



BLACKBURN CONCESSIONARY SUPPLIES, BRIERCLIFFE, LANCASHIRE

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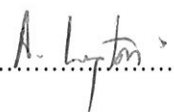
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SUMMARY

United Utilities propose the installation of a concessionary supplies water pipeline on agricultural land to the west of Extwistle Moor, in Briercliffe (SJ 89000 34330, central point). The landscape around the proposed pipeline is extremely rich in terms of the density of significant sites of archaeological interest, with numerous prehistoric monuments and settlements of prehistoric or Romano-British date having been identified. Four such sites, all of which are Scheduled Monuments, lie within 100m of the proposed pipeline routes. As a result of the potential for negative impacts upon sites of archaeological interest during the works associated with the pipeline, the Planning Archaeologist at Lancashire County Archaeological Service (LCAS) advised that a programme of archaeological work should be undertaken. United Utilities subsequently commissioned Oxford Archaeology North (OA North) to undertake historical and archaeological research and a walkover survey of the immediate environs of the proposed pipeline.

The historic research enabled the compilation of a gazetteer of 22 sites of archaeological interest. Nine of these (Sites **01-09**) were listed in the Lancashire Historic Environment Record (HER), five sites were identified during an aerial photographic inspection (Sites **10-13** and **22**), and eight sites were identified during the walkover survey (Sites **14-21**). All of the sites are likely to date to either the prehistoric, Romano-British, medieval, post-medieval, or industrial periods.

Ten sites have been identified that lie within, or close to, the proposed pipeline routes. These are an enclosed field (Site **11**), an enclosure west of Sweet Well House (Site **12**), and a further enclosure east of Elders i' th' Row (Site **13**). A track (Site **16**), a well (Site **17**), a terraced track (Site **18**), a gravel pit (Site **19**), a kerbed entrance to Monk Hall Quarry (Site **20**), and a quarry and trackway (Site **21**) are also likely to be affected, as are field boundaries and ridge and furrow (Site **22**). Intrusive ground works associated with the proposed development present the potential for negative impacts upon these sites, in the form of damage and destruction to physical remains.

In addition to these sites, parts of the proposed pipeline routes cross areas where there is an extremely high likelihood of the presence of previously unrecognised sites of archaeological significance, such as Bronze-Age barrows. Bonfire Hill holds the highest potential for further such sites based on existing evidence. Recommendations for further archaeological works to mitigate the impact of the proposed pipeline comprise topographic survey, archaeological evaluation trenching, and a watching brief. It is also recommended that precautions should be taken to avoid disturbance to three barrow sites within the area (Sites **01**, **02**, and **09**) and that the finalised pipeline route should avoid the well (Site **17**).

ACKNOWLEDGEMENTS

Oxford Archaeology North (OA North) would like to thank United Utilities for commissioning the project. Thanks are also due to the staff of the Lancashire Record Office (LRO) in Preston.

Alastair Vannan undertook the historic research and walkover survey, and also compiled the report. Mark Tidmarsh produced the drawings. Alison Plummer managed the project and also edited the report.

1. INTRODUCTION

1.1 CIRCUMSTANCES OF THE PROJECT

- 1.1.1 United Utilities propose the installation of a concessionary supplies water pipeline on agricultural land to the west of Extwistle Moor, in Briercliffe (SJ 89000 34330, central point). The precise route of the proposed pipeline has not yet been fixed but, according to the preliminary route plan, is likely to measure between approximately 1.5km and 2.3km long (Fig 1).
- 1.1.2 The wider landscape around the proposed pipeline routes is extremely rich in terms of the density of significant sites of archaeological interest, with numerous prehistoric monuments and settlements of prehistoric or Romano-British date having been identified. Four such sites, all of which are Scheduled Monuments, lie within 100m of the proposed pipeline routes. As a result of the potential for negative impacts upon sites of archaeological interest during the works associated with the pipeline, the Planning Archaeologist at Lancashire County Archaeological Service (LCAS) advised that a programme of archaeological work should be undertaken. Consequently, United Utilities requested Oxford Archaeology North (OA North) to undertake historical and archaeological research and a walkover survey of the immediate environs of the proposed pipeline.

1.2 TOPOGRAPHY AND GEOLOGY

- 1.2.1 The preliminary routes of the proposed pipeline run along, and through, a combination of pre-existing roads, farmyards, and agricultural fields in an area that lies to the west of Extwistle Moor and between Thursden Brook and the Swinden Water reservoirs. The pipeline route occupies the slopes of Bonfire Hill, the northern side of which forms part of the Thursden Brook valley and the southern side of which descends into Holden Clough. Undulating upland moorland extends to the east of the study area. The summit of Bonfire Hill, Pike Lowe, lies at 331m above Ordnance Datum (od). The proposed pipeline route varies between approximately 255m and 325m (od).
- 1.2.2 The local solid geological deposits comprise Pennine and South Wales lower coal measures formations, which consist of Bashkirian undifferentiated mudstone, siltstone, sandstone, coal, ironstone, and ferricrete (British Geological Society 2011). These are overlain by drift deposits of diamicton glacial till, in the northern part of the study area, with no drift deposits having been recorded in the southern portion (*ibid*).

2. METHODOLOGY

2.1 HISTORIC RESEARCH

- 2.1.1 A study area that encompassed the immediate vicinity of the proposed pipeline was used for the historic research (Fig 2). The sources consulted included the Lancashire County Archaeological Service (LCAS) Historic Environment Record (HER), historic mapping, and published and unpublished materials held by the Lancashire Record Office (LRO), in Preston, and the OA North library. The summarised results of the historic research were collated into a gazetteer of sites (*Section 4*). The methodology conformed to the *Standards and Guidance for Archaeological Desk-Based Assessment* compiled by the Institute for Archaeologists (IfA 2001). The sources consulted included:
- 2.1.2 ***LCAS Historic Environment Record (HER), Preston:*** the Historic Environment Record (HER) in Preston has an extensive database of all known sites of archaeological interest within Lancashire.
- 2.1.3 ***Lancashire Record Office (LRO), Preston:*** the record office in Preston is the main source of primary information, including maps, plans, documents and aerial photographs, for Lancashire.
- 2.1.4 ***Oxford Archaeology North:*** OA North has an extensive archive of secondary sources, as well as numerous unpublished client reports on work carried out both as OA North and in its former guise of Lancaster University Archaeological Unit (LUAU). These were consulted where necessary.

2.2 WALKOVER SURVEY

- 2.2.1 The area defined by the proposed pipeline route, including a corridor extending 50m to each side, was inspected to assess the extent and locations of known sites of archaeological interest and the potential for additional sites that had not been recognised previously. Additional information relating to sites of archaeological interest within the study area has been added to the site gazetteer.

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 Lancashire Record Office in Preston.
- 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. HISTORICAL BACKGROUND

3.1 INTRODUCTION

- 3.1.1 The following section presents a summary of the historical and archaeological background of the general area. This is presented by historical period, and has been compiled in order to place the study area into a wider archaeological context.

