



MOSSDALE MOOR, NORTH YORKSHIRE

Archaeological Survey



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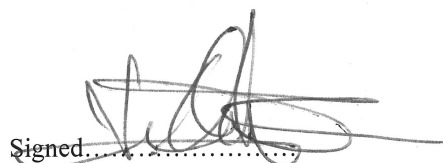
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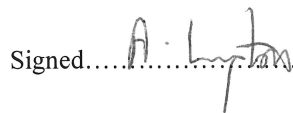
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SUMMARY

Oxford Archaeology North (OA North) was invited by Yorkshire Peat Partnership to undertake an archaeological landscape survey and an assessment of re-wetting on a portion of Mossdale Moor, North Yorkshire SD 794 900). The work was undertaken in order to provide an assessment of the archaeological impact of a programme of grip (drain) blocking on the mossland. The survey was undertaken as an enhanced Level 1-type survey (EH 2007) over an area of 2.2km².

In total, 25 features of archaeological interest were identified across the study area. The sites identified during the survey and through examination of the HER can be divided into five broad categories: extraction industries (including quarrying, coal mining, and peat cutting); sites associated with shooting; agriculture and enclosure; a shelter; and a cairn (Table 1). Most of the sites are difficult to date closely in the absence of additional data from documentary sources or archaeological excavation; however, most of these sites are likely to date to either the post-medieval (1540-1750) or industrial (1750-1914) periods. The cairn could be of prehistoric date.

Few of the sites identified during the survey are likely to be susceptible to damage as a result of work to block the drainage grips; however, this is dependant upon extant structures and features being avoided by vehicles, and that these sites are not used to generate material for the infilling of grips.

ACKNOWLEDGEMENTS

Oxford Archaeology North would like to thank Ceri Katz of the Yorkshire Peat Partnership for commissioning the project, and Miles Johnson of Yorkshire Dales National Park Authority (YDNPA) for advice and the provision of Historic Environment Record (HER) data.

The landscape survey was undertaken by Jamie Quartermaine and Mairead Rutherford and the palaeoenvironmental sampling and assessment was undertaken by Mairead Rutherford. The report was written by Alastair Vannan, and Mairead Rutherford and the illustrations were prepared by Anna Hodgkinson. The report was edited by Jamie Quartermaine, who also managed the project.

1. INTRODUCTION

1.1 CIRCUMSTANCES OF THE PROJECT

- 1.1.1 Oxford Archaeology North (OA North) were invited by Yorkshire Peat Partnership to undertake an archaeological landscape survey and an assessment of re-wetting on a portion of Mossdale Moor, North Yorkshire (SD 794 900). This restoration project work is a part of a Higher Level Stewardship agreement that is in place on the land holding, and will entail the blocking, utilising machine-cut peat plugs, of a number of active grips (drains) that were cut into the peat, probably at some point between the end of the Second World War and the end of the 1970s. The archaeological recording work was undertaken to provide an assessment of the archaeological impact of this restoration programme, and was undertaken in accordance with a brief by Miles Johnson of Yorkshire Dales National Park Authority (YDNPA). The work will also include the installation of sediment traps into gullies, re-profiling and re-vegetating areas of hags, including gully sides, and re-vegetate areas of bare peat.

1.2 LOCATION, TOPOGRAPHY AND GEOLOGY

- 1.2.1 The area where the peat restoration has been proposed consists of an elevated area, much of which is covered by blanket peat, measuring 2.2km², within Mossdale Moor, to the east of the coal road across Garsdale Common, in the Yorkshire Dales (Fig 1). The area consists of portions of gently sloping plateaux lying between 450m and 640m (aOD), which are separated by escarpments of Millstone Grit and limestone (Plate 1). Although steep slopes define the extent of Mossdale Moor, the survey area represents only a portion of the overall moor and the boundaries of the study area are not defined by changes in the topographic character.
- 1.2.2 This part of the Pennines features limestone bedrock, which is overlain by alternating bands of carboniferous limestone, sandstones, and shales, which are known collectively as Yoredale Facies (Countryside Commission 1998). The Facies are in turn overlain by Millstone Grit, which forms a capping to the highest hills (*ibid*). The local and wider environment has been extensively shaped by glacial activity and resultant scoured material has been re-deposited in some areas (*ibid*). Numerous shake holes and pot holes occur within the study area. The current character of the study area, like much of the uplands of the northern Dales, comprises moorland, which is managed for game shooting.



Plate 1: A view looking north-east over the northern part of the survey area from Millstone Brow, with the fence line of the constituency boundary running through the centre of the image

1.3 HISTORICAL BACKGROUND

- 1.3.1 Historically, the study area lay within the early-medieval manor of Aysgarth, which was held by Cnut prior to the Norman Conquest and subsequently passed to Count Alan (Page 1914, 200-14). This manor included the Forest of Wensleydale which had the alternative name of the 'Forest of Bainbridge', which reflected Bainbridge as the head quarters of the forest government (*ibid*). It has been suggested (*ibid*) that for centuries the only place of importance within the Forest of Wensleydale and to the south of the river Ure, was Bainbridge; the Bainbridge township encompassed Widdale and the lands within the survey area. During the twelfth and thirteenth centuries, with the exception of the settlement at Bainbridge, the forest consisted of scattered vaccaries, or cattle farms, within a wild landscape (*ibid*). These included the vaccary at *Mussedale* (*ibid*), which will have given the name to the later hamlet of Mossdale, which lies to the north-east of the study area. The forest on the southern side of the river Ure was a dangerous place for travellers and it was recorded in 1609 that there had been a 'guide law' for those passing through the forest (Lewis 1848, 279-82). This required travellers to pay 'three farthinges to some guyde to gyde them through the forrest by reason of the wyldnes of the said forrest and for that the same was not inhabyted in former tymes nor passable' (*ibid*). The custom of blowing the forest horn at Bainbridge at ten o'clock every night from Holyrood to Shrovetide was maintained into the mid-eighteenth century and a new horn was inaugurated enthusiastically in 1864 (*ibid*).
- 1.3.2 Although Garsdale Head and Garsdale Common lie immediately to the north and west of the survey area, and a physical connection between these areas and the study area is evident, the chapelry of Garsdale fell historically within the parish of Sedbergh in the West Riding of York (*op cit*, 40-44). Garsdale was, therefore, subject to a different administrative history to that of the study area. Aysgarth became the name of the parish that incorporated the study area, and comprised the

townships of High and Low Abbotside, Askrigg, Aysgarth, Bainbridge, Bishopdale, West Burton, Carperby cum Thoresby, Hawes, Newbiggin, Thoralby, and Thornton-Rust (*op cit*, 120-4).

2. METHODOLOGY

2.1 INTRODUCTION

2.1.1 The survey was undertaken as an enhanced Level 1-type survey, following the guidelines for Level 1 surveys as defined by English Heritage (2007). The survey study area encompassed an area of 2.2km² and comprised five elements:

- reconnaissance;
- mapping;
- description;
- photography;
- environmental assessment.

2.2 LANDSCAPE SURVEY

2.2.1 **Reconnaissance:** the reconnaissance consisted of close field walking, with line intervals varying between 10m and 20m wide, dependent on visibility and safety considerations. The survey identified, located and recorded sites and features of archaeological interest on the ground. The survey took considerable care to examine areas of disturbance through the peat, erosion scars from vehicle damage, and all other peat exposures.

2.2.2 **Survey mapping:** a Satellite Global Positioning System (GPS) was utilised to conform to English Heritage (2007) Level 1 survey requirements. The GPS is a Leica differential system and achieves much greater accuracy than can be achieved with a hand-held GPS. The accuracy of the OA North GPS system is capable of +-0.02m and provides a quick and effective means of recording the position and extent of sites. The GPS techniques were used to record the extent of the sites. All sites of archaeological interest were recorded as point data, with any features exceeding 3m in diameter being recorded with line or polygon data. The locations of areas of environmental sampling were also recorded.

2.2.3 **Site Description and Assessment:** the data was directly input on site into a palm computer, and was then incorporated into an Access-compatible database. The data was backed up onto a portable computer running Access is suitable for direct import to the YDNPA HER. The input into the system was guided by a *pro forma* to ensure uniformity and consistency of input, and included the following core fields:

- whether the site was exposed within peat exposures;
- the depth at which it was revealed.

2.2.4 Where possible, the descriptions incorporate provisional interpretations of the function, purpose, and chronology of each site.

2.2.5 **Photographic Survey:** a digital photographic archive was generated in the course of the field work, comprising landscape and detailed photography. This recorded all features and sites of archaeological interest. Detailed photographs were taken of all sites using a scale bar. All photography was recorded on photographic *pro*

forma sheets which detail the subject, orientation, and date. Digital imagery was used for the photographic recording and 10 megapixel resolution was used as a minimum. A full image catalogue was produced as part of the archive.

