

# 'CORN MILL BARN', NEWLAND, ULVERSTON, CUMBRIA

Archaeological Building Recording  
and Watching Brief



Client: Paul Glass  
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## Non-Technical Summary

Following a planning application for the conversion of the former corn mill at Newland, Ulverston, Cumbria a programme of archaeological investigation was requested by the Cumbria County Council Historic Environment Service. This comprised a desk-based assessment and recording of the standing buildings prior to conversion and a watching brief during any associated groundworks. The building recording was carried out by Greenlane Archaeology in May 2008 and the watching brief was carried out between May 2008 and January 2009.

A mill is recorded at Newland from at least the 14<sup>th</sup> century, although the earliest reference to the settlement is only in c1196. The mill appears to have belonged to Furness Abbey before being acquired by the crown. In the mid 18<sup>th</sup> century it was purchased by a group of local businessmen intent on controlling the water supply in the valley so that they could establish an iron furnace. They became known as the Newland Company and the creation of the furnace and the subsequent movement of iron ore by the company via a jetty at Barrow ultimately led to the development of the town as a major port. They also established a number of other associated industries in Newland, principally a rolling mill and an iron working forge; the location of the latter has never been identified with any certainty, but it has been suggested that it was housed inside the former corn mill. The forge did not last long, however, although the iron furnace remained in operation until the last years of the 19<sup>th</sup> century. By the 20<sup>th</sup> century the closure of the furnace led to a general decay of the related structures in the hamlet, and this increased following a devastating flood in 1918, which put the mill out of operation. It was apparently used for a while after this date but it is not known when it went completely out of use or when its gearing, wheel, and machinery was removed. By the late 20<sup>th</sup> century it was being used for storage.

The building recording revealed that the mill contained a considerable amount of re-used material including timber and stone, some of which may have been medieval or early post-medieval in date. The mill comprised the main building, with a corn drying kiln to the north, and the remains of a small outshut to the south-east. There was also originally another outshut to the west, perhaps a peat store. The mill was subsequently raised in height by another storey built of brick, which seems to have also led to a reorganisation of the internal flooring. Later alterations were largely made after the mill went out of use and include the removal of the first floor in both the mill and kiln and blocking of some apertures, although there was some other modifications, perhaps associated with the installation of a water powered turbine for producing electricity.

The watching brief identified some areas of interest in the land around the mill, including evidence for the location of iron ore dumps on the west side of the site. It also enabled a section cut through the head race and the structure of the wheel pit to be recorded as it was emptied of rubble. A number of finds were made, including: fragments of millstones, presumably incorporated as building material into the mill; a sandstone disc, perhaps part of one of the mill stones, and most significantly an iron tilt hammer head.

Evidence for earlier mill buildings on the site, some of which may be medieval in date, was revealed by the building recording and watching brief. The present building seems to incorporate some or all of these earlier structures but it is not certain whether the existing building was built following the acquisition of the site by the Newland Company in 1746 or whether they remodelled an existing mill. It is evident that the building was substantially remodelled, most likely in the late 18<sup>th</sup> or early 19<sup>th</sup> century, and this, coupled with the tilt hammer head recovered from the site and the documentary sources suggests that the mill did indeed incorporate the forge in some way.

## Acknowledgements

Greenlane Archaeology would like to thank Paul Glass for commissioning the project, and Stan Bould for his help during the fieldwork and information about the building, particularly with regard to its recent uses. Additional thanks are due to Jeremy Parsons and Jo Mackintosh at Cumbria County Council's Historic Environment Service for their comments and information about the site. Special thanks are also due to John Helme of the Newland Furnace Trust and Mike Davies-Shiel for their information about the site, and the latter for first identifying the tilt hammer head.

The desk-based assessment and building recording were carried out by Sam Whitehead and Dan Elsworth and the watching brief was carried out by Steve Clarke, who also contributed to the desk-based assessment. The report was written by Dan Elsworth and Steve Clarke, who also produced the illustrations, apart from the drawings and photographs of individual artefacts, which were produced by Tom Mace. The project was managed by Dan Elsworth, and the report was edited by Dan Elsworth, Jo Dawson, and Tom Mace.

## 1. Introduction

### 1.1 Circumstances of the Project

1.1.1 A planning application (SL/2008/0260, a resubmission of application SL/2006/1373) was made by Paul Glass for conversion of the former corn mill at Newland, Ulverston, Cumbria (SD 30010 79650). A programme of archaeological work was requested by South Lakeland District Council (SLDC) following a recommendation by the Cumbria County Council Historic Environment Service (CHES). This was expressed in the planning requirements as:

Condition (3) No development shall commence within the site until the applicant has secured the implementation of a programme of archaeological work in accordance with a written scheme of investigation which has been submitted to and approved in writing by the Local Planning Authority.

Reason (3) To afford reasonable opportunity for a record to be made of buildings of architectural or historic interest prior to their demolition as part of the proposed development, and an examination made to determine the existence of any remains of archaeological interest within the site for preservation, examination or recording of such remains.

1.1.2 A brief for the work was subsequently produced by CHES (CHES 2008; *Appendix 1*), which described the work required as a desk-based assessment followed by a Level 3-type building recording prior to the conversion. An archaeological watching brief was also to be carried out during the ground works in the vicinity of the corn mill. In response to this Greenlane Archaeology produced a project design (Greenlane Archaeology 2008; *Appendix 2*) and following the acceptance of this Greenlane Archaeology began the work on 12<sup>th</sup> May 2008. The building recording was carried out in May 2008 and the watching brief between May 2008 and January 2009.

### 1.2 Location, Geology, and Topography

1.2.1 The village of Newland is located 1.5km to the north-east of Ulverston, Cumbria (Figure 1). The eastern boundary of Newland Parish is marked by the rivers Leven and Crake, and the western is formed by Newland Beck. Newland Beck drains the higher land of the Furnace Fells immediately to the north-west of the site into the Levens estuary to the south. The corn mill is fed by Newland Beck and is located on flattish ground at the southern end of this valley where the fells meet the coastal moor. The site is situated at approximately 10m above sea level (Ordnance Survey 2002). Newland is within the West Cumbrian coastal plain, a landscape generally made up of pastoral land in an '*undulating or rolling topography*' (Countryside Commission 1998, 27). The solid geology is typically made up of Bannisdale slates (Moseley 1978, plate 1), and this is overlain by a drift geology made up of glacially-derived tills comprising boulder clay, sands, and gravels (Countryside Commission 1998, 27).

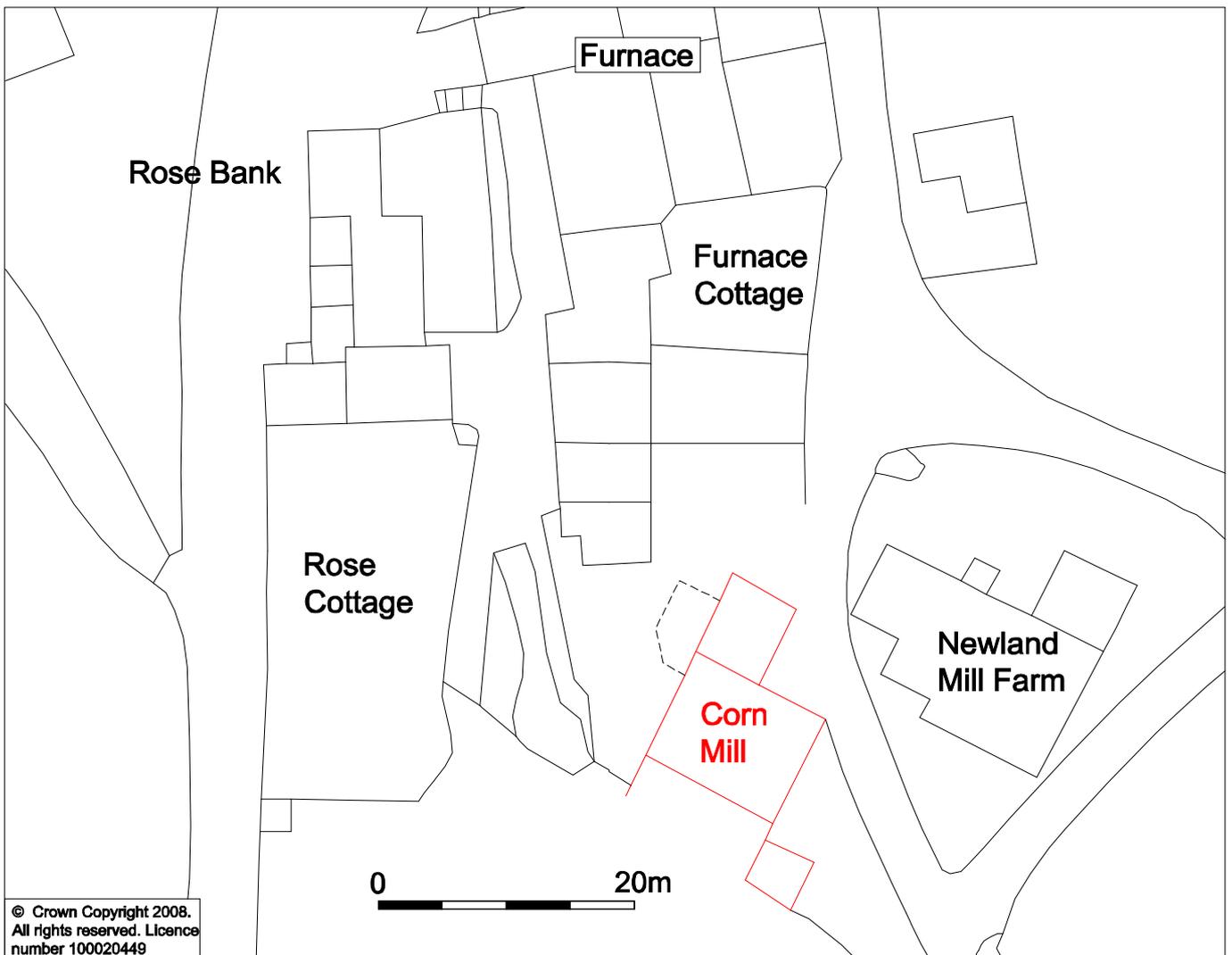
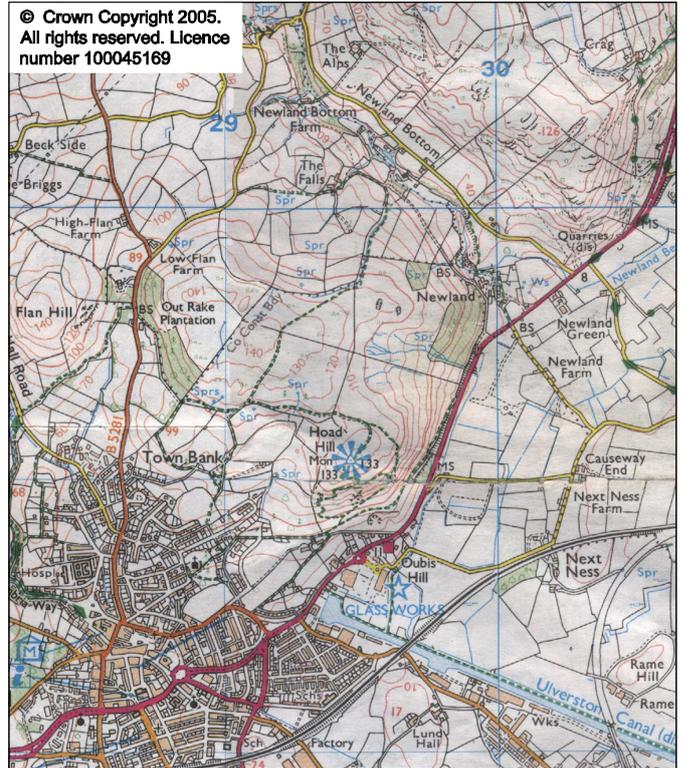
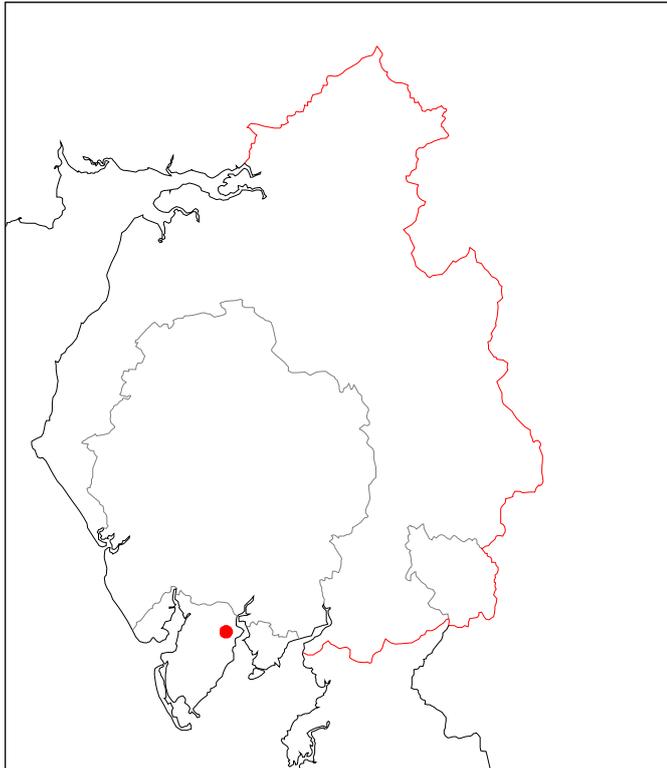


Figure 1: Site location

## 2. Methodology

### 2.1 Introduction

2.1.1 This project comprised three separate elements intended to record the standing buildings present on the site and establish the extent, nature and, where possible, date of any buried deposits of archaeological interest present on the site. The first element of this was the completion of a desk-based assessment in order to establish the extent of the known archaeological resource in the area and produce an outline history of the site environs. This also included a site visit intended to identify any elements of the site of historical or archaeological importance, as well as reveal any possible constraints to the following building recording and watching brief such as the presence of modern contamination or issues of health and safety. The second part was the recording of the standing buildings remaining on site prior their conversion. The third part was the watching brief conducted while the topsoil was stripped and while ground works were carried out in areas of archaeological interest.

2.1.2 All aspects of the desk-based assessment, building recording, and watching brief were carried out according to the standards and guidance of the Institute of Archaeologists (IfA 2001a; 2001b; 2001c).