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

Table 1: Summary of British archaeological periods and date ranges

3.2 THE PREHISTORIC PERIODS

- 3.2.1 **Mesolithic:** the Mesolithic was the latest cultural epoch in Britain during which people employed a subsistence strategy based wholly upon hunting, gathering, and fishing. There is substantial evidence for Mesolithic activity across Lancashire, consisting primarily of flint scatters and pollen studies, with the central Pennine uplands of Lancashire and Yorkshire providing one of the greatest concentrations of identified sites in the country (Barrowclough 2008, 48; 56-7). Upland sites have been identified within the moors to the east of Burnley (*op cit*, 57), within which the study area is located. The site of a Mesolithic camp at Boulsworth, near Trawden, to the north-east of the proposed pipeline, was represented by worked flints and hazelnuts (Harrison 1988, 4). Dense scatters of Mesolithic flints have also been found at Briercliffe (Kenyon 1991, 35), although no such sites have been recorded within the study area.
- 3.2.2 **Neolithic:** following the introduction of farming to the British Isles, from around 4000 BC, the Neolithic period saw the beginning of the widespread construction of monumental architecture, although few such sites have been identified within Lancashire (*see* Middleton 1996, 41). Much settlement during this period appears to have been concentrated in the lowlands, although scattered Neolithic material has been found within upland areas, including Worstorne Moor (*op cit*, 40), to the south of the study area, and at Castercliffe Hillfort (Barrowclough 2008, 92), near Nelson, which lies within 4km to the north of the study area. No such sites have been identified within the study area.

- 3.2.3 **Bronze Age:** the beginning of the Bronze Age in Britain, defined mainly by the introduction of the use of copper, developed gradually out of the preceding Neolithic during the mid third millennium BC (Parker Pearson 2000, 13). An increase in the quantity of stone axes discovered to the west of the Pennines suggests a marked increase in activity in the Bronze Age from the preceding Neolithic period, and numerous Bronze-Age artefacts have been found within the Burnley, Rossendale, Briercliffe, and Worsthorne areas (Barrowclough 2008, 100-1; 131).
- 3.2.4 The tradition of monumental architecture continued into the Bronze Age, with new ritual and religious traditions developing that were associated with new monument types (*see* Hodgson and Brennand 2006, 41-5). Such Bronze-Age monuments are conspicuous in the vicinity of the study area, with a 25km² portion of the Extwistle and Worsthorne Moors containing a well-defined and dense distribution of 14 stone circles, ring banks, and barrows, or burial mounds (Barrowclough 2008, 114-5). This demonstrates a considerable degree of ritual and burial activity within these areas during the Bronze Age, although the associated sites of domestic occupation have not yet been identified. The study area includes four burial mounds (Sites **01**, **02**, **03**, and **09**) and there is a high probability that additional, previously unidentified, sites of similar type exist within this area. This is particularly likely given that cultivation, and poorly documented antiquarian excavations, have occurred within the area, which will have reduced the height of earthworks and, in some cases, might have removed all traces above ground of such monuments. There is, however, potential for the survival of sub-surface remains associated with such sites.
- 3.2.5 **Iron Age:** evidence for the Iron-Age period in the Pennine fringes of eastern Lancashire is most conspicuously represented by the presence of enclosed hill-top sites known as hillforts (*eg* Barrowclough 2008, 182-7). This includes Castercliffe hillfort, near Nelson (*op cit*, 186). In addition to these site-types, it is likely that other settlement sites that were not associated with such easily identifiable earthworks also existed and environmental evidence demonstrates that the reduction of woodland, which might have resulted from deliberate woodland clearance in association with agriculture, occurred during the later part of the Iron Age, including within the Rossendale area (*op cit*, 199) and, indeed, on Extwistle Moor (Bartley and Chambers 1992).
- 3.2.6 Although sites of demonstrable Iron-Age date have not been identified within the study area, several enclosed sites that were probably settlements, have been recognised that have not been subject to scientific dating techniques and could represent activity during this period. These sites are Ringstones, Twist Castle (LHER 3184), and Beadle Hill Camp (Site **04**), although these have been suggested to be of Romano-British date (Bennet 1946, 29).

3.3 THE HISTORIC PERIODS

- 3.3.1 **Romano-British:** although Roman roads have been recognised running to the north, south, and west of the study area, no such sites, or any other sites indicative of a Roman military presence, have been identified within the near vicinity. During the nineteenth century, Burnley was considered to have been a

site of Roman occupation (Whitaker 1876, 156-7), a view which appears to have been based on the discovery of Roman coins in the vicinity. Colne was also regarded as having a Roman origin (Whitaker 1818, 385), however, there is little archaeological evidence to corroborate Roman establishment for either settlement.

- 3.3.2 The three probable enclosed settlements of Ringstones, Twist Castle (LHER 3184), and Beadle Hill Camp (Site **04**) that lie within the vicinity of the study area have been referred to on historic maps and in late-nineteenth and early twentieth-century literature as ‘Roman camps’ (eg Bennet 1946, 29). Although this term is suggestive of a military installation, it is more likely that these sites represent civilian settlements, such as farmsteads, and, indeed, this is how the Scheduled Monument description for Beadle Hill, which lies within the study area, defines the site. Woodland clearance at Extwistle Moor has been demonstrated from pollen analyses during the Romano-British period (Bartley and Chambers 1992), which might have been associated with settlement activity.
- 3.3.3 **Early medieval:** evidence for early-medieval activity within the immediate vicinity of the study area appears to be largely confined to place-names with roots that pre-date modern English. It should, however, be considered that place-names are a linguistic trait and, alone, do not conclusively demonstrate the ethnic origins of those responsible for establishing any settlement. The place-name of Saxifield, which refers to an area to the eastern side of Burnley, is suggestive of an Anglo-Saxon presence in the area and early histories suggested that a battle was fought in this area in 597 (eg Slaters Directory 1848, 315).
- 3.3.4 An Anglo-Saxon influence in the local area is certainly suggested by the preponderance of place-names of Old English origin. Briercliffe, which was spelled *Brereclife* in 1242 (Farrer and Brownbill 1911, 468), appears to be derived from the Old English word *Brer*, meaning briar, or the personal name *Brether*, with the Old English post-fix *cleof*, meaning cliff (Sephton 1913, 28). Indeed, many of the ancient place-names in this area are related to topography, rather than man-made features or land usage. For example, Extwistle appears to be a combination of the personal name *Eche* with the Old English *twistle*, which means a fork in a river (*op cit*, 197) and Holden derives from the Old English *hohl* and *denv*, meaning hollow valley (Wyld and Oakes Hirst 1911, 155). Thursden combines topography and mythology, with *Thirsedeneheved* being an Old English word meaning the head of the giant’s valley (*op cit*, 249). Similarly, the field names within the study area that are not modern English are almost exclusively of Old English origin, such as Parrock, from *pearroc*, meaning paddock (Field 1972, 272), and Pike Law, which derives from *pic* and *hlaw*, and might translate as pointed hill, or the funeral mound at the pointed hill (*see* Field 1972, 166; Sephton 1913, 120). Indeed the only place name within the study area that was not of recognisably Modern or Old-English origin was the field name Wham, from the Old Norse *hvammr*, meaning small valley or marshy hollow (Field 1972, 251).
- 3.3.5 Although there is no direct evidence for specific sites of activity within the vicinity of the study area during the early-medieval period, it should be

considered that the enclosed settlements of possible Romano-British date discussed above have not been closely dated. It is, therefore, possible that if such sites were in use during the Romano-British period that they might have continued to be occupied into the post-Roman period.