- 2.2.6 ***Ecological and Artefact Retrieval:*** the retrieval of ecofacts was confined to small targeted samples that were either suitably diagnostic for species identification, or were substantial and well-preserved enough to be suitable for obtaining radiocarbon dating. Large areas of tree remains exposed in hag sections were recorded and individual exposed artefact finds of significance were collected, catalogued, and stored. An assessment of the character of the peats and environment was based on the site investigation by an experienced palynologist.

2.3 ARCHIVE

- 2.3.1 The results of all archaeological work carried out will form the basis for a full archive to professional standards, in accordance with current English Heritage guidelines (*Management of Research Projects in the Historic Environment*, 2006). The original record archive of the project will be deposited with the Yorkshire Dales National Park Authority.
- 2.3.2 The Arts and Humanities Data Service (AHDS) online database *Online Access to index of Archaeological Investigations* (OASIS) will be completed as part of the archiving phase of the project

3. SURVEY RESULTS

3.1 INTRODUCTION

3.1.1 The landscape survey was conducted across 2.2km² of Mossdale Moor in order to identify, locate, and record sites and features of archaeological interest (Fig 1). In total, 25 features of archaeological interest were identified across the study area (*Section 6*; Figs 2-4).

3.2 RESULTS

3.2.1 The sites identified within the study area during the survey and through examination of the HER can be divided into five broad categories: extraction industries (including quarrying, collieries, and peat cutting); sites associated with shooting; agriculture and enclosure; a shelter; and a cairn (Table 1). Most of the sites are difficult to date closely in the absence of additional data from documentary sources or archaeological excavation. However, most of these sites are likely to date to either the post-medieval (1540-1750) or industrial (1750-1914) periods. The cairn could be of prehistoric date.

Category of Site	Number of sites	Gazetteer Number
Extraction Industries		
<i>Quarries</i>	5	Sites 7-10, 14
<i>Collieries</i>	10	Sites 3-6, 11-12, 15-17, 23-24
<i>Peat cutting</i>	2	Sites 1, 25
Sites associated with shooting		
<i>Shooting butts</i>	2	Sites 13, 22
<i>Feeders</i>	1	Site 18
Agriculture and enclosure		
<i>Sheepfolds</i>	1	Site 20
<i>Wall</i>	1	Site 2
Shelter		
	1	Site 21
Cairn		
	1	Site 19

Table 1: Sites of archaeological interest by category

3.2.2 **Extraction Industries:** several types of stone and resource extraction are represented by sites identified within the study area; stone quarrying, collieries, and peat cutting. This category of site is the most numerous within the study area, with 19 sites of this type having been identified.

3.2.3 **Quarrying:** there was considerable evidence for surface extraction and stone quarrying within the northern portion of the study area (Sites **7-10, 14**; Plate 2), with five sites having been identified, of which some represent extraction pits. Where identifiable, many of these appeared to have been associated with limestone quarrying, a stone type that is commonly exposed as outcrops, pavement, and fissures in the survey area. The proximity of the quarry pits to areas

of coal extraction might indicate that some of them were prospecting trial pits. Coal pits associated with surface extraction were identified in the northern portion of the area and included exposures of coal spoil. It should be considered, therefore, that other grassed over quarry pits might also represent coal pits, rather than trials or quarries. Conversely, areas where coal workings have been identified that are in close proximity to limestone outcrops, such as Sikes Pits Brae (Site **15**) might also have been utilised for quarrying and some apparent coal pits might represent stone quarrying.



Plate 2: One of the quarry pits identified within the northern part of the survey area (Site 7)

- 3.2.4 It is also possible that, due to the large quantities of exposed limestone and millstone grit within the area, ongoing casual exploitation of loose stone occurred within the study area that would not have left conspicuous traces. This is compounded by the presence of numerous shake holes across the area that both provide a source of loose stone and create pock-marked areas that severely inhibit the identification of sites of small-scale surface extraction.
- 3.2.5 *Collieries:* nine sites associated with coal mining were identified (Site **3-6**, **11-12**, **15-17**, **23-24**). Many of the sites represent areas where several examples of working were present and three main concentrations of coal working were present within the survey area. These comprise a site lying immediately to the east of Garsdale Common (Sites **3-6** and **11-12**), Sikes Pits (Site **15**), and an area at the eastern side of Garsdale Pits (Sites **16-17**, and **23-4**). Most of the sites consist of surface extraction and are represented by the hollows of coal pits and associated mounds of spoil.
- 3.2.6 Few shafts were identified within the study area, with the exception of the group of workings at the eastern side of Garsdale Pits, where two shafts are present (Sites **16-17**). These collapsed or infilled mine shafts are visible as grassed rings of embanked spoil that surround central depressions (Plates 3 and 4). It is these central depressions that represent the former shafts and, although they would have been of varying depths when in use, the visible hollows are now only 5m deep. However, the apparently solid infill is likely to contain numerous voids and have the potential for further collapse and subsidence. Site **17** was the larger of the two

shafts, as visible from the surface, and featured a spoil ring with an external diameter of 20m and an inner shaft diameter of 5m (Plate 4).



Plate 3: Pit shaft 16 at the eastern side of Garsdale Pits



Plate 4: Pit shaft 17 at the eastern side of Garsdale Pits

3.2.7 Sikes Pits (Site 15) lay within an area of limestone escarpment, shake holes, and natural undulations and fissures (Plates 5-6). It is, therefore, extremely difficult to discern all effects of coal extraction from natural features. It is also possible that

the limestone was exploited for quarrying or surface collection in this area, which, once more, may obscure the precise extent and quantification of the coal pits.



Plate 5: A view north-east over Sikes Pits Brae



Plate 6: An extraction pit (Site 15) with associated spoil at the western side of Sikes Pits Brae

- 3.2.8 The pits at the eastern side of Garsdale Common (Sites **3-6** and **11-12** (Plate 7)) exhibited the highest concentration of coal workings of the groups within the study area. These remains included pits, spoil mounds, trackways, and the foundations of buildings, and clearly represented an extensive integrated complex.



Plate 7: An area of exposed coal chippings that demonstrate the working of seams in the area to the east of Garsdale Common (Site 6)

3.2.9 *Peat Cutting:* there was considerable evidence for peat cutting within the northern part of the survey area, to the south of Wether Hill (Sites 1 and 25) (Plate 8). The peat cutting extended over almost the entire portion of the study area that lay to the north of Sikes Gill and consisted of numerous areas of angular polygonal cuttings. Many of these had conjoined to form vast irregular expanses of partially stripped peat. No structures or track ways specific to these industries were identified.



Plate 8: A large expanse of peat cutting (Site 1) with one of the vertical edges of the cutting visible in the foreground

3.2.10 *Sites Associated with Shooting:* given the current use of the moor for game shooting, bird feeders and shooting butts are predictable sites within the survey area. Some of these structures were built using dry-stone construction, and is a style that has been common since the late nineteenth century (DSWA 2005). Two shooting butts were recorded during the survey (Sites **13** and **22**), both of which were extremely well built and comprised dry-stone walls topped with turf. Site **13** was rectangular and featured a sunken floor that was approximately 0.6m below ground level and had been surfaced with gravel (Plate 9). Three steps had been set into one of the long sides and these were lined with retaining walls; the location of this butt demonstrates that it was associated with grouse shooting. By contrast, the second butt (Site **22**; Plates 10-11) was situated within the centre of Widdale Little Tarn and might be associated with the shooting of waterfowl. However, the tarn is not large and the butt could also have been used for grouse shooting. This butt featured a stone slab causeway (Plate 12), which led to an artificial island that accommodated the structure (Plate 13).



Plate 9: A sunken dry-stone shooting butt (Site 13)



Plate 10: A view looking north-west over Little Widdale Tarn with the central island shooting butt (Site 22)



Plate 11: A view looking south-east over Little Widdale Tarn with the central island shooting butt (Site 22)



Plate 12: Looking southwards along the stone causeway (Site 22)



Plate 13: A view through the entrance of the shooting butt (Site 22) with a through-stone seat visible in the rear part of the wall

3.2.11 Ubiquitous on grouse moors are bird feeders, which occur in numerous styles, including dry-stone structures, and an enigmatic feature recorded on the Ordnance Survey mapping as a cairn might actually be a dry-stone feeder (Site 18, Plate 14). This structure appeared from the western side to be a rough pile of stones (Plate 14). However, from the northern and eastern sides it was obvious that this was a three-sided rectangular dry-stone walled structure that had formerly been roofed with

corbelled slabs, which had slipped off to the sides to give the impression of a pile of stones (Plates 15-16). The only cairns of this size that feature proper structural elements are cist burials, which contain a central stone chamber built of upright stone slabs with a covering cairn. This structure was unlike cist funerary monuments, however, as the structure utilised walling, rather than upright slabs. Neither were there any indications in the surrounding area of scattered stone that had formerly been used as cairn material. This suggests that the structure was not, therefore, a funerary cairn and the only obvious function for such a small roofed structure in this environment would be as a covered feeder. A cairn did, however, lie to the west of this site, but was not marked on the OS mapping (Site 19). It is possible, therefore, that the OS surveyor had been made aware of the presence of a cairn in this locale, and had subsequently misidentified the dry-stone structure.