### 2.2 Desk-Based Assessment

2.2.1 The general area around the mill, incorporating the majority of the hamlet, was examined in order to identify sites of archaeological interest within the development area. More specifically, details relating to the mill building and its immediate surroundings were acquired in order to identify evidence for alterations to the building and any associated structures that might have formerly been present. In addition, the results of previous pieces of archaeological and historical research relating to structures within Newland, particularly the iron furnace, were also examined to provide relevant background information, as were other secondary sources. Several types of information were consulted in order to compile a history of the site and assess the presence of any known remains of historical or archaeological interest:

- **Cumbria County Council Historic Environment Record (CCCHER):** this is a list of all the known sites of archaeological interest within the county, which is maintained by Cumbria County Council and is the primary source of information for an investigation of this kind. A list of all of the known sites of archaeological interest within 100m of the centre of the proposed development area was acquired; each identified site comes with a grid reference, description and source and any additional information referenced was also examined as necessary;
- **Cumbria County Record Office, Barrow (CRO(B)):** this was visited in order to examine early maps and plans of the site, original documents relating to businesses and properties on the site, and local and regional histories and directories;
- **Lancashire County Record Office, Preston (LRO):** a number of original documents relating to the mill were examined, as were other early maps and published sources such as directories;
- **Greenlane Archaeology Library:** additional secondary sources, used to provide information for the site background, were examined;
- **Specialist consultation:** local historians and industrial archaeologists familiar with the site were consulted in order to identify any other relevant information and gain advice about the site.

### 2.3 Building Recording

2.3.1 The building recording was carried out to English Heritage Level-3 type standards (English Heritage 2006). This is a largely descriptive investigation, with only a limited level of interpretation of the phasing and use of the buildings, which incorporates evidence compiled during the rapid desk-based assessment. The recording comprised three main elements:

- **Written record:** descriptive records of all parts of the building were made using Greenlane Archaeology *pro forma* record sheets;
- **Photographs:** photographs in 35mm colour print and colour digital format were taken of the main features of the building, its general surroundings, and any features of architectural or archaeological interest. A selection of the colour digital photographs is included in this report, and the remaining photographs are presented on the accompanying CD;
- **Drawings:** drawings were produced by hand-annotating 'as existing' illustrations of the building supplied by the client's architect in digital format at a scale of 1:1. These comprised:
  - i. 'as existing' ground and first floor plans, at 1:100;
  - ii. 'as existing' elevations of all four external aspects, and of the courtyard, at 1:100;
  - iii. in addition two cross-sections through the building were produced at a scale of 1:50.

## 2.4 Watching Brief

2.4.1 The development of the site required the excavation of soil and overburden from various areas, which were labelled A to H (Figure 7). Following consultation with CHES and taking into account information acquired during the desk-based assessment areas A to E and H were to be monitored during excavation. In each case the overburden or topsoil and subsoil was machine stripped down to the natural geology, with the exception of Area C, the wheel pit, which was simply emptied of rubble in order to be incorporated as a feature in the new building. In addition, the removal of any internal concrete floors was to be monitored, although in the event the floor of the mill was left *in situ* and the floor of the drying kiln was removed without supervision, although an artefact recovered from the spoil was recorded (see Section 5.3 below). Any archaeological features identified were recorded in the following manner:

- **Written record:** descriptive records of all deposits and cuts were made using Greenlane Archaeology *pro forma* record sheets. In addition, a general record of each day's events was also made;
- **Photographs:** a photographic record was produced in both 35mm colour print and colour digital format. A selection of the colour digital photographs is included in this report, and the remainder are presented on the accompanying CD. A written record of all of the photographs was also made on Greenlane Archaeology *pro forma* record sheets;
- **Drawings:**
  - i. A plan of features encountered within the wheel pit was produced at a scale of 1:100.

2.4.2 The location of any features recorded during the watching brief was recorded relative to the known location of nearby buildings and other structures that were evident on the site plans and Ordnance Survey maps. Any features identified that related to the standing building were added to the drawings produced during the building recording in order to provide as complete a record of the structure as possible. Such elements are therefore depicted in Figures 3 and 4, with other elements shown in Figures 7 and 8.

## 2.5 Finds

2.5.1 **Processing:** all of the small artefacts removed from site were washed, with the exception of metal, which was dry-brushed. They were then naturally air-dried and packaged appropriately in self-seal bags with white write-on panels. The larger finds were not removed from site to be processed; most were too large and too heavy to move any great distance and it was not considered beneficial or necessary to remove them from site to record them. All of the larger finds were hand-drawn at a scale of 1:10, including the sandstone disc and the iron tilt hammer, which were drawn on site, and the fragments of mill stones, which were drawn after they had been deposited with the Newland Furnace Trust (see Section 5.3.4 and Section 5.3.5).

2.5.2 **Assessment and recording:** the small finds were assessed and identified and were recorded on *pro forma* record sheets. A catalogue of the finds was produced (Appendix 6), and the finds are summarised and discussed in *Section 5.3*.

## 2.6 Environmental samples

2.6.1 **Processing:** a single sample was collected. This was processed using flotation techniques, with 250µm and 500µm sieves used for the flot, and a 1mm mesh used for the retent. The flot and retent were then naturally air-dried.

2.6.2 **Assessment and recording:** artefacts and ecofacts were removed from the flot and retent and were assessed. The content of the flot and retent was recorded on a *pro forma* record sheet, and this information is summarised in *Appendix 7*, and discussed in *Section 5.4* below.

## 2.7 Archive

2.7.1 A comprehensive archive of the project has been produced in accordance with the project design (*Appendix 2*), and current IfA and English Heritage guidelines (Brown 2007; English Heritage 1991). Three copies of this report will be deposited with the Cumbria Historic Environment Record (HER), one with the client, and one will be retained by Greenlane Archaeology. A record of the project, together with a digital copy of the report, will be added to the *Online Access to Index of Archaeological Investigations* (OASIS) scheme.

2.7.2 Several large artefacts recovered during the watching brief have been donated to the Newland Furnace Trust (see Helme and Matheson 2009) while some have been retained by the landowner; these are listed in the relevant sections below. It is envisaged that all remaining, portable artefacts and ecofacts recovered from the site will be offered to the Newland Furnace Trust following consultation with the landowner; if they are not wanted by the Trust then they will be discarded.

### 3. Desk-Based Assessment Results

#### 3.1 Background history

3.1.1 The background history to the site helps our understanding of the development and use of the site, where known, and informs the conclusions of the building recording and watching brief.

3.1.2 **Early history:** while there is evidence for prehistoric activity from the general area around Ulverston in the form of casual finds such as stone axes and axe hammers dating from the Neolithic and Bronze Age (CCC and English Heritage 2002, map D), the extent of any associated settlement is, as yet, uncertain. More recently a large enclosure has been identified on Hoad Hill, immediately to the west of Newland, which is considered to be of Late Bronze Age or Iron Age origin (Elsworth 2005).

3.1.3 Although there have been occasional finds of Roman coins from the general area, no evidence has yet been confirmed of settlement in the immediate area from that period. Some of these stray finds, such as a coin (Shotter 1989, 42), have been found in relatively close proximity to the site, however, and fragments of possible Romano-British pottery have recently been found during evaluations in Ulverston (OA North 2004; Greenlane Archaeology 2006a). Recent work reappraising the evidence for Roman activity in the general area has suggested that a road may have passed close to or through Ulverston and that this could have had an associated settlement (Elsworth 2007).

3.1.4 The earliest reference to Newland appears to be in c1196 (Atkinson 1887, 385). The place-name might be taken to indicate land that had been relatively recently taken into cultivation.

3.1.5 **History of the mill:** a mill is recorded at Newland from as early as 1331 (Farrer and Brownbill 1914, 359n) and by at least 1347 it is part of property held by William de Coucy and Robert de Coucy of Gynes (Farrer 1915, 154). Later, in 1535, it is recorded as having paid rent to Furness Abbey (Farrer and Brownbill 1914, 359n; the tenant at the time was a John Corker: Brownbill 1919, 614), and was subsequently taken into the ownership of the crown before being sold in 1662 (Davies-Shiel 1978, 111). A runner stone that was removed from the site in the 1940s bore the date 1720 (*op cit*, 58), possibly indicating a period at which some part of the structure was altered or constructed. It is evident that the use of the water by the numerous mills within the Newland valley was of importance to the local land-owners and occupiers during this period, as a number of documents detail the requirements to keep the water course in good order (LRO DDBB 4/1 1719-1720; LRO DDBB 4/2 c1719; LRO DDBB 4/3 c1720). It is evident that by at least 1731 John Abraham of Swarthmoor Hall had an interest in the mill as he is said to have a moiety of the property at this time (LRO DDBB 4/4 1731). It is not known when this was given up but since John Abraham sold the manorial rights to Ulverston in 1736 (Bardsley 1885, 72), it is possible that this share may have been sold at that time.

3.1.6 **The Newland Company and the development of the furnace:** Newland Mill's historical significance lies in its connection to the establishment of the Newland Furnace and therefore ultimately the development and growth of iron production in the local area, the rise of Barrow-in-Furness as an important port, and the origins of the modern town (Fell 1908, 324; Marshall 1958; Marshall *et al* 1989). In 1746 Newland Mill was acquired from John Benson of Mansrigg Hall by Agnes Bordley acting on behalf of Richard Ford, her brother, and his business partners (Michael Knott, James Backhouse, and William Ford) who became known as the Newland Company and established the Newland Furnace later that year), in order to control the valuable water system that existed in the valley (Fell 1908, 217; OA North 2003, 12). Using Agnes Bordley to acquire the estate allowed them to establish a new enterprise without breaking an agreement made in 1735 with Thomas Rigg in regard to the Nibthwaite Furnace, in which Ford was a partner, by which neither party could establish a furnace within 10 miles (Fell 1908, 212). The original document states that the mill at that time comprised the mill, kiln (presumably a drying kiln), and a peat house (LRO DDBB 4/5 1746). More important, perhaps, was a second document granting the liberty to divert water from the Blaybeck (LRO DDBB 4/6 1746), which would have been vital to the successful operation of the new furnace. A later abstract of title provides similar information and shows that the ownership was transferred from Agnes Bordley to the partners in January 1747 (CRO(B) Z67/2 1812).

3.1.7 A detailed document, the result of a legal enquiry into the water rights in the valley at that time, dated 1787, provides considerable information regarding the events that followed the acquisition of the mill in 1746 and the developments that led to the establishment of the Newland Furnace (LRO DDBB 4/10 1787; this is transcribed in *Appendix 4*). It is particularly noteworthy that the partners are said to have '*rebuilt that mill upon a very extensive and improved plan & lately very near it an iron shop*' (*ibid*; these details have been highlighted in bold and italics in *Appendix 4*). This suggests that the original mill was replaced, or at least extensively modified, but it also indicates that the forge, said by Fell to have been built in 1783 (Fell 1908, 217), was in close proximity to the mill. The whereabouts of this part of the Newland Furnace complex has been a matter of debate for some time; Mike Davies-Shiel has always contested that it was contained within the corn mill (*pers comm.*; 2008), while the recent English Heritage report considered the cottage next to the weir to be a likely location (Goodall 2001, 16), in agreement with Fell's earlier suggestion (Fell 1908, 218). Some caution must be used in the interpretation of the documentary sources however: although the 'iron shop' is said to be close to the mill, the same document describes the mill as '*adjoining or near*' to the furnace (LRO DDBB 4/10 1787), when it is in fact some distance from it. The forge is first mentioned in accounts of 1785 and large sums of money were spent on building work relating to it in 1788 (OA North 2003, 13). However, records of bar iron produced at the forge only begin in 1791 and increase following this date (*ibid*).

3.1.8 Documentary sources relating to the mill become somewhat sparse during the last decade of the 18<sup>th</sup> century and first part of the 19<sup>th</sup>. A marriage settlement made between Henry Ainslie and Agnes Ford in 1785 lists a '*moiety of a certain water corn mill and of the Drying Kiln warehouses and other outhouses yards and appurtenances thereunto... being at Newland*' but gives no other details (LRO DDMC 32/9 1785). The forge is said to have gone out of use by 1807 (Goodall 2001, 16), although there is evidence to suggest that it continued in use as late as 1828 (OA North 2003, 13). There are, however, documents referring to the corn mill dated 1813 (CRO(B) Z72-73 1813), so it clearly still existed and was presumably also in use. By 1818 Harrison, Ainslie and Co. seem to have been trading as the Newland Company (Goodall 2001, 4), and they continued to operate the furnace at Newland intermittently until 1891 (*op cit*, 7), although there is little detailed information about the mill during this period. By 1903 the furnace had closed down and in the same year the lease for the property was cancelled by the Newland Company (Fell 1908, 218). This lease was taken up by James Athersmith, previously a tenant; as well as the corn mill the property included Newland House and garden, five cottages with gardens, the joiner's shop and the iron furnace, by that time in ruins (Helme 2002, 68). In 1904, it appears that Athersmith let the mill to the Woodburns, a well known milling family who operated the town mill in Ulverston (Marshall *et al* 1989). The 1910 valuation, however, shows that James Athersmith owned and occupied the mill at this time (CRO(B) BT/IR 12 1910). A list of probable occupiers of the mill, as given in selected directories between 1825 and 1900, is given in *Appendix 3*.

3.1.9 In 1918 there was a violent storm that burst the dam further upstream from the corn mill that caused serious flooding and silted up Newland Bridge (CRO(B) BD/BUC/42/6/50 1918-1919). This caused major disruption in Newland and put the Mill out of action (Helme 2002, 68). After much procrastination by the landowner, the Duke of Buccleuch, the dam was finally repaired by the tenant, James Athersmith, for £53, during which time the mill was out of action. With further loss of income and the costs of repair and maintenance, mainly due to deterioration under the tenancy of Harrison, Ainslie and Co, all the property at Newland was put up for sale in 1921 (*ibid*). Two people expressed an interest, the leaseholder, James Athersmith, and one of his tenants, Thomas Thompson, who ultimately purchased the estate. He then negotiated new leases with the other tenants including James Athersmith who terminated his lease of the mill in 1926 (*ibid*). It is not known exactly when the mill ceased operation, but it was probably at the time of the 1918 storm. It has been asserted that it was subsequently used as a warehouse and in 1919 was used to produce electricity (Marshall *et al* 1989), but there is only limited evidence to support this (see *Section 6.1.6*).