- 3.3.6 **Medieval period:** Briercliffe did not constitute an individual manor during the medieval period, but was part of the manor of Ightenhill (Farrer and Brownbill 1911, 648-73) and fell within the Hundred of Blackburn (Lewis 1848, 369-75). The estate that became the township of Briercliffe was first recorded in 1242, although most of the information recorded between the thirteenth and sixteenth centuries relates to tenancy agreements and genealogy, rather than providing details of specific land uses. It was recorded that one of the De Lacy family received a grant for free warren in Briercliffe during the thirteenth century (*ibid*), which might relate to hunting or, more specifically, to the rearing of rabbits. Within the broader area of Briercliffe with Extwistle the general character of the medieval landscape appears to have been agricultural, with records of the presence of at least one mill at Extwistle. Unenclosed moor and waste would also have formed a prominent feature of the medieval landscape and it has been estimated that out of 4227 acres of land forming the Briercliffe estate in 1300, only 8% was cultivated (Bennet 1946, 74). Some of the wastes would have constituted common land with tenant's rights to pasture, cutting of wood, and extraction of lime and slate (*op cit*, 88-9). Indeed, some of the field names recorded on the tithe schedule of 1850 (LRO DRB 1/26) are suggestive of common apportionment, such as Dole, which is likely to derive from the Old English *dal*, meaning common land divided into shares, and town fields, which is suggestive of a similar functionality.
- 3.3.7 The field name Chipping Meadow might provide an indication of activity other than agriculture in the local area during the medieval period. This is likely to derive from the Old English *ceping*, meaning a market (Field 1972, 44). Although a market charter was not granted to Briercliffe, this might record the former presence of an unofficial local market.
- 3.3.8 Residences were recorded within the area during the medieval period, including Monk Hall (Site 05), which lies within the study area. A house in the vicinity of the current hall appears to have existed since at least as early as the fourteenth century. The HER description records a reference to deeds dating to the reign of Richard II (between 1376 and 1399), and a suggestion that it might have been occupied during the reign of Edward III (between 1327 and 1376). A medieval wayside cross appears to be represented by the remains of a cross base know as Nogworth Cross (LHER 796) to the west of the study area, which features in local tradition as the place where a mischievous boggart was trapped (Farrer and Brownbill 1911, 648-73).
- 3.3.9 **Post-medieval and Industrial periods:** the township of Briercliffe with Extwistle lay within the parochial chapelry and poor law union of Burnley, and within the parish of Whalley and the higher division of the hundred of Blackburn (Lewis 1848, 369-75). The character of the area continued to be dominated by agriculture and unenclosed moorland with common access into the post-medieval period and the Byre Law, or bye law, of Extwistle, which set out conditions relating to common rights on the wastes, was established in

1561 (Farrer and Brownbill 1911, 648-73; Bennet 1946, 88-9). However, by 1594 an agreement had been made relating to the enclosure of commons and moors in Extwistle (Farrer and Brownbill 1911, 648-73), which is likely to have increased the gradual rate of encroachment of enclosed lands into the marginal lands at the western edge of Extwistle Moor.

- 3.3.10 In 1624, part of the common land of Briercliffe, comprising the limestone scar in Thursden, was divided among the freeholders and copyholders of that township in order to apportion land for limestone extraction (*ibid*). The limestone was apparently extracted from the glacial drift by water action, rather than by quarrying, and an agreement was made that the river would be dammed and the water diverted to two different parts of the newly apportioned land holdings on alternate weeks (*ibid*). A supposed ancient enclosure was depicted on the OS map of 1848, adjacent to an area of the Thursden Brook where several limekilns were shown, which might have been associated with this seventeenth-century division. Conflict occurred in the local area during the English Civil War when a skirmish took place in Haggate, to the north of the study area, in 1644 between the Parliamentary forces and those of Prince Rupert (*ibid*).
- 3.3.11 The study area remained a primarily agricultural landscape throughout the post-medieval period, although it is likely that cottage industries, such as hand-loom weaving (Lewis 1848, 369-75), were undertaken, the products of which would have been able to be sold at nearby Burnley. Burnley was a small market town by 1650 (*op cit*, 442) and developed into a manufacturing area throughout the post-medieval and industrial periods (Bennet 1948). Nelson gradually became established as a town after 1835, following the establishment of a series of local cotton mills within a previously agricultural area, and would have become a source of employment and a potential destination for the sale of goods during the nineteenth century (Crosby 1998).
- 3.3.12 The study area lies within the Burnley coalfield, well-known for its Mountain Mine seams and Gannister coal, which was much sought after during the nineteenth century as a furnace coal (Hull 1875). There were coal mines in the wider area, including three recorded at Altham, Cligiver, and Hapton (Baines 1824, 572), although there is little evidence for coal extraction within the immediate vicinity of the study area. To the east of the study area, on Extwistle Moor, there is an area called Coal Pit Pasture, and an old coal pit was recorded within this area on the OS map of 1848. There was also a field called Coal Hill recorded on the tithe schedule of 1850 (LRO DRB 1/26) within the western side of the study area, although at this time the field was under pasture. It is unclear what scale of coal extraction might have been undertaken here and at what date, but it is likely that any workings were shallow and short-lived.
- 3.3.13 Stone quarrying was also undertaken throughout Briercliffe (Lewis 1848, 369-75), and within the immediate vicinity of the study area. The First Edition Ordnance Survey map of 1848 showed Monk Hall Quarry to the north-east of the study area, which was labelled as quarrying sandstone flags. At the time of the tithe survey of 1850, the quarry was owned by Robert Parker Townley, who owned much of the surrounding land, and was leased by Thomas and

Benjamin Chaffer. Benjamin Chaffer retained the quarry until at least 1876 (Slaters Directory 1876, 126) and by 1885 it was operated by John Whitehead and Company (Slaters Directory 1885, 157). Numerous quarries, many annotated as old quarries, were shown on the OS map of 1848.

3.3.14 Following the enclosures of waste and commons in the sixteenth and seventeenth centuries, additional enclosure appears to have occurred in the vicinity of the study area during the late-eighteenth or early-nineteenth centuries. The part of Extwistle Moor immediately to the east of the study area features large and conspicuous geometric enclosures and boundaries, which were shown on the OS map of 1848. These are typical of the planned enclosure associated with the Parliamentary enclosure acts of the late-eighteenth and early-nineteenth centuries, in contrast to the irregular boundaries formed by earlier piecemeal enclosure (eg Muir 2004, 203).

3.3.15 The current farmhouses within the study area were established during this period. This includes Monk Hall (Site **05**), which is likely to have been built during the later seventeenth century, and Elders i' th' Row and Sweet Well House, which pre-date 1848. Sweet Well House, which was so named on all of the OS maps from 1848 to the present day, was labelled 'London' on the tithe map of 1850 (LRO DRB 1/26), although it is not clear why. A building (Site **08**), which might have been a small farmstead or a barn, was also depicted on Beadle Hill on the OS map of 1848, although it is no longer extant. A reservoir had been established at the site of the current Swinden Reservoirs by 1848, and these had been extended to their current size by the production of the OS maps of 1894.

3.3.16 **Modern period:** little conspicuous physical change has occurred within the landscape of the study area during the modern period and the industrial-period layout of field boundaries had remained largely unchanged. The Monk Hall Quarries had become disused by the time of the production of the OS map of 1912 and no stone merchants were listed within the area in 1924 (Slaters Directory 1924). Although arable land was listed within the study area in the tithe schedule of 1850 (LRO DRB 1/26), all of the fields are currently under pasture.

3.4 MAP REGRESSION

3.4.1 **Introduction:** numerous maps were consulted spanning 1848 to the present day, most of which depicted little change in the landscape of the study area and immediate environs from the character and appearance of the area in the present day. In order to avoid repetition, a selection of the most relevant sources examined is described below.