Plate 14: A view of the stone structure (Site 18) from the west, from which vantage point it appears similar to a cairn



Plate 15: A view of the structure (Site 18) from the north, showing the dry-stone construction of the chamber and the collapse and slippage of stones that would have formed a corbelled roof



Plate 16: A detailed view of the dry-stone chamber (Site 18)

3.2.12 **Agriculture and Enclosure:** there were very few sites associated with agriculture within the survey area. Indeed, only the northern part of the area, to the north of Sikes Gill, had been subject to walled sub-division into large fields, with the area to the south of the gill remaining as open moorland, interrupted only by the fenceline of the parliamentary enclosure boundary (Plate 1). This boundary also divided the

enclosed Garsdale Common to the west from the unenclosed common of Hawes and Bainbridge on Mossdale Moor to the east. This suggests that, in terms of agriculture, the survey area was likely to have been utilised as upland summer pasture and, therefore, few associated sites might be expected, with the exception of occasional sheepfolds and shelters. One ruined portion of apparent field walling was identified within the northern part of the area (Site 2) and the remains of a sheepfold were encountered at the western edge of the area (Site 20; Plate 17). The fold was in a poor state of preservation, with most of the walling having been removed to foundation level. It measured 15m long and 13m wide and was irregular in shape, being approximately polygonal with rounded corners. The fold was situated within a corner of the enclosure boundary, which may have had been a long-standing land ownership boundary, that predated the parliamentary enclosure. It is possible, therefore, that the fold might have been used as a pinfold, for the retention of straying animals that could be reclaimed on payment of a fine. Alternatively, the elbow of the boundary might simply have been utilised as providing a simple means of droving stock.



Plate 17: The foundation-level remains of a sheepfold (Site 20) at the western edge of the survey area

3.2.13 **Other Sites:** a shelter was identified within the millstone outcrop at Millstone Brow (Site 21; Plate 18), and was a well-constructed shelter that had been built within a niche and measured 3m long by 2.5m wide. This type of structure is typical of the small shelters that were built by shepherds in exposed upland locations; however, the name of the outcrop is Millstone Brow, which might be indicative of quarrying of the millstone grit for the manufacture of millstones. The shelter might, therefore, have been built for quarry workers or stone masons. It is also possible that the site is a shooting butt, although it is situated on a steep slope and is not particularly easily accessible.



Plate 18: A dry-stone shelter built into the Millstone Brow outcrop (Site 21)

3.2.14 A low cairn was identified on relatively level ground to the south of Shaking Moss (Site 19; Plate 19). The site measured 9m long by 5m wide and was up to 1m high and had become almost entirely grassed over. There were no coal pits or quarries in the immediate vicinity that might have been responsible for producing upcast spoil and the natural topography in the immediate vicinity did not feature conspicuous undulations or moraine mounds. This might, therefore, constitute an early cairn of possible prehistoric and funerary origins. It is likely to be the presence of this feature that led to the misidentification of the structure at Site 20 as a cairn on the OS mapping.



Plate 19: A low cairn at the western side of the study area (Site 19)

4. PEAT ASSESSMENT

4.1 PEAT ASSESSMENT

- 4.1.1 Areas of exposed peat were observed frequently throughout the survey area and the dominance of peat within this landscape is demonstrated by the considerable evidence for widespread peat cutting in the northern part of the area (Sites **1** and **25**; Plate 8). Severe erosion of the peat has resulted in a complex network of gullies and the development of hagsgs. This fragile environment may also be subject to wind erosion. The establishment of the grips may have caused drying and subsequent deterioration and erosion of the peat.
- 4.1.2 In the central part of the survey area, there was an extensive area of peat hagsgs and these revealed peat that is of up to 1.5m thick (Plate 20). The base of the peat was not exposed and the contact between the peat and underlying mineral soil was not been seen during the survey. No wood was observed in the exposed edges of the hagsgs, although in some areas, where the peat has been eroded to form large flat areas, wood was observed on the surface of the peat (Plate 21).



Plate 20: A view of deep peat hagsgs within the central part of the survey area, at Shaking Moss



Plate 21: Preserved wood exposed by the erosion of peat at Shaking Moss

- 4.1.3 Dates for the initiation of blanket peat in England range between 9500 BP and 500 BP (Simmons 2003). A study of the Holocene vegetation history of Wensleydale (Honeyman 1985) has shown the development of Early Holocene woodland at Whirley Gill dated to 8970 ± 80 BP. The work of Swales (1987) for peat on Ingleborough shows that the earliest peat development was dated to $c 9240 \pm 100$ BP. Extensive areas of the Ingleborough massif were covered by spreading blanket bog from the Early Bronze Age.

5. DISCUSSION

5.1 DISCUSSION

- 5.1.1 Blanket peat covers much of the survey area and the northern two thirds of the survey area, in particular, were characterised by conspicuous damage to the peat resulting from severe erosion at Shaking Moss and widespread peat cutting to the north of Sikes Gill. Peat cutting will have removed all physical traces of any sites of archaeological interest that had been established at ground level in these areas within decades or, indeed, several centuries prior to the cutting of the peat. Therefore, only remains associated with sites with foundations or features that lay deeper than the depth of the cuttings, or which were established at ground-level horizons that predate the deepest levels of removed peat, will have been able to survive in these areas. Therefore, if the cairn (Site **19**) does represent a prehistoric monument, any related monuments that might survive within the survey area will be in areas where the depth of peat disturbance is less than that associated with the cairn. The precise depth of such peat disturbance horizons will depend upon the date of instigation of peat growth in the local area, and the subsequent rate of peat growth. This had not been established for the survey area, but evidence from the wider local suggests that the spread of peat occurred between the Mesolithic and Bronze-Age periods (*Section 4*).
- 5.1.2 The most numerous types of site identified within the survey area were associated with coal extraction and stone quarrying. Although many of the pits and hollows of presumed anthropogenic origin are generally assumed to have been associated with coal mining, many of these lie within areas of abundant limestone and it is possible that stone quarry pits were interspersed with coal mining sites. The presence of numerous shake holes, natural hollows and fissures also makes the definitive identification of all extraction sites challenging. Further historical research would be required in order to identify more specifically when mining was undertaken within the area, and by whom. Such research would also be necessary to allow closer date-ranges to be suggested for the sites, which are currently considered to be of broad post-medieval or industrial date.
- 5.1.3 The survey area previously fell within the Hawes and Bainbridge Common and has, therefore, been used for pastoral agriculture since at least as early as the post-medieval period. Vaccaries, or cattle farms, are attested in the local area during the medieval period, but very few agricultural sites were identified, which reflects that the land has always been waste. The land has been used for pastoral agriculture, with a particular emphasis on transhumance pastoralism, whereby the uplands are used for summer grazing. With the exception of shielings, sheepfolds and, in some areas, biolds, or sheep shelters, such agriculture leaves few physical traces and, in this instance, no shielings were identified by the survey.
- 5.1.4 The current land use of the study area is as an upland moorland game shoot. This land use, and this usage of the area during the recent past, is reflected in a number of man-made structures that are visible currently at Mossdale Moor, and include shooting butts and bird feeders. The longevity of use of the dry-stone features is uncertain, although documentary research and communication with members of

the current and former game-keeping staff might elucidate the history of game keeping at Mossdale Moor.

- 5.1.5 **Conclusion:** although numerous site-types associated with a diverse range of land uses were identified within the study area, few of the sites identified during the survey are likely to be susceptible to damage as a result of work to block the drainage grips. However, this is dependant upon structures and features being avoided by vehicles and machines, and these areas not being used to generate material for the infilling of grips. Prehistoric activity is suggested by the presence of the cairn (Site **19**) and it is possible that further sites of prehistoric date survive within and beneath the peat.

6. GAZETTEER OF SITES

Period	Date Range
Palaeolithic	30,000 – 10,000 BC
Mesolithic	10,000 – 4000 BC
Neolithic	4000 – 2400 BC
Bronze Age	2400 – 700 BC
Iron Age	700 BC – AD 43
Romano-British	AD 43 – AD 410
Early Medieval	AD 410 – AD 1066
Late Medieval	AD 1066 – AD 1540
Post-medieval	AD 1540 – c1750
Industrial Period	cAD 1750 – 1914
Modern	Post-1914

Table 2: Summary of British archaeological periods and date ranges

Site Number	1
Site Name	Peat Cutting
NGR	SD 79232 90422
Site Type	Peat cutting
Period	Post-medieval/industrial
Source	Walkover Survey
Description	This is an extremely large area of polygonal hollows, and sections with angular corners that demonstrate that it is an area of peat cutting. Debris that is likely to have been upcast from the cutting is present around the edges of the site.

