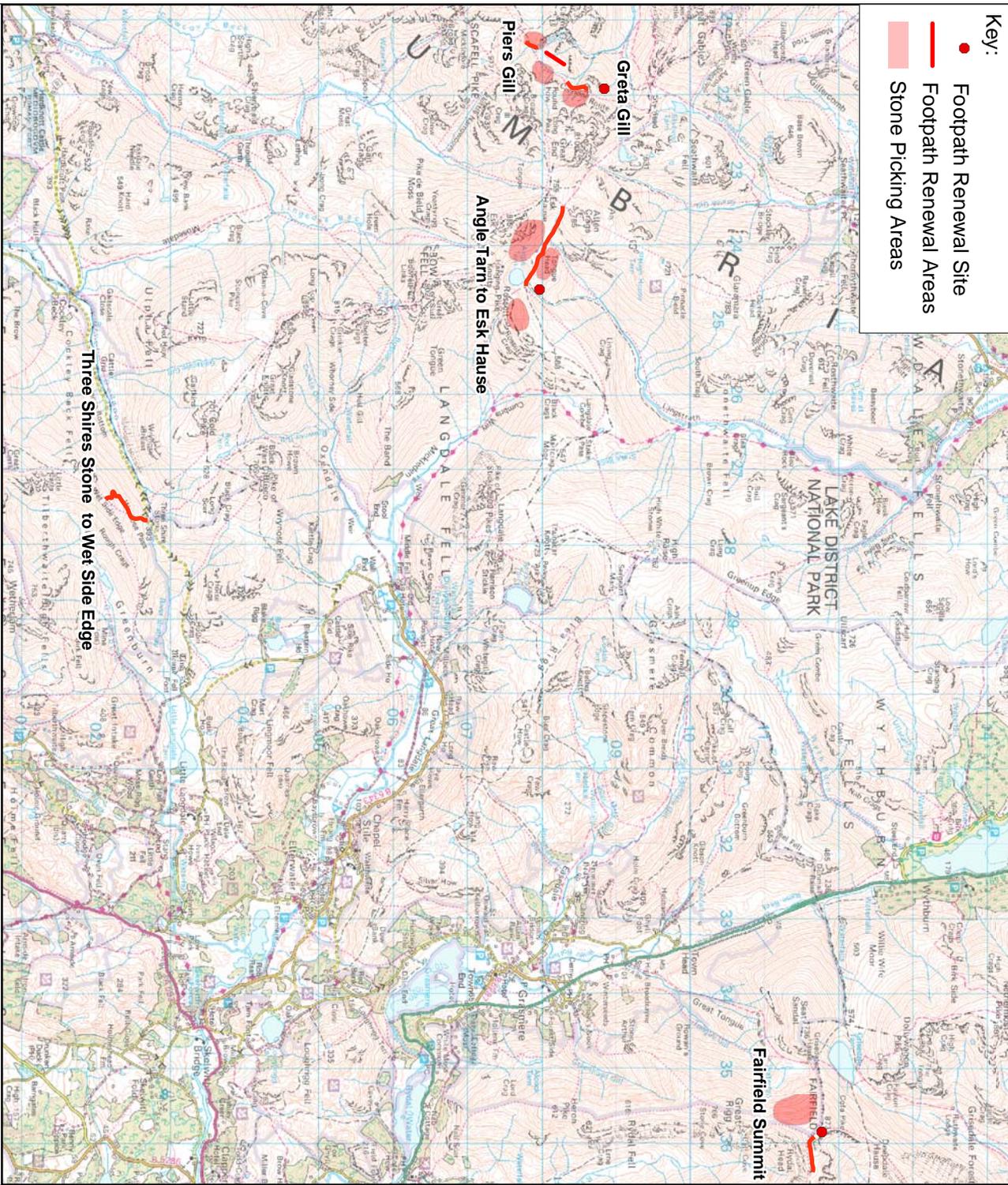
- Fig 1: Location of Survey Areas
- Fig 2: Key plan of site maplets
- Fig 3: Footpath renewal and stone picking areas at Piers Gill and Greta Gill, Wasdale
- Fig 4: Footpath renewal from Three Shires Stone to Wet Side Edge, Duddon
- Fig 5: Footpath renewal and stone picking areas from Angle Tarn to Esk Hause, Great Langdale
- Fig 6: Footpath renewal and stone picking areas at Fairfield Summit, Grasmere
- Fig 7: Exposure of axe working sites at Fairfield Summit, Grasmere
- Fig 8: Updated distribution of fine grained tuff outcrop and the principal axe flaking site groups (after Claris and Quartermaine 1989)