3.1.10 The property at Newland stayed with the Thompson family and their decedents until the present day (Helme 2002, 70). It ultimately passed into the possession of Harry and Geoffrey Stephenson, before recently passing into the ownership of a trust. The mill and several other properties in Newland belonging to the trust were sold at auction in October 2007 (Horne 2007), leading to a further change of ownership and ultimately the present redevelopment of the site.

### 3.2 Map Regression

3.2.1 **Plan of c1804:** this detailed plan, which is undated but has a watermark of 1804, shows the corn mill, the house across the road, and the furnace with the associated buildings including the row of cottages for the manager and other employees (Plate 1; CRO(B) BD/BUC/49/Bundle 1/16 c1804). The mill is shown as an irregular block, apparently taking much of its present form. The main section of the building is evident, as are those parts extending to the north and south.

3.2.2 **Ulverston Commons Enclosure map of 1812:** this plan, primarily intended to show the extent of the Ulverston commons enclosure, also shows some elements of Newland, although it is not complete and seems to only show those structures that fall wholly or partially on the Ulverston side of the parish boundary. It is difficult to be certain exactly what is being shown, although it is likely that the large long building is one of the charcoal barns while the smaller one is perhaps part of the furnace; other buildings are shown further up the valley with structures such as the mill pond. The corn mill is also shown in reasonable detail (Plate 2; Ulverston Local Board 1891). It appears to have much the same form as shown on the earlier map, although with more notable extensions to the north-west and south-east.

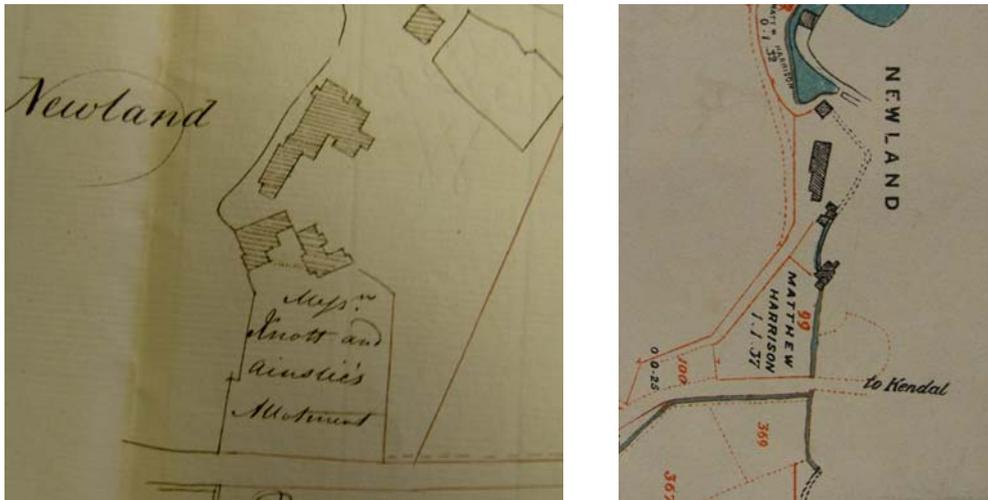


Plate 1: (left) Plan of c1804

Plate 2: (right) Part of the enclosure map of 1812 showing Newland

3.2.3 **Egton with Newland Commons Enclosure 1823:** this plan (LRO AE/4/5 1823; Plate 3) is remarkably similar to that of c1804 (CRO(B) BD/BUC/49/Bundle 1/16 c1804) and it seems likely that one is based on the other (as the latter is undated it is perhaps likely that it is copied from the former, especially as it seems more likely that the enclosure map would be based on an original survey). It therefore shows much the same information with the exception of two small outshuts which are shown on the north side of the mill, one of which has a distinctive curving shape.

3.2.4 **Undated estate plan (probably mid-19<sup>th</sup> century):** this is a detailed plan of the site (Plate 4; CRO(B) BD/BUC Box 40/Bundle 2/58 n.d.) and, although undated, is considered likely to be mid-19<sup>th</sup> century (see Goodall 2001, figure 2). It is particularly useful because it names various elements of the site, but it also shows the development of the site since the previous map. The corn mill noticeably has much the same plan, although it seems slightly lengthened and the outshuts on the north-west side are not shown in the same way. Interestingly, this is the first map to show any divisions within the mill building, although all it appears to be showing is a separate space on the south-west end where the wheel pit would have been.

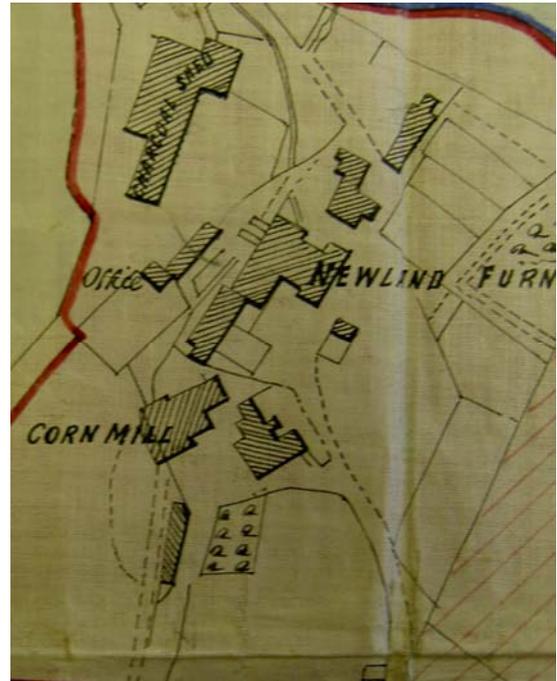
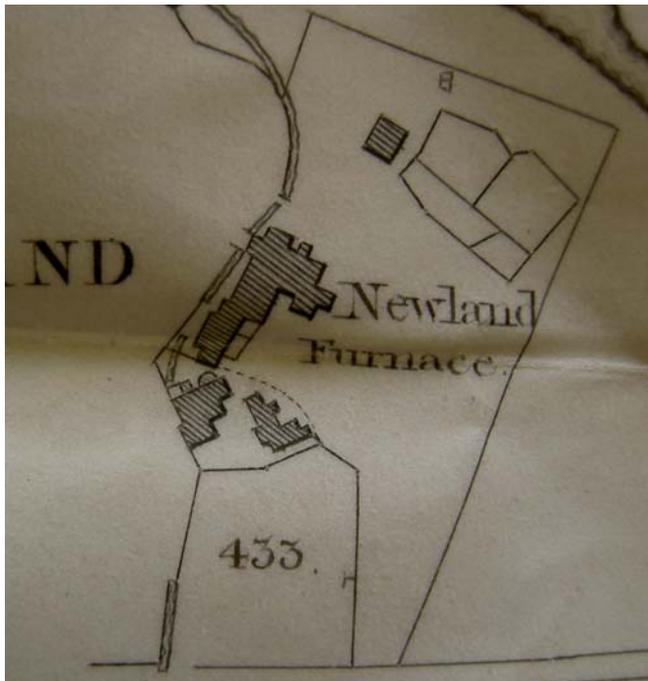


Plate 3: Part of the Egton with Newland Commons Enclosure map showing Newland Furnace and associated buildings, including the mill

Plate 4: Part of an undated estate map, probably mid-19<sup>th</sup> century, showing various elements associated with the furnace

3.2.5 **Ordnance Survey 1851:** this plan clearly shows the corn mill in the village of Newland (Plate 5). The mill appears well developed by this time and seems to comprise several elements with much the same plan as that shown in the earlier maps. Interestingly the mill leat that comes from Newland beck is shown as a parish boundary, which would suggest it is of considerable antiquity.

3.2.6 **Ordnance Survey 1890:** this more detailed map shows a similar layout to that in 1851, although the mill is shown to comprise four constituent rooms or buildings (Plate 6).

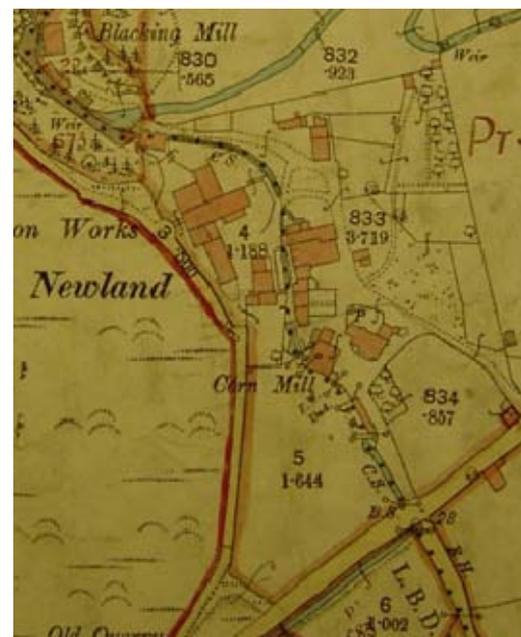


Plate 5: (left) Extract from 1851 Ordnance Survey

Plate 6: (right) Extract from 1890 Ordnance Survey

3.2.7 **Plan 1904:** this plan (Plate 7) has probably been hand drawn from the 1890 Ordnance Survey map (Plate 6; CRO(B) BD/HJ 184 7/1 1904) and shows the buildings to be unchanged from that date.

3.2.8 **Ordnance Survey 1913:** this map gives the clearest picture of the corn mill's layout and water supply. Once again the layout of the building is apparently unchanged since 1851 (Plate 8).

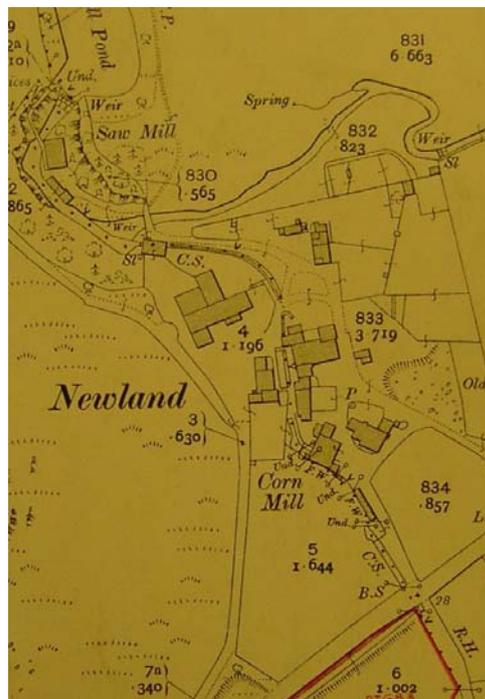
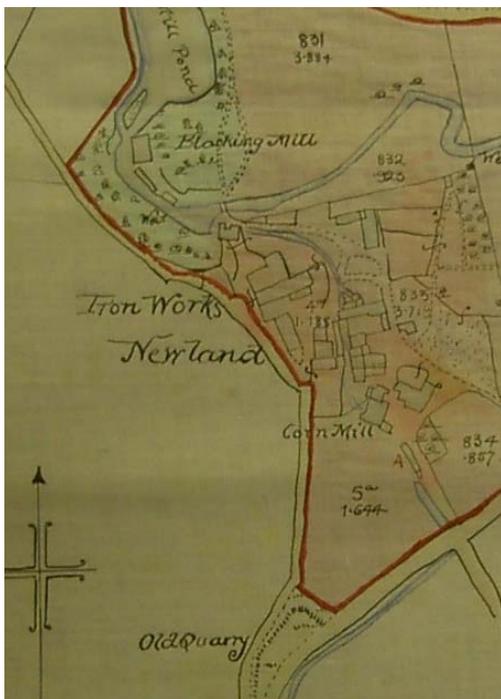


Plate 7: (left) Extract from 1904 indenture plan

Plate 8: (right) Extract from 1913 Ordnance Survey

### 3.3 Conclusion

3.3.1 The documentary and cartographic record is remarkably detailed for such a remote and rural area, although this is largely due to the presence of the iron furnace and associated structures. While a mill is recorded in Newland from as early as the 14<sup>th</sup> century it is not certain where this was located, especially as there were at least three mills in the Newland valley at one time, and it is apparent that the site under consideration saw considerable alteration after its purchase by the Newland Company. The documentary evidence also provides some useful information about the components of the mill, indicating that it was equipped with a peat house and drying kiln from at least 1746. There is also some evidence that it was situated close to an 'iron shop', which perhaps corresponds with the forge said to have been established in 1783 (Fell 1908, 218); while this does not prove that this was contained within the mill building itself (as suggested by Davies-Shiel (2008)), it does indicate that it is not the building further to the north (as argued by Goodall 2001, 16).

3.3.2 It is evident from the cartographic sources that the corn mill had taken much of its present form as early as c1804, although the maps are not detailed enough to distinguish the various components of the site until later in the 19<sup>th</sup> century. By this time it is apparent that all of the various outshuts and other elements had been constructed. It is likely that these represent the drying kiln and peat store mentioned in the documentary sources, although there are other outshuts shown whose function is uncertain.