Site Number	2
Site Name	Wall
NGR	SD 79206 90426
Site Type	Structure
Period	Post-medieval/industrial
Source	Walkover Survey
Description	A wall, obscured by vegetation, that extends from the vicinity of a more modern wall.

Site Number	3
Site Name	Coal Pit
NGR	SD 79238 90503
Site Type	Colliery
Period	Post-medieval/industrial
HER no	37774

Source Walkover Survey; HER
Description A water-filled hollow area and associated spoil mounds that was formed as a result of coal extraction. Exposed coal was also visible. An associated access track leads from the mining area towards the road. The workings were shown on the first edition Ordnance Survey mapping.

Site Number 4
Site Name **Coal Pit**
NGR SD 79254 90598
Site Type Colliery
Period Post-medieval/industrial
HER no 24976
Source Walkover Survey; HER
Description A water-filled hollow area and associated spoil mounds formed as a result of coal extraction. Exposed coal was also visible. The workings were shown on the first edition Ordnance Survey mapping.

Site Number 5
Site Name **Coal Pit**
NGR SD 79239 90678
Site Type Colliery
Period Post-medieval/industrial
HER no 37954
Source Walkover Survey; HER
Description A water-filled hollow area and associated spoil mounds formed as a result of coal extraction. Exposed coal was also visible. The workings were shown on the first edition Ordnance Survey mapping.

Site Number 6
Site Name **Mine Workings**
NGR SD 79254 90598
Site Type Colliery
Period Post-medieval/industrial
Source Walkover Survey
Description A large area of mine working with a trackway leading from the road and areas of exposed coal fragments were visible. Deep pits and a small rectangular building are also visible.

Site Number 7
Site Name **Quarry Workings**
NGR SD 79317 90649
Site Type Extraction pit
Period Post-medieval/industrial
Source Walkover Survey
Description A quarry pit and associated spoil mounds with the remains of a small structure.

Site Number 8
Site Name **Quarry Workings**
NGR SD 79238 90678
Site Type Extraction pit
Period Post-medieval/industrial
Source Walkover Survey
Description A large quarry pit with a slightly elevated area of levelled spoil.

Site Number 9
Site Name Quarry Workings
NGR SD 79252 90735
Site Type Extraction pit
Period Post-medieval/industrial
Source Walkover Survey
Description A large quarry pit.

Site Number 10
Site Name Quarry Workings
NGR SD 79682 90967
Site Type Spoil mound
Period Post-medieval/industrial
Source Walkover Survey
Description A series of possible quarry workings represented by a spoil mound are located at the edge of an expanse of peat cutting (Site 27).

Site Number 11
Site Name Spoil Heaps
NGR SD 79117 90610
Site Type Colliery
Period Post-medieval/industrial
HER no 37805
Source Walkover Survey; HER
Description A series of spoil heaps associated with coal workings. The workings were shown on the first edition Ordnance Survey mapping.

Site Number 12
Site Name Coal Pits
NGR SD 79226 90349
Site Type Colliery
Period Post-medieval/industrial
Source Walkover Survey
Description A series of approximately five pits of varying size. This group is probably associated with the spoil heaps and pits at Sites 3, 4, 5, and 11.

Site Number 13
Site Name Shooting Butt
NGR SD 79256 90250
Site Type Structure
Period Modern
Source Walkover Survey
Description An extremely well-built and maintained sunken dry-stone shooting butt with five descending stone steps. The walls are topped with turf and stand up to 1.3m high.

Site Number 14
Site Name Quarry
NGR SD 79242 90259
Site Type Extraction pits
Period Post-medieval/industrial
Source Walkover Survey
Description A group of at least two quarry pits and associated spoil, which extends beyond the limits of the survey area. Other large hollows in the vicinity are probable sinkholes and limestone is visible at the base of these features. However, extraction has also been undertaken within the area of the sinkholes.

Site Number 15
Site Name Sikes Pits
NGR SD 79319 89875
Site Type Colliery
Period Post-medieval/industrial
HER no 24806
Source Walkover Survey; HER
Description An area of pits amongst sink holes and natural hollows clustered at the base of a limestone outcrop. Some of the hollows are sub-circular, but many are irregular and obscured by the presence of natural hollows. The HER describes the area as a site of nine coal pits and associated trackways, and it is possible that some of the hollows represent limestone quarrying.

Site Number 16
Site Name Mine Shaft
NGR SD 78652 89354
Site Type Colliery
Period Post-medieval/industrial
HER no 53507
Source Walkover Survey; HER
Description A pit shaft and surrounding ring of spoil with an outer diameter of 10m and an inner shaft diameter of 6m and a depth of 5m. This shaft forms part of the wider colliery recorded as Site 25.

Site Number 17
Site Name Mine Shaft
NGR SD 78796 89283
Site Type Colliery
Period Post-medieval/industrial
HER no 53507
Source Walkover Survey; HER
Description A highly regular and nearly symmetrical shaft with vertical sides and an associated ring of spoil. The outer diameter is 20m and the inner diameter is 5m and it is 5m deep. There is a stone structure near the side of the shaft that appears to represent the remains of a wall. The wall is of double-thickness dry-stone construction and measures 4.5m long and 0.75m wide, and is made with roughly quarried stone. This site forms part of the wider colliery recorded as Site 25.

Site Number 18
Site Name Possible feeder
NGR SD 79249 88748
Site Type ?Bird feeder
Period ?Industrial/modern
Source Walkover Survey
Description This site is described as a cairn on current Ordnance Survey mapping, and lies within an area of exposed limestone pavement. The site consists of a three-sided dry stone structure, rather than the roughly piled collection of stones suggested by a cairn. Several flat slabs have slipped from the top of the structure, which may have formed a corbelled roof, and these lie at angles around the exterior. This gives the impression of a cairn from the rear of the structure but from the front a regular rectangular cell is visible. It measures 1m by 0.65m, internally, and 1.35m by 1.5m, externally, and stands up to 0.5m high. The dry-stone walling that defines the structure is not reminiscent of a prehistoric cist, which is a funerary monument that may have been covered with a cairn, and there is no indication of former cairn material scattered in the vicinity. It is, therefore, possible that the feature is a well-constructed feeder associated with game keeping.

Site Number 19
Site Name Cairn
NGR SD 79015 88706
Site Type Cairn
Period Unknown
Source Walkover Survey
Description A conspicuous mound of stones lies within an area of relatively flat and even ground. The cairn is almost entirely grassed and measures 9m long by 5m wide and up to 1m high.

Site Number 20
Site Name Enclosure
NGR SD 79009 88703
Site Type Sheepfold
Period ?Post-medieval/industrial
Source Walkover Survey
Description An irregular sub-ovoid dry-stone enclosure that lies adjacent to the enclosure boundary and county boundary wall. The structure was probably a sheepfold and it has partially collapsed and much of the stone has been robbed. It measures 15m long and 13m wide.

Site Number 21
Site Name Shelter
NGR SD 79219 88220
Site Type Structure
Period Post-medieval/industrial
Source Walkover Survey
Description A dry stone structure built into a millstone grit outcrop. This shelter is constructed within a niche in the outcrop and it measures 3m long by 2.5m wide. The walls are well constructed and double thickness, and measures up to 0.7m wide and 0.8m high. This is typical of the small shelters that were built by shepherds in exposed upland locations. However, the name of the outcrop is Millstone Brow, which might be indicative of quarrying of the millstone grit for the manufacture of millstones and the shelter might have been built for quarry workers or stone masons. It is also possible that the site is a shooting butt, although it is situated on a steep slope and is not particularly easily accessible.

Site Number 22
Site Name Shooting Butt
NGR SD 79351 88110
Site Type Structure
Period Industrial/modern
Source Walkover Survey
Description This shooting butt is situated on a purpose built island in the centre of Widdale Little Tarn and is accessed via a causeway of large stone slabs. The hide is extremely well constructed and well maintained and is likely to have been built during the twentieth century. The hide is circular and regular and is constructed from double-thickness dry stone walls, topped with turf, which provides camouflage and a gun rest. The inner diameter is 2m and the outer diameter is 3m. The walls are over 0.5m thick and 1m high. There is a small stone seat facing the doorway that has been formed by the incorporation of a projecting stone slab within the walling. Given the location within the tarn, this butt may have been associated with shooting waterfowl, although it may also have served as a grouse butt.