PLATES

- Plate 1: Footpath erosion to the north-west of Angle Tarn
- Plate 2: Marker cairn at Esk Hause (Site 13)
- Plate 3: General view of footpath erosion and two exposed axe working sites (FF1: Site 14 and FF2: Site 15) on Fairfield Summit
- Plate 4: Exposed axe working site (FF1: Site 14) on Fairfield Summit
- Plate 5: Marker cairn on Fairfield Summit (Site 18)



- Key:
- Footpath Renewal Site
 - Footpath Renewal Areas
 - Stone Picking Areas



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oxford archaeology
northnorthnorth

N ↑

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Kilometres

Scale 1:80,000

Figure 1: Location of Survey Areas

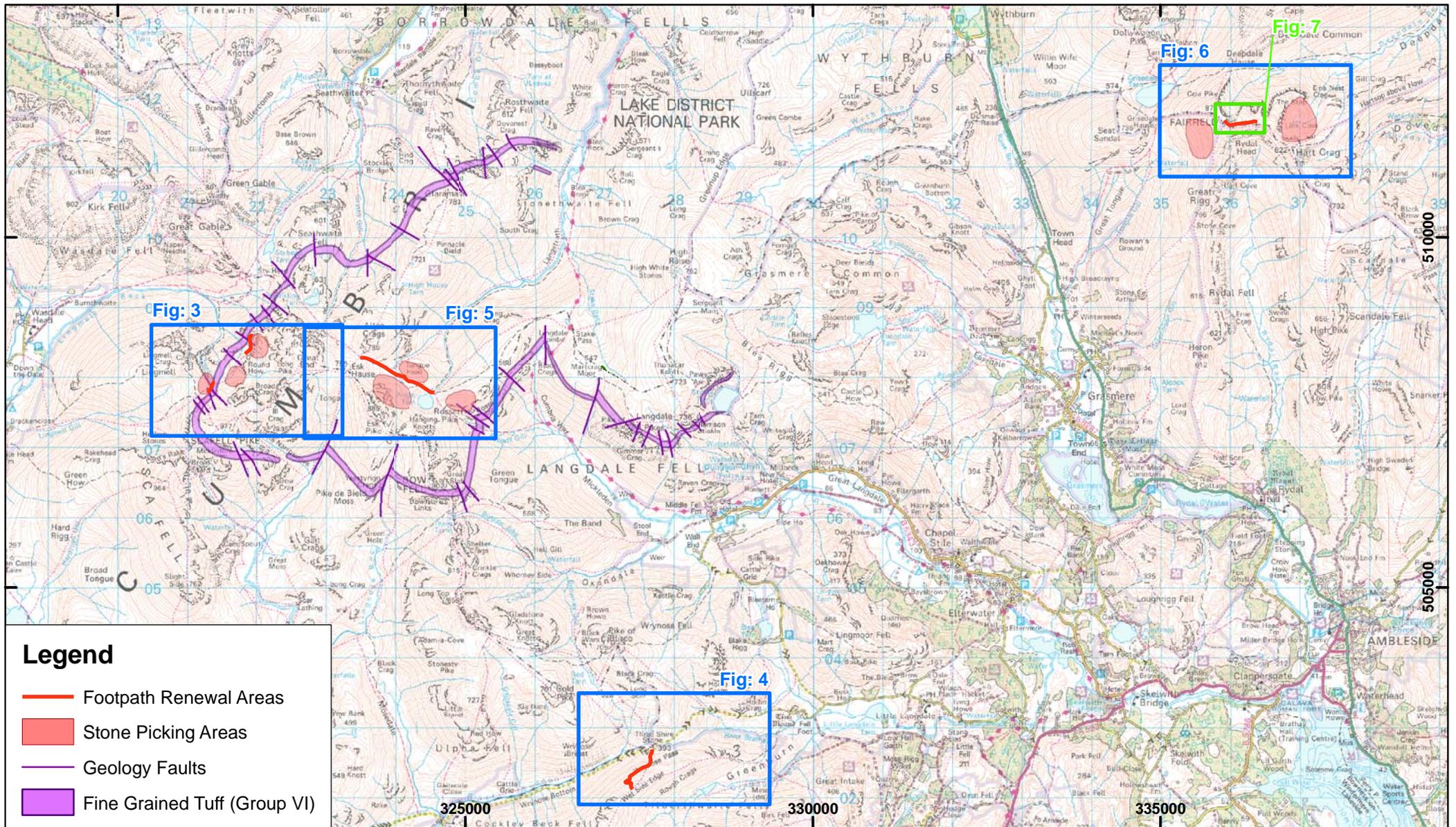
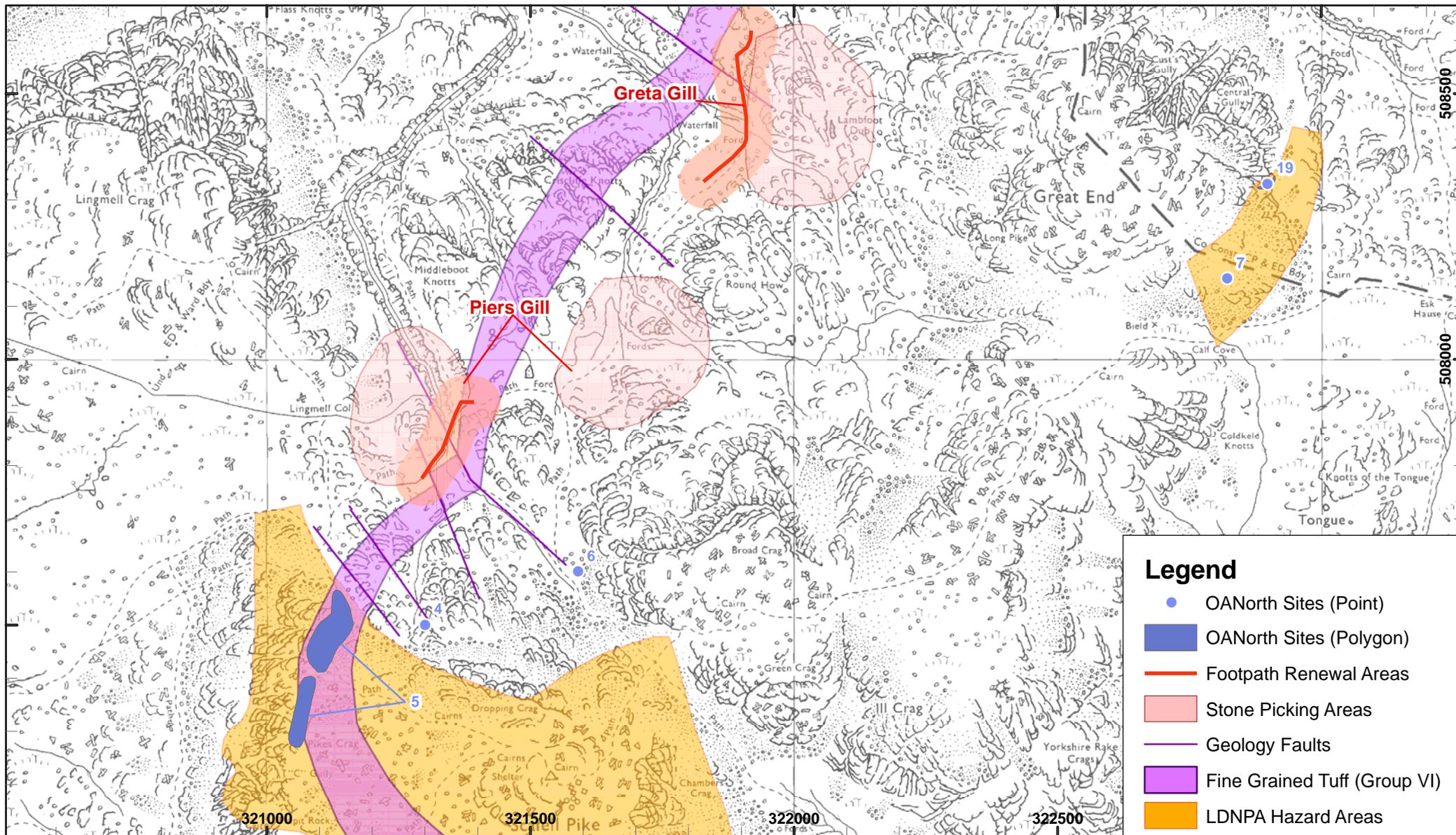