## 4. Building Recording

### 4.1 Arrangement and Fabric

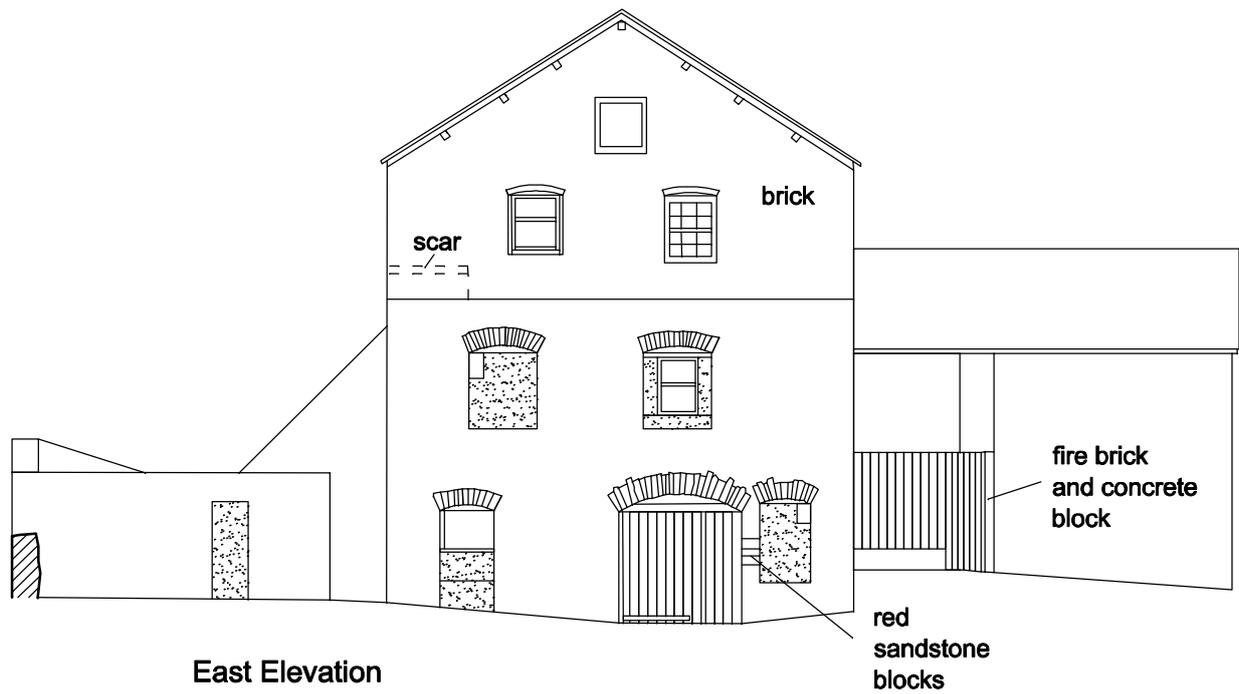
4.1.1 The building is orientated approximately north-east/south-west, although for the purposes of this report and for simplicities sake it will be considered to be orientated north/south (north-east being north, south-west being south and so forth). The main body of the mill is four storeys high (three full floors plus an attic), while the projecting section to the north is two storeys, albeit very low, and in both cases the first floor has been removed. Attached to the south-east corner are the remains of a single storey outshut with no roof and attached to the south elevation are two stub walls; the wall to the west is partially collapsed while that to the east forms a substantial angled buttress. These appear to have originally formed the walls of a structure covering the wheel pit, which was positioned against the south elevation and fed by a head race to the west. There is no evidence for a tail race as such although there is an obvious ditch, which is probably its ultimate outlet, to the south-east alongside the field boundary and road.

4.1.2 The majority of the building is constructed from the local slate in rough courses, although there are a few (perhaps two or three) pieces of red sandstone in the east elevation of the main part – these are evidently dressed blocks and appear to be re-used. There are also occasional furnace-lining blocks that have been re-used within the building, typically in relation to areas that have been altered. The top storey, in contrast to the rest is constructed from hand-made mid-orange brick, laid in an English garden wall bond at a ratio of four rows of stretchers to one row of headers. The roof of the main part of the building is finished with grey slate, while the extension to the north is covered by corrugated metal sheeting. Internally the ground floors are concrete, which extends to cover some of the external areas as well, while the upper floors are timber. The timber is typically very neatly hand-finished and sawn; more detailed descriptions are given below.

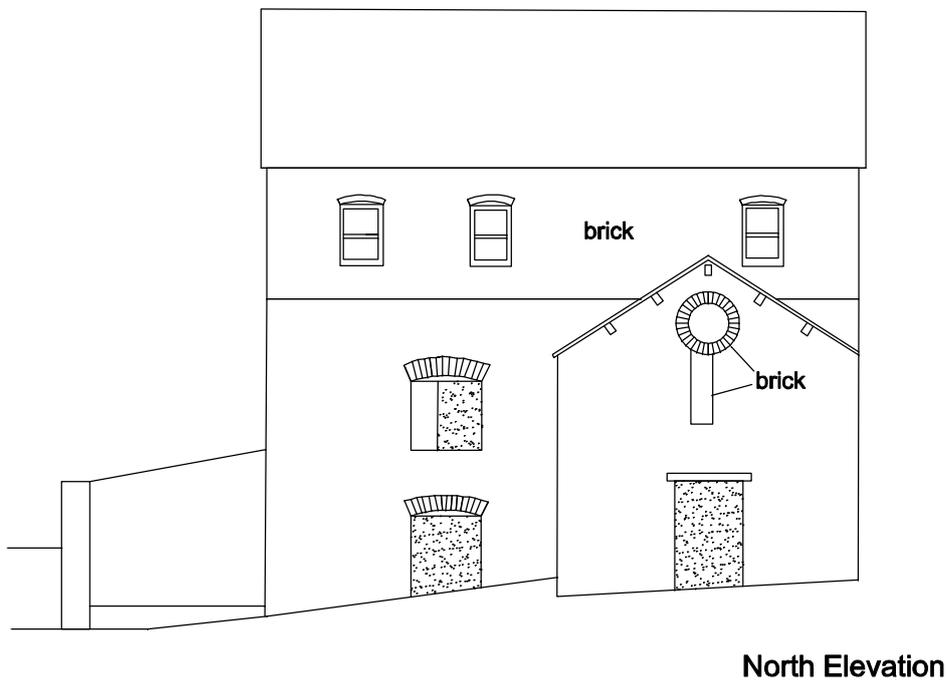
### 4.2 External Elevations

4.2.1 **North external elevation (Figure 2; Plate 9):** at ground floor level there is a doorway with a shallow arch, which has been blocked up with a mix of large sub-rounded stones and slate. At first floor level, directly above the doorway, is a window also with a shallow arch, the west two-thirds of which is blocked with stone and brick. The remaining aperture has a slate lintel and sill and a single light. At second floor level there are three windows: two at the east end, and one at the west end. All three are shallow arched with brick sills and timber lintels, with two-light timber frames.

4.2.2 The north elevation of the north extension is of very rough coursed slate and has been heavily repaired. A central door with timber lintel has been blocked with slate. At first floor level there is a tall narrow area filled with handmade mid-orange brick, which marks the position of a flue. At the top, within the apex of the gable, is a circular opening of handmade brick.



East Elevation



North Elevation



Key	
	Section
	blocked doorways / windows

Figure 2: External elevations, north and east



**Plate 9: North external elevations**

**4.2.3 East external elevation (Figure 2; Plate 10):** north of centre on the ground level is a large doorway with a round arched top with edge-set stones and timber lintel below. The doorway is flanked by a window and a smaller door in a similar style. The window to the north is blocked by stone and some brick, and the initials 'TJA' are scratched into a quoin. The door to the south is blocked at the lower half with some furnace lining brick, with the top half remaining as a window with a slate sill and brick in the south jamb. At first floor level are two shallow arched windows. The south window is blocked with sub-rounded stones and mortar, with a small aperture left in the top left hand corner. The northern window has a timber lintel and a slate sill. This window has been narrowed on either side with a column of brick. The second floor has two windows with shallow arches and large timber lintel behind. The south window has a modern two-light timber frame casement and the north window a 12-light sliding sash; neither window has a sill. In the centre of apex of the roof above these windows is a third window with a single-light timber frame. There is a row of headers above the timber lintel and a large slate sill. A mortar and slate scar from the south elevation extends into this elevation approximately 1.5m. There is also minor repair and re-pointing around the windows.

**4.2.4** The east elevation of the north extension is of random rough cut slate with occasional red brick fragments. At the south end is a double width door above which is an opening which has been blocked with fibre-glass corrugated sheeting which extends to the roof. A column of mainly furnace brick forms the north door jamb which supports a wooden lintel.

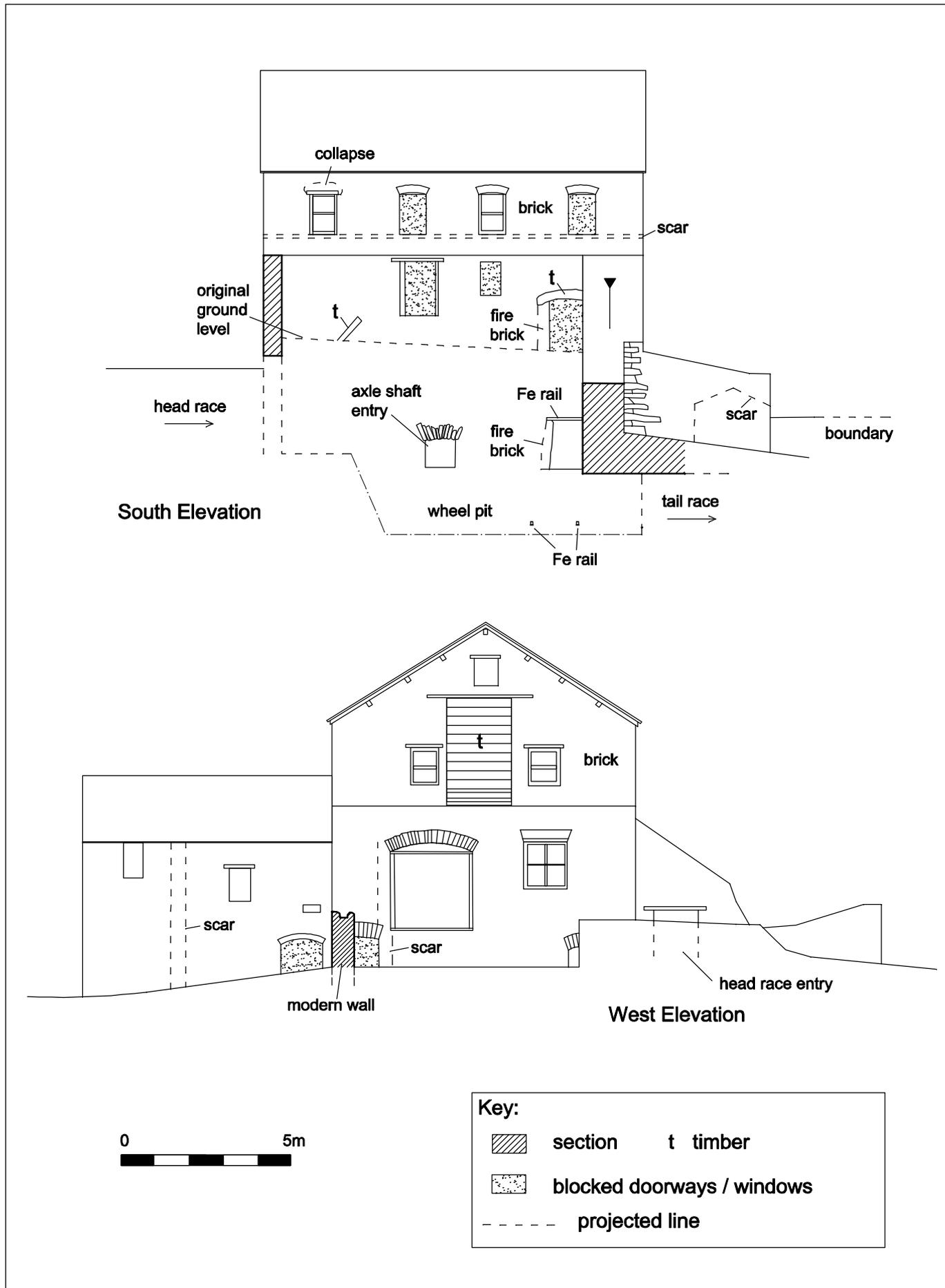


Figure 3: External elevations, south and west



**Plate 10: East external elevations**

4.2.5 **South external elevation (Figure 3; Plate 11):** on the east side, at first floor level, a substantial angled buttress extends to the south. Adjacent to this is a blocked window with a timber lintel; the west jamb of this has been repaired, and the entire window has been blocked with furnace brick. To the west, slightly off centre, is a window with timber lintel and jambs, which has been blocked with handmade brick. The second floor has four windows, evenly spaced along the elevation, all of which have shallow brick arches and timber lintels. The second and fourth windows from the west are blocked with stone and handmade brick. The first and third windows have two-light timber frames. A scar formed by two rows of slate, probably denoting the position of an attached roof, is present at the sill level of the top floor windows. The entire wall is in poor bad condition, with various cracks and obvious movement.



**Plate 11: South external elevation after removal of scrub but prior to excavation of the wheel pit**

4.2.6 **West external elevation (Figure 3; Plate 14):** at ground level there is a single aperture on either side, each with a voussoir stone arch: the northern one is completely blocked and has a later wall built over part of it (Plate 13), while the southern one is partially blocked by what is presumably the wall retaining the side of the head race (Plate 12). To the south of this the fragmentary remains of the adjoining wall contain a blocked aperture, presumably originally to provide access between the head race and the wheel pit, which has an iron girder for a lintel. At first floor level, north of centre, is a large arched aperture measuring 2m high by 2m wide, with a large timber sill and lintel. The scar of a former wall is present against the north jamb of this aperture. Set high to the south of centre is a four-light timber frame window, with timber lintel and slate sill. At second floor level, is a centrally-situated large loading doorway measuring approximately 3m in height by 2m in width. It has a concrete lintel and sill, and timber jambs. There is a window on each side of this doorway and one above in the apex of the roof. The north window has a two-light timber frame, with a concrete outer lintel and timber inner lintel. The south window has a two-light timber frame, with an iron rail as a lintel. The top window has a single-light frame, timber jambs, and a slate lintel. There is an aperture between the sill of this window and the lintel of the doorway below, which likely once held a hoist beam. The brickwork around the door and windows has been heavily repaired.



**Plate 12: (left) southern partially-blocked ground-level aperture in the west elevation**

**Plate 13: (right) northern blocked ground-level aperture in the west elevation**

4.2.7 There is a small window opening under the roof line at the north end of the west elevation of the north extension. Slightly off centre to the south is a window opening with a timber lintel. There are scars of a non-extant wall at the south end of the elevation, to the south side of the small window. There is a narrow aperture at mid height on the south end of the elevation, and a blocked doorway is evident on the west side, although this has been largely obscured by a thick covering of whitewash that has been applied across the elevation.



Plate 14: West external elevation

4.2.8 **South-east outshut – elevations (Figure 2 and 3):** the east elevation is constructed of rough courses with slate strings, furnace bricks, handmade bricks and large sub-rounded stones (Plate 15). Just off centre to the north is a blocked narrow doorway. The south elevation is a randomly constructed wall, built using slate, large pieces of which have been used for quoins. The top slopes from west to east, possibly denoting the original roofline. A mortar scar indicates the position of a non-extant outshut (Plate 16). The west elevation extends from the buttress projection, south from the mill. It is constructed from roughly coursed slate and sub-rounded stones with large irregular quoins.