Site Number 23
Site Name Coal Pits
NGR SD 78709 89407
Site Type Colliery
Period Post-medieval/industrial
HER no 53507
Source HER
Description A group of disused coal pits on Shaking Moss, to the south of the main Garsdale working area (Site 26). Each of the pits is accompanied by associated trackways that lead to a more substantial track that was shown on the first edition Ordnance Survey map, which also depicted some of the shafts.

Site Number 24
Site Name Garsdale Coal Pits
NGR SD 78784 89710
Site Type Colliery
Period Post-medieval/industrial
HER no 33702
Source HER
Description This sites comprises several elements, which include a random pattern of thirty-three coal pits, fifty possible adits, and associated trackways.

Site Number 25
Site Name Peat Cutting
NGR SD 79816 891267
Site Type Peat cutting
Period Post-medieval/industrial
HER no 24975
Source HER
Description This area was marked on the first edition Ordnance Survey mapping as 'Peat Pits' and is a very large area of peat cutting measuring up to 690m in length and 450m wide. From aerial imagery, it appears that the baulks that were left in place left for peat barrow runs that can still be discerned.

7. BIBLIOGRAPHY

7.1 SECONDARY SOURCES

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APPENDIX 1: PROJECT DESIGN

1. INTRODUCTION

1.1 CONTRACT BACKGROUND

- 1.1.1 Miles Johnson of Yorkshire Dales National Park Authority (YDNPA), on behalf of the Yorkshire Peat Partnership, has invited Oxford Archaeology North (OA North) to submit a project design for a programme of landscape survey and an assessment of re-wetting on Mosssdale Moor, North Yorkshire (SD 877 935). The proposed programme is in accordance with a project brief by YDNPA and is intended to provide an assessment of the archaeological impact of a programme of grip blocking on the mossland.

1.2 ARCHAEOLOGICAL BACKGROUND

- 1.2.1 The survey work is to inform a proposal for grip blocking works to be undertaken using machine cut peat plugs. To provide pre-intervention records of archaeological remains in the area, and highlighting where unnecessary damage to archaeological features from cutting of peat plugs and/or through access with tracked excavators can be avoided. The currently exposed sections of eroded grips provide an opportunity to gauge the palaeoenvironmental value of the peat at this location, including the recovery (and potential identification and dating) of sample ecofacts. This area has been targeted for archaeological survey because of its proximity to known archaeological features, including prehistoric remains, as well as to known post-Medieval industrial workings.
- 1.2.2 OA North undertook a major assessment of the Upland Peats in England on behalf of English Heritage (OA North 2010) has identified that there is an enormous archaeological resource within the peat covered uplands, but which is as yet unknown because of poor site visibility arising from the peat cover. The peat cover while obscuring the sites also has the potential to preserve them in a waterlogged state and as such has the potential to preserve an enormously significant resource. If the peat is degraded, drained or desiccated the peat is lost and the water logging that has preserved the organic components is lost then the sites will rapidly decompose. There are numerous examples of organic sites that have degraded over a matter of a few years once they have become desiccated as a result of changing drainage patterns.
- 1.2.3 The situation at Mosssdale Moor is such that the moss is on the top of a high level plateau, and has been extensively drained in the past. That may have caused irrevocable damage to the organic components of any sites, in which case the programme of re-wetting may be too late to save them. Alternatively there may still be surviving archaeology at locations remote from the individual grips. In any case there is still the potential for the survival of inorganic components of any sites. There is also the possibility that substantial disturbance has been sustained to the peats and to the underlying archaeology as a result of peat cutting on the site for the nearby smelt mills. If peat developed from an early date on the moss this may have discouraged anthropogenic activity, and it is not uncommon to find that the archaeological resource beneath the peat is typically of an early date (eg Mesolithic). The impact of all of this is that it is necessary to assess the character and condition of the peats in order to determine the potential for underlying archaeological remains.
- 1.2.4 The area of Mosssdale Moor proposed for survey is an elevated area of blanket peat measuring 2.2 km² in area. It is centred approximately 800m east of the coal road at SD793897. As part of a Higher Level Stewardship agreement in place on the holding, a moorland restoration project is proposed. The restoration project will block a number of active grips (drains) that were cut into the peat (probably at some point between the end of the Second World War and the end of the 1970s). It will also install sediment traps into gullies, reprofile and revegetate areas of haggging (including gully sides), and revegetate areas of bare peat.

1.3 OXFORD ARCHAEOLOGY NORTH

- 1.3.1 OA North has considerable experience of the investigation of wetlands. OA North (formerly Lancaster University Archaeological Unit) undertook a major programme of survey of the North West lowland wetlands and has recently undertaken a programme of assessment of the Upland Peats

by means of trial surveys across Northern England. OA North has undertaken an assessment of the impact of upland management strategies upon archaeological monuments on behalf of Natural England (ADAS and OA North 2009). This latter programme is specifically examining the issue of grips and means and strategies to block them, without causing undue impact upon the archaeological remains.

- 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) and the Lake District National Park Authority on a large number of projects.
- 1.3.3 Since 1982 OA North has been undertaking extensive upland landscape surveys throughout Northern England and Wales. Surveys include the Lake District National Park Survey, the Torver Common surveys (Lake District), Haweswater and Thirlmere estate surveys (Lake District), Lyme Park (Peak District), most of the Forest of Bowland AONB, Lancashire, and a multitude of smaller landscape projects which include the Otterburn Range surveys in the Northumberland National Park. In particular OA North has undertaken a detailed survey of an upland estate at Hartley, Eden Valley involving a detailed documentary study and surface survey. To date OA North has undertaken archaeological field surveys of over 930sqkm of upland landscapes and has recorded over 24,000 field monuments. OA North can claim to be one of the foremost specialists in the field of upland landscape recording.
- 1.3.4 OA North and all its members of staff operate subject to the Institute for Archaeologists (IfA) Code of Conduct.

2. OBJECTIVES

- 2.1 The primary purpose of the project is to inform future management decisions with regard to the application of grip blocking and moorland re-wetting. The proposed study is intended to identify archaeological remains on the surface or within the peat. It is also important that an assessment is made of the impact upon the peats as these protect the buried archaeological resource and any severe damage to them will inevitably damage or destroy the underlying resource. 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 any surviving surface archaeological features;
 - to establish any evidence of impact by the gripping operations and machine access upon extant archaeological sites.
 - to inspect a 20% sample of exposed peat hags across the project area, recording any features, lithics or other small finds exposed within the sections, and (if suitable examples are found) recovering sample ecofacts for identification and possible dating. Areas of bare peat should be inspected in the same manner.

3. METHODS STATEMENT

- 3.1 The following work programme is submitted in line with the objectives of the archaeological work summarised above. It is divided into three elements, archaeological field survey, ecological assessment 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 and encompasses 2.2 sq km (Mossdale Moor). 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 to 20m 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/GIS mapping. The survey will take considerable care to examine areas of disturbance through the peat, be that borrow pits created by the grip blocking, the undisturbed grips, erosion scars from vehicle damage and any other peat exposures. The survey will investigate and record all archaeological features and retrieve sample ecofacts and artefacts from a defined sample group of consisting of 20% of all identified peat hag scars across the study area of all identified peat hag scars across the study area.

- 3.2.3 These will specifically examine evidence for finds or structural entities within the section and the interface between the peat and the mineral soil. It should be born in mind that finds are not normally revealed within newly disturbed section; instead the sections need to be exposed for a while to allow them to weather in order to highlight any artefactual material.
- 3.2.4 **Survey mapping:** a Satellite Global Positioning System (GPS) will be utilised to satisfy English Heritage defined Level 1 survey requirements (English Heritage 2007). The GPS is a Leica differential system achieves much greater accuracies than can be achieved with a hand held GPS. The accuracy of the OA North GPS system is capable of +- 0.02m 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. The survey will record all archaeological sites as point data and any significantly sized archaeological features (more than 3m in diameter) with line or polygon data. The locations of any retrieved archaeological artefacts and ecofacts identified and/or retrieved during the project will also be recorded.
- 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 compatible database. The data will be backed up onto a portable computer running Access suitable for direct import to the YDNPA HER. 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 core fields:
- 3.2.6 The description will record if it has been impacted by any of the grip blocking operations, or how close it is to any surface disturbance. It will examine if it has been exposed within peat exposures and at what depth it is revealed. 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.
- 3.2.7 **Photographic Survey:** a digital photographic archive will be generated in the course of the field work, comprising landscape and detailed photography. This will record any significant ecofacts, archaeological features, lithics or other small finds located within the grip sections or areas of bare peat inspected. 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. Digital imagery, rather than conventional film photography, is acceptable for the photographic recording although 10mega pixel resolution will be used as a minimum. Unedited images should be archived as tiff files, as well as processed images. A full image catalogue is required as part of the archive. Metadata should be embedded in the DNG file by the contractor. This should include an agreed name for the site, the subject of the photograph, the date of the photograph, the OS grid coordinates, the name of the organisation taking the photograph, the direction of shot.
- 3.2.8 **Ecological and Artefact Retrieval:** the retrieval of ecofacts will be confined to small targeted samples that are either suitably diagnostic for species identification, or are substantial and well preserved enough to be suitable for obtaining radiocarbon dating. Large areas of tree remains exposed in hag sections will be recorded Individual exposed artefact finds of significance will be collected, catalogued and stored, and where a complex site such as a lithic scatter is encountered, a small sample will be gathered. The extents of any concentrated areas of finds will be recorded by GPS.