Figure 2: Key plan of site maplets



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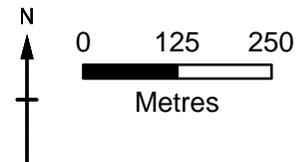


Figure 3: Footpath renewal and stone picking areas at Piers Gill and Greta Gill, Wasdale

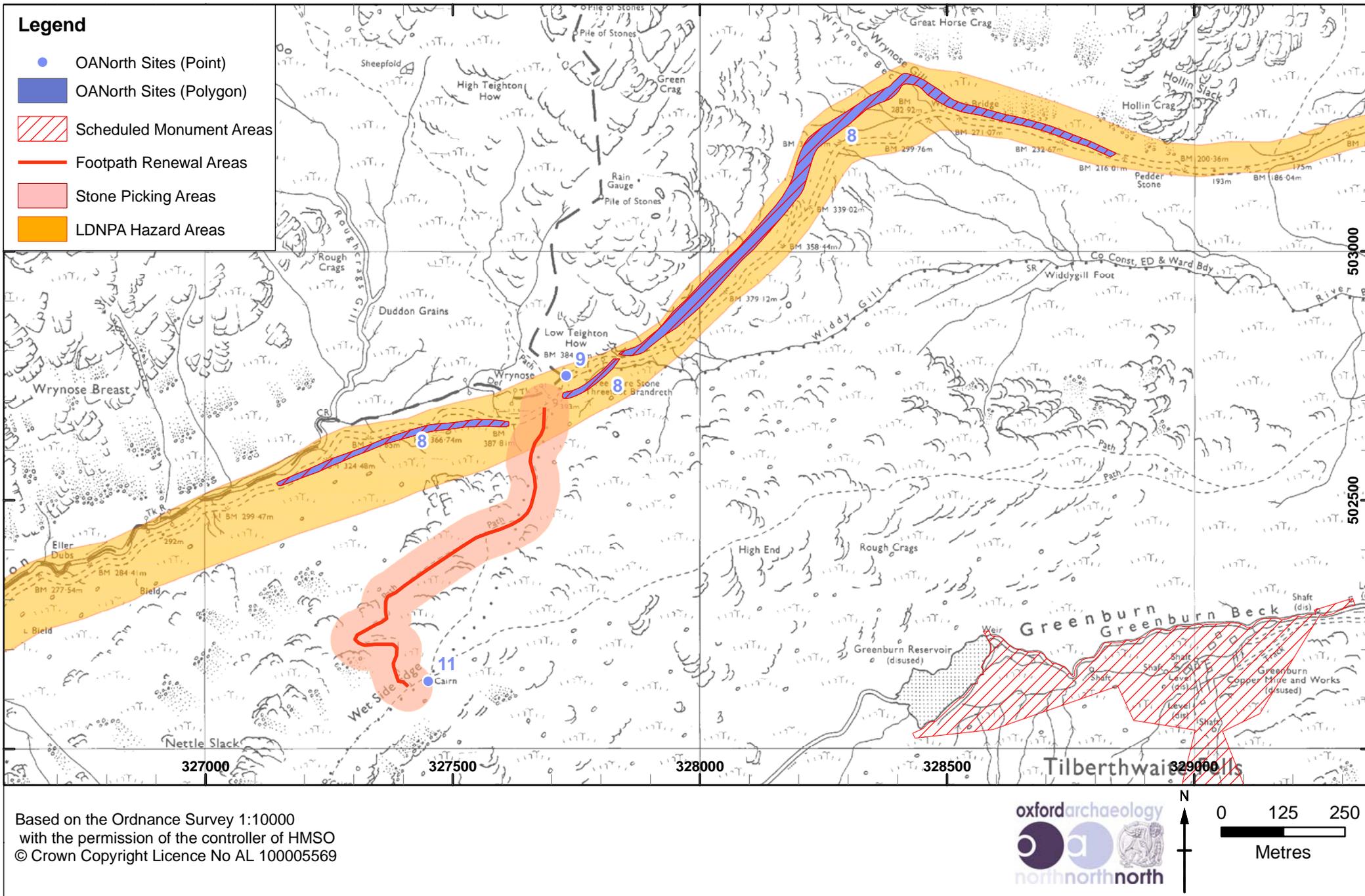
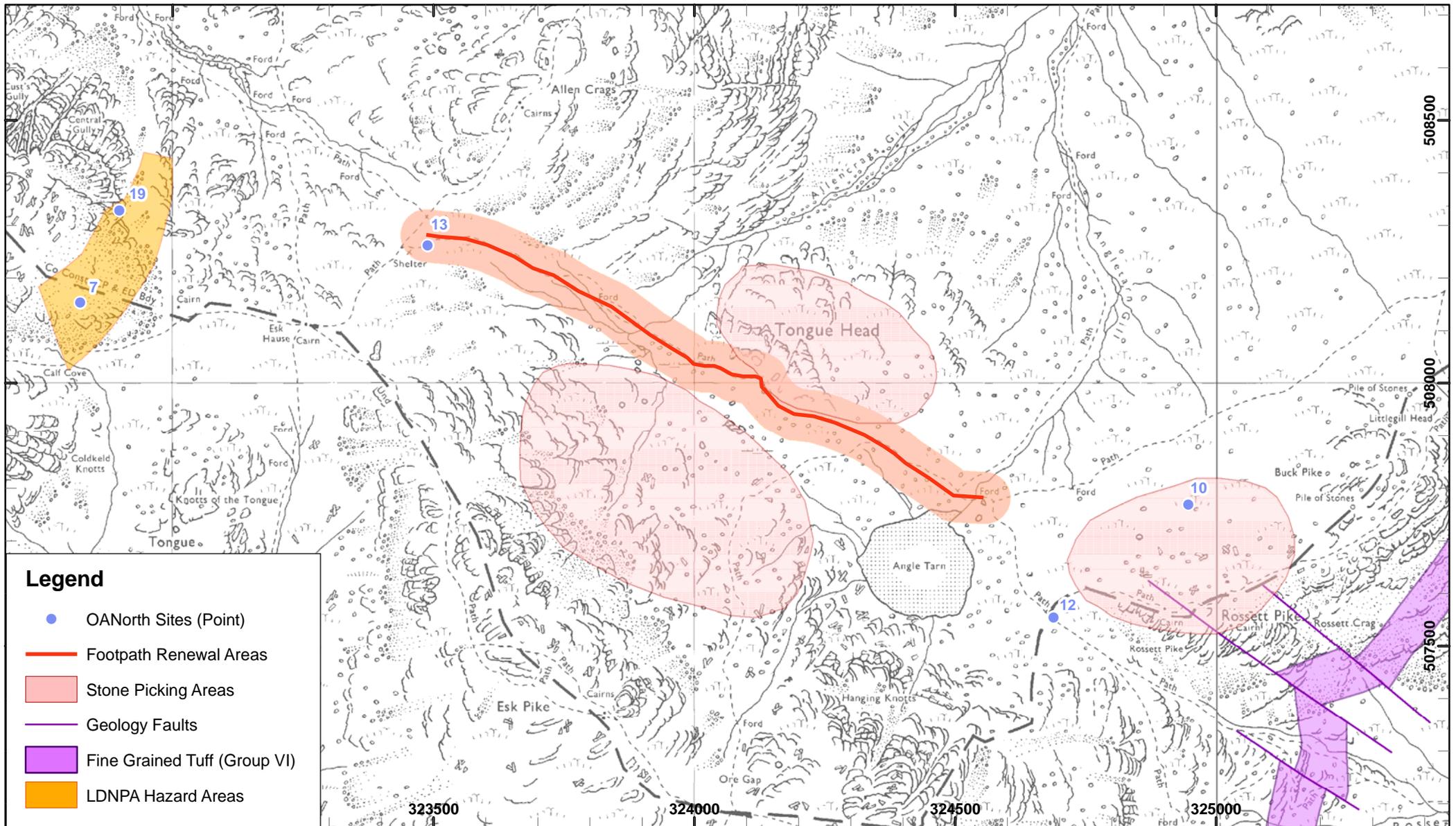