Plate 15: (left) East elevation of south-east outshut

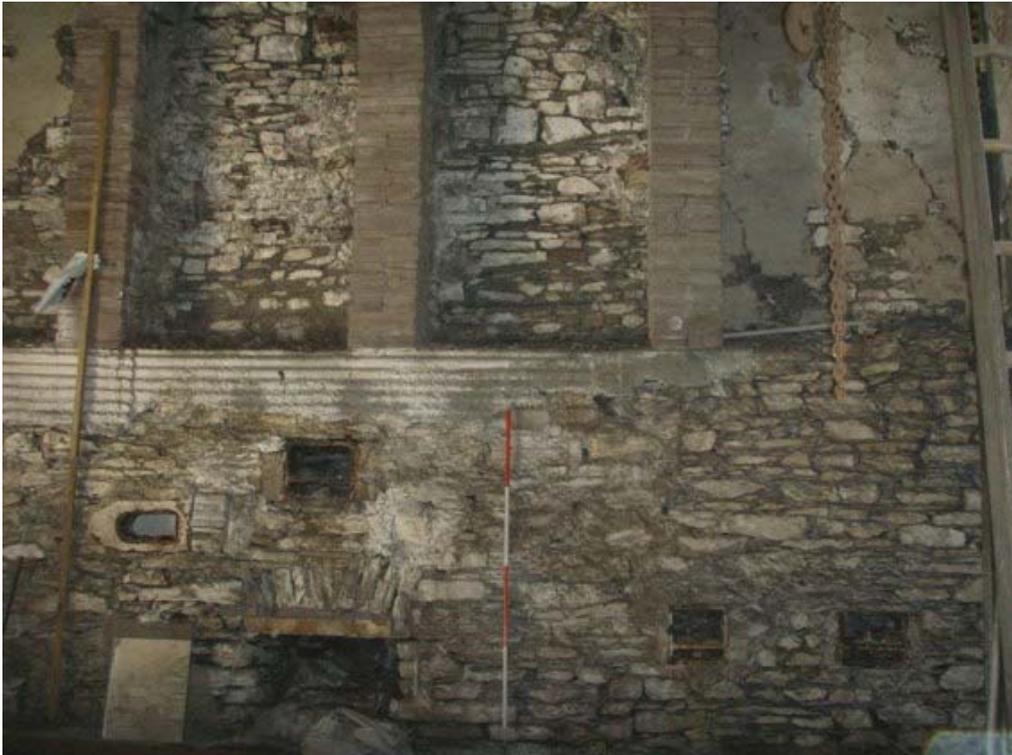


Plate 16: (right) South elevation of south-east outshut

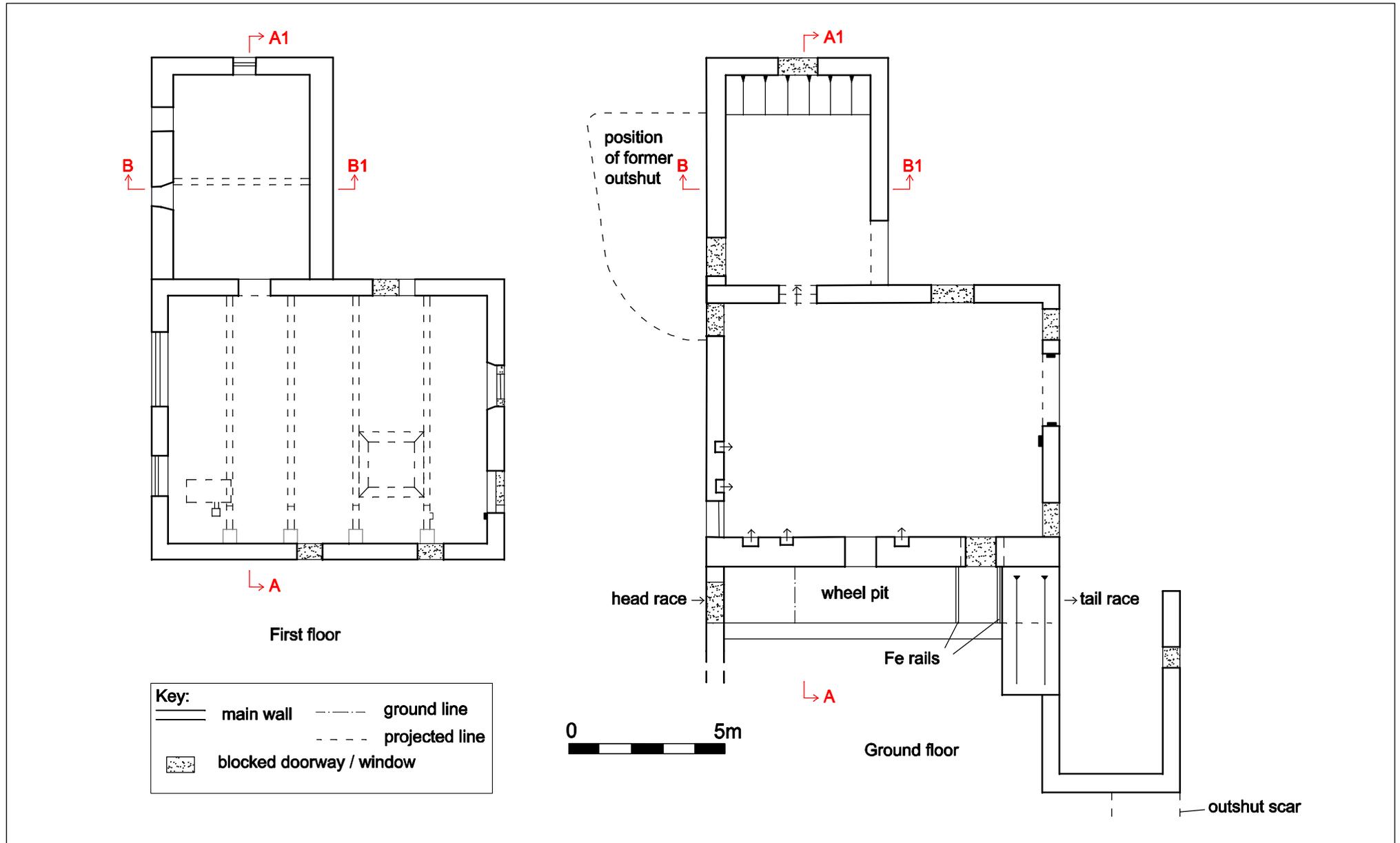
## 4.3 Internal Detail

4.3.1 **Ground floor – mill (Figure 4):** the north elevation has a blocked doorway on the east side with an overlong rough timber lintel. There is a door to the west (Plate 19), which has a re-used timber lintel finished with stop-chamfered decoration, which extends into the wall on the west side, and empty joist slots suggesting it was originally a beam. The lower part of the doorway has been filled, leaving a step up into the north extension. In the east elevation there is a large doorway north of centre with a timber

lintel. To the north of the doorway is a window with a timber lintel, which is blocked. Attached to the wall, immediately north of this window, is a heavy timber plate, trapezoidal in section, with chamfered edges, and with a narrow slot cut into the centre of the lower part. This probably represents some form of bearing for the early mill gearing (Plate 18). At the south end of the elevation is a former doorway, which has been partially blocked to form a window. The timber lintel is oversized and runs from the south corner to the lintel of the large doorway. The doorway has been half-blocked to create a window. In the south elevation, on the west side, are two iron bearing boxes with support bolts, each with two or three compartments (Plate 17). In the centre is a wide voussoir stone arched opening at ground level with a vaulted passage leading through wall, which would have formed the access for the axle shaft for the mill wheel. A project row of bricks has been added across the front. Above and to the sides of this are blocked holes, possibly for timbers. Above these is an iron bearing box with two compartments and firebrick edging. To the east an iron tilt hammer head has been set into the wall on its side, with the shaft hole open perhaps forming another crude bearing box. To the east is a blocked doorway with an iron girder lintel and inserted firebrick jambs. The west elevation has a blocked door on the north side with a timber lintel with a curved scar, suggesting it is a re-used axle bearing. To the south of this are two more bearing boxes. The first is crudely lined with timber, with a hole in the rear for a drive shaft. The second is iron lined but also filled with timber, within which is a hole for a shaft. At the south end of the elevation is a door, blocked internally with concrete blocks. It also has a rough timber lintel, which has an angled joist slot suggesting it is part of a re-used cruck blade. All elevations of the ground floor are whitewashed. The floor is constructed from concrete, and the original ceiling, which also formed the floor of the first floor level no longer remains.



**Plate 17: South internal elevation of the mill showing bearing boxes, aperture for the axle shaft, and tilt hammer head at ground floor level, and inserted concrete supports on the first floor**



Client: Paul Glass

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Figure 4: Ground and first floor plans



Plate 18: (left) Timber block, perhaps a bearing, attached to the south side of the east elevation



Plate 19: (right) Pair of doorways linking the main part of the mill to the extension to the north

4.3.2 **First floor – mill (Figure 4):** the north elevation has a half-blocked window on the east side with a rough timber lintel. On the west side there is a doorway with a sawn timber frame and a rough lintel (Plate 19), below which is a sawn-off beam for the first floor level. The beam is hand finished with joist slots. In the east elevation there is a window above the large ground level doorway, which is set in a much larger recess. Another window to the south has also been blocked and is also set in a larger recess. A timber lintel runs the length of the elevation, attached which is a timber block with slot which matches an opposing block attached to a joist. The south elevation is thinner than the ground floor and has four concrete block buttresses supporting the beams of the floor above. Two blocked apertures are visible, one with firebrick and brick in the jambs, which may once have been a door. Some large timbers are built into the wall below the ceiling. The west elevation has a large door on the north side, with a rough timber lintel. A plank and batten door covers the south half of the doorway, whilst the north half is covered by plywood. The sawn off end of floor joists for the original floor remain to the south of the door. The entire first floor has been whitewashed and has some patchy plaster remaining. The ceiling is supported by four beams running north/south. These are all slightly stop-chamfered with additional supports added at the south end, which now rest on concrete pillars, bolted to the beams. There is a hopper in the south-west corner comprising a rectangular box with attached gearing and a pulley on the south side (Plate 20). To the south-east is a large pyramid shaped boxed structure, which forms a funnel situated between two beams. There is an access hatch to the second floor on the west side.



**Plate 20: Timber box or hopper attached to first floor ceiling/second floor joists**

4.3.3 **Second floor – mill (Figure 5):** the north elevation has three windows, all with timber lintels and modern two-light casements. The window on the west side has a re-used lintel and a row of headers above and there is a small hatch at floor level providing access into the extension to the north via a short chute (Plate 21). The east elevation has two windows with hand finished timber lintels. There is a row of headers over the north window. The south elevation has four windows with timber lintels, two of which are blocked. The entire south elevation is severely cracked. In the west elevation there are two windows with timber lintels; there are headers over the south window. There is a large central door with a concrete lintel, which is filled by boards. All of the walls are built from brick and are whitewashed. The floor is boards covered with linoleum. The original ceiling remains, which provides the floor for the attic level above. Three stop-chamfered timber beams run north/south across the room and are built into the north and south walls and supported by large rails on these two elevations. On one of these has a large gouge in its south end, presumably caused by the action of machinery or ropes rubbing against it. The joists are very irregular and hand finished (Plate 22). On the west side are modern timber stairs, leading to a hatch into the attic level.



**Plate 21: North elevation of second floor showing brick walling and chute at floor level into the north extension**



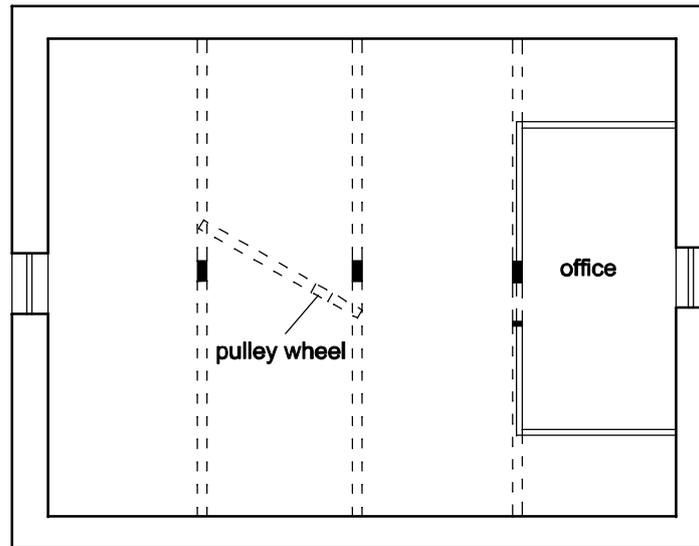
**Plate 22: Typical beam and joists supporting floorboards on second floor. Note gouge in right side of beam**

4.3.4 **Attic Floor – mill (Figure 5):** there is no north or south elevation as such; however, a room has been created at the east end by the addition of modern partitions, which are finished with wallpaper. The east elevation is also finished with wallpaper and has one window with a modern uPVC casement with a single light. The west elevation is built from brick and is slightly thinner than the floor below. There is a small aperture with a timber lintel. The attic is effectively divided into two parts by the modern partition walls at the east end. The floor is boards, and covered by carpet in the room to the east. The roof structure is supported by three king post trusses, each with only a single angled strut left, tapered at the top to meet the principals and squared at the base to meet the braces (Figure 6; Plates 23 and 24). Iron straps are attached between the king post and the beam below, and the west and centre trusses have a collar bolted to them. The joints are otherwise fixed with very narrow timber pegs. All the timber is neatly sawn, slightly chamfered, and hand finished and there is an additional narrow beam running between the east and central collars with a pulley wheel housed in the centre (Plate 23). There are three purlins per pitch, overlapping at the trusses, and one diagonally-set, more irregular ridge-purlin. Some empty slots for missing timbers remain in the principals. Each truss appears to have carpenter's marks at the junction between the braces and the principals. On the centre truss, marks "II" and "I" have been chiselled into the timber on the north and south sides, respectively. The east truss bears crescent shaped ")))" marks on the north side. The marks on the west truss are unclear.