3.4.2 **OS First Edition map of 1848 at 6" to 1 mile (Fig 3):** this was the first map or plan to show the study area in detail and depicted an agricultural landscape of field systems and dispersed farmsteads very similar to the current appearance of the area. There were, however, a greater number of field sub-divisions shown on this map than are currently extant. Two tumuli (Sites **01** and **02**) were depicted on this map and old sandstone quarries were shown around the

southern and eastern edges of the study area, with Monk Hall Quarry to the north-east.

- 3.4.3 ***Briercliffe with Extwistle tithe map of 1850 (LRO DRB 1/26)***: this plan presented a very similar depiction of the pattern of field systems as the OS map of 1848 (Plate 1), although there were some slight differences with the addition and removal of a very few field boundaries. Sweet Well House was named as London on this map, which was the only instance of this farm name on any of the nineteenth or twentieth-century maps. The track leading north-east from Monk Hall, which was shown on the earlier and later OS maps, was not depicted in the tithe map, whereas a trackway and building to the north of Pike Low was shown on the tithe map, but not on the earlier or later OS maps.
- 3.4.4 The reason for these disparities is unclear and differences in the accuracy of surveys were apparent between the OS and tithe mapping. However, given the close dates of the publication of this map and of the OS map of 1848, it is possible that there was some overlap in the timings of the two surveys and the subsequent publication of the mapping. It is, therefore, possible that the farm name of London might have pre-dated that of Sweet Well House and been recorded during the survey for the tithe mapping, but have been outdated by the time the map was published. This might also have been true of the trackway and building that were not shown on the OS maps and would explain why the Monk Hall Quarry track was shown on the earlier and later OS maps, but not on the tithe map. The tithe map was not topographically detailed enough to depict features such as tumuli but the associated schedule provided additional information on land use and field names (*Section 3.3*).



Plate 1: Tithe map of Briercliffe with Extwistle of 1850

- 3.4.5 ***OS First Edition map of 1893 at 25" to 1 mile (Fig 4):*** this was the first map to show the layout of the field systems in the study area almost identically to their current form. This demonstrates an extremely high degree of landscape conservatism between the late nineteenth century and the present day. One half of the earthworks of Beadle Hill Camp (Site **04**) were depicted with hachures and the site was labelled as a Roman Camp. A trackway was shown on this map running between Black House Lane Bridge and Monk Hall.
- 3.4.6 ***OS Third Edition map of 1913 at 25" to 1 mile (Fig 5):*** the only significant difference between this map and that produced in 1893 was the addition of the tumulus at Pike Lowe.
- 3.4.7 ***OS maps of 1918, 1931, and 1955:*** there were no significant differences between the depictions of the study area on these maps and that produced in 1913.

3.5 AERIAL PHOTOGRAPH INSPECTION

- 3.5.1 Aerial photographs were consulted in order to examine the area for indications of previously unrecorded features, such as earthworks, and sub-surface remains that might be visible as crop marks. The study area is extremely rich in terms of features that are visible from aerial photographs and, therefore, only those features in the immediate vicinity of the proposed pipeline route, or those that aid in the characterisation of the area as a whole, in terms of archaeology, have been described. Five sites were identified during the aerial photographic inspection (Sites **10-13** and **22**).
- 3.5.2 ***1940s vertical black and white aerial photographs:*** the photographs taken during the 1940s were captured from quite a high altitude and, therefore, did not show the study area in a very high degree of detail. The road networks and field systems were discernible but the resolution was not sufficient to identify other features of archaeological interest.
- 3.5.3 ***1960s vertical black and white aerial photographs:*** these photographs were of a higher resolution than the 1940s photographs and ridge and furrow cultivation marks were visible within numerous fields, including within fields to the north of Monk Hall Lane (Site **22**). Very high numbers of former field boundaries were visible just to the north of the study area that had not been depicted on any of the historic mapping, many of which formed long and narrow strip fields that would have been used for arable cultivation. Many of these strip fields were also associated with ridge and furrow that was aligned with the long axis of the fields and clearly contemporary.
- 3.5.4 A sub-rectangular enclosure was visible immediately to the north-west of Elders i'th' Row farm (Site **10**). This is similar in size and shape to some of the putative Romano-British enclosed settlements in the surrounding area and might represent such a site. A second sub-rectangular enclosure (Site **11**) was visible to the south of Monk Hall, which was associated with ridge and furrow. A smaller rectangular enclosure was visible to the south-east of Sweet Well House (Site **12**).

- 3.5.5 ***Current vertical colour aerial photographs:*** the photographs displayed on the Lancashire County Council online Mario Maps site are of extremely high resolution and displayed an enormous quantity of earthworks, including many of the strip fields and ridge and furrow shown on the 1960s photographs. The two possible enclosures (Sites **10** and **12**) visible on the 1960s aerial photographs to the western sides of Elders i' th' Row and Sweet Well House could not be discerned, although the enclosed field (Site **11**) to the south of Monks Farm was visible and a fourth possible sub-rectangular enclosure (Site **13**) was visible in the field to the east of Elders i' th' Row farm.

4. WALKOVER SURVEY

4.1 INTRODUCTION

- 4.1.1 The walkover survey was undertaken on 18th March 2011 in clear, bright, and dry conditions. A corridor measuring approximately 50m wide to each side of the proposed pipeline routes was inspected and access was available to all of the required areas. The survey area comprised Monk Hall Lane, and the extension of this road as far as Sweet Well Farm, and numerous agricultural fields, all of which were under pasture, although few contained livestock (Plates 2-3). All features of archaeological interest encountered during the survey were incorporated within the gazetteer of sites (*Section 5*) and any observations pertinent to previously identified sites were also added to the gazetteer.

4.2 RESULTS

- 4.2.1 Although numerous features were identifiable from the inspection of aerial photography, very few of these were visible on the ground. This is likely to be due to their presence above ground only being represented by either very low and slight earthworks that are only visible under specific light conditions or parch marks that are only visible after prolonged periods of dry weather.
- 4.2.2 Eight features were identified during the walkover survey (Sites **14-21**), all of which are likely to have been associated with either agricultural activity or quarrying occurring within the medieval, post medieval, or industrial periods. A stone wall (Site **14**), three trackways (Sites **15**, **16** (Plate 4), and **18** (Plate 5)), a well (Site **17**; Plate 6), a gravel pit (Site **19**; Plate 7), a stretch of sandstone kerbing (Site **20**; Plate 8), and a group of quarry pits with an associated trackway (Site **21**; Plate 9) were identified.



Plate 2: View of the northern part of the study area overlooking Monk Hall Farm



Plate 3: View of the north-eastern part of the study area, with Pike Lowe at the top right of the image



Plate 4: South-east-facing view of a trackway (Site **16**)



Plate 5: South-west-facing view of a terraced trackway (Site **18**)



Plate 6: The site of a spring recorded as a well on historic mapping (Site **17**)



Plate 7: South-facing view of a gravel pit (Site **19**)



Plate 8: A stretch of sandstone kerbing (Site 20) marking the former entrance to Monk Hall Quarry



Plate 9: East-facing view of a hollow-way leading to a series of quarry pits dug to exploit the sandstone outcrop (Site 21)

- 4.2.3 The only features with origins that can be stated with confidence to post-date the medieval period include the stone wall (Site **14**), which probably would have been constructed with clearance stone rather than split slabs if of medieval date. The gravel pit (Site **19**; Plate 7), which was associated with surfacing the local highway, is also likely to be post-medieval in date. Finally, the sandstone kerb, associated with Monk Hall Quarry (Site **20**; Plate 8).
- 4.2.4 Although a high density of prehistoric and possible Romano-British sites are known from the surrounding area, no additional sites likely to date to these periods were encountered. However, the Bronze-Age barrows (Sites **01** and **02**) on Bonfire Hill, were seen to have been extensively ploughed, resulting in them appearing as extremely low and faint rises (Plates 10 and 11). It is possible that other similar sites might exist that are no longer discernible above ground level.