Figure 4: Footpath renewal from Three Shires Stone to Wet Side Edge, Duddon



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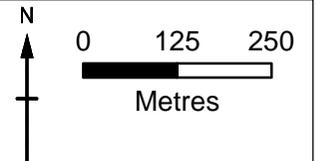
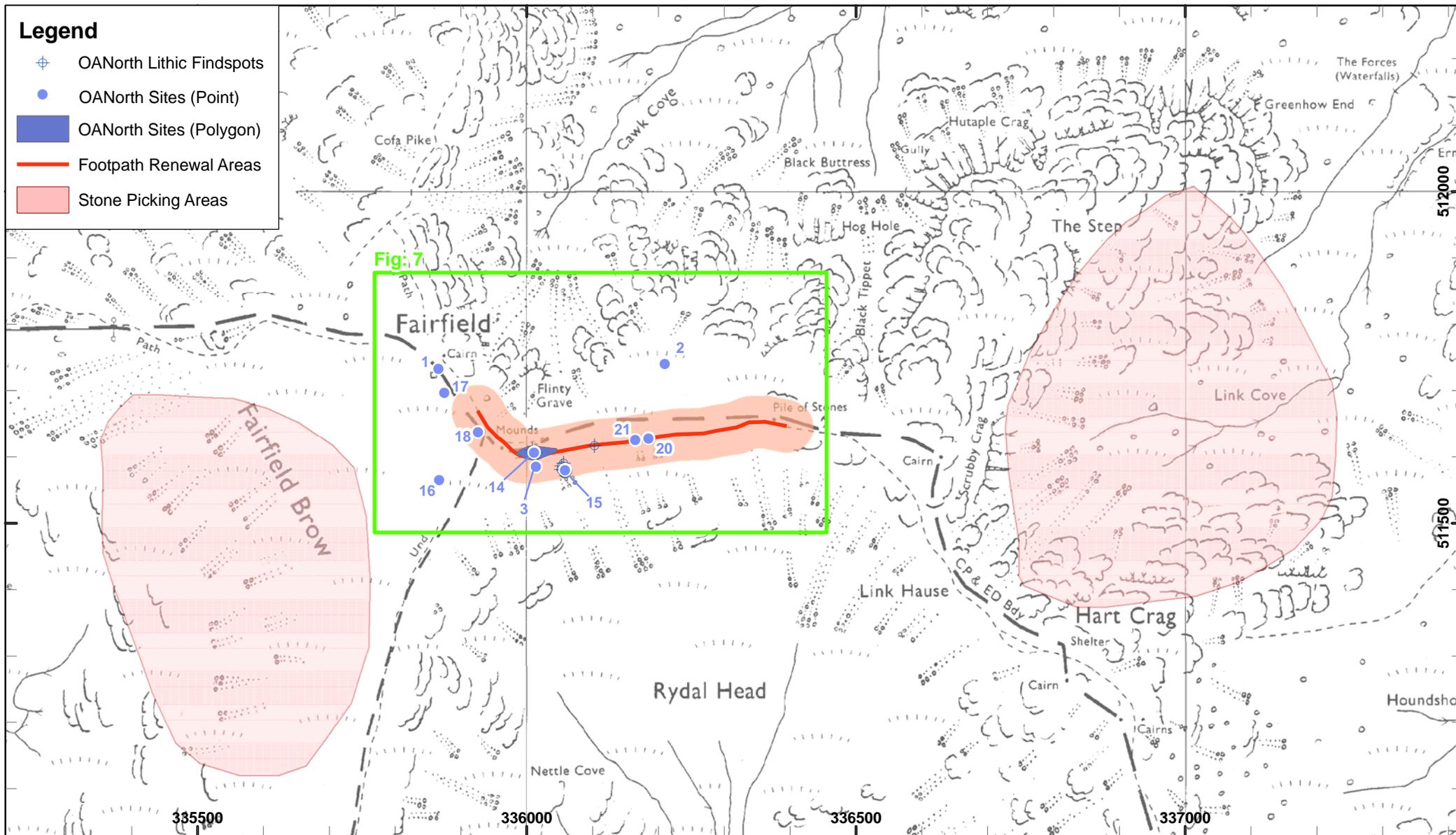


Figure 5: Footpath renewal and stone picking areas from Angle Tarn to Esk Hause, Great Langdale



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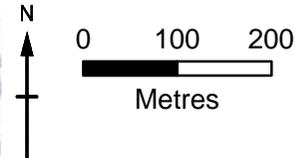