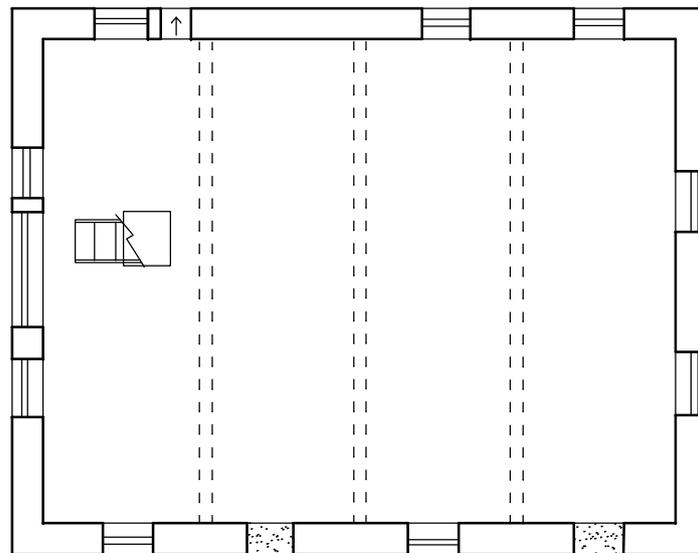


**Plate 23: (left) Part of a truss on the attic floor showing pulley wheel incorporated into beam**

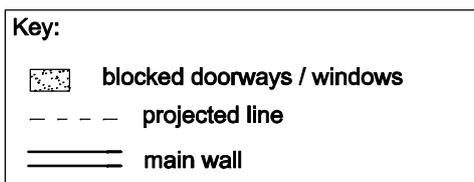
**Plate 24: (right) Trusses on the attic floor**



Attic floor



Second floor



4.3.5 **Northern extension (Figure 4):** the north elevation has a central doorway with lintel, and is now blocked. A sloping wall approximately 1.7m high is built across the length of the wall. A slot above the doorway, a probable flue, is now also blocked. Above this is a square window with a timber lintel and a sill though which the flue is cut (Plate 25). The east elevation has a large double doorway with a single ledge and brace door on the south side. In the south elevation is a central doorway with timber lintel on the ground floor. Above and off centre is another doorway with a timber lintel and frame. Joist slots are suited below this door and along the length of the wall (Plate 27). The west elevation has an off-centre window opening at mid-height, with a timber lintel. There is a small window opening at roof height towards the north end of the elevation and a further small square aperture to the north of this small window, which is blocked externally. At the south end of the elevation there is a low doorway, which has been blocked with stone and has a rough timber lintel, apparently a re-used axle bearing (Plate 26). The roof structure comprises two hand-finished purlins per pitch and a diagonally-set ridge purlin of similar type (Plate 28), all of which overlap at a single truss (Figure 6); this consists of a basic tie-beam form with a single collar, and all of the timber is again hand-finished.



Plate 25: (left) Remains of flue in north end of northern extension

Plate 26: (right) Blocked doorway on south side of west elevation with possible axle bearing re-used as a lintel



Plate 27: (left) South elevation of northern extension showing doorways and empty joist slots for first floor

Plate 28: (right) Roof structure of northern extension

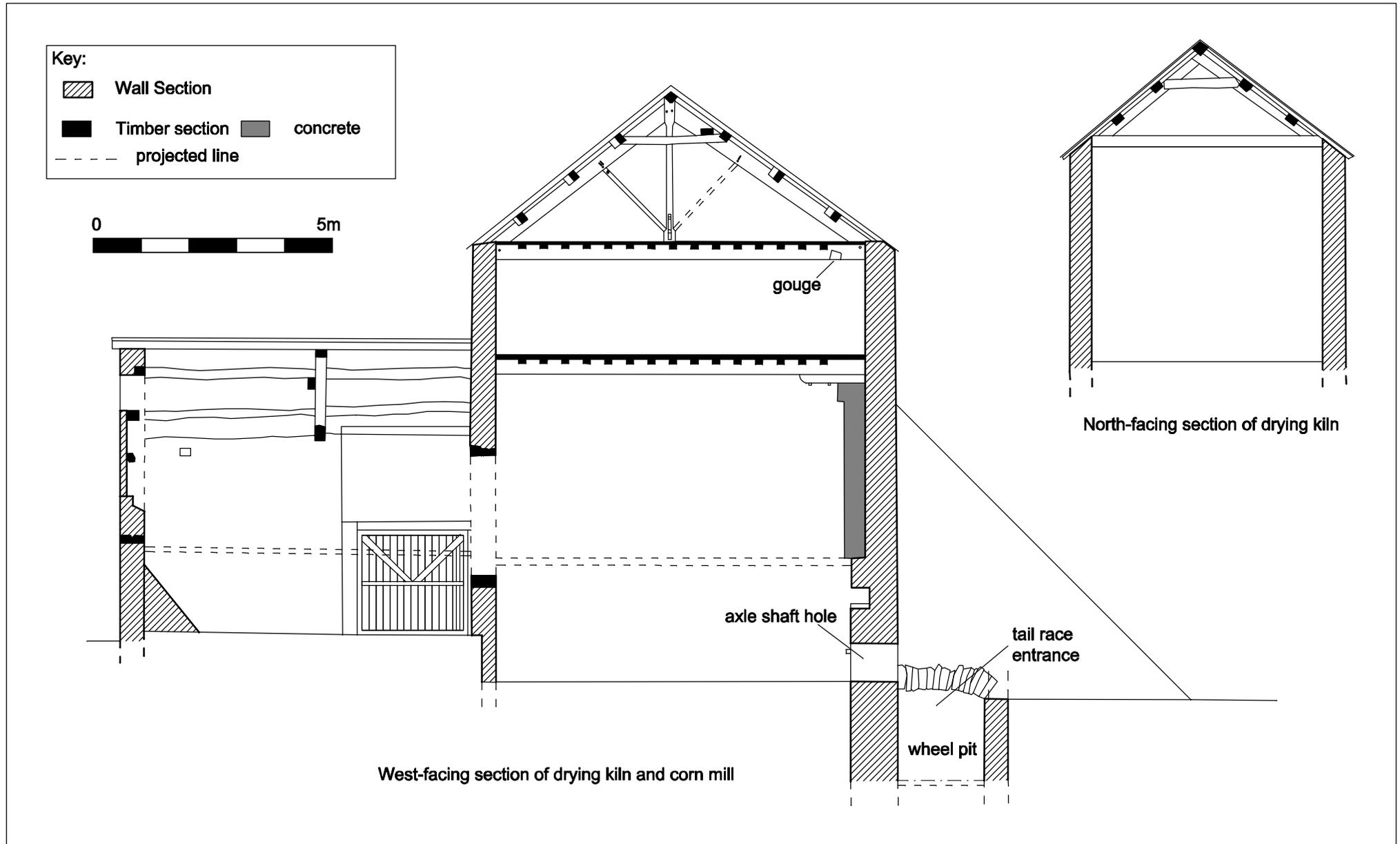


Figure 6: Cross-sections

4.3.6 **South-east extension (Figure 4):** the east elevation of the outshut is of the same construction as the external elevation and has been re-pointed in places. The south and west elevations both have remnants of mortar and whitewash remaining (Plate 29).



Plate 29: Interior of south-eastern outshut

## 5. Watching Brief

### 5.1 Introduction

5.1.1 The land within the development, approximately 100m long by 35m wide, is situated between the corn mill at the north end and the A590 to the south. On the west side of the development the land slopes up steeply and is meadow. To the west is a track running northwest from the A590 into the village. The watching brief took place during the topsoil strip and levelling of two areas within the development site (D and E) and further areas immediately adjacent to the corn mill (A, B, and C; Figure 7). Area D was situated directly south of the corn mill; Area E is directly to the southeast of Area D and behind the disused stables to the east. The results of monitoring in Areas A and B are described by reference to the structures encountered (see *Section 5.2.1* below). The majority of the excavation of Area C, the wheel pit, was carried out some time after the rest of the groundworks and following consolidation of the south wall of the mill and for this reason it is described last (see *Section 5.2.4* and *Section 5.2.5*). Area H was also intended to be monitored but in the end, due to a communications error, it was not. Area F, being at the far end of the site, some distance from the structures identified as being of archaeological interest, was not monitored. Area G did not require to be monitored as part of the watching brief.

### 5.2 Results

5.2.1 **Area A/B - head race:** the head race leading to the mill runs in a northwest to southeast direction through Area A; Area B is where the mill race has been backfilled. The section through the mill race (Section 1) revealed it was constructed of dry stone walls and lined with clay and was approximately 2m wide where it meets the mill. Due to the mill race running along ground sloping to the east, the east side wall was nearly double the thickness of the west side wall, 2.2m and 1.2m respectively. The sides of the mill race are each constructed of two dry stone walls, the outer walls, **103** and **107**, of each side were constructed first. A thick clay lining, **106**, was applied to the inner sides of the wall, 0.8m thick on the east side and 0.5m on the west side. At the base of the wall the clay lining was approximately 0.4m in depth, acting as a footing for the inner walls, and the lining on the floor of the mill race was fairly thin, between 0.1m and 0.15m in depth. Beneath this central area there was a thin deposit, little more than a centimetre thick, comprising mainly charcoal, **110**, from which a small sample was taken (see *Section 5.4*). The inner walls, **101** and **108**, were then constructed with any spaces within the wall sides being filled with stone rubble, **104** (Plate 30, Figure 8). The depth of the mill race at this point was 1.5m with the east wall being 2.3m high, the east wall was no longer extant. The opposing north facing section reveals that where the mill-race entered the mill it had been truncated and back filled with re-deposited topsoil and building rubble, **109**, and a short culvert, no longer than 3m in length, has been constructed from stone and reused furnace lining bricks (Plate 31) to turn the water away from the mill.



Plate 30: (left) South-facing section of the mill race (Section 1)

Plate 31: (right) Modern culvert at the south end of the head race

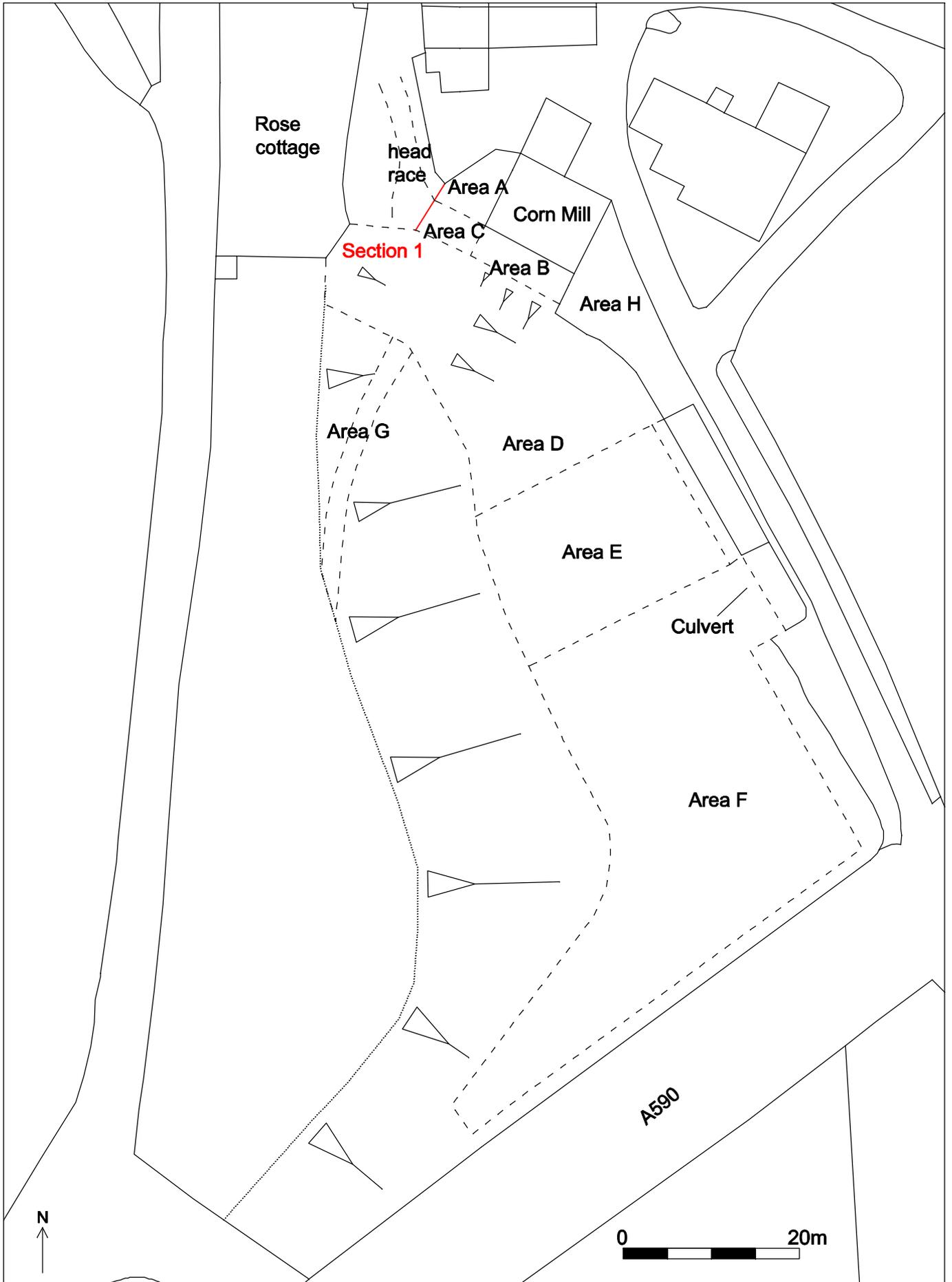


Figure 7: Areas of watching brief

5.2.2 **Area D:** This area is approximately 34m by 22m and is fairly level at the south end but slopes steeply upwards from the middle to the north end and to the west. The topsoil consists of greyish-black friable sandy clay, approximately 0.1m in depth, although immediately beneath the turf on the north-east side, adjacent to the field boundary, was an area of hard standing, comprising 75% gravels and patches of blast furnace slag. This extended to the south-east in front of the long narrow building situated alongside the road. The subsoil was moderately stony, firm reddish-brown sandy clay, approximately 0.15m-0.2m thick and is adjacent to the mill on the northeast side. At the north end the ground was taken down by approximately 1.5m. Deposits of gravel and stone stained by iron ore were found on the west side of the area, below the east boundary wall of Rose Cottage (Plate 32 and Plate 33).