Plate 10: The barely perceptible raised area representing a plough-damaged barrow (Site **01**)



Plate 11: A second faint rise area representing a plough-damaged barrow (Site **02**)

5. SITE GAZETTEER

Site	Bowl Barrow B, Beadle Hill
Site number	01
NGR	SD 89160 34110
HER number	240
Statutory Designation	Scheduled Monument 23725
Period	Bronze Age
Source	LHER
Description	One of two circular tumuli on Beadle Hill. The bowl barrow is located on the western edge of an upland plateau and comprises a circular mound of earth and stones measuring 8.5m in diameter and up to 0.1m high with an associated ditch. Cultivation has reduced the height of the barrow.
Assessment	The site lies outside of the proposed pipeline route and is not likely to be affected by the associated works.

Site	Bowl Barrow A, Beadle Hill
Site number	02
NGR	SD 89146 34092
HER number	241
Statutory Designation	Scheduled Monument 23726
Period	Bronze Age
Source	LHER
Description	One of two circular tumuli on Beadle Hill. The bowl barrow is located on the western edge of an upland plateau and comprises a circular mound of earth and stones measuring 9.5m in diameter and up to 0.1m high. The associated ditch measures 1m wide and 50mm deep. Cultivation has reduced the height of the barrow.
Assessment	The site lies close to the proposed pipeline route but is not likely to be affected by associated works.

Site	Pike Low Barrow
Site number	03
NGR	SD 89440 34230
HER number	242
Statutory Designation	Scheduled Monument 23720
Period	Bronze Age and medieval
Source	LHER
Description	A Bronze-Age bowl barrow consisting of a sub-ovoid mound of earth and stones measuring up to 0.6m high and 15m long from east to west by 13m wide. The site was subsequently used as a beacon site during the medieval period. It has been slightly damaged at the northern edge by quarrying.
Assessment	The site lies outside of the proposed pipeline route, and is not likely to be affected by the associated works.

Site	Beadle Hill Camp
Site number	04
NGR	SD 88970 34090
HER number	252
Statutory Designation	Scheduled Monument 23738
Period	Romano-British

Source	LHER
Description	A probable Romano-British farmstead site located on the western end of Beadle Hill, from where it commands extensive views in all directions except to the east. It includes an earth and stone bank with an associated ditch, which represents the eastern rampart of the farmstead. Elsewhere the monument is not as well-defined, although the remainder of the monument is visible as cropmarks on aerial photographs, which indicate that the sub-rectangular enclosure measures approximately 75m wide.
Assessment	The site lies outside of the proposed pipeline route, and is not likely to be affected by the associated works.

Site	Monk Hall
Site number	05
NGR	SD 88992 34375
HER number	708
Statutory Designation	Grade II listed building 184022
Period	Medieval to Post-medieval
Source	LHER
Description	A seventeenth-century farmhouse with later additions that appears to have been preceded by an earlier building dating to the fourteenth century.
Assessment	The site lies outside of the proposed pipeline route, and is not likely to be affected by the associated works.

Site	Beadle Hill Quarries
Site number	06
NGR	SD 8894 3408
HER number	6398
Statutory Designation	-
Period	?Post-medieval to Industrial, pre 1848
Source	LHER
Description	Two sandstone quarries shown on the OS map of 1848.
Assessment	The site lies outside of the proposed pipeline route, and is not likely to be affected by the associated works.

Site	Elders i' th' Row
Site number	07
NGR	SD 8887 3424
HER number	6399
Statutory Designation	-
Period	?Post-medieval to Industrial, pre 1848
Source	LHER
Description	A farmstead consisting of a cluster of buildings representing the main range with additional detached ancillary buildings and a well was shown on the OS map of 1848, where it was named Lower Monk Hall.
Assessment	The site lies outside of the proposed pipeline route, and is not likely to be affected by the associated works.

Site	Beadle Hill Building
Site number	08
NGR	SD 8899 3406

HER number	34862
Statutory Designation	-
Period	?Post medieval to industrial, pre 1848
Source	LHER
Description	A single building that might have been a small farmstead or an outbuilding, and a nearby well, were depicted on the OS map of 1848, but has subsequently been demolished.
Assessment	The site lies outside of the proposed pipeline route, and is not likely to be affected by the associated works.

Site	Sweet Well House Barrow
Site number	09
NGR	SD 893 340
HER number	4667
Statutory Designation	-
Period	Bronze Age
Source	LHER
Description	This barrow site was excavated in 1887 and 1889 and produced an un-urned cremation. Prior to excavation it was described as being 8m in diameter.
Assessment	The site lies outside of the proposed pipeline route, and is not likely to be affected by the associated works.

Site	Enclosure north-west of Elders i' th' Row
Site number	10
NGR	SD 88842 34254
HER number	-
Statutory Designation	-
Period	?Romano-British
Source	1960s black and white vertical aerial photograph and current colour aerial photographs (LCC 2011b; LCC 2011c); OA North walkover survey
Description	A sub-rectangular enclosure was shown on aerial photographs taken during the 1960s, lying to the north-west of Elders i' th' Row farm. The enclosure was not visible on current aerial photographs and some construction work appears to have occurred within the southern part of the site. There has been modern disturbance to the west of the farmhouse and no earthworks were visible during the walkover survey.
Assessment	The site lies outside of the proposed pipeline route, and is not likely to be affected by the associated works.

Site	Enclosed Field
Site number	11
NGR	SD 89042 34296
HER number	-
Statutory Designation	-
Period	Medieval to post-medieval
Source	1960s black and white vertical aerial photograph and current colour aerial photographs (LCC 2011a; LCC 2011b); OA North walkover survey
Description	A sub-rectangular area defined by linear earthwork boundaries visible on aerial photographs, lying to the south of Monk Hall. Ridge and furrow filled the space and was aligned with the long axis of the field. Only the northern boundary was visible as a low bank during the walkover survey. The boundaries were not shown on the OS mapping of 1848.

Assessment	The site lies close to the proposed pipeline route, and is likely to be affected by the associated works.
Site	Enclosure west of Sweet Well House
Site number	12
NGR	SD 89327 34027
HER number	-
Statutory Designation	-
Period	?Romano-British
Source	1960s black and white vertical aerial photograph and current colour aerial photographs (LCC 2011a; LCC 2011b); OA North walkover survey
Description	A small and highly regular sub-rectangular enclosure was visible on aerial photographs taken during the 1960s, lying to the west of Sweet Well House. The enclosure was not visible on current aerial photographs. This area was observed to be a flat and level plateau during the walkover survey, although no earthworks were visible.
Assessment	The site lies close to the proposed pipeline route, and might be affected by the associated works.

Site	Enclosure east of Elders i' th' Row
Site number	13
NGR	SD 88953 34234
HER number	-
Statutory Designation	-
Period	?Romano-British
Source	Current colour aerial photographs (LCC 2011c); OA North walkover survey
Description	A sub-rectangular enclosure shown on aerial photographs lying to the east of Elders i' th' Row farm. No indication of earthworks was visible during the walkover survey, although the area occupied by the south-western side of the feature has been given over to rough grassland.
Assessment	The site lies within the proposed pipeline route, and is likely to be affected by the associated works.

