Maulds Meaburn, Cumbria

Archaeological Watching Brief and Excavation

Oxford Archaeology North

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Prepared by:	Andrew Frudd	Andrew Bates	John Zant
Position:	Supervisor	Project Officer	Post-excavation Project Officer
Date:	July 2012		
Approved by:	Alan Lupton	Signed.....	
Position:	Operations Manager		
Date:	July 2012		

Oxford Archaeology North
Mill 3
Moor Lane Mills
Moor Lane
Lancaster
LA1 1GF
t: (0044) 01524 541000
f: (0044) 01524 848606

w: www.oxfordarch.co.uk
e: info@oxfordarch.co.uk

Janus House
Osney Mead
Oxford
OX2 0EA

t: (0044) 01865 263800
f: (0044) 01865 793496

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SUMMARY

Following proposals by United Utilities to construct a *c* 13km long flow transfer structure pipeline from Crosby Ravensworth through Maulds Meaburn, to the south-west of Colby in Cumbria (NGR NY 362134 513956 to NY 3666557 520400), Oxford Archaeology North (OA North) were commissioned to undertake a rapid desk-based assessment of the route. The results of this research highlighted, in particular, the village of Maulds Meaburn (NY 3625 5165), a Conservation Area, parts of which are also afforded statutory protection as a Scheduled Monument (SM 32844). The Scheduled Monument includes a millrace, running south from the former Maulds Meaburn corn and saw mill, which the proposed route of the pipeline would cross on an east/west alignment, before continuing south along the roadway parallel to the course of the millrace. Following the results of previous desk-based research (OA North 2009), Cumbria County Council's (CCC) Historical Environment Officer requested that a watching brief be undertaken during topsoil stripping activities in areas of previously undisturbed ground. An archaeological watching brief was also requested by English Heritage's Inspector of Ancient Monuments (North West region) for the duration of the works adjacent to the course of the millrace, which would assess the nature and extent of any surviving archaeology. The fieldwork for most of the route was undertaken between January and May 2011 with few significant results (OA North 2011), but this phase of work did not include crossing the scheduled mill race.

Consequently, an additional watching brief phase was also required by English Heritage and CCC on the north side of the former mill, where the pipeline crossed the course of the mill's tail-race. Following an adjustment to the route of the pipeline, a watching brief, which subsequently developed into a small excavation, was maintained by OA North from January to March 2012 across the scheduled area immediately south of the modern road (Brackenslack Lane), and below the modern surface of the road itself, where the pipe crossed the tail-race. The area beneath the road lay outside the scheduled monument, but archaeological investigation and recording was conducted to the same standard whether within or without the scheduled area, in order to ensure consistency in methodology and results. In summary, the excavation revealed two earlier cobbled road surfaces, preceded by a possible clay and shale-surfaced trackway, below the modern road. A small ditch, the fill of which yielded a medieval potsherd, and another ditch (or pit) containing nineteenth-century pottery were also found, cutting the natural gravels. Both surfaces appeared to be of nineteenth-century (or later) date. The latest road had been cut through at some point in the nineteenth/tewentieth century in order to access the tail-race, probably for the purposes of cleaning, repair and maintenance.

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For OA North, Andrew Frudd, Paul Dunn, David Maron and John Onraet undertook the watching brief and excavation, and the report was written by Andrew Frudd, Andrew Bates and John Zant. Mark Tidmarsh produced the illustrations, and Chris Howard-Davies assessed the finds. Alison Plummer and Alan Lupton managed the project and the latter also edited the report.

1 INTRODUCTION

1.1 Circumstances of the Project

1.1.1 In 2009, United Utilities applied for planning permission for the construction of a *c* 13km-long flow transfer structure pipeline, to run from Crosby Ravensworth, through Maulds Meaburn to the south-west of Colby, in Cumbria (NGR NY 362134 513956 to NY 3666557 520400; Fig 1). Cumbria County Council's Historical Environment Officer requested a desk-based sssessment be carried out to assess the impact of this development upon archaeological remains. This was completed by OA North, on behalf of United Utilities, in 2009 (OA North 2009).

1.1.2 The desk-based assessment indicated that the pipeline route passed through the area of a Scheduled Monument (SM 32844), namely Maulds Meaburn medieval settlement, associated open field system and millrace (NY 3625 5165), the latter running south from the former Maulds Meaburn corn and saw mill. Consequently, the CCC Historical Environment Officer requested that a watching brief be undertaken during topsoil stripping activities in areas of previously undisturbed ground and an archaeological watching brief was also requested by English Heritage's Inspector of Ancient Monuments (North West region) for the duration of the works adjacent to the course of the millrace, which would assess the nature and extent of any surviving archaeology.

1.1.3 The fieldwork for most of the route was undertaken between January and May 2011 with few significant results (OA North 2011), but this phase of work did not include crossing the scheduled mill race. Subsequently, OA North was commissioned to undertake a further watching brief in the northern part of the village, where the pipeline was to cross Brackenslack Lane, immediately north of the former corn and saw mill. During the course of these works, which were was carried out between January and March 2012, it became apparent that the pipe would have to cross the line of the mill's tail-race, and this was confirmed by the excavation of an exploratory archaeological test pit. Subsequently, permission was sought from English Heritage to allow the pipe to be inserted across the tail-race. Consent was granted, on condition that the race was reinstated as closely as possible to its previous form after the works were completed. A small archaeological excavation of the affected area was therefore undertaken prior to the pipe being inserted, followng which the tail-race was carefully reinstated.

1.2 Location and Topography

1.2.1 The route of the proposed pipeline (Fig 1) ran from a point to the south of the village of Crosby Ravensworth, Cumbria, in a northerly direction to the centre of the village, where a short section of the pipeline branched off to the west along Harberwain Lane. Further towards the village church the pipeline again branched off, this time to the east, along Silver Street. The main pipeline followed the road northwards to Maulds Meaburn as far as Low Bridge, where the route split, before turning east to follow Brackenslack Lane as far as the junction with Long Rigg, where it followed a track and turned sharply north/north-

west through fields as far as Fousonrigg Plantation. The route then turned sharply eastwards along a lane past Teas Bridge, terminating in Colby village to the south of Hill Top Farm.

1.3 Historical Background

1.3.1 A detailed account of historical and archaeological knowledge for the whole of the pipeline riute was presented in the desk-based assessment (OA North 2009). The following section provides a summary of the historical and archaeological background pertaining to Maulds Meaburn, including the corn and saw mill.

Period	Date Range
Upper Palaeolithic	30,000–10,000 BC
Mesolithic	10,000–4,000 BC
Neolithic	4,000–2,500 BC
Bronze Age	2,500–700 BC
Iron Age	700 BC–AD 43
Romano-British	AD 43– 410
Early Medieval	AD 410–1066
Late Medieval	AD 1066–1540
Post-medieval	AD 1540– 1750
Industrial Period	AD1750 – 1901
Modern	1901-present

Table 1: Summary of British archaeological periods and date ranges

1.3.2 ***Prehistoric–early medieval periods:*** although there are numerous archaeological sites of these periods in the general area, including several scheduled monuments, there are none recorded within the immediate area of the mill.

1.3.3 ***Later medieval period:*** Maulds Meaburn, a village with medieval origins, is a designated Conservation Area, and large parts of the modern settlement are also afforded statutory protection as a Scheduled Monument (SM 32844). Visible traces of the medieval village, which was seemingly larger than the modern settlement, survive at various points, especially on the west side of the village. An indistinct series of banks, some forming roughly rectangular enclosures, are visible, but no clear pattern is evident. The scheduled area includes these earthworks as well as sub-surface remains of the medieval settlement, together with part of its associated field system and a millrace, which extends south from the former corn and saw mill. Although the date of earliest settlement on the site is unknown, it is unlikely to have pre-dated the Norman occupation of the region in the later eleventh century. The plan is typical of medieval settlements in this part of Cumbria, where two parallel lines of tofts or houses face the main street, with crofts or gardens behind and back lanes to the rear, running parallel with the main street (Roberts and Wrathmell 2002). Beyond these lanes, lay open, communal fields where crops were grown, whilst to the south the village green broadened out into a driftway leading south-eastwards to the common grazing land. The scheduled remains comprise abandoned tofts and associated earthwork features which pre-date the existing post-medieval field system (Winchester 1987, 48-49).

1.3.4 Court records from 1472 (Maulds Meaburn Court Roll CROK D/LONS/L5, Court roll 12 Ed IV) highlight three main aspects in the development of Maulds Meaburn. Firstly, there is an indication that by this date there were seven 'unbuilt' tofts within the village. It has been speculated that these represent a quarter of the holdings in the village and that they may relate to some of the earthworks, although which is unknown (Winchester 1987, 48-49). Whether the tofts had never been built upon, or had previously been occupied prior to abandonment sometime before the 1470s, is not known. On the one hand, it is possible that the village was a planned settlement, perhaps established in the twelfth century, where uptake of properties was never fully realised. Alternatively, previously occupied tofts may have been abandoned subsequently due to demographic changes, conceivably associated with the plagues, murrains, and Scottish raids attested during the fourteenth century (OA North 2002, 6).

1.3.5 Secondly, the documents make clear that Maulds Meaburn would have been under the jurisdiction of several administrative organisations (OA North 2002): the church, organised into parishes (in this case the parish of Crosby Ravensworth), to which the tithes were paid; the Crown, which owned land in the vicinity, such as Kings' Meaburn, to the north; and, finally, the manor. It was the latter that would probably have had the most direct impact on the everday lives of the inhabitants of Maulds Meaburn, as services were owed to the lord and the manor was the most immediate recourse to justice, with regular local courts being held.

1.3.6 Lastly, there are records of the bovate (areas of land) holdings, showing the number and size of landholdings of various times. A comparison of available data suggests that around 1240 the village had 28 bovates, with 27 being recorded in 1472, suggesting that the size of the village remained stable from the thirteenth to fifteenth centuries (OA North 2002, 7).

1.3.7 ***Post-medieval period:*** the Muster Roll taken in 1595, which gives a list of musterable men (between the ages of 16 and 60) for Maulds Meaburn, records there were 39 archers with horses, and 59 tenants who could go as footmen (infantry). In addition to these men, there were 28 others who were not tenants (Muster Roll for Maulds Meaburn 1595 (CRO(C)). The Hearth Tax of 1669-1672 recorded 39 hearths in Maulds Meaburn, with 11 properties being exempt. Of these, 34 properties had only one hearth each; one property, Meaburn Hall, had five hearths (Hearth Tax (CRO(C)).