**Plate 32: (left) General view of Areas D and E looking north**

**Plate 33: (right) West side of Area D showing deposits of gravel stained by iron ore**

5.2.3 **Area E:** This area, approximately 19m by 24m, is south of Area D (Plate 32) and fairly level on the east side sloping slightly upwards to the west. The topsoil, which was only 0.1m in depth, was stripped, and the ground levelled to a maximum depth of 1.5m at the base of the slope on the west side. Towards the north east side of the area the topsoil was very gravelly which was due to sand and gravel being laid down at the field entrance due to water-logging. No features were found within this area. In the south-east corner of this area, a slightly deeper channel was excavated to expose the ditch alongside the road, which presumably originally linked to the tail race from the mill (Plate 34). Within this area the top of a stone culvert was exposed, which comprised slate slabs resting on upright edging stones. This was only exposed to a depth of 0.4m, and the whole structure was found to be 1m wide.



**Plate 34: Channel containing culvert alongside east boundary**

5.2.4 **Area C - the wheel pit:** the wheel pit is situated on the south side of the corn mill and had been backfilled to raise the ground to the height of the mill race, leaving the original ground level sloping down steeply southwards from the mill. The ground works involved the removal of the made up ground above the wheel pit down to the level of the footings of the south wall. The backfill within the wheel pit largely comprised building rubble and re-deposited topsoil, with inclusions of mid 20<sup>th</sup> century domestic waste including a dismantled automobile and was essentially the same as the material filling the head race (**109**). The removal of the backfill revealed a shallow arched opening in the east buttress which exited to

the tail race running to the south-east. In the south elevation of the mill a blocked doorway was revealed at the east end with an iron rail acting as a lintel and the west jamb constructed mainly of large furnace bricks. A square opening was revealed just west of centre of the south elevation, which was also blocked.



**Plate 35: (left) Excavated wheel pit, looking west**

**Plate 36: (right) Arched entrance of the tail race**

5.2.5 The wheel pit was excavated to a depth of approximately 2m from the height of the ground floor of the mill and was 1.8m in width; the lower fill predominantly comprised slate rubble (Plate 35). A length of 6.8m was excavated from the east end with the remainder left *in situ*, the west elevation not being exposed. Four fragments of millstone were recovered from the backfill (**109**). The excavation did not quite extend to the base of the pit, although in parts a compact orange sandy clay, above which was a thin layer of silt, was revealed, which may have been the floor. The depth of the wheel pit from the floor of the mill is approximately 1.2m and probably slopes down to the west as it exits into the culverted entrance of the tail race, which was approximately 2m in height (Plate 36). This culvert extended below ground approximately 1.75m in length to the west, and was evidently sloping down to the east with the far end being some 1.6m lower and filled almost to the roof. Both the north and south elevations of the wheel pit are constructed of slate rubble. In the south elevation there is a small square hole situated 0.5m from the east end of the pit approximately midway up the wall, which is 0.6m in depth and at right angles to the elevation. Also at the west end of the pit, at a depth of 1.6m, are two iron rails fixed at right angles across the pit (Figure 4). The west rail had the remnants of brackets attached (Plate 36).

5.2.6 **Drying kiln:** the removal of the concrete floor from the drying kiln on the north side of the mill was not monitored, although it was intended that it would be. According to Stan Bould the deposit beneath the floor largely comprised loose modern rubble although a large piece of worked sandstone was recovered (see Section 5.3.4 below).

## 5.3 Finds

5.3.1 **Introduction:** the small finds were all found in the backfill of the mill race where it was excavated just west of the wheel pit. All the finds are post-medieval pottery and glass and were from context **106**, except for 16 pieces of unstratified pottery, which were effectively recovered from the topsoil over Areas D and E. A number of larger finds were also recovered from the site, including: the tilt hammer head, originally situated in the south wall of the mill, which was recovered after demolition, and several pieces of worked stone found mainly in the backfill of the wheel pit. A composite timber and iron object was recovered from the backfill of the wheel pit and one unstratified iron object was recorded but not retained (see Section 5.3.3 and Section 5.3.5, below).

5.3.2 **Pottery and glass:** a detailed list of the small finds is presented in Appendix 6 below. All of these finds are relatively late in date, none being definitely earlier than the 19<sup>th</sup> century and the majority being 19<sup>th</sup> to 20<sup>th</sup> century in date. Interestingly the vast majority were recovered from the fill of the mill race, **106**, as it was cut across and this would seem to indicate that it had in indeed gone out of use some time in the early 20<sup>th</sup> century at the latest, which corresponds well with the documentary accounts of the devastating flood of 1918.

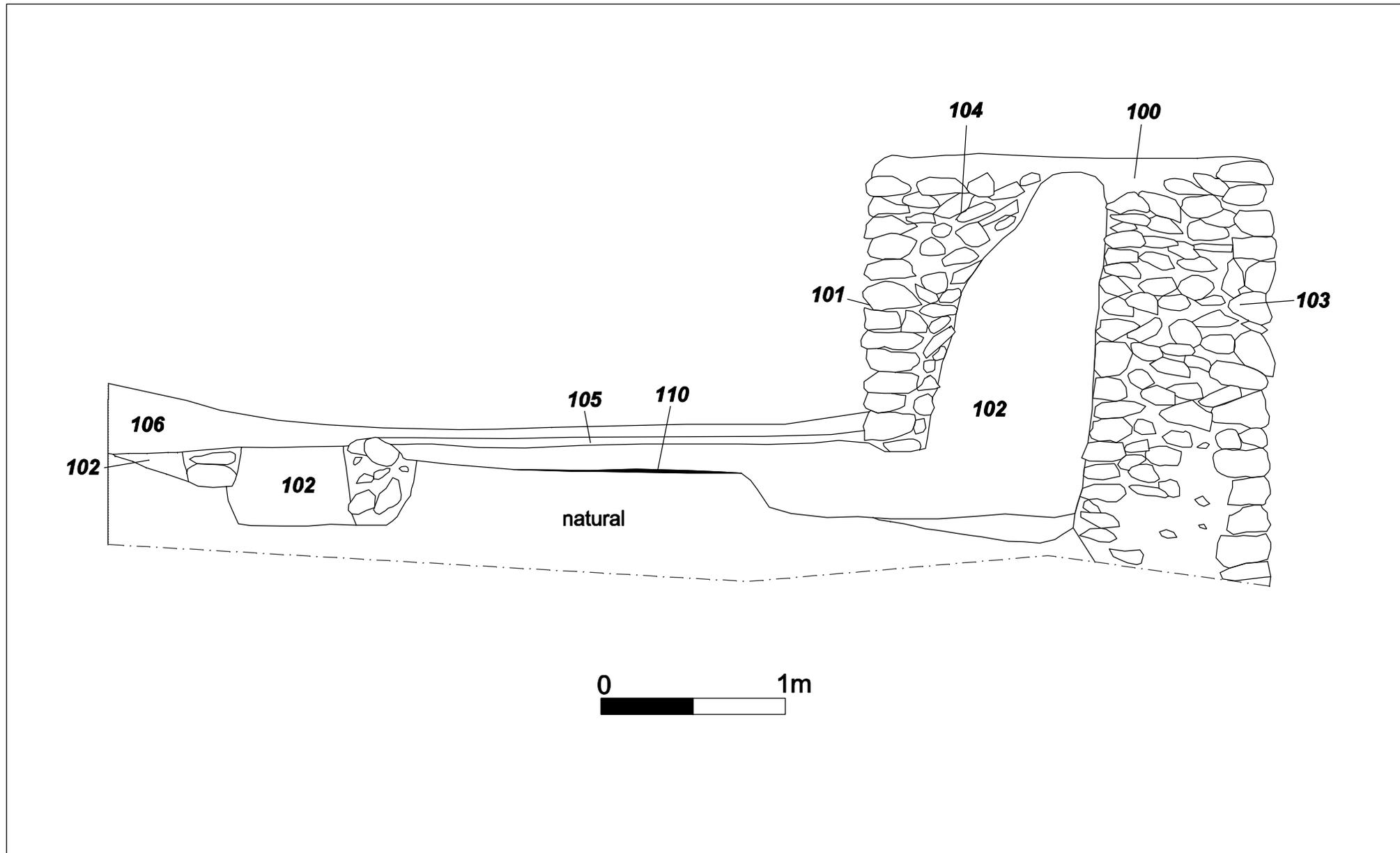


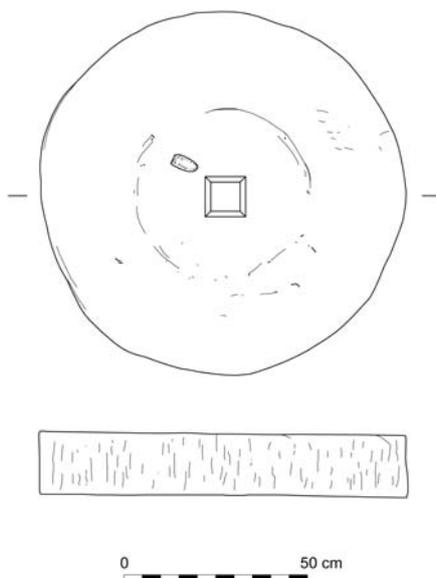
Figure 8: South-facing section through head race

5.3.3 **Timber:** a single timber and iron object was recovered from the upper fill of the mill race. This took the form of a single iron shaft, to which were attached perpendicularly the remains of three timber boards (Plate 37). It was approximately 0.5m long by 0.3m wide and may have formed part of a sluice gate, an element of the mill machinery or similar.



**Plate 37: (left) Timber and iron object recovered from the fill of the mill race**

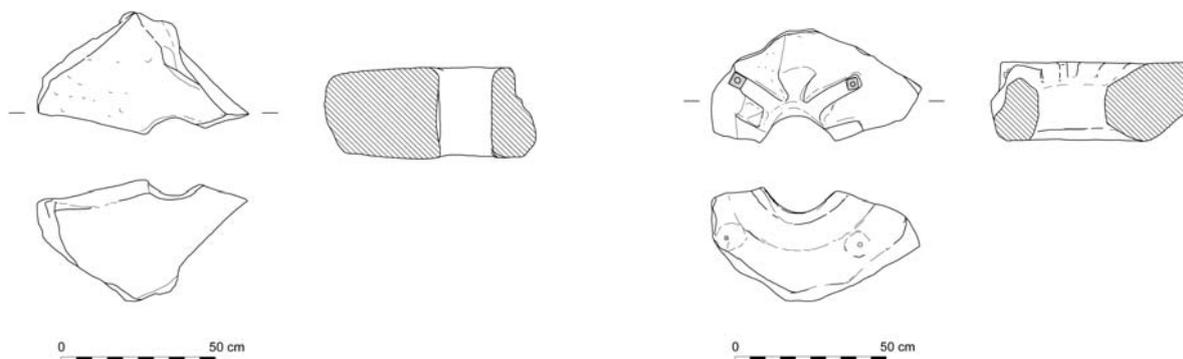
**Plate 38: (right) Red sandstone disc recovered from beneath the floor of the northern extension**



**Plate 39: Illustration of the sandstone disc**

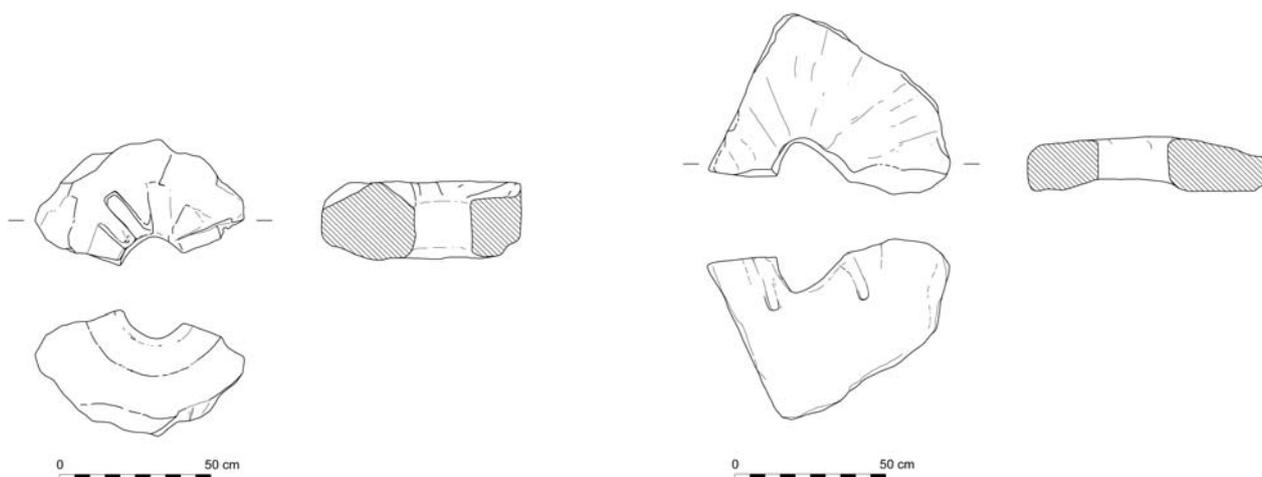
5.3.4 **Stone:** a large disc of neatly dressed stone was recovered from the rubble beneath the floor of the northern extension (Plate 38). This was formed from a single large piece of red sandstone, measured 0.98m in diameter and 0.18m in thickness. The centre hole was 0.08m square and chamfered with a small notch adjacent to one corner. The striations from the chisel-work were between 0.03 – 0.05cm in length and ran in the same direction. The edge was similarly marked, chiselled from side to side. Although perhaps large enough to have been a mill stone the type of material suggests that it was not. It may, however, have formed part of the machinery associated with the wheel, such as the bedstone (see Watts 2002, 12 for an example image). Four fragments of mill stone have been identified, however, which were recovered from the fill of the wheel pit. One of these was relatively non-descript, with just the spindle hole to identify it (Plate 41), but the other three had chased rynds visible. In two cases the associated bolt holes with iron bolts were clearly evident. The two with iron bolts had very straight rynds

forming a regular x-shape across the spindle hole, and are probably post-medieval in date (see for example Watts 2002, plate 24; Plate 42 and 43). The other has more curved rynds, no sign of bolts, and a slight collar on the opposing side, and is perhaps more likely to be medieval in date (*op cit*, 102; Plate 43).