Site	Stone Wall south-east of Monk Hall
Site number	14
NGR	SD 89119 343555
HER number	-
Statutory Designation	-
Period	Post-medieval to Industrial
Source	OA North walkover survey
Description	A stone revetment wall retaining the terminal plateau of a natural raised tongue of earth and stone formed by water movement. The wall was built from split sandstone slabs and measured 13m long, 0.6m high, and 0.6m wide and lay to the south-east of Monk Hall. The site was not shown on the OS map of 1848 and an apparent stone-covered septic tank lay to the north-east.
Assessment	The site lies outside the proposed pipeline route, and is unlikely to be affected by associated works.

Site	Track west of Monk Hall
Site number	15
NGR	SD 88954 34363
HER number	-
Statutory Designation	-
Period	?Medieval to Post-medieval

Source	OA North walkover survey; OS 1848
Description	A raised trackway measuring 3m wide and between 0.3m and 0.4m high. This was depicted on the OS map of 1848 and might represent an earlier, and more direct, course of Monk Hall Lane.
Assessment	The site lies outside the proposed pipeline route, and is unlikely to be affected by associated works.

Site	Track east of Elders i' th' Row
Site number	16
NGR	SD 89043 34220
HER number	-
Statutory Designation	-
Period	?Post medieval to Industrial, pre 1848
Source	OA North walkover survey; OS 1848
Description	This track was 4m wide and parts of it had been surfaced with brick rubble and tarmac. The track follows the contours marking the distinction between Beadle Hill and Bonfire hill and, although it was shown on the OS map of 1848, it is of uncertain date.
Assessment	The site lies within the proposed pipeline route, and will be affected by associated works.

Site	Well south-east of Monk Hall
Site number	17
NGR	SD 89139 34297
HER number	-
Statutory Designation	-
Period	?Post-medieval to Industrial, pre 1848
Source	OA North walkover survey
Description	A well was shown in this location on the OS map of 1848. The site appeared to be a natural spring and was irregular in shape with no structural fabric being visible. The well measured 3m in diameter.
Assessment	The site lies close to the proposed pipeline route, and might be affected by associated works.

Site	Terraced Track on Pike Lowe
Site number	18
NGR	SD 89423 34301
HER number	-
Statutory Designation	-
Period	?Post-medieval to Industrial
Source	OA North walkover survey; OS 1848
Description	This trackway was terraced into the north-facing lower slope of Pike Lowe and led from the vicinity of one of the former entrances to Monk Hall Quarry towards the higher ground of Bonfire Hill. The track measured between 2m and 2.5m wide and was not shown the OS map of 1848.
Assessment	The site lies within the proposed pipeline route, and is likely to be affected by associated works.

Site	Gravel Pit
Site number	19
NGR	SD 89423 34301
HER number	-
Statutory	

Designation	-
Period	Post-medieval to Modern
Source	OA North walkover survey
Description	This gravel pit was sub-ovoid and measure 7m long and 6m wide and was a maximum of 3m deep. It was situated adjacent to the road and is likely to have been used for gravel extraction in association with the surfacing of the road.
Assessment	The site lies within the proposed pipeline route, and is likely to be affected by associated works.

Site	Kerbed Entrance to Monk Hall Quarry
Site number	20
NGR	SD 89438 34325
HER number	-
Statutory Designation	-
Period	Post-medieval to Industrial
Source	OA North walkover survey; OS 1848
Description	A kerbed edge forms the western side of the former entrance to Monk Hall Quarry. The remaining stretch of kerb stones is 19m long and comprises a single line of dressed sandstone blocks measuring 0.9m long, 0.2m wide, and 0.25m high. A track leading to the quarry was depicted in this area on the OS map of 1848.
Assessment	The site lies within the proposed pipeline route, and is likely to be affected by associated works.

Site	Quarry and Trackway east of Pike Lowe
Site number	21
NGR	SD 89583 34195
HER number	-
Statutory Designation	-
Period	?Post-medieval to Industrial
Source	OA North walkover survey
Description	An area of quarrying pits lies amongst outcropping sandstone between Pike Lowe and an old quarry shown on the OS map of 1848. Numerous hollows are present within an overall area measuring approximately 35m in diameter. A straight hollow way track leads from the current road to the pits and measures 3m wide, 0.3m deep, and 43m long.
Assessment	The site lies within the proposed pipeline route, and is likely to be affected by associated works.

Site	Field Boundaries and Ridge and Furrow north of Monk Hall Lane
Site number	22
NGR	SD 88657 34307
HER number	-
Statutory Designation	-
Period	?Medieval to Post medieval
Source	1960s black and white vertical aerial photograph and current colour aerial photographs (LCC 2011a; LCC 2011b); OS 1848; OA North walkover survey
Description	Field boundaries and co-aligned ridge and furrow was visible on aerial photographs taken during the 1960s, lying to the north of Monk Hall Lane. The features were not as conspicuous on current aerial photographs. There was little indication of earthworks in this area during the walkover survey, with the exception of field boundary banks that were shown on the OS map of 1848. These survived as low grassed linear earthworks aligned north-west/south-east, perpendicular to Monks Lane.

Assessment The site lies close to the proposed pipeline route, and might be affected by associated works.

6. ARCHAEOLOGICAL RECOMMENDATIONS

6.1 INTRODUCTION

- 6.1.1 Ten sites have been identified that lie within, or close to, the proposed pipeline routes. These are the enclosed field (Site **11**); enclosure west of Sweet Well House (Site **12**); enclosure east of Elders i' th' Row (Site **13**); track (Site **16**); well (Site **17**); terraced track (Site **18**); gravel pit (Site **19**); kerbed entrance to Monk Hall Quarry (Site **20**); a quarry and trackway (Site **21**), and field boundaries and ridge and furrow (Site **22**). Intrusive ground works associated with the proposed development present the potential for negative impacts upon these sites, in the form of damage and destruction to the physical remains.
- 6.1.2 The enclosed field (Site **11**), track (Site **16**), well (Site **17**), terraced track (Site **18**), gravel pit (Site **19**), the kerbed entrance to Monk Hall Quarry (Site **20**), and the quarry and trackway (Site **21**) are all represented by visible earthworks. If any remains associated with the enclosure west of Sweet Well House (Site **12**), or the enclosure east of Elders i' th' Row (Site **13**) survive, they will be represented by sub-surface features. The field boundaries and ridge and furrow (Site **22**) to the north of Monk Hall Lane appear as slight banks and most of the physical evidence for these features will lie below ground.
- 6.1.3 In addition to these sites, parts of the proposed pipeline routes cross areas where there is an extremely high likelihood for previously unrecognised sites of archaeological significance to be present. The national importance of the class of monument represented by the tumuli on Bonfire Hill (Sites **01** and **02**) is reflected by their designation as Scheduled Monuments (nos 23725 and 23726, respectively) and further sites of this type might be present within their vicinity. The sites on Bonfire Hill (Sites **01** and **02**) are extremely slight and difficult to discern, as a result of their severe reduction by cultivation (Plates 10 and 11). It is possible, therefore, that previously unidentified barrows even more severely ploughed-out, and which are represented only by sub-surface remains, could exist within the area.

6.2 RECOMMENDATIONS

- 6.2.1 It is recommended that a programme of archaeological work comprising a number elements is undertaken in order to ensure the preservation by record of the remains or potential remains discussed above.
- 6.2.2 **Archaeological watching brief:** given the high sensitivity and abundance of prehistoric sites within the study area and the wider vicinity, and in addition to the specific sites detailed in Table 2 below, it is recommended that a watching brief should be undertaken during all ground works such as topsoil stripping, within all areas that do not fall within a highway or within previously disturbed ground.