1.3.8 There is some information for demographic trends in the village in the post-medieval period. For instance, the Coale Rent for Michaelmas 1704 showed that 45 people paid, and a list of their names is given (CRO D/LONS/L Am3). In the nineteenth century, census information and lists in local directories show that in 1829 there were 287 residents in Maulds Meaburn (Parson and White 1829) and 305 in 1891 (Kelly 1894). The enclosure of land in Maulds Meaburn was given consent by Parliament in 1822 and much of the land was divided among landowners in the village (CRO (K) WD/HH/38b).

1.3.9 ***Industrial period:*** the former corn and saw mill at Maulds Meaburn forms part of the scheduled monument. It is now a private residence, but retains the upper of two waterwheels. Marshall and Davies-Shiel (1977) describe it as the oldest dated (and still recognisable) corn mill in the county that still retains its kiln tile and runner stones, although no mill machinery survives. It was the manorial mill and bears the Lowther crest,

together with the date 1690.

1.3.10 Other monuments in the village include farms, farmsteads and stepping stones, a weir and a commemorative monument marking the parental home of Joseph Addison (1672-1719), the essayist and poet. There are also diverse earthworks in the field where the monument stands.

2 METHODOLOGY

2.1 THE WATCHING BRIEF AND EXCAVATION

2.1.1 Initially, a 3 x 1m test pit was de-turfed by hand, following which modern deposits were excavated using a backhoe loader mechanical excavator, down to the top of the tail-race, which was hand cleaned to determine its dimensions and alignment. Subsequently, the topsoil within the scheduled area south of Brackenslack Lane was stripped by a 20-ton, 360º mechanical excavator fitted with a toothless ditching bucket. The pipe trench was excavated by the same machine, utilising a toothed bucket, to a maximum width of *c* 3m (due to the presence, in some areas, of boulders up to 1m in diamter in the natural gravels) and a depth of *c* 2m. A digital photographic record was maintained during all works within the scheduled area.

2.1.2 Where the pipe trench crossed the tail-race, beneath and adjacent to Brackenslack Lane, an area measuring approximately 28m^2 was excavated (Fig 2), in order to ensure that archaeological deposits could be adequately recorded and understood without the need for additional, potentially piecemeal, excavation and recording. Modern deposits within this area were excavated mechanically using a ditching bucket, below which all archaeological remains were cleaned and excavated by hand.

2.1.3 The tail-race lies within the area of the scheduled monument only up to the edge of the modern road; beneath the road, the remains lie outside the scheduled area. However, in order that the methodology and results should be as consistent as possible, both parts of the feature, scheduled and unscheduled, were treated in the same way. Written context descriptions, using *pro forma* context record sheets, and hand-drawn plans, sections and (where appropriate) elevations were made of all archaeological features and deposits, and a full photographic record was made.

2.1.4 Once recording was complete, a small section of the tail-race was carefully dismantled by Waitings and OA North staff with the assistance of a mechanical excavator fitted with a lifting strap. Finally, in accordance with English Heritage's instructions, the race was carefully reconstructed as closely as possible to its original form, using the original materials. Some of the original capping stones could not, however, be reused, as they were found to have cracked in the past, and so fragmented during the lifting process.

2.2 THE ARCHIVE

2.2.1 A full, professional archive has been compiled in accordance with the project design for the works (*Appendix 1*), and with IfA and English Heritage guidelines (English Heritage 1991). The paper and digital archive of the original field records and supporting information, together with a copy of this report, will be deposited with the County Record Office in Carlisle, and an index to the archive, will be submitted in digital format to the Cumbria HER in Kendal.

3 RESULTS

3.1 INTRODUCTION

3.1.1 In total, an area measuring *c* 28m^2 was excavated at the point where the pipeline crossed the former mill's tail-race. This section provides an overview of the archaeological remains encountered during the works, beginning with the stratigraphically earliest recorded deposits; detailed context descriptions may be found in *Appendix 2*. Coherent features or structures, such as the tail-race itself, have been allocated Stratigraphic Group (SG) numbers, within which all contextual elements of each feature/structure are described.

3.2 DITCH *139* AND FEATURE *164*

3.2.1 The stratigraphically earliest features recorded were a small ditch or gully (***139***), located in the extreme north-east corner of the trench, and what may have been either the southern terminal of a second ditch, or a pit (***164***), which extended into the site from the north (Fig 2). Both these features had been dug into the natural gravels (***137***). Ditch ***139*** was 0.6m wide and 0.1m deep (Pl 1), and was aligned north-west/south-east, roughly parallel to the tail-race itself (SG ***168***; *Section 3.5*). The latter lay *c* 3.5m to the west, though the two features had no direct stratigraphic relationship. Because of its location, within the extreme north-east corner of the site, the ditch was traced for only 1.5m, but extended north-west and south-east beyond the limits of the investigation. It was filled with mid-grey silt (***138***), from which a small fragment of fourteenth-sixteenth century pottery was recovered. The ditch was ultimately sealed by deposits associated with the earliest of the two phases of cobbled road surface (SG ***172***; *Section 3.3*). Its precise significance remains unclear, but it could conceivably represent part of a medieval property boundary or field boundary. However, the presence of a single medieval sherd in the fill does not prove a medieval date for the feature.

3.2.2 Feature ***164*** was located on the northern edge of the site (Fig 2). It may have lain largely north of the excavated area, since it extended into the trench for only 0.7m. If part of a ditch, the excavated fragment must have represented the south terminal, though it might equally have been a small pit, the northern half of which lay outside the site. Whatever its precise form, that part of the feature available for investigation was 0.66m wide and 0.3m deep (Pl 2), and was filled with cobbles and gravel (***163***). It had been dug into the natural gravel (***137***) and was sealed by cobbles associated with a probable widening of the first phase of the cobbled road (deposit ***124***, SG ***172***; *Section 3.3.2*). Indeed, it is possible that its filling was associated with this episode of road widening. Significantly, fill ***163*** yielded nineteenth-century pottery (together with some animal bones), demonstrating that not only this feature, but also all other stratigraphically later features and deposits recorded on the site (including the widened phase of primary road surface SG ***172*** and secondary surface SG ***169***) must date to the nineteenth century or later.

*Plate 1: Ditch **139**, fully excavated, looking south*

*Plate 2: Feature **164,** looking north*

3.3 THE FIRST ROAD (SG *172*)

3.3.1 Ditch ***139*** (*Section 3.2.1*) was sealed by a deposit of grey-brown sandy gravel (***136***; not illustrated), up to 0.15m thick, which lay directly above the natural gravel. This was in turn overlain by a 0.2m-thick layer of compacted material (***135***; Pl 3) comprising blue-grey clay mixed with degraded shale and stone fragments. These deposits were confined largely to the area beneath the later cobbled road surfaces (*Section 3.3.2*), and it is possible that they represented the remains of a road or track surface that pre-dated the earliest cobbling, though this is far from certain.

*Plate 3: Putative surface **135**, looking south*

3.3.2 Directly overlying ***136*** was a well-laid cobbled surface (***123***), up to 0.3m thick (Fig 2; Pl 4), edged on the north and south by kerbs constructed of large, roughly-squared sandstone slabs and blocks (***122***). In total, the surface of this east/west-aligned road or lane (SG ***172***) was approximately 2.4m (or around eight feet) wide, including the kerb stones Later, however, the road appears to have been widened, which was effected by the laying of another cobbled surface (***124***) on the north (Fig 2), beyond (but abutting) the northernmost kerb. This surface was located on the extreme northern edge of the site, and extended beyond the investigated area in that direction, so the full width of the road at this time is not known, though it was in excess of 3m. The primary cobbled surface, together with deposits ***135*** and ***136*** beneath it, yielded no dating evidence, but nineteenth-century pottery came from the road widening (surface ***124***), and this deposit also sealed feature ***164***, which itself contained pottery of nineteenth-century date (*Section 3.2.2*).

3.3.3 On the east, road SG ***172*** extended beyond the site, whilst to the west, its surface had been removed by disturbance relating to subsequent maintenance of the tail-race (Fig 2; Pl 4; *Section 3.5.4*). In all, a stretch of the road up to 3.5m in length was available for

investigation. Just inside the eastern limit of the site, a line of three sandstone slabs, each 0.1-0.15m thick, had been laid laterally across the road (Fig 2). These had been set, edge-on, into the primary cobbled surface (***123***), so that their top edges were flush with the cobbling, It seems likely that this feature ran across the full width of the primary road, between the northern and southern kerbs, but later disturbance had removed both it and the southern kerb at the point where the two would have met. Its purpose is not clear, particularly as the road surface to the east had been disturbed. One possibility is that it formed the western edge of a small, stone-lined channel running across the road, or it may have been constructed at a point where the road surface was stepped slightly; however, there was no convincing evidence to support either hypothesis.

*Plate 4: Primary road SG **172,** looking south-east, showing cobbled surface **123** and stone kerbs **122**. Note removal of road surface on the west (right) by disturbance associated with maintenance of tail-race SG **168***

3.4 THE SECOND ROAD (SG *169*)

3.4.1 Overlying SG ***172*** was a 0.2m-thick deposit of clay-sand and cobbles (***126***; not illustrated), which also extended (as deposit ***116***=***125***) up to 1m south of the road's southern kerb (Fig 2). What may have been a fragment of the same deposit (***129***) was also recorded on the extreme western edge of the trench. With the exception of ***129***, which was both stratigraphically isolated and truncated by later disturbance associated with refurbishment of the tail-race (*Section 3.5.4*), this material was in turn overlain by a new road surface (SG ***169***; Pl 54) of cobbles (***105***), up to 0.2m thick, edged by stone kerbs (***106***, ***107***). In this phase, the road, though very similar in character to the construction of primary road SG ***172***, was considerably wider, at *c* 3.8m, including the kerbs. Two parallel wheel-ruts (***113***), 2.2-2.4m long, 80-120mm wide and 0.1m deep, were visible in the surface of the cobbling (Pl 5), aligned east to west and set 0.9-1m apart. These had been infilled with a stony deposit (***115***), probably to effect a repair to the road surface. Finds included nineteenth-

century pottery and a highly eroded, illegible, copper alloy coin from underlying deposit ***126***.. As was the case with the primary road, SG ***169*** extended beyond the limit of the investigation to the east, and was cut away on the west by disturbance associated with maintenance of the tail-race (SG ***168***; *Section 3.5.4*).