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 Yorkshire Dales Sites and Monuments Record.
- 3.3.2 **Digital Presentation:** the survey data will be digitally transferred into a GIS system 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 final output drawings will be output in DXF, and Autocad format. 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 1:50,00. The archive will be passed to the North Yorkshire Record Office and a digital copy will be passed to the client on completion of the survey alongside the final report.

3.4 REPORTING

- 3.4.1 **Assessment of Archaeological Resource:** an assessment will be made of the extent, character and diversity of the archaeological resource across the extent of the study area. It will make an assessment of the potential for buried archaeology on the basis of the observed evidence and by comparison with areas examined as part of the Upland Peats Project.
- 3.4.2 **Report Content:** the full report will consist of an acknowledgements statement, lists of contents, summary, introduction summarising the brief and project design and any agreed departures from them, methodology, interpretative account of remains found, assessment of the impact of the re-wetting upon the peats, assessment of the impact of the re-wetting upon the archaeological resource, conclusions, a gazetteer of sites, list of archive contents and bibliography. Illustrative material will include location maps and plans. The report will make recommendations for the management of future grip-blocking in relation to the archaeological resource
- 3.4.3 **Output:** four bound and one pdf copy of the full report will be submitted to the Yorkshire Dales National Park Authority . GIS database/ CAD files will be presented in a format to be agreed with the YDNPA HER and the Yorkshire Peat Partnership to ensure integration both with current HER records and the utility for the grip blocking contractor. Digital geographic data are to be presented in ESRI .shp and/or MapInfo .tab. format.
- 3.4.4 **Publication:** 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 the land owner.

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 WORKING HOURS

- 4.4.1 Survey works will be undertaken on the basis of a five day week, within daylight hours only.

4.5 PROJECT MONITORING

- 4.5.1 Monitoring meetings, if required, will be established with the YDNPA Historic Environment staff 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.
- 4.5.2 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 PHASES OF WORK COMPRISING

- 5.1.1 *Field* Three days will be required for the field survey
- 5.1.2 *Archive and Reporting*
15 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 to fit in with any scheduled work programme.

6. OUTLINE RESOURCES

6.1 STAFFING

- 6.1.1 The project will be under the management of **Jamie Quartermaine BA DipSurv** (OA North Project Manager) to whom all correspondence should be addressed. He will monitor the progress of the project ensuring adherence to all agreed programmes and timetables. He will also provide technical back-up, advice, and will have editorial control over the compilation of the full report. He has many years experience of surveying upland landscapes, particularly in the Lake District. Jamie will provide a post-survey assessment of the results in conjunction with the project director.
- 6.1.2 The field survey will be led by **Peter Schofield** (OA North Project Officer) who works full time *Surveyor* landscape surveys across the north of England and Wales. He has undertaken surveys at Little Asby Common, Hardknott Forest and Hartley Fold Estate, Cumbria. Whole valley

surveys of Ennerdale, Buttermere, Borrowdale and Wasdale in the central Lake District fells, and eight seasons of landscape survey across over 200sq km of upland areas in North Wales. With the exception of Jamie Quartermaine, he is our most experienced landscape archaeologist.

- 6.1.3 Ecological Advice will be provided by **Elizabeth Huckerby** BA MSc MIFA (Senior Palaeoecologist). She is Experienced in producing reports for assessment and publication. She joined OA North in 1990 when she worked as Palynological Project officer for the North West Wetlands Survey (NWWS). She specialises in palynology and collaborated in the successful isolation of Icelandic tephra from a lowland raised mire in England. Since the completion of the NWWS she been involved mainly in developer funded Archaeology both as a palynologist and archaeobotanist, and has incorporated work on prehistoric, Roman, Medieval and historic sites in the north and south of England. Prehistoric sites include two Bronze Age burnt mounds in Cumbria, at Drigg and Sparrowmire. She has worked on environmental remains from Roman and Medieval sites in Lancaster, Carlisle, Kirkby Thore Cumbria, Berwick and Gateshead, the latter two in Northumberland. Studies from these sites incorporated the assessment and analysis of charred and waterlogged plant remains and pollen. Her main skills are archaeobotany, pollen and plant macrofossil identification. Extensive knowledge of the palaeoecology of North West England. Environmental sampling and processing procedures. She has considerable experience of selecting and submitting samples for radiocarbon dating, and she has co-authored countless books, papers and client reports.

ILLUSTRATIONS

FIGURES

- Figure 1: Site Location
- Figure 2: General map of study area
- Figure 3: Location of Gazetteer Sites - North
- Figure 4: Location of Gazetteer Sites - South

PLATES

- Plate 1: A view looking north-east over the northern part of the survey area from Millstone Brow, with the fence line of the constituency boundary running through the centre of the image
- Plate 2: One of the quarry pits identified within the northern part of the survey area (Site 7)
- Plate 3: Pit shaft **16** at the eastern side of Garsdale Pits
- Plate 4: Pit shaft **17** at the eastern side of Garsdale Pits
- Plate 5: A view north-east over Sikes Pits Brae
- Plate 6: An extraction pit (Site **15**) with associated spoil at the western side of Sikes Pits Brae
- Plate 7: An area of exposed coal chippings that demonstrate the working of seams in the area to the east of Garsdale Common
- Plate 8: A large expanse of peat cutting (Site **1**) with one of the vertical edges of the cutting visible in the foreground
- Plate 9: A sunken dry-stone shooting butt (Site **13**)
- Plate 10: A view looking north-west over Little Widdale Tarn with the central island shooting butt (Site **22**)
- Plate 11: A view looking south-east over Little Widdale Tarn with the central island shooting butt (Site **22**)
- Plate 12: Looking southwards along the stone causeway (Site **22**)
- Plate 13: A view through the entrance of the shooting butt with a through-stone seat visible in the rear part of the wall
- Plate 14: A view of the stone structure (Site **18**) from the west, from which vantage point it appears similar to a cairn
- Plate 15: A view of the structure (Site **18**) from the north, showing the dry-stone construction of the chamber and the collapse and slippage of stones that would have formed a corbelled roof
- Plate 16: A detailed view of the dry-stone chamber (Site **18**)