Site	Recommendations
Enclosed field (Site 11)	Topographic survey
Enclosure West of Sweet Well House (Site 12)	Watching brief
Enclosure East of Elders i' th' Row (Site 13)	Watching brief
Track (Site 16)	Topographic survey
Terraced Track (Site 18)	Topographic survey
Gravel Pit (Site 19)	Topographic survey
Kerb stone entrance to Monk Hall Quarry (Site 20)	Topographic survey
Quarry and trackway (Site 21)	Topographic survey
Field boundaries and ridge and furrow (Site 22)	Watching brief of field boundary in order to produce a section drawing, and topographic survey of both

Table 2: Archaeological recommendations for gazetteer sites

- 6.2.3 **Geophysical survey:** tumuli, or burial barrows, are sited consistently in prominent elevated locations, as is demonstrated locally by the distribution of numerous sites in the immediate vicinity of the study area. Although it is possible that barrows might also exist within other parts of the study area, Bonfire Hill holds the highest potential for further sites based on existing evidence. Therefore, a geophysical survey should be undertaken along the proposed route of the pipeline on Bonfire Hill and to the south of Pike Lowe, in those areas at or above the 300m contour in order to identify remains of any such sites.
- 6.2.4 **Archaeological trenching:** although mole-ploughing has been suggested as a possible technique for the laying of the pipe, this method would still constitute a severe threat to sub-surface remains associated with barrow sites. Therefore, archaeological evaluation trenches should be excavated within areas where anomalies suggestive of human activity are identified by the geophysical survey. If a pipe trench is to be excavated rather than mole ploughing, then the route of the pipeline on Bonfire Hill and to the south of Pike Lowe, again in those areas at or above the 300m contour, should be subject to controlled strip and record investigation under the direction of an archaeologist.
- 6.2.5 **Mitigation by design:** due to the high level of damage that would affect the well (Site **17**) if it was truncated by the pipeline, which would be likely to amount to almost complete destruction, it would be beneficial if the pipeline and associated works were routed to avoid this site. The barrows (Sites **01** and **02**) on Bonfire Hill and near to Sweet Well Farm (Site **09**) exist as very slight earthworks and could be easily subject to accidental damage as a result of the movement of vehicles or equipment. The scheduled extents of these

monuments should be clearly demarcated as exclusion zones during the pipeline works.

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8. ILLUSTRATIONS

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Figure 2: Gazetteer sites plan

Figure 3: Proposed routes superimposed upon an extract from the Ordnance Survey First Edition 6" : 1mile map of 1844

Figure 4: Proposed routes superimposed upon an extract from the Ordnance Survey First Edition 25" : 1mile map of 1891

Figure 5: Proposed routes superimposed upon an extract from the Ordnance Survey Third Edition 6" : 1mile map of 1913

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Plate 10: The barely perceptible raised area representing a plough-damaged barrow (Site **01**)

Plate 11: A second faint rise area representing plough-damaged barrow (Site **02**)