*Plate 5: Road SG **169**, looking east, showing cobbled surface **105** and stone kerbs **106**, **107**. Two parallel wheel ruts (**113**) are just visible in the road surface*

3.5 THE TAIL-RACE (SG *168*)

3.5.1 The tail-race for the corn and saw mill at Maulds Meaburn ran diagonally, north-west to south-east, across the entire site, a distance of *c* 7m, and was fully exposed within the excavated area. Although the mill itself is known to date back at least to the late seventeenth century (*Section 1.3.9*), the precise date at which the excavated segment of the tail-race was constructed is unclear, since later disturbance, seemingly associated with a nineteenth- or twentieth-century refurbishment of the feature (*Section 3.5.4*), had removed all primary stratigraphic relationships between the surviving fabric of the race and the adjacent archaeological deposits, including those associated with roads SG ***172*** and SG ***169***. However, the channel itself proved to be generally well preserved (Fig 2; Pl 6), its sides lined with up to three courses of unmortared, dressed, sandstone blocks (***170***, on the eastern edge of the channel, ***171***, on the west; Fig 3). The largest blocks used (mostly, but not exclusively, in the lower course) measured up to 1 x 0.4 x 0.3m, but most were smaller, with considerable variation evident in both size and shape. Internally, the channel was 0.6-0.65m wide and up to 0.6m deep, and it had been capped with large, roughly-dressed, rectangular sandstone slabs (***134***; Pl 7). Most of the latter were 1-1.2m long, 0.35-0.4m wide, and 0.1-0.2m thick..

*Plate 6: The tail-race for the former corn and saw mill (SG **168**), looking south-east, with capping stones removed, showing stone lining **170/171***

*Plate 7: Tail-race SG **168**, looking north-west, showing capping stones **134***

3.5.2 In the stonework of the the channel's eastern edge (***170***), two masons' marks were recorded on adjacent stone blocks that had been built into the uppermost course (Fig 3: Pl 8). It is of some interest that identical marks are visible on the masonry of Low Bridge, which spans the River Lyvennet only 30m or so west of the excavation (*Section 5.3.3*). The bridge dates to the seventeenth century, and what may be some of the original stonework is visible in the arch on the north side of the bridge. It was, however, extensively rebuilt in 1853, and much of the extant masonry clearly dates to this period. Unusually, masons' marks of the kind found in the tail-race occur on both the putative seventeenth-century masonry and on the nineteenth-century work. The possible reasons for this are discussed elsewhere (*Section 5.3.3-4*), but, in terms of dating the construction of the tail-race, it means that it is not possible to know whether the masons' marks indicate a definite nineteenth-century date for the surviving stonework, or if the extant channel is potentially much earlier.

*Plate 8: Masons' marks on stonework (**170**) in the eastern side of the tail-race channel (SG **168**)*

3.5.3 Ultimately, the channel became heavily silted, to a depth of *c* 0.4m, with grey-brown silty sand and gravel (***143***/***145***), 50-80mm thick, overlain by a clean, blue-grey silt (***142***/***144***), up to 0.35m thick. Both deposits yielded a range of mostly nineteenth century and modern artefacts, including a halfpenny of George VI (1936-52) from layer ***143*** (*Section 4.3.1*).

3.5.4 The late date of the channel silts accords with the stratigraphic evidence from within the excavated area, which demonstrated that the exposed section of the tail-race was refurbished at a relatively late date, certainly no earlier than the nineteenth century, and quite possibly during the twentieth century, perhaps even immediately prior to the construction of the modern tarmac road. To access the channel, a trench (***118***), up to 2.5m wide was dug along the line of the tail-race, down to the top of the capping stones (Fig 2). This cut through the cobbled surface and kerb stones of road SG ***169***, the latest of the two

recorded cobbled roads (which was itself of nineteenth-century or later date), removing the road surface completely, as well as the underlying surface of the primary road (SG ***172***). Presumably, this was done in order to clean out the channel, and/or to effect repairs, though, apart from the fact that the silts remaining in the channel had clearly accumulated fairly recently (*Section 3.5.3*), no clear evidence for this was noted. Before the trench was infilled, a single course of very crude, unmortared stonework, comprising large, roughly-squared sandstone blocks set, in some instances, on flat sandstone slabs (Pl 9) was laid on either side of the tail-race channel (***119*** on the east, ***120*** on the west), offset slightly outside the line of the channel's original stone lining and above the level of the capping stones. On both sides, the remaining space between this masonry and the edge of the trench cut was filled with gravel and cobbles (***127***, ***128***), whilst the space between stonework ***119*** and ***120*** was filled with coarse rubble and cobbles (***121*** beneath ***109***/***132***). This had been deposited on top of the capping stones of the tail-race channel (Pl 9), and may have been retained on the south by two large, roughly-dressed sandstone blocks (***117***), laid laterally across the tail-race, which also sat directly on top of the capping stones (Fig 2; Pl 10). Both ***109***/***132*** and ***117*** lay beneath make-up and hardcore deposits (***110***, ***111***, ***150-7***, ***159-162***, ***165***) associated with the construction of the modern tarmac road surface (***112***).

*Plate 9: Disturbance to road SG **169** caused by a late refurbishment of tail-race SG **168**, looking east. Note stone 'lining' **119** on the east side of cut **118**, and rubble fill **121** overlying the tail-race capping stones (**134**)*

3.5.5 A poorly preserved, east/west alignment of large, roughly-hewn, sandstone blocks (***114***), bonded with a pale lime mortar, also crossed the line of the tail-race, immediately south of ***117*** (Fig 2; Pl 16), and was traced, east to west, across most of the excavated area, a distance of *c* 4m. This feature was up to 0.6m wide, with the individual stone blocks measuring up to 0.9 x 0.6 x 0.3m, and somewhat resembled the stone kerbs of roads SG ***172*** and SG ***169*** (*Section 3.3.2*; *3.4.1*), though it was located approximately 1m south of those features, and was clearly constructed late in the stratigraphic sequence. It may have been related to the construction of the modern tarmac road, perhaps defining or retaining

the southern edge of the road (or its make-up deposits) in an early phase, though this is not entirely certain.

*Plate 10: Late disturbance to tail-race SG **168**, looking north-east, showing stone 'lining' **119**, and rubble fill **121** over capping stones **134**. Note dressed blocks (**117**), possibly retaining **121** on the south, and (foreground) linear stone feature **114,** a possible early revetment of the modern road*

3.5.6 On the grassed area immediately south of the road, deposits associated with the late refurbishment of the tail-race channel lay directly beneath modern topsoil (***103***). The only other feature recorded in this area was a north-east to south-west-aligned field drain (***100***), 0.75m wide and 0.13m deep, filled largely with broken sandstone fragments (***101***, ***102***). This feature had been dug directly into the natural subsoil, and was sealed by topsoil ***103***.

3.6 Reinstatement of the Tail-Race

3.6.1 Upon completion of the archaeological excavation, the new pipeline was inserted across the tail-race of the former corn and saw mill (Pl 11). Following completion of this, and in accordance with English Heritage's requirements, the lining and capping of the channel were carefully rebuilt, utilising, wherever possible, the original materials (Pl 12; Pl 13). Finally, the modern road surface and adjacent ground were reinstated above the monument.

*Plate 11: Construction of pipeline across the tail-race channel (SG **168**)*

*Plate 12: The stone lining (**170**/**171**) of tail-race channel SG **168** rebuilt following insertion of pipe*

*Plate 13: Reinstatement of capping stones **134** over tail-race channel SG **168** following insertion of pipe*

4 THE FINDS

4.1 INTRODUCTION

4.1.1 In all, 253 artefacts and ecofacts were recovered during the investigation..Their distribution by context is shown below (Table 2). Pottery and glass comprise most of the artefacts, although there are small amounts of metalwork, and wood. The latter survived as a result of waterlogging, but has since dried out.

Context No	Pottery	Glass	Building materials	Clay tobacco pipe	Iron	Copper alloy	Other finds	Animal bone	Totals
116	4								***4***
124	2								***2***
125	1	1							***2***
126	2					1		1	***4***
129	9			2			1	11	***23***
132	4		1						***5***
133	11				2				***13***
135	1								***1***
136								1	***1***
138	1						1	1	***3***
140								6	***6***
142	5	15	3				2		***25***
143	8	23	2		3	1	4		***41***
144	2				9		2		***13***
145	6	11	3	1	5	1	1		***28***
147	1			1					***2***
149	1	1							***2***
163	1							13	***14***
166								33	***33***
Unstrat	20	3	2	2		1		3	***31***
Totals	***79***	***54***	***11***	***6***	***19***	***4***	***11***	***69***	***253***

Table 2: Distribution of artefacts and ecofacts by context

4.2 POTTERY AND OTHER CERAMIC MATERIALS

4.2.1 Pottery forms the largest component of the assemblage. There are two fragments of medieval pottery, from deposits ***138*** and ***147***. Neither is particularly abraded, suggesting that they are both in their original place of deposition, although in the case of ***147*** there are also finds of later date in the same context. Both fragments are from green-glazed jugs; that from ***147*** (a voided context, effectively unstratified) being probably of thirteenth to fourteenth-century date, whilst that from ***138*** (the fill of stratigraphically early ditch ***139***) is probably later, with a broad date range from the fourteenth to the sixteenth century. The

overwhelming majority of the pottery is, however of late date, being no earlier than the late nineteenth century, and possibly more recent. The vessels represented comprise a limited range of well-known kitchen and tablewares, with nothing of particular interest.

4.2.2 Clay tobacco pipe is confined to a few small, undiagnostic stem fragments, which cannot be dated with any precision. Two of the small number of ceramic building material fragments, from deposits ***142*** and ***145*** (silting within the channel of tail-race SG ***168***) can be identified as ventilation tiles, probably from the floor of a grain-drying and/or malting kiln.