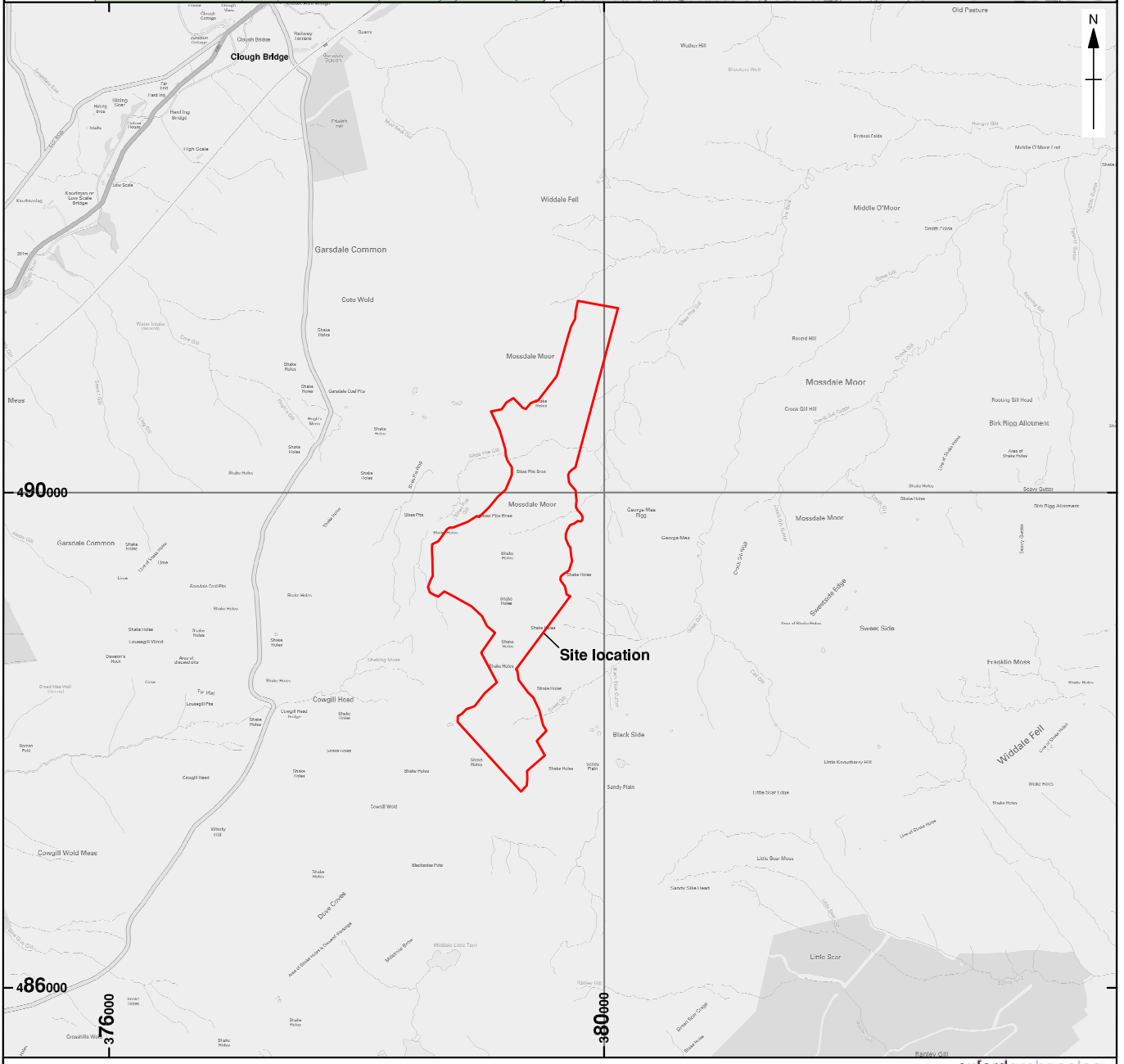
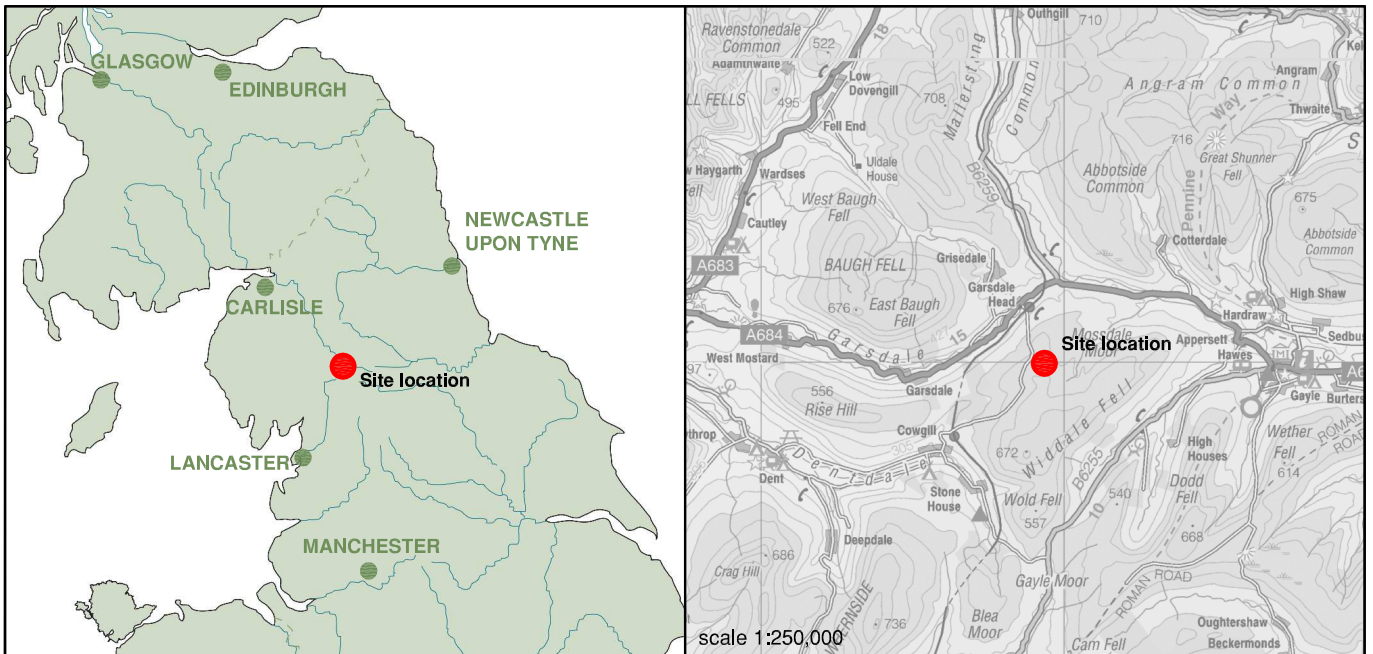
Plate 17: The foundation-level remains of a sheepfold (Site **20**) at the western edge of the survey area

Plate 18: A dry-stone shelter built into the Millstone Brow outcrop (Site **21**)

Plate 19: A low cairn at the western side of the study area (Site **19**)

Plate 20: A view of deep peat hags within the central part of the survey area, at Shaking Moss

Plate 21: Preserved wood exposed by the erosion of peat at Shaking Moss



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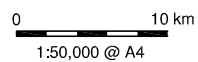
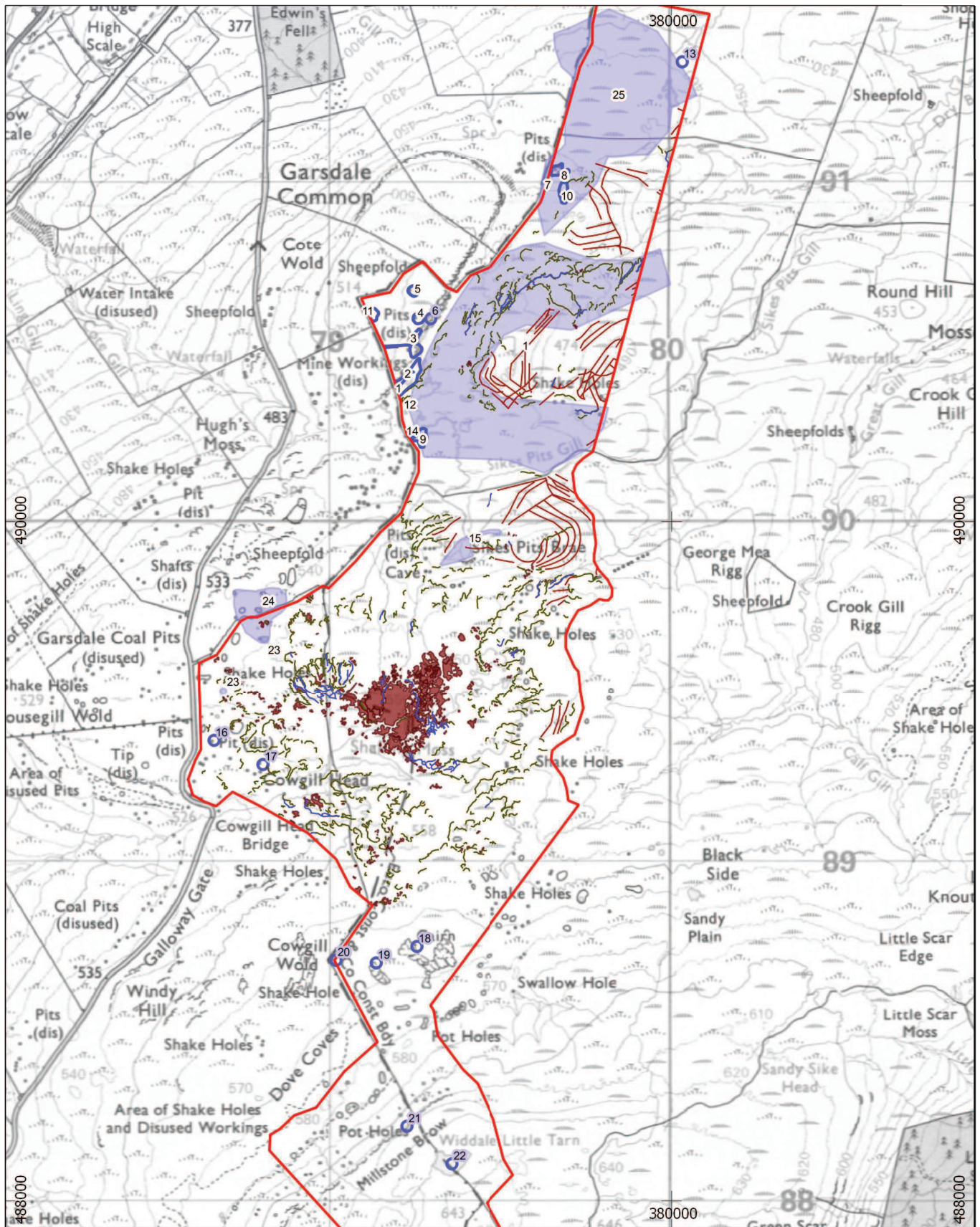