Figure 6: Footpath renewal and stone picking areas at Fairfield Summit, Grasmere

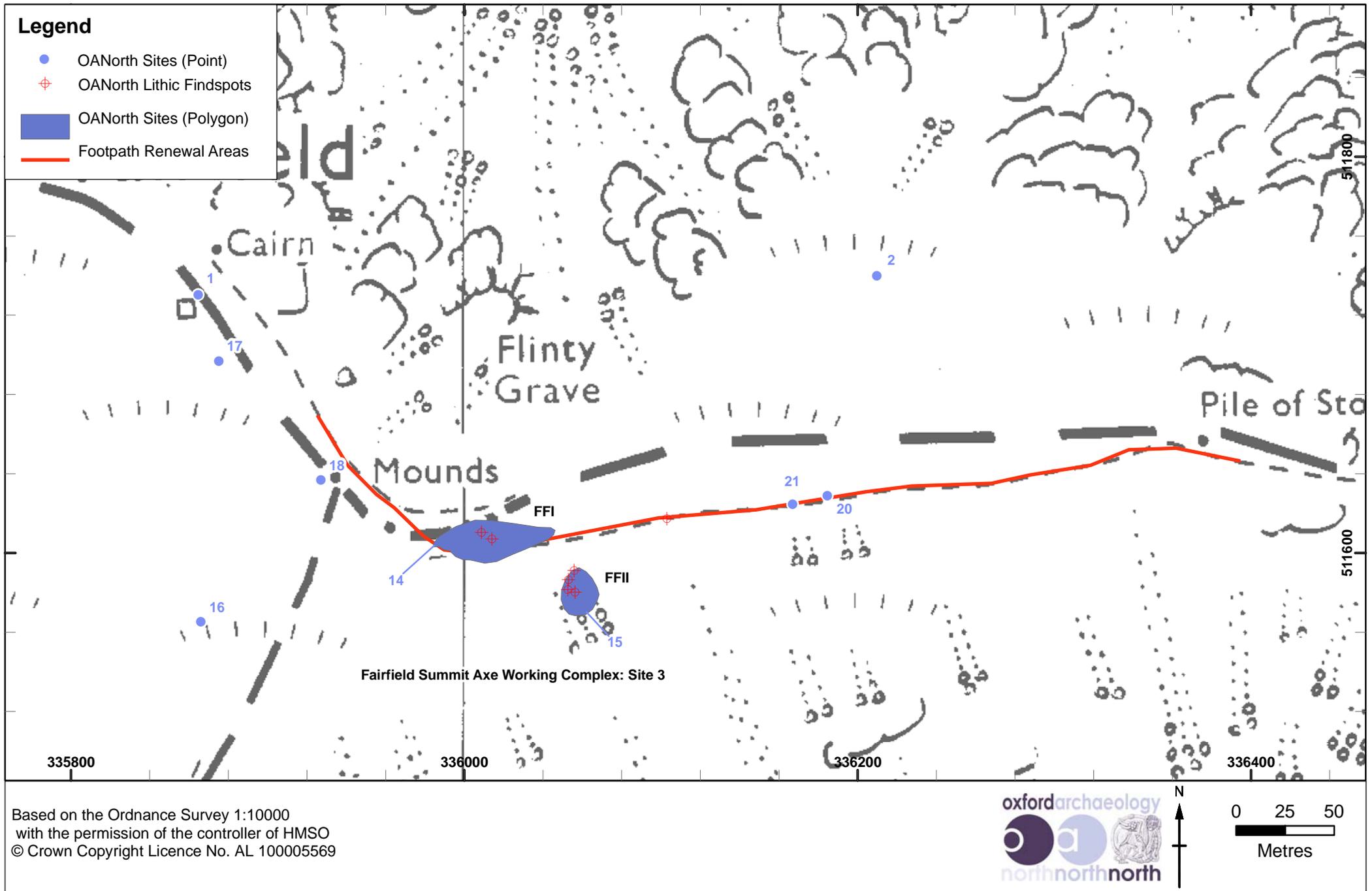


Figure 7: Exposure of axe working sites at Fairfield Summit, Grasmere

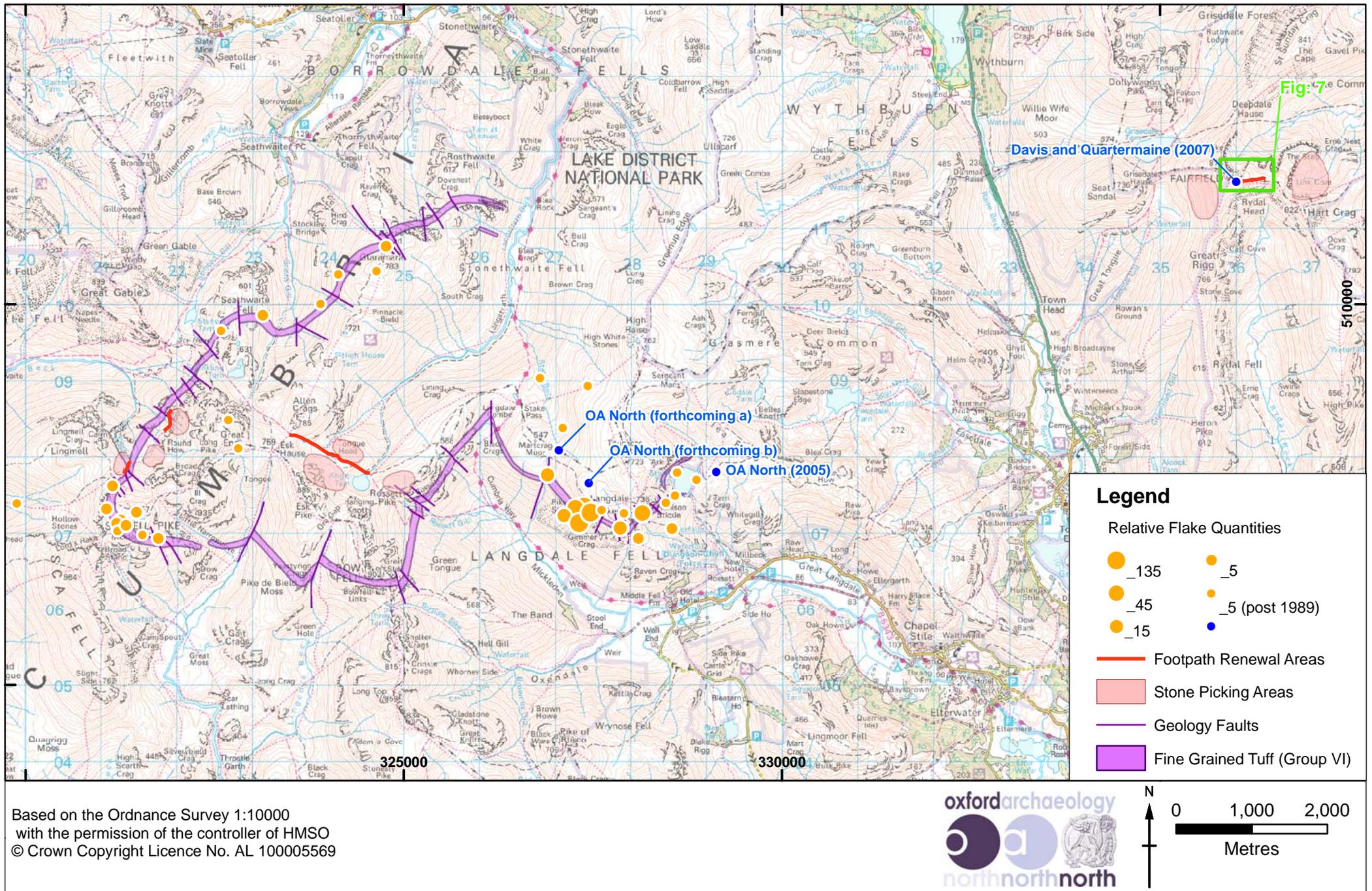


Figure 8: Updated distribution of fine grained tuff outcrop and the principal axe flaking site groups (after Claris and Quartermaine 1989)



Plate 1: Footpath erosion to the north-west of Angle Tarn



Plate 2: Marker cairn at Esk Hause (Site 13)



Plate 3: General view of footpath erosion and two exposed axe working sites (FF1: Site 14 and FF2: Site 15) on Fairfield Summit



Plate 4: Exposed axe working site (FF1: Site 14) on Fairfield Summit



Plate 5: Marker cairn on Fairfield Summit (Site 18)