4.3 METALWORK

4.3.1 None of the ironwork is of archaeological significance. Apart from sheet metal and nails, there are two, or possibly three items of horse tack, including a T-shaped strap junction from context ***133*** (probably part of ***116***/***125***, a make-up deposit associated with road surface SG ***169***), and a large square buckle from context **143** (a fill of the tail-race channel, SG ***168***). As simple and utilitarian objects they cannot be dated with any precision, but are most likely, in this instance, to be of late nineteenth or early twentieth century in date. A fragmentary, and highly corroded, copper alloy object from context ***126***, a levelling deposit beneath road surface SG ***169***, may be a button, if it is not a completely illegible coin. Two definite coins were recovered from the site, both from fills of the tail-race channel. That from context ***143*** is identifiable as a halfpenny of George VI (1936-52); the other, from context ***145***, is illegible, but the character of the flan suggests that it may be a Victorian halfpenny, perhaps of the period 1860-95. A few such coins, heavily worn, continued to circulate well into the second half of the twentieth century.

4.4 GLASS

4.4.1 Despite the fact that there is a relatively large group of glass vessels, only two fragments hint at activity pre-dating the twentieth century, probably in the late eighteenth century or the earlier part of the nineteenth century; part of the neck of a free-blown, dark olive-green wine bottle, from context ***125*** (a make-up deposit associated with road surface SG ***169***) and a small body fragment of the same kind of vessel from ***149*** (a voided context, effectively unstratified). The remainder of the glass is unlikely to pre-date the beginning of the twentieth century, comprising machine-made bottles of various kinds, including containers for sauce and mineral water.

5 DISCUSSION

5.1 INTRODUCTION

5.1.1 The excavation undertaken on the tail-race of the former Maulds Meaburn corn and saw mill succeeded in locating, excavating and recording a segment of that feature, in advance of the insertion of the new pipe. Also found were two phases of cobbled surfacing underlying the present tarmac surface of Brackenslack Lane, and a few stratigraphically earlier features and deposits.

5.2 MEDIEVAL ACTIVITY

5.2.1 Evidence for activity pre-dating the nineteenth century was extremely slight. One of the stratigraphically earliest features, a small ditch or gully (***139***) yielded a single fourteenth-sixteenth-century potsherd, and might, therefore, possibly have been part of a medieval field boundary or property marker. However, the presence of one sherd does not prove a medieval date for this feature, and other evidence for activity in the vicinity of the site at this time was limited to one other pottery sherd, an effectively unstratified fragment of probable thirteenth-fourteenth-century date. On this evidence, there does not appear to have been a great deal of activity in the immediate vicinity of the excavated area in the medieval period.

5.3 POST-MEDIEVAL ACTIVITY

5.3.1 Ceramic evidence indicates that the two phases of cobbled road surfacing recorded (SG ***172*** below SG ***169***) cannot be earlier in date than the nineteenth century. The origins of Brackenslack Lane are, however, likely to significantly pre-date this, so it is possible that the deposit of compacted clay, shale and sandstone (***135***) recorded beneath the earliest cobbled layer does represent an early surfacing of the lane, though an absence of associated artefacts means that this putative surface cannot be dated. Whatever its precise chronology, it is clear that, in its earliest surviving phases, the lane was very narrow, since both deposit ***135*** and the primary cobbled surface (SG ***172***) were only 2.4m wide, though subsequently the surface was widened considerably, to approximately 3.8m (SG ***169***). Considerable care appears to have been taken in the construction of both cobbled surfaces, which were not mere dumps of gravel, but comprised well-laid layers of rounded cobbles neatly defined by stone kerbs.

5.3.2 It is unfortunate that the excavated segment of the tail-race (SG ***168***) for the former corn and saw mill could not be dated with any precision. This was due largely to later disturbance, associated with a late refurbishment of the channel, which resulted in the destruction of all stratigraphic relationships between the channel and the surrounding archaeological deposits. On the one hand, it is known that the mill dates back to at least the late seventeenth century (*Section 1.3.9*), and may, in origin, be considerably older. However, this does not necessarily mean that the surviving fabric of the tail-race must also

be of similar date, since it could conceivably have been rebuilt or otherwise refurbished on several occasions during its lifetime (as, indeed, the archaeological evidence for a very late refurbishment of the feature clearly demonstrates).

5.3.3 That the silts recorded within the channel were still accumulating during the twentieth century was indicated by artefacts of this period, including a George VI halfpenny (*Section 4.3.1*), recovered from these deposits. However, all the surviving silt presumably post-dates the late refurbishment of the channel. Of potentially greater significance for dating are the masons' marks that were recorded on two adjacent stone blocks built into the east side of the tail-race channel (masonry ***170***). Interestingly, exactly the same marks are visible in several places on the stonework of Low Bridge, which spans the River Lyvennet approximately 30m west of the excavation. As already noted (*Section 3.5.2*), the extant bridge is believed to date from the seventeenth century, and what may be some stonework of this period is visible in the north side of the arch (Pl 14). However, the bridge was extensively rebuilt in 1853, and most of the surviving masonry clearly dates from that time (Pl 15). Curiously, the same masons' marks appear both on some of the earlier, possibly seventeenth-century, masonry (Pl 16; Pl 17), and on the nineteenth century stonework (P18; Pl 19). Precisely what this means is unclear, though there appear to be two possibilities; either the nineteenth-century masons marked the pre-existing masonry, as well as their own work, or the same marks were used by masons working on the bridge in both the seventeenth century and the nineteenth century. Whilst the former hypothesis is perhaps more likely, the possibility that a local family of masons, utilising the same masons' marks, worked on the bridge in both the seventeenth and nineteenth centuries, cannot be completely discounted.

Plate 14: Low Bridge from the north, showing possible seventeenth-century masonry in this side of the arch

Plate 15: Low Bridge from the south, showing the mid-nineteenth century masonry on this side of the arch

Plate 16: Low Bridge: mason's mark on possible seventeenth-century masonry on the north side of the arch

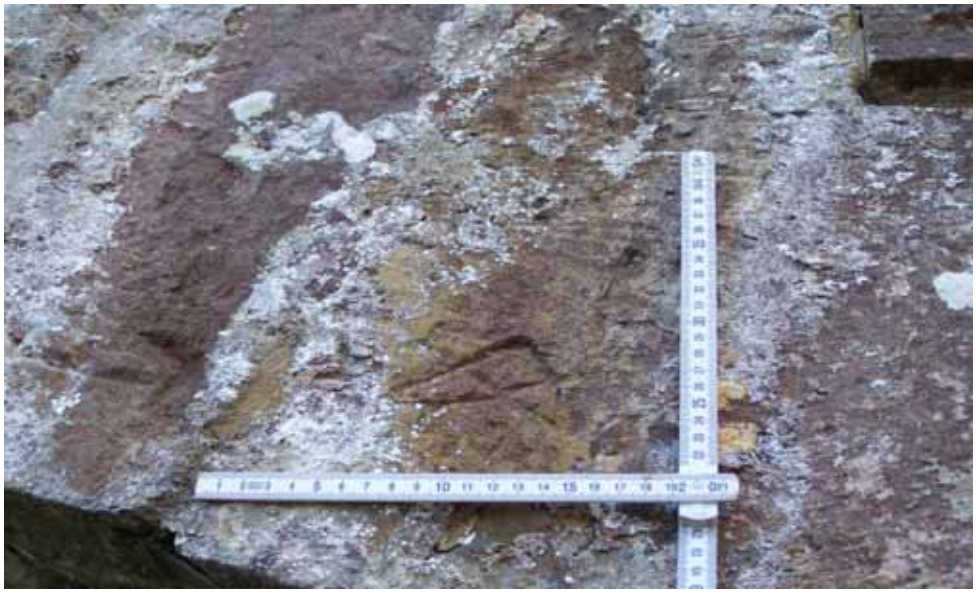

Plate 17: Low Bridge: another mason's mark on possible seventeenth-century masonry on the north side of the arch

Plate 18: Low Bridge: mason's mark on mid-nineteenth-century masonry on the south side of the bridge

Plate 19: Low Bridge: another mason's mark on mid-nineteenth-century masonry on the south side of the bridge

5.3.4 Unfortunately, it proved impossible to shed further light on this problem.during the course of the excavation, because of the lack of stratigraphic relationships between the excavated tail-race and the surrounding archaeological strata If, as seems most likely, all the masons' marks on the bridge date to the mid-nineteenth century, it is probable that the marks on the tail-race stonework are also of this period, indicating that the extant channel was built in the nineteenth century (though not necessarily at precisely the same time as the bridge was reconstructed). However, if the idea that a local family of masons continued to use the same marks from (at least) the seventeenth century to the nineteenth century is correct, the channel could be far earlier. With this in mind, it is perhaps of some interest that the mill itself incorporates a date stone of 1690 (*Section 1.3.9*), although it is of course not possible to link the construction of the tail-race with any works on the mill itself.

5.3.5 The late refurbishment of the tail-race, which involved the digging of a wide trench through the earlier lane surfaces in order to access the channel, may date to the twentieth century, rather than earlier. Indeed, it may have occurred immediately prior to the establishment of the modern tarmac road, since make-up levels for the tarmac surface directly overlay deposits associated with the refurbishment episode. The silts recorded within the channel, which presumably accumulated prior to the refurbishment, were also clearly of twentieth-century date, on the evidence of the associated pottery and other artefacts.