Figure 1: Site location



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- | | |
|-----------------|-----------|
| Study Area | Gullies |
| Gazetteer Sites | Scars |
| | Grips |
| | Bare Peat |

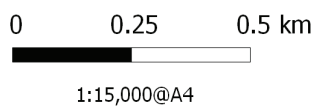
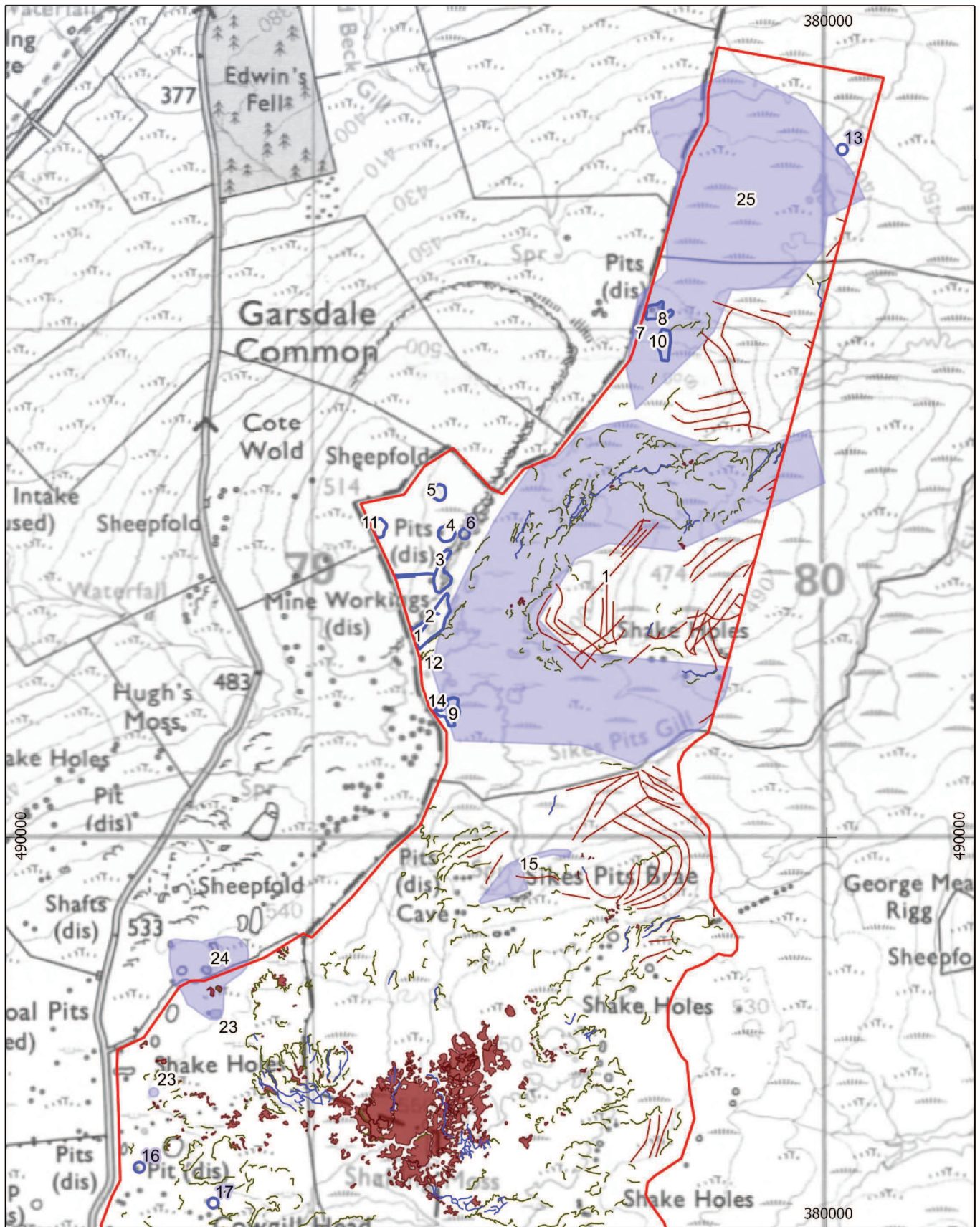


Figure 2: General Map of Study Area



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- | | |
|-----------------|-----------|
| Study Area | Gullies |
| Gazetteer Sites | Scars |
| | Grips |
| | Bare Peat |

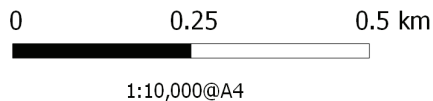
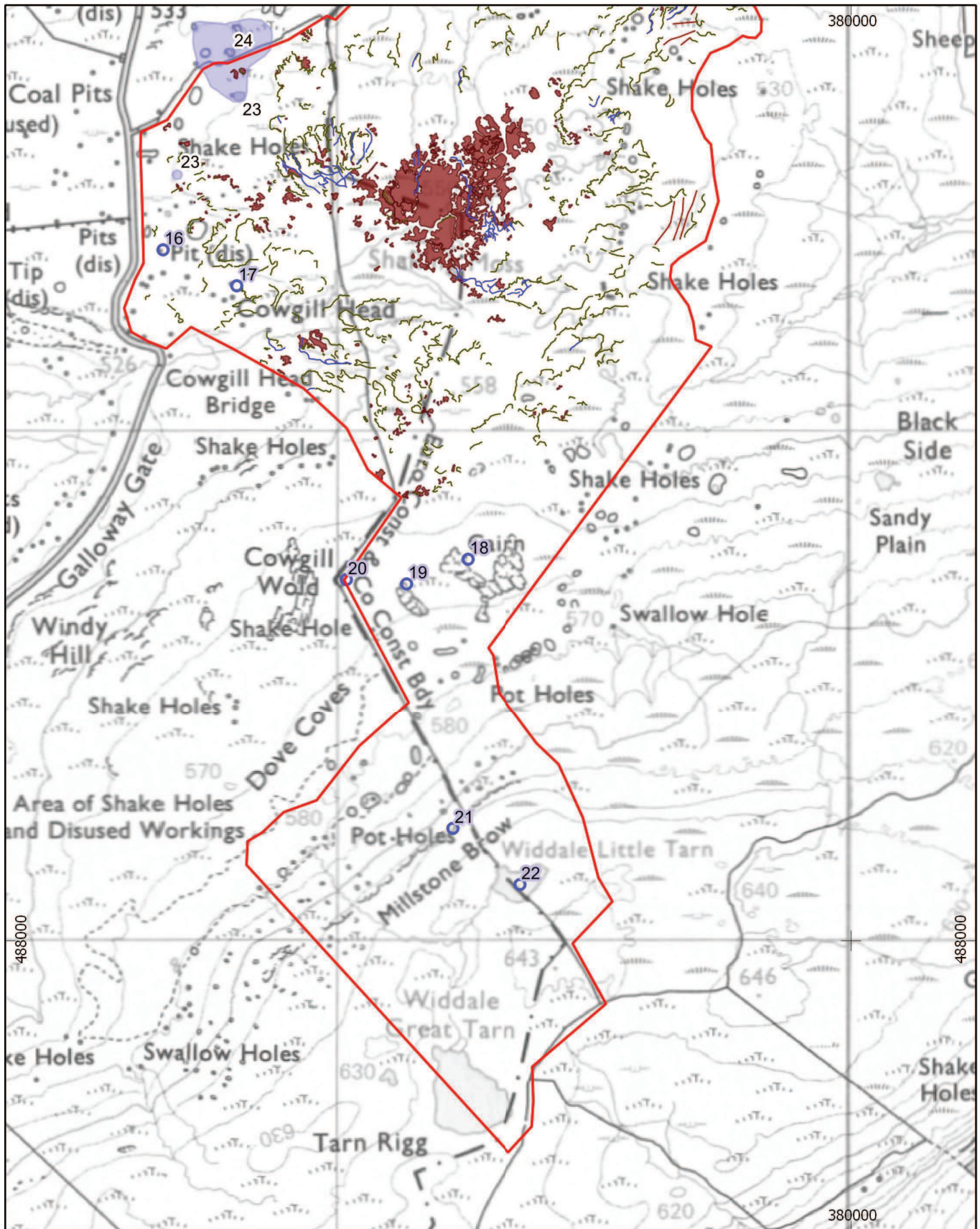


Figure 3: Location of Gazetteer Sites - North



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Study Area	Gullies	
Gazetteer Sites	Scars	0 0.25 0.5 km
Grips	Bare Peat	1:10,000@A4

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northnorthnorth

Figure 4: Location of Gazetteer Sites - South