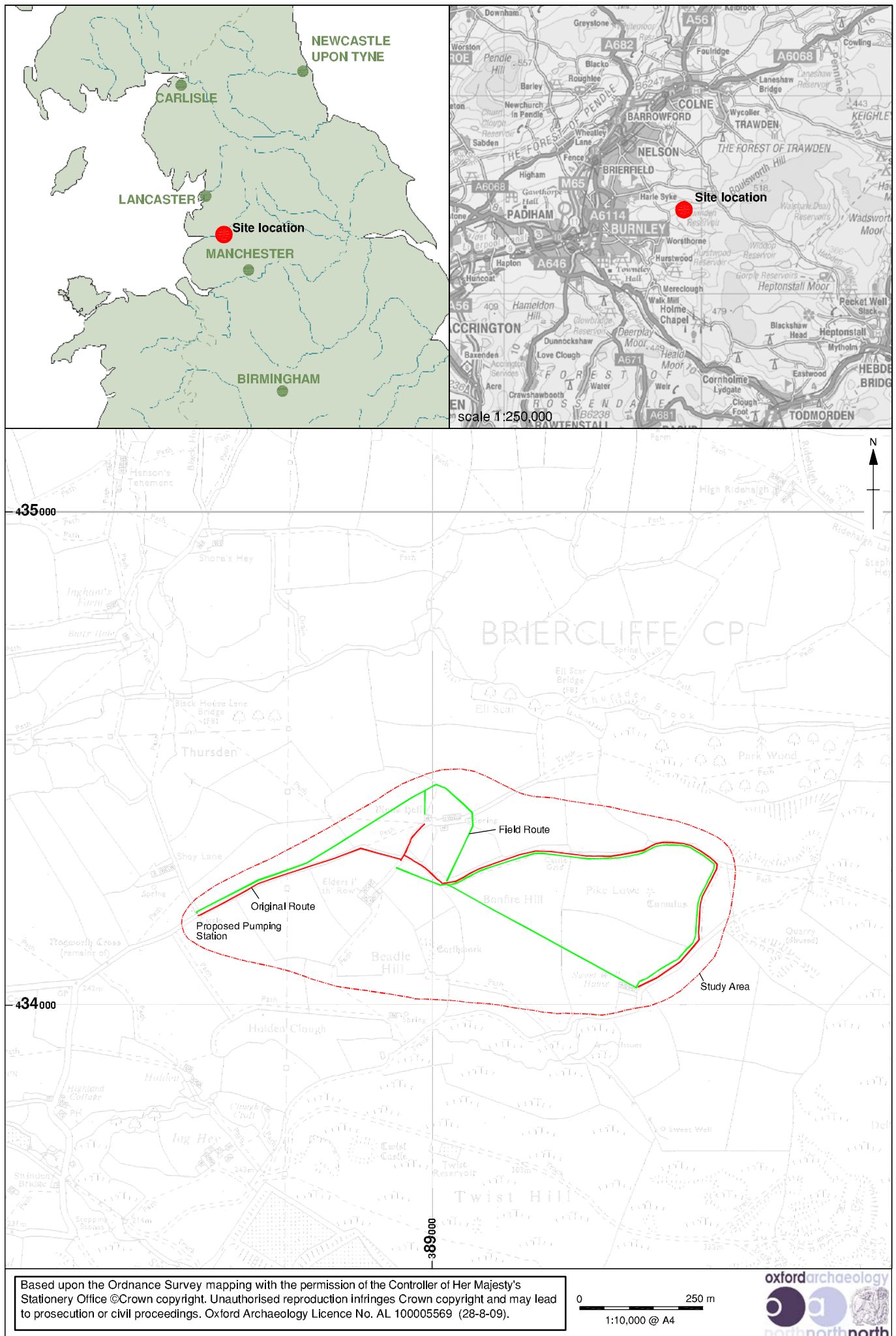


Figure 1: Site location

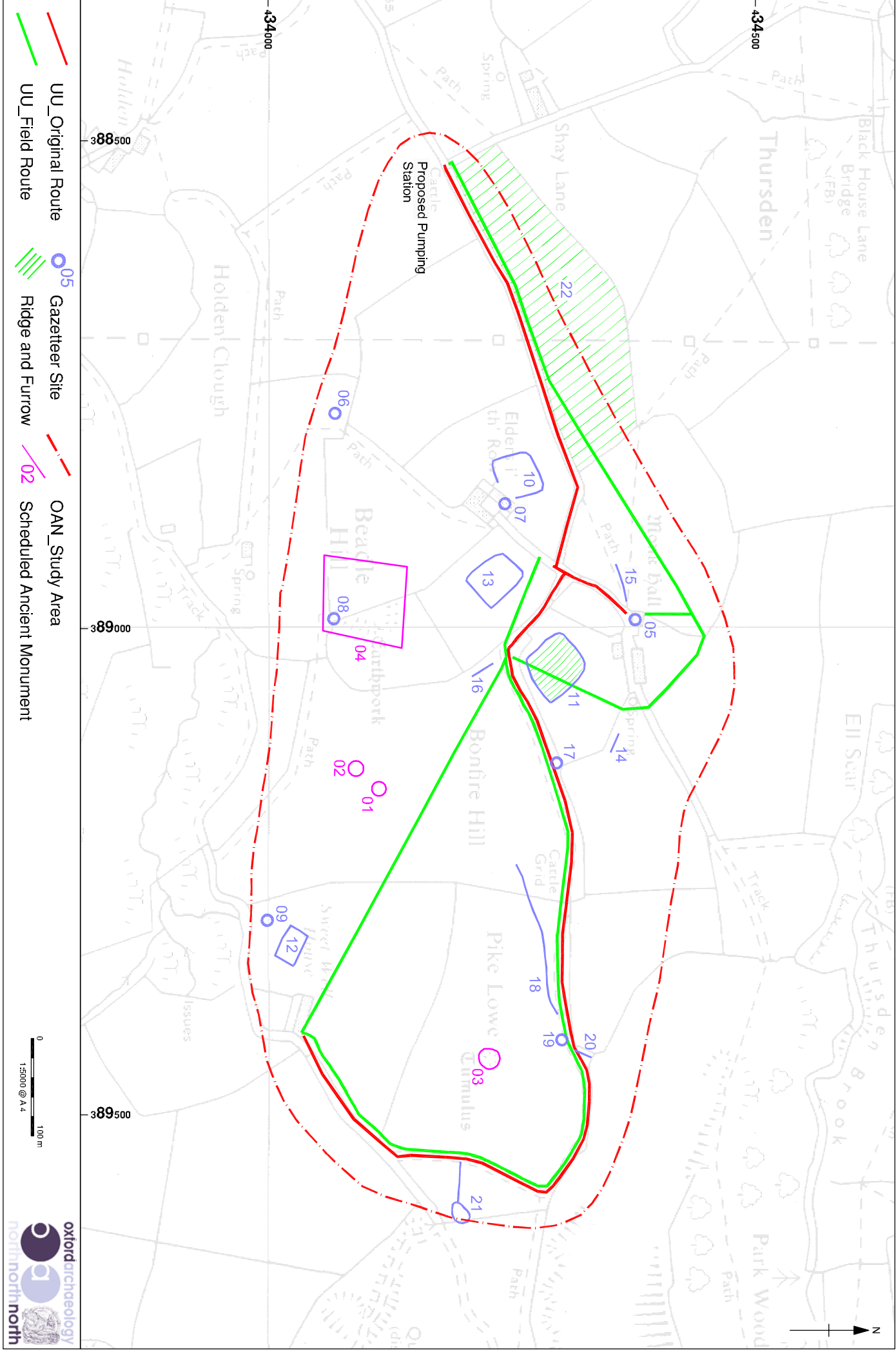


Figure 2: Gazetteer sites plan

Figure 3: Proposed routes superimposed upon an extract from the Ordnance Survey First Edition 6"-1 mile map, 1844

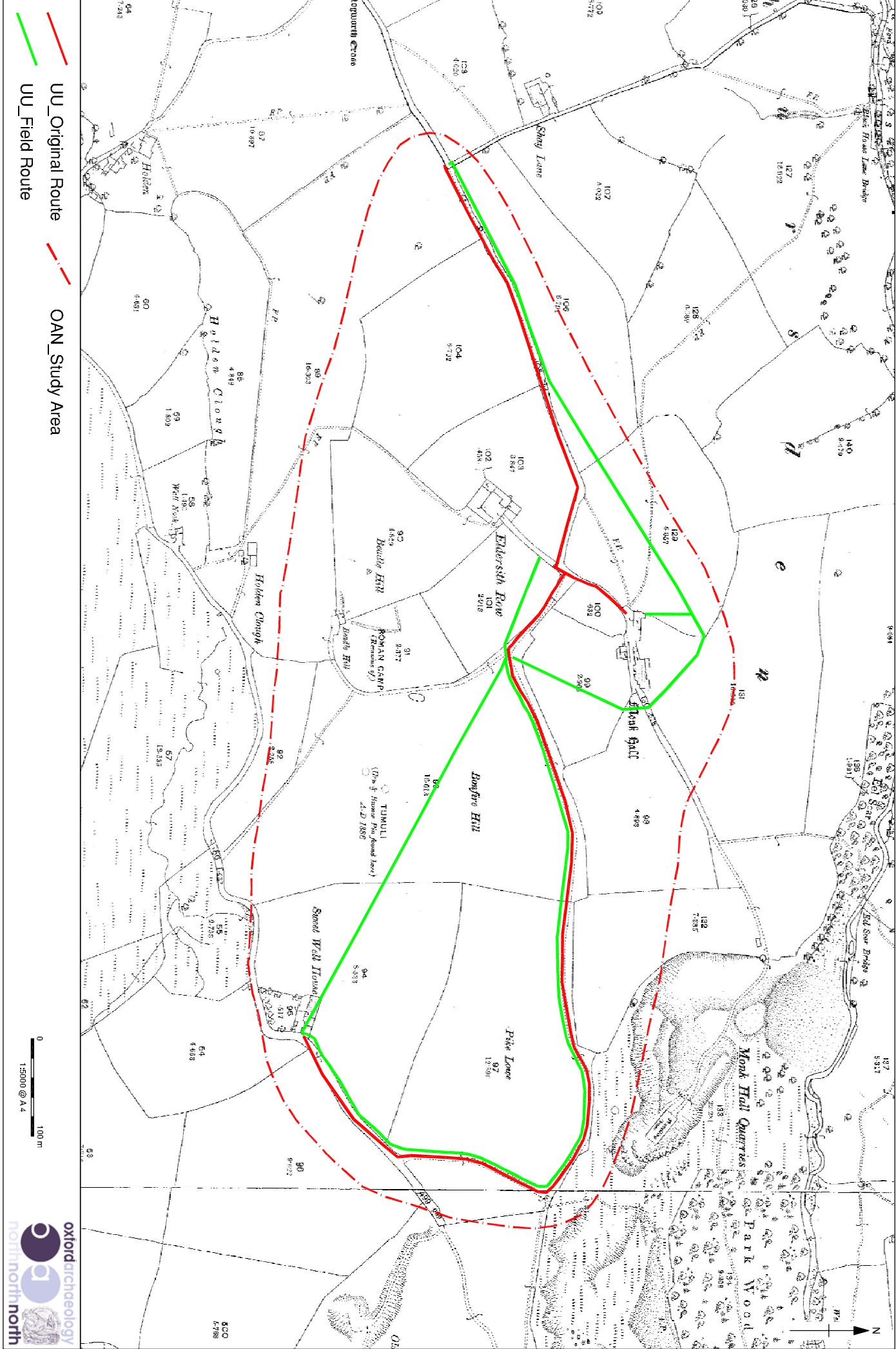


Figure 4: Proposed routes superimposed upon an extract from the Ordnance Survey First Edition 25"-1 mile map, 1891

Figure 5: Proposed routes superimposed upon an extract from the Ordnance Survey Third Edition 6"-1 mile map, 1913