6 BIBLIOGRAPHY

6.1 PRIMARY SOURCES

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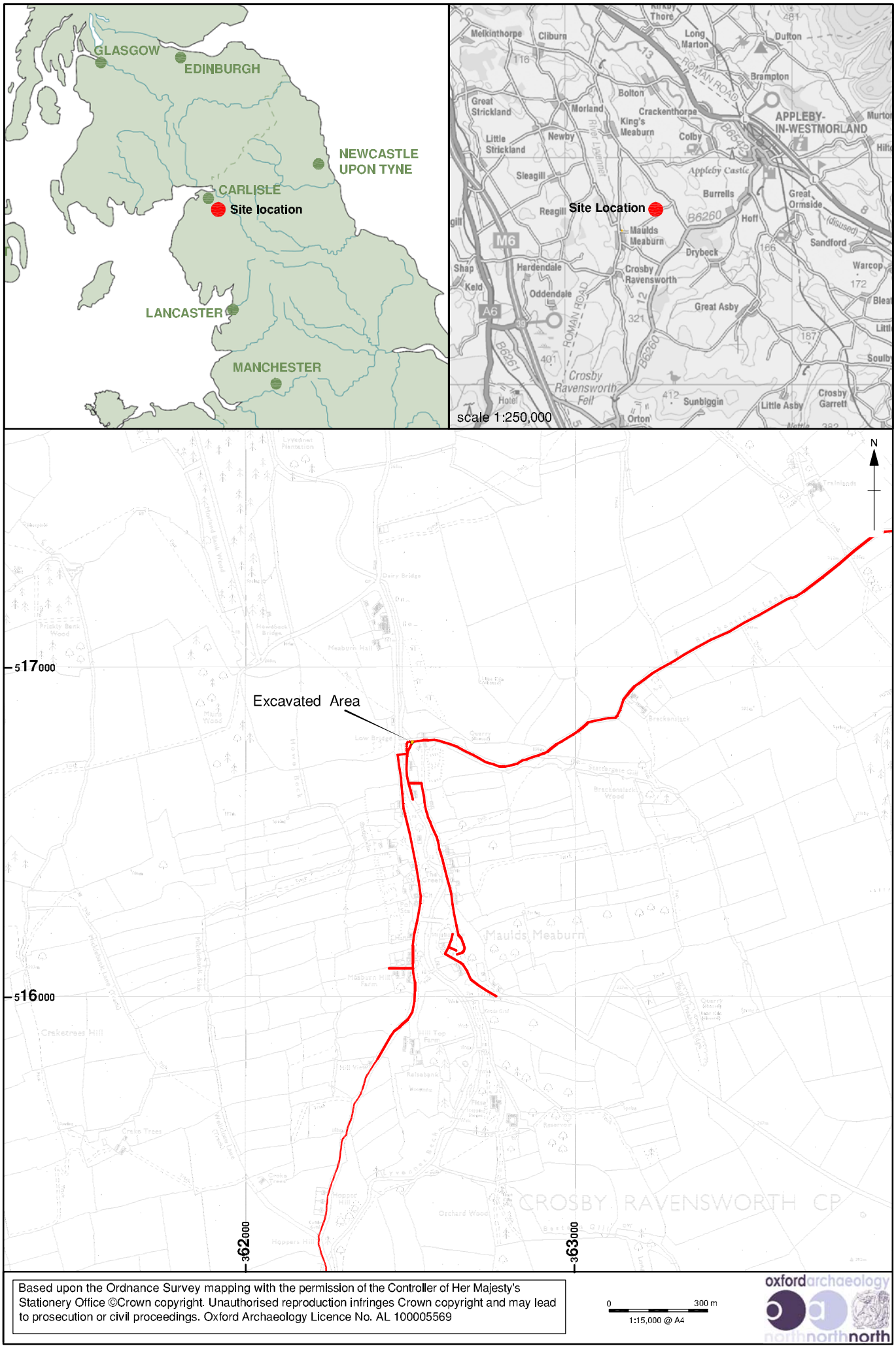


Figure 1: Site location

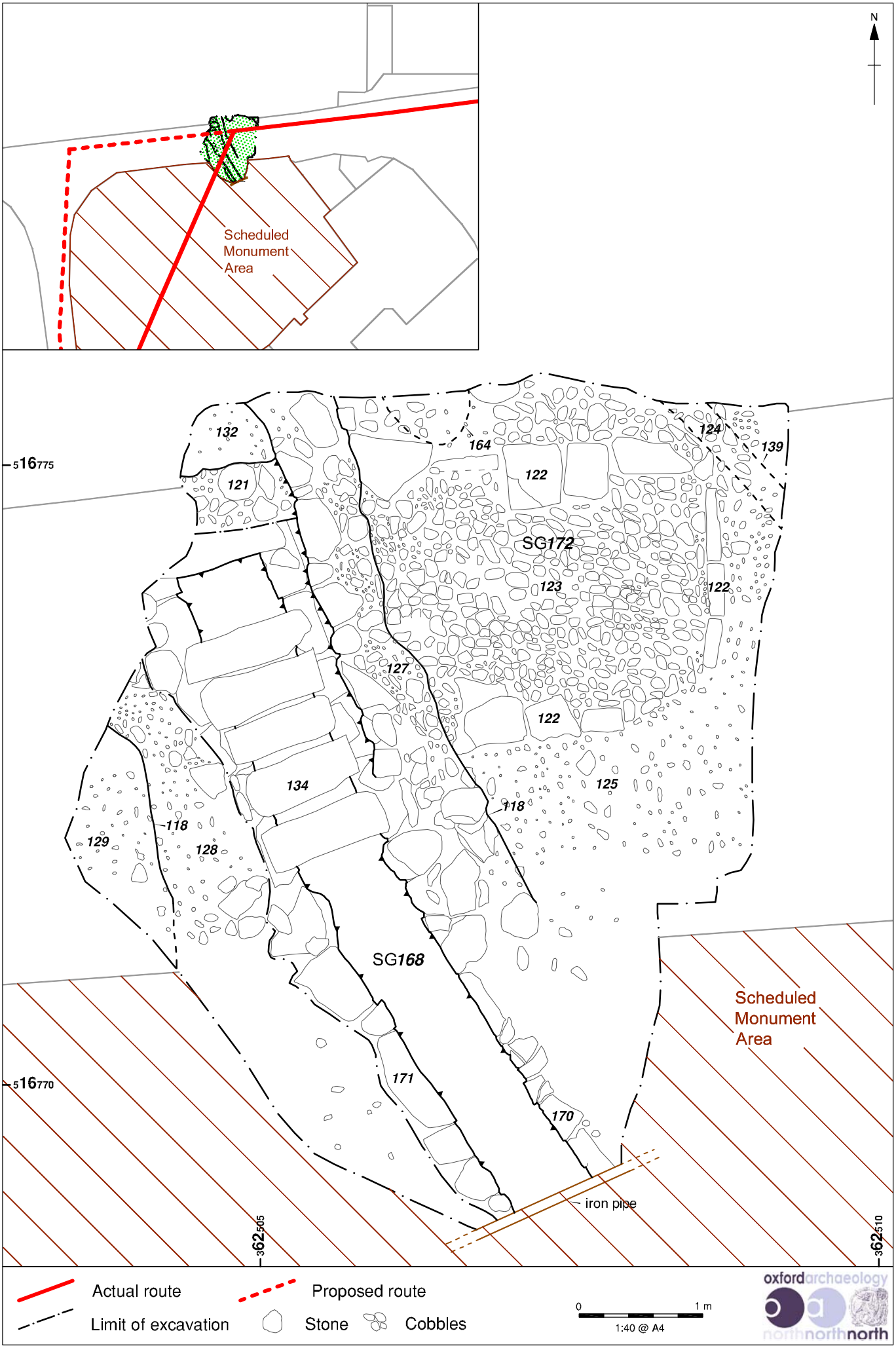
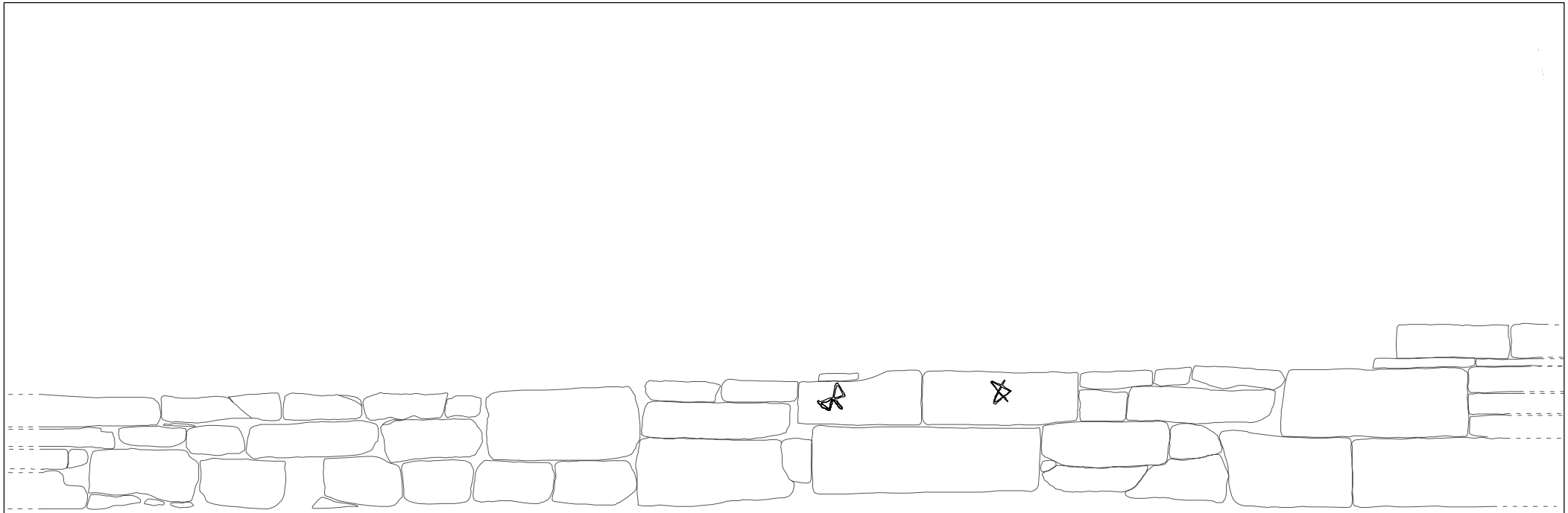
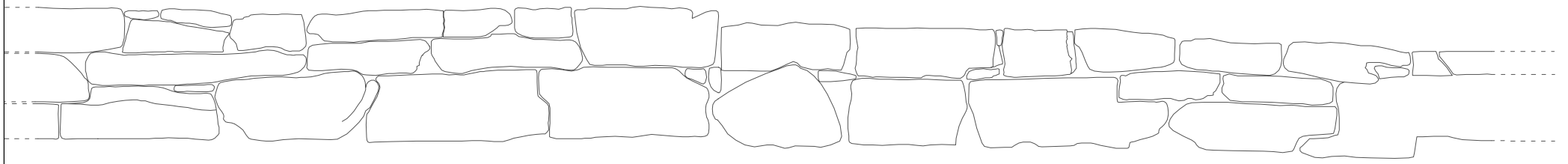


Figure 2: Plan of excavated area



West-facing elevation (masonry ***170***)



East-facing elevation (masonry ***171)***

Limit of excavation

Stone

Mason's marks

0 0.5 m

1:25 @ A4

oxfordarchaeology northnorthnorth

Figure 3: Elevations of the liniing of tailrace channel SG ***168***

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side of the arch.

Plate 17 Low Bridge: another mason's mark on possible seventeenth-century masonry on the north side of the arch.

Plate 18 Low Bridge: mason's mark on mid-nineteenth-century masonry on the south side of the bridge.

Plate 19 Low Bridge: another mason's mark on mid-nineteenth-century masonry on the south side of the bridge.

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APPENDIX 1: PROJECT DESIGN

1.1 INTRODUCTION

1.1.1 ***Circumstances of the project***: United Utilities (UU) propose the construction of a *c* 13km long flow transfer structure pipeline, from south of Crosby Ravensworth through Maulds Meaburn to south-west of Colby in Cumbria (NGR NY 362134 513956 to NY366557 520400). Following recommendations made by the Cumbria County Council Historic Environment Officer, United Utilities commissioned Oxford Archaeology North (OA North) to undertake rapid archaeological desk-based research (OA North 2009), and a watching brief during construction works relating to the proposed pipeline. Subsequently, the English Heritage Inspector for Ancient Monuments (North West Region) requested a watching brief during construction activities alongside the course of the Maulds Meaburn Corn and Saw Mill millrace, which is a designated Scheduled Monument (32844).

1.1.2 ***Location, topography and geology***: the proposed pipeline runs from the south of the village of Crosby Ravensworth, Cumbria in the northerly direction to the centre of the village. A short section of the pipeline branches off to the west along Harberwain Lane. Further towards the village church the pipeline again branches to the east along Silver Street. The main route follows the road northwards to Maulds Meaburn as far as Low Bridge. The proposed route then splits and a short section runs south towards The Green, with a longer section to the east heading south and south-east towards the Stepping Stones. The main pipeline then follows Brackenslack Lane as far as the junction with Long Rigg where it follows a track and turns sharply north/north-west through fields as far as Fousonsrigg Plantation. The proposed route turns sharply eastwards along a lane past Teas Bridge terminating in Colby Village to the south of Hill Top Farm.

1.1.3 ***Historical background***: Maulds Meaburn is a village with medieval origins and is both a Scheduled Monument (SM 32844) and a designated Conservation Area. Visible traces of the shrunken village survive on the west side of the existing village, on the west side of the road. An indistinct series of banks, some forming almost rectangular enclosures can be seen but with no clear pattern. The Scheduled Monument includes the earthworks and buried remains of the settlement, together with part of its associated field system and a millrace. Although the date of the first settlement is unknown, it is unlikely to have pre-dated the eleventh century Norman Conquest of the region. The plan is typical of this part of Cumbria in which two parallel lines of tofts or houses with crofts or gardens to the rear face onto a village paralleled by back lanes to the west and east (Roberts and Wrathmell 2002). Beyond these lanes lay open, communal fields where crops were grown, while to the south the village green broadened out into a driftway leading south-eastwards to the common grazing land. The remains comprise abandoned tofts and associated earthwork features, which pre-date the existing post-medieval field system (Winchester 1987, 48-49).

1.1.4 Towards the northern end of Maulds Meaburn the route of the pipeline runs alongside the millrace from Maulds Meaburn Corn and Saw Mill. The Mill is now a private house but retains the upper of two waterwheels. Davies-Shiel (1977) describes it as the 'oldest dated and still recognisable corn mill' which retains its kiln tile, and runner stones. It was the manorial mill and bears the Lowther crest together with the date 1690. A brand new pair of Dutch blue or Cullin stones have been made into garden seats and a giant Penrith sandstone runner is now mounted indoors on the sitting room floor. The millrace ran from the weir on the Lyvennet Beck at NY 362600 516390 to NY 362480 516480. The mill is in a good condition although no mill machinery survives. The mill is excluded but the millrace is scheduled (SM 32844).

1.1.5 ***Watching brief***: the primary aim of the watching brief is to determine the character, extent, integrity and, where possible, the date of the surviving archaeological resource within the specified section of the route (alongside the millrace).

1.1.6 ***Report and archive:*** a report will be produced for the Client within eight weeks of completion of the fieldwork. The report will assess the significance of the data generated by the archaeological programme of fieldwork within a local and regional context. Where appropriate it will make recommendations for further work.

1.1.7 An archive will be compiled and in accordance with the *Guidelines for the Preparation of Excavation Archives for Long-Term Storage* (Walker 1990). It will be prepared during the fieldwork programme, and supplemented as necessary during report writing process. The archive will be prepared to professional standards for deposition in an appropriate repository.

2.1 METHOD STATEMENT

2.1.1 ***Watching brief***: a programme of field observation will record accurately the location, extent, and character of any surviving archaeological features and/or deposits within all easement stripping activities and ground disturbance associated with the development works, and within the excavation for the pipe trench where no easement exists. This work will comprise observation during the excavation for these works, the systematic examination of any subsoil horizons exposed during the course of the groundworks, and the accurate recording of all archaeological features and horizons, and any artefacts, identified during observation.

Putative archaeological features and/or deposits identified by the machining process, together with the immediate vicinity of any such features, will be cleaned by hand, using either hoes, shovel scraping, and/or trowels depending on the subsoil conditions, and where appropriate sections will be studied and drawn. Any such features will be sample excavated (ie selected pits and postholes will normally only be half-sectioned, linear features will be subject to no more than a 10% sample, and extensive layers will, where possible, be sampled by partial rather than complete removal).

It is assumed that OA North will have the authority to stop the works for a sufficient time period to enable the recording of important deposits. It may also be necessary to call in additional archaeological support if a find of particular importance is identified or a high density of archaeology is discovered. This would only be called into effect in agreement with the Client and English Heritage and will require a variation to costing.

Finds policy: OA North employs artefact and palaeo-ecology specialists with considerable expertise in the investigation, excavation and finds management of sites of all periods and types, who are readily available for consultation. In addition, OA North maintains close relationship with Ancient Monuments Laboratory staff at the University of Durham, and access to conservation advice and facilities can be made available if necessary. Finds recovery will be in accordance with best practice (following current Institute of Field Archaeologists guidelines) and subject to expert advice in order to minimise deterioration. Finds storage during fieldwork and any site archive preparation will follow professional guidelines (UKIC). The deposition and disposal of any artefacts recovered in the evaluation will be agreed with the legal owner and an appropriate recipient museum prior to the work taking place.

Environmental sampling: environmental samples (bulk samples of 30 litres volume, to be sub-sampled at a later stage) will be collected from stratified undisturbed deposits and will particularly target negative features (gullies, pits and ditches). In general terms, the sampling strategy will be aimed at recovering palaeo-botanical, palaeo-zoological and pedological evidence, although the precise scope of the programme will be agreed with the Client prior to commencement of the fieldwork. All samples will processed at OA North's offices in Lancaster, and will be subject to a rapid preliminary analysis by the in-house palaeo-environmentalist in order to allow an assessment of their potential.

Human remains: human remains are not expected to be present, but if they are found they will, if possible, be left *in-situ* covered and protected. If removal is necessary, then the relevant Home Office permission will be sought, and the removal of such remains will be carried out with due care and sensitivity as required by the *Burials Act 1857*.

Any gold and silver artefacts recovered during the course of the excavation will be removed to a safe place and reported to the local Coroner according to the procedures relating to the Treasure Act, 1996.

Archive: 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 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. OA North conforms to best practice in the preparation of project archives for long-term storage. This archive will be provided in the English Heritage Centre for Archaeology format and a synthesis will be submitted to the relevant HERs (the index to the archive and a copy of the report). OA North practice is to deposit the original record archive of projects (paper, magnetic and plastic media) with the appropriate County Record Offices, and a full copy of the record archive (microform or microfiche) together with the material archive (artefacts, ecofacts, and samples) with an appropriate museum. Wherever possible, OA North recommends the deposition of such material in a local museum approved by the Museums and Galleries Commission, and would make appropriate arrangements with the designated museum at the outset of the project for the proper labelling, packaging, and accessioning of all material recovered.

The Arts and Humanities Data Service (AHDS) online database project *Online Access to index of Archaeological Investigations* (OASIS) will be completed as part of the archiving phase of the project.

Report: the report will be presented as drafts for comments to the relevant curator within eight weeks of completion of the fieldwork. One bound and one digital version of the report will be issued to the client, and a further copy to English Heritage.

The report will include a copy of this project design, and indications of any agreed departure from that design. It will present, summarise, and interpret the results of the programme detailed above and will include a full index of archaeological features identified in the course of the project, with an assessment of the overall stratigraphy, together with appropriate illustrations, including detailed plans and sections indicating the locations of archaeological features. Any finds recovered will be assessed with reference to other local material and any particular or unusual features of the assemblage will be highlighted and the potential of the site for palaeoenvironmental analysis will be considered. The report will also include a complete bibliography of sources from which data has been derived.

3.1 OTHER MATTERS

3.1.1 ***Preservation in-situ***: specific measures for preserving *in-situ* the remains of important archaeological sites encountered will be discussed with the relevant curator. Following such discussions detailed engineering solutions and a method statement would be presented. During the course of these discussions the specific site would be fenced and made secure.

3.1.2 ***Health and Safety***: OA North provides a Health and Safety Statement for all projects and maintains a Unit Safety policy. All site procedures are in accordance with the guidance set out in the Health and Safety Manual compiled by the Standing Conference of Archaeological Unit Managers (1997). A written risk assessment will be undertaken in advance of project commencement and copies will be made available on request to all interested parties for inclusion in the safety file. It is assumed that the Client will provide any available information regarding services within the study area, if available. It is also assumed that the Client will provide secure fencing. The client is also expected to provide welfare facilities.

3.1.3 ***Confidentiality:*** the report is designed as a document for the specific use of the Client, for the particular purpose as defined in the 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 design, or for any other explicit purpose can be fulfilled, but will require separate discussion and funding.

3.1.4 ***Insurance:*** 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 out of an 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 £2m for any one occurrence or series of occurrences arising out of one event.

3.1.5 ***Project Monitoring:*** OA North will consult with the Client and the clients contractor regarding access to the site. The Client will be kept fully informed of the work and its results, and any proposed changes to the project design will be agreed in consultation with the Client.

3.1.6 ***Contingencies:*** if there are more complex or generally deeper deposits than can be anticipated from the evidence available, there may need to be a corresponding increase in costs, which will be subject to agreement with the Client and the archaeological curators. Similarly, there will be a recourse to a contingency if there is any requirement to fully excavate any human remains that may be present. This would also apply to the full excavation of sites not covered by the schedule of costs. These contingency costs are in accordance with the Institute of Archaeologists guidance and are defined in the costings section.

4.1 WORK PROGRAMME

4.1.1 The duration of the watching brief will be dependent upon the progress of the pipeline contractor.

4.1.2 The report will be completed within eight weeks following completion of the fieldwork, and submitted for comment to English Heritage.

5.1 STAFFING

5.1.1 The project will be under the direct management of **Alison Plummer BSc (Hons)** (OA North Senior Project Manager) to whom all correspondence should be addressed. Alison has considerable experience in the management of pipeline related works, encompassing the entire range of fieldwork and the nature of the sites subject to investigation.

5.1.2 The fieldwork is likely to be directed by an (OA North Project Officer). It is not possible to provide details of specific archaeologists that will be involved with the fieldwork at this stage, but all shall be suitably qualified archaeologists with proven relevant experience. It is anticipated that two or three small teams will be required during the course of the fieldwork.

5.1.3 Assessment of any finds recovered from the excavation will be undertaken by OA North's in-house finds specialist **Sean McPhilips BA** (OA Project Officer). Sean has extensive knowledge of all finds of all periods from archaeological sites in northern England.

5.1.4 Assessment of any palaeoenvironmental samples which may be taken will be undertaken by **Elizabeth Huckerby MSc MIFA** (OA North Project Officer). Elizabeth has extensive knowledge of the palaeoecology of the North West through her work on the English Heritage-funded North West Wetlands Survey.

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APPENDIX 2: CONTEXT INDEX

Context No	Depth (m)	Category	Description
100	0.16	Cut	Cut for field drain. North-east/south-west-aligned linear feature, 0.76m wide,
101	0.13	Fill	Lower fill of ***100***. A mid-dark orange-grey clay-silt.
102	0.12	Fill	Upper fill of ***100***. **A** mid-orange-brown silty clay.
103	0.1	Layer	Topsoil. A dark grey-brown sandy silt.
104	0.1	Layer	Same as ***103***
105	0.18	Layer	Cobbled surface. Comprised sub-rounded cobbles, a maximum of 0.18 x 0.13m in size, forming a narrow (2.4m) east/west-aligned track or road (SG ***169***).
106	0.18	Layer	Stone kerb defining south edge of cobbles ***105*** (road SG ***169***). Comprised roughly-hewn sub-rectangular blocks, a maximum of 0.52 x 0.26 x 0.18m in size.
107	0.18	Layer	Stone kerb defining north side of cobbles ***105*** (road SG ***169***). Comprised roughly-hewn sub-rectangular blocks, a maximum of 0.76 x 0.68 x 0.18m in size.
108	0.5	Cut	Cut, 2.5m wide, for late refurbishment of tail-race SG ***168***. Same as ***118***.
109	0.2	Fill	Backfill of ***108***. Comprised mid-yellow-brown silty sand with frequent small to medium-sized, sub-rounded cobbles and pebbles. Probably same as ***130***, ***132***.
110	0.2	Layer	Modern levelling deposit. A firm, mid-yellow-brown coarse silty sand with frequent small sub-rounded cobbles and pebbles.
111	0.25	Layer	Modern hardcore beneath current tarmac road surface.
112	0.14	Layer	Modern tarmac road surface.
113	0.1	Cut	Cut for two wheel ruts in surface of road SG ***169***. They measured 2.2m in length and 0.16m wide, situated *c* 1m apart.
114	0.6	Layer	Possible modern road revetment. Comprised roughly-hewn and roughly-squared stone blocks, a maximum of 1.05 x 0.3 x 0.2m in size. The stones were bonded with a light grey lime mortar. The feature was 4m in length (as excavated) and 0.6m wide.
115	0.1	Fill	Fill of wheel ruts ***113***. Comprised abundant small sub-rounded cobbles and pebbles in a coarse sandy matrix.
116	0.3	Layer	Make-up deposit. Comprised dark grey-brown sandy silt, with frequent small cobble inclusions. Same as ***125***
117	0.25	Fill	A possibly deliberate setting of two large, roughly-hewn stone blocks, within cut ***118***. Possibly retaining the south edge of rubble deposit ***121***. Comprised sandstone blocks measuring a maximum of 0.55 x 0.45 x0.25m in size.
118	0.5	Cut	Cut, 2.5m wide, for late refurbishment of tail-race SG ***168***. Same as ***108***.
119	0.25	Fill (masonry)	Crudely-built 'lining' on eastern side of tail-race SG ***168***, associated with a late refurbishment of that feature Constructed of roughly hewn sandstone blocks, a maximum of 0.55 x 0.25 x 0.22m in size, and smaller sub-rounded river cobbles.
120	0.25	Fill (masonry)	Crudely-built 'lining' on western side of tail-race SG ***168***, associated with a late refurbishment of that feature Constructed of roughly-hewn sandstone blocks, a maximum of 0.55 x 0.25 x 0.22m in size, and smaller sub-rounded river cobbles.
121	0.3	Fill	Rubble fill of ***118***. Comprised a pale/mid-grey-brown silty sand with abundant rounded and sub-angular cobble and rubble

Context No	Depth (m)	Category	Description
			inclusions, and occasional small fragments of lime mortar.
122	0.12	Layer	Kerb stones defining both edges of cobbled road surface ***123*** (road SG ***172***). Comprised roughly-squared sandstone blocks, a maximum of 0.45 x 0.45 x 0.12m in size.
123	0.3	Layer	Cobbled surface of road SG ***172***. Comprised sub-rounded cobbles and pebbles, a maximum of 0.22 x 0.22m in size, forming a narrow east/west-aligned track or road.
124	0.25	Layer	Cobbled surface, representing a widening of road SG ***172***. Comprised a mix of irregular and sub-angular cobbles, a maximum of 0.24 x 0.15 x 0.15m in size.
125	0.3	Layer	Levelling deposit beneath road SG ***169***. A mid-dark grey-brown clay-sand with frequent small/medium-sized, sub-rounded cobbles and pebbles. Same as ***116***.
126	0.2	Layer	Levelling deposit beneath road SG ***169***. A mid-dark grey clay with occasional small sub-rounded pebble inclusions.
127	0.1	Fill	Fill of cut ***118***. Comprised orange-brown sandy clay with abundant sub-rounded and sub-angular small/medium pebbles and cobbles.
128	0.1	Fill	Fill of cut ***118***. Comprised a mid-brown silty sand with frequent sub-angular and sub-rounded pebbles/cobbles.
129	0.2	Layer	Levelling deposit, probably the same as ***116***/***125***, beneath road SG ***169***. A mid-dark grey silty sand with frequent sub-rounded pebbles and cobbles.
130	-	Fill	Fill of cut ***118***. Same as ***132***; probably same as ***109***.
131	-	-	Void
132	0.35	Fill	Fill of cut ***118***. Comprised a mid-grey brown silty sand with occasional small sub-rounded and sub-angular cobble/pebble inclusions. Same as ***130***; probably same as ***109***.
133	0.25	Layer	Levelling deposit. Comprised mid-dark grey silty sand with occasional small sub-rounded cobble/pebble inclusions. Probably same as ***116/125***.
134	0.4	Fill (masonry)	Capping stones of tail-race channel (SG ***168***). Comprised large, roughly-dressed rectangular sandstone slabs measuring a maximum of 1.3 x 0.75 x 0.4m in size.
135	0.2	Layer	Either make-up for cobble surface ***123*** (for road SG ***172***) or an earlier trackway surface. Comprised blue-grey compact clay with abundant small shale and degraded sandstone inclusions.
136	0.15	Layer	Possible levelling deposit. Comprised mid-brown grey silty clay with frequent small sub-rounded stone inclusions.
137	-	Layer	Natural subsoil. Comprised pale orange-brown sandy gravel.
138	0.1	Fill	Fill of ***139***. Comprised a mid-grey-brown silt with occasional small sub-rounded pebble inclusions.
139	0.1	Cut	Cut of a shallow ditch of gully. A north-west/south-east-aligned linear feature measuring 0.6m wide and at least 1.5m in length continuing beyond the limits of the excavation.
140	0.05	Layer	Natural deposit of iron panning overlying natural gravel ***137***. A mid-reddish brown coarse sandy gravel.
141	0.1	Layer	Levelling deposit. Comprised dark brownish grey silty sand with rare small sub-rounded stone inclusions. Probably the same as ***116/125***.
142	0.35	Fill	Fill of tail-race channel (SG ***168***). Comprised a dark blue-grey silt. Number allocated to the silt within the area of the Scheduled Monument. Same as ***144.***
143	0.08	Fill	Fill of tail-race channel (SG ***168***). Comprised a mid-grey-brown silty sand. Number allocated to deposit within the area of the

Context No	Depth (m)	Category	Description
			Scheduled Monument. Same as deposit ***145***.
144	0.35	Fill	Fill of tail-race channel (SG ***168***). Same as deposit ***142***. Number allocated to deposit outside of the Scheduled Monument.
145	0.08	Fill	Fill of tail-race channel (SG ***168***). Same as deposit ***143***. Number allocated to deposit outside of the Scheduled Monument.
146	-	-	Void
147	-	-	Void
148	-	-	Void
149	-	-	Void
150	0.16	Layer	Levelling deposit beneath modern road. Comprised light grey silty clay with abundant small angular stone inclusions.
151	0.12	Layer	Levelling deposit beneath modern road. Comprised light yellowish brown silty coarse sandy gravel.
152	0.34	Layer	Levelling deposit beneath modern road. Comprised a dark greenish grey fine sandy silt with abundant angular stone inclusions. A mix of topsoil and hardcore.
153	0.1	Layer	Levelling deposit beneath modern road. Comprised a mid-yellowish brown coarse sand with abundant small sub-rounded stone inclusions.
154	0.55	Layer	Levelling deposit beneath modern road. Comprised abundant small to medium-sized, sub-rounded stone within a sandy silt matrix.
155	0.3	Layer	Levelling deposit beneath modern road. Comprised abundant sub-rounded and sub-angular, small to medium-sized stone within a silty sand matrix.
156	0.12	Layer	Levelling deposit beneath modern road. Comprised dark brownish-grey sandy silt.
157	0.44	Layer	Levelling deposit beneath modern road. Comprised dark brownish-grey sandy silt, very similar to ***156***.
158			Same as ***135***.
159	0.19	Layer	Levelling deposit beneath modern road. Comprised light yellowish-brown silty sand .
160	0.35	Layer	Levelling deposit beneath modern road. Comprised dark brownish-grey, fine sandy silt with abundant small sub-rounded stone inclusions.
161	0.09	Layer	Levelling deposit. Comprised dark greyish green fine sandy silt with rare small sub-rounded stone inclusions.
162	0.32	Layer	Levelling deposit. Comprised dark greyish green fine sandy silt with frequent small sub-rounded stone inclusions.
163	0.3	Deposit	Fill of ***164.*** Comprised mid-greyish brown silty sand.
164	0.3	Cut	Cut of possible pit/ditch, measuring at least 0.7 x 0.66 and 0.3m deep, continuing beyond the northern limit of excavation.
165	Unknown	Layer	Levelling deposit. Comprised dark brownish grey silty sand with rare small sub-rounded stone inclusions.
166	-	-	Unstratified finds from excavation of the pipe trench in the area of The Green.
167	-	-	Unstratified finds from excavation of the pipe trench in the area of the modern road.
168	-	SG	Stratigraphic Group number for the tail-race of the former corn and saw mill.
169	-	SG	Stratigraphic Group number for the latest cobbled road surface.
170	-	Fill	Stone lining of the eastern edge of the tail-race channel (SG ***168***).
171	-	Fill	Stone lining of the western edge of the tail-race channel (SG ***168***).
172	-	SG	Stratigraphic Group number for the primary cobbled road surface

APPENDIX 3: FINDS LIST

Context	Material	Category	No frags	Description	Period
116	Ceramic	vessel	3	One pancheon rim and two body fragments, black-glazed redware.	Nineteenth century or later
116	Ceramic	vessel	1	One base fragment self-glazed redware.	Nineteenth century or later
124	Ceramic	vessel	1	Nineteenth century	Nineteenth century?
124	Ceramic	vessel	1	One body fragment self-glazed redware with white internal slip, mottled.	Nineteenth century?
125	Ceramic	vessel	1	One body fragment self-glazed redware with slip decoration.	Nineteenth century?
125	Glass	vessel	1	One body fragment dark olive green wine bottle.	Eighteenth century?
126	Cu alloy	coin	1	Incomplete, badly corroded coin, unidentifiable.	Not closely datable
126	Ceramic	vessel	1	One body fragment black-glazed redware.	Nineteenth century
126	Ceramic	vessel	1	One body fragment self-glazed redware	Nineteenth century
126	Bone	animal	1	Bone.	Not closely datable
129	Bone	animal	11	Bone.	Not closely datable
129	Ceramic	tobacco pipe	2	Stem fragments.	Nineteenth century
129	Ceramic	vessel	5	Three small base and two small body fragments black-glazed redware, probably a single vessel.	Nineteenth century
129	Ceramic	vessel	1	One small body fragment self-glazed redware.	Nineteenth century
129	Ceramic	vessel	1	One body fragment self-glazed redware with slip decoration.	Nineteenth century?
129	Ceramic	vessel	2	Small spalled fragments refined white earthenware.	Nineteenth century or later
129	Stone		1	Natural Stone.	Not closely datable
132	Ceramic	building material	1	Small undiagnostic fragment.	
132	Ceramic	vessel	3	Spalled fragments refined white earthenware.	Nineteenth century or later
132	Ceramic	vessel	1	One body fragment blue and white underglaze transfer-printed earthenware.	Nineteenth century or later
133	Ceramic	vessel	6	One rim and five body fragments blue and white underglaze transfer-printed earthenware.	Nineteenth century or later
133	Ceramic	vessel	2	Two body fragments self-glazed redware.	Nineteenth century or later
133	Ceramic	vessel	2	Two body fragments refined white earthenware.	C19 or later
133	Ceramic	vessel	1	One moulded fragment earthenware, blue fabric.	Nineteenth century or later
133	Iron	horse tack?	2	Strap connector?	Nineteenth century or later
135	Ceramic	vessel	1	One body fragment black-glazed redware.	Nineteenth century or later
136	Bone	animal	1	Bone.	Not closely datable
138	Organic	wood	1	Small fragment charcoal.	Not closely datable
138	Bone	animal	1	Bone.	Not closely datable
138	Ceramic	vessel	1	One small body fragment fully reduced green-glazed ware, decorated.	Medieval
140	Bone	animal	6	Bone.	Not closely datable
142	Ceramic	building material	1	Ventilated brick - malting or other grain-drying kiln.	Nineteenth century or later
142	Ceramic	building material	1	Undiagnostic fragment.	Not closely datable
142	Glass	vessel	9	Body fragments colourless, machine-blown bottles.	Late nineteenth century or later
142	Glass	vessel	5	Body fragments dark brown, machine-blown bottles.	Late nineteenth century or later

Context	Material	Category	No frags	Description	Period
142	Glass	vessel	1	Body fragments green, machine-blown bottles.	Late nineteenth century or later
142	Ceramic	vessel	2	Two body fragments refined white earthenware.	Nineteenth century or later
142	Ceramic	vessel	1	One body fragment blue and white underglaze transfer-printed earthenware.	Nineteenth century or later
142	Ceramic	vessel	1	One body fragment black-glazed cream-bodied earthenware.	Eighteenth century??
142			1	One body fragment - to be checked	
142	Ceramic	building material	1	One very small fragment.	Not closely datable
142	Organic	wood	2	Joining fragments lath.	Recent
143	?	battery	2	Components of an early battery?	Recent
143	Cu alloy	coin	1	Halfpenny. George VI.	1936-52
143	Organic	wood	2	One lath, one possibly unworked fragment.	Recent
143	Iron	nail	1	Nail.	Recent
143	Iron	sheet	1	Fragment of sheet, no original edges.	Recent
143	Iron	buckle	1	Large square-framed buckle. Complete. Horse tack.	Recent
143	Glass	vessel	8	Body fragments dark brown, machine-blown bottles.	Late nineteenth century or later
143	Glass	vessel	15	Body and base fragments colourless, machine-blown bottles.	Late nineteenth century or later
143	Ceramic	building material	2	Undiagnostic fragments.	Not closely datable
143	Ceramic	vessel	3	Three body fragments refined white earthenware.	Nineteenth century or later
143	Ceramic	vessel	1	One small body fragment white earthenware with blue applied sprigging.	Nineteenth century or later
143	Ceramic	vessel	2	Base fragments black-glazed redware with white internal slip. Pancheon.	Nineteenth century or later
143	Ceramic	vessel	1	One body fragment black-glazed redware.	Nineteenth century or later
143	Ceramic	vessel	1	One base fragment late grey Stoneware.	Nineteenth century or later
144	Organic	wood	1	Fragment of wood.	Recent
144	Glass	vessel	1	Complete machine-blown, screw-topped bottle.	Twentieth century
144	Glass	vessel	2	Two fragments cobalt blue machine-blown bottle.	Twentieth century or later
144	Glass	vessel	2	Two complete machine-blown bottles, one embossed.	Twentieth century or later
144	Glass	vessel	3	Three body fragments colourless machine-blown bottles.	Twentieth century or later
144	Glass	vessel	1	One body fragment bluish-colourless machine-blown bottle.	Late nineteenth century or later
144	Ceramic	vessel	1	One body fragment refined white earthenware.	Nineteenth century or later
144	Organic	wood	1	Small fragment roundwood - natural?	Recent
144	Ceramic	vessel	1	One body fragment refined white earthenware with dark blue glaze.	Twentieth century or later?
145	Cu alloy	coin?	1	Complete disc, worn surfaces.	Recent/
145	Ceramic	building material	2	Undiagnostic fragments.	Not closely datable
145	Ceramic	tobacco pipe	1	Large stem fragment with mortar adhering	Nineteenth century or later
145	Ceramic	building material	1	Ventilated brick - malting or other grain-drying kiln.	Nineteenth century or later
145	Glass	vessel	10	Ten body fragments colourless machine-blown bottles, some embossed.	Twentieth century or later
145	Glass	vessel	1	One body fragment brown machine-blown bottle.	Twentieth century or

Context	Material	Category	No frags	Description	Period
					later
145	Ceramic	vessel	5	Five body fragments refined white earthenware.	Nineteenth century or later
145	Ceramic	vessel	1	Neck and rim late grey Stoneware bottle.	Nineteenth century or later
145	Iron	cap	2	Metal screw cap	Twentieth century or later
145	Iron	sheet	1	Fragment of sheet, no original edges.	Recent
145	Iron	ring	1	Corroded ring, possibly round buckle.	Recent
145	Iron	nail	1	Drawn nail	Recent
145	Stone		1	Fragment of slate	Recent
147	Ceramic	vessel	1	Body fragment green-glazed vessel, sandy white fabric.	C13-C14?
147	Ceramic	tobacco pipe	1	Stem fragment	Recent
149	Glass	vessel	1	Body fragment dark olive green wine bottle.	Eighteenth century?
149	Ceramic	vessel	1	One body fragment blue and white underglaze transfer-printed earthenware.	Nineteenth century or later
163	Bone	animal	13	Bone.	Not closely datable
163	Ceramic	vessel	1	Black-glazed redware with white internal slip, mottled.	Nineteenth century or later
166	Bone	animal	33	Bone	Not closely datable
unstrat	Bone	animal	2	Bone	Not closely datable
unstrat	Ceramic	vessel	2	Late grey Stoneware.	Nineteenth century or later
unstrat	Glass	vessel	2	Two body fragments colourless machine-blown bottles.	Twentieth century or later
unstrat	Ceramic	vessel	2	Two body fragments unglazed redware.	Nineteenth century or later
unstrat	Ceramic	vessel	1	One body fragment black-glazed redware.	Nineteenth century or later
unstrat	Ceramic	vessel	5	Five body fragments refined white earthenware.	Nineteenth century or later
unstrat	Bone	animal	1	Bone.	Not closely datable
unstrat	Cu alloy	object	1	Unidentifiable fragment.	Not closely datable
unstrat	Ceramic	vessel	2	Two body fragments black-glazed redware.	Nineteenth century or later
unstrat	Glass	vessel	1	One base fragment brown machine-blown bottle.	Twentieth century or later
unstrat	Ceramic	tobacco pipe	3	Stem fragments.	Nineteenth century or later
unstrat	Ceramic	building material	2	Undiagnostic fragments.	Not closely datable
unstrat	Ceramic	vessel	5	Five base (joining?) fragments refined white earthenware.	Nineteenth century or later
unstrat	Ceramic	vessel	2	One base, one rim black-glazed redware pancheon.	Nineteenth century or later
unstrat	Ceramic	vessel	1	One base fragment black-glazed cream fabric.	Nineteenth century or later