**Plate 40: (left) Millstone 1**

**Plate 41: (right) Millstone 2**



**Plate 42: (left) Millstone 3**

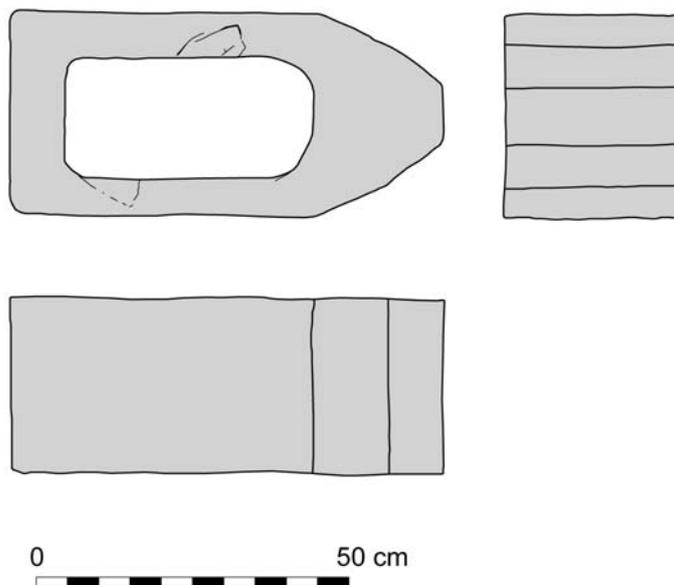
**Plate 43: (right) Millstone 4**

5.3.5 **Iron:** an unstratified iron rod, approximately 2m long with slightly flattened ends, was present on site. This was apparently one of what was originally a much larger number of rods situated within the northern extension and supporting the drying kiln tiles (Stan Bould pers comm.; see *Section 5.3.6* below). The tilt hammer head originally situated in the south wall of the mill was recovered only after it had fortuitously been noticed by Mike Davies-Shiel on a heap of rubble; the demolition of this wall had not been included in the original programme of watching brief and the significance of the hammer head had not been appreciated during the initial building recording. After its identification it was put to one side and subsequently recorded. It comprised a single piece of cast iron forming an approximate wedge shape, with a large shaft hole through the centre, one end of which was square, the other rounded (Plate 44 and 45). On one face there were wear marks or gouges in the iron work across the shaft hole, presumably resulting from some form of strapping that had held the head on. The main body of the hammer head was square at one end and tapered at the other, coming to a flattened point. Dating the object in its own right is difficult although documentary sources would suggest that it was part of the

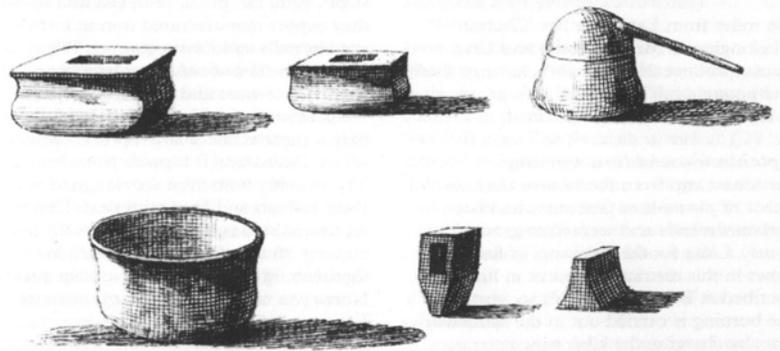
forge added in 1783 (see *Section 3.3.1* above). Iron hammer heads of almost identical form are recorded as being cast at the Penny Bridge forge in the early 1750s (Berg and Berg 2001, 291; Plate 46), although the equipment used at the Newland forge was said to have come from the Bearpot Works at Seaton (Fell 1908, 218), which were established c1762 (Marshall and Davies-Shiel 1969, 45).



**Plate 44: Iron tilt hammer head as recorded on site**

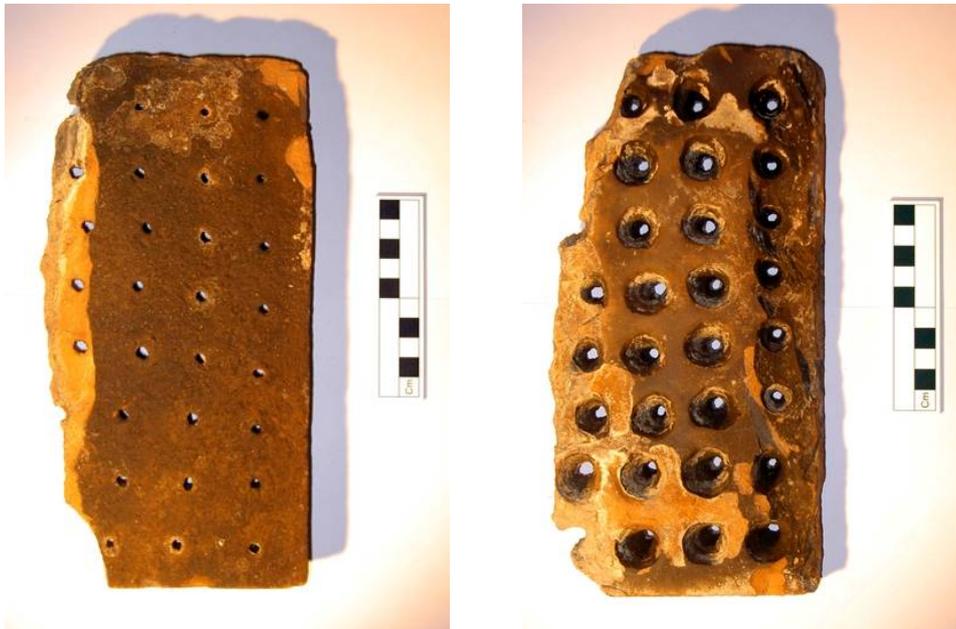


**Plate 45: Illustration of the tilt hammer head**



**Plate 46: Iron castings made at Penny Bridge illustrated by RR Angerstein, including what appears to be a tilt hammer head similar to that from Newland (Berg and Berg 2001, 291)**

5.3.6 **Ceramic building material:** a single fragment of perforated drying kiln tile was recovered from within the northern extension during the building recording (Plate 47 and Plate 48). The texture of the upper surface suggests that this had been cast in a sand mould, while the crudeness of the perforations indicates that they were made by hand by simply inserting a pointed stick through the original block of clay before firing. Dating such tiles is difficult as so little work has been done on them; although by the later 19<sup>th</sup> century more complex machine-pressed types were becoming common, hand-made varieties such as this date from the 17<sup>th</sup> – 19<sup>th</sup> centuries (Crew 2004, 4).



**Plate 47: (left) Drying kiln tile, upper side**

**Plate 48: (right) Drying kiln tile, lower side**

5.3.7 **Industrial residue:** a large area of blast furnace slag was revealed during the watching brief below the turf immediately to the south-west of the mill in Area D; this is not necessarily of any significance in itself as such material is deposited in many areas around Newland and it would have been formed in plentiful quantities when the furnace was in operation. It is likely to have been deposited in order to form a more compacted surface, perhaps quite recently given its shallow depth.

5.3.8 **Deposition:** The tilt hammer head and mill stone fragments were drawn on site and have been donated by the owner to the Newland Furnace Trust (who also acquired one of the iron bearing boxes originally in the south elevation). The large sandstone disc has been retained by the owner. The composite timber and iron object and the iron rod were not retained. The ceramic drying kiln tile was removed from site and will be deposited in a suitable museum or with the Newland Furnace Trust with permission from the owner.

## 5.4 Samples

5.4.1 **Introduction:** a single small sample, approximately 0.25 litres, was taken from context **110**, a thin charcoal rich layer beneath the clay base of the head race, **102**. This was sieved in order to identify the presence of any deposits that might indicate the type of activity taking place on the site. A summary of its contents is presented in *Appendix 7*.

5.4.2 While providing only limited information, the sample is of interest. It demonstrates the presence of industrial activity and extensive burning on or near the site prior to the deposition of the most recent layer of clay in the base of the head race. The dating of this is difficult, however, and it is evident from the documentary sources that the mill race was extensively repaired in the early 18<sup>th</sup> century (LRO DDBB 4/1-3, c1719-1720), and may have been remodelled following the acquisition of the site by the owners of the Newland Furnace Company. A date after the latter event might be considered most likely, however, as it seems probable that this deposit formed as a result of the activity at the furnace and was carried into and along the mill race prior to its being relined with layer **102**. The presence of fragments of iron pan within the sample further suggests that the deposit lay in water for some time.

## 6. Discussion and Conclusion

### 6.1 Building Recording

6.1.1 **Introduction:** the comprehensive historical information and the results of the building recording allow a relatively detailed discussion of the buildings to be compiled. Although in many cases the documentary sources do not provide adequate detail and are difficult to rely on for dating, they do, however, provide useful descriptions of the component elements of the building, and the maps give a good indication of the age of various elements.

6.1.2 **Phase 0:** it is evident that there was a building on the site, presumably an earlier mill, which preceded the present building. Indeed, it is conceivable that there may have been several over a considerable period of time. Re-used material contained within the building, including part of a chamfered beam, two possible timber axle bearings, and a possible part of a cruck blade indicate that a mill of perhaps 17<sup>th</sup> century or slightly earlier date was situated either on the site or nearby. Some of the pieces of millstone may be of similar date, although one piece may be medieval (see *Section 5.3.4* above). The presence of re-used pieces of red sandstone in the east external elevation is also of interest; these too are potentially taken from an earlier building and the connection with Furness Abbey might even indicate that they were 'quarried' from its ruins following the Dissolution. The re-use of abbey stone in former monastic properties has been recorded on a number of other sites (Greenlane Archaeology 2006b; 2007a; 2007b); although in this case it would have had to have travelled a considerable distance.

6.1.3 **Phase 1:** the documentary sources cause some confusion with regard the origins of the present building as it is stated that the Newland Company completely rebuilt it some time after acquiring it in 1746. It therefore either represents a building that they in fact only extensively altered, the term rebuilt perhaps being an exaggeration, or they did indeed entirely rebuild it. In either case it is evident that in 1746 it comprised a mill, corn drying kiln, and peat store, a description that seems remarkably apt for the present building. The large northern extension was evidently a drying kiln, with a flue at the north end, and it even contained a perforated kiln tile, although it butts against the main mill and so may have been added slightly later. It is conceivable that the outshut on the south-east corner was the peat store, although this seems unlikely as this is built against the large buttress, which was in itself a later addition. There was at least one outshut on the east side of the building, again apparently added at a later date (and one evidently post-dating both the mill and kiln), which could also have formed the peat store and is arguably more conveniently positioned to perform this function, being adjacent to a door into the kiln. Unfortunately the northern most of these had clearly been very recently removed (it was shown as present on the original planning application plans submitted in 2005; see Figure 4). It seems likely too that there was some form of structure covering the wheel pit to the south as this is evident on the maps from at least the mid 19<sup>th</sup> century and it must have been there earlier; the adjoining outshut is evident on some of the earliest maps of the site. This incorporated access from the mill race into and out of the wheel pit, and it is likely that the re-used fragments of millstone were built into it.

6.1.4 **Phase 2:** it is clear that the mill was extensively modified after its initial construction, with the roof level raised in brick effectively adding another floor, which seems to have also involved the addition of new floors. It has been suggested that this extension was carried out in c1900 (OA North 2003, 12), but Mike Davies-Shiel considers it to have been the result of rebuilding carried out in order to house the forge constructed at Newland in 1783 (Davies-Shiel 2008). The use of brick, while not a good indicator of the age of this alteration, does suggest a late 18<sup>th</sup> to early 19<sup>th</sup> century date; the bricks all appear to be hand made and relatively small. Jonathan Wignall suggested that these bricks might have been made at the Conishead Priory brickworks, and therefore might be 19<sup>th</sup> century in date (Marshall *et al* 1989), although brick-making is known to have been taking place in the Ulverston area from as early as 1760 (McKeever and Layfield 2004, 120). Whether these alterations were made to incorporate a forge is not certain, but the presence of a tilt hammer head on the site certainly indicates it is very likely. It does not demonstrate that this was incorporated inside the mill, however, and the assertion that the ground and first floor are continuous in order to accommodate it does not hold as the first floor was clearly removed

quite recently (see *Section 6.1.6* below). If the forge was incorporated into the building it is conceivable that the large buttress-like structure attached to the south-east corner also relates to it and was intended to provide extra strength and support, although it also seems to have formed part of the structure covering the wheel pit. The small outshut attached to this is evidently later and may in fact have housed the tilt hammer, although its function is otherwise unknown. Two apertures were also knocked through the south wall of the mill leading into or above the wheel pit; these must have been added following the construction of the furnace as they incorporate re-used furnace lining bricks in their jambs. Their purpose, however, is unknown, but they may relate to changes in the working of the mill associated with the addition of one or more tilt hammers. The raising of the building was perhaps, regardless of where the forge was housed, in order to incorporate a change in the operation of the mill, rather than to house a tilt hammer. Regardless of this, the mill stones within a corn mill are typically housed on an upper floor anyway, in order to accommodate the workings below (see for example Watts 2002, 12).

**6.1.5 Phase 3:** there is little evidence for alterations made after the forge went out of use, indeed it is likely that the corn mill continued in operation throughout the century. At some point, however, the tilt hammer head was incorporated into the wall adjacent to the axle hole. A new bearing box was added above the axle hole, perhaps representing some additional reconfiguration, but it is not clear to which phase this relates.

**6.1.6 Phase 4:** the devastating flood of 1918 must have had a considerable affect on the operation of the mill and there is some evidence for this within the building. It has been suggested that it was subsequently used for generating electricity, and the evidence for this might be found in the two pairs of bearing boxes in the south-west corner. It has also been suggested that the water from the mill race was in some way turned into the mill through the partially blocked window on the south side of the west elevation (Stan Bould pers comm.), which perhaps corresponds to it being diverted into a turbine in that position. There was some evidence found during the watching brief that suggested a major alteration to the head race in this position (see *Section 6.2.1* below).

**6.1.7 Phase 5:** in the later 20<sup>th</sup> century the mill was effectively put out of operation and used for storage. The date at which this took place is uncertain, but it seems to have been by the late 1960s or early 1970s (OA North 2003, 13; Davies-Shiel 2008). It seems apparent that following this or at the same time the first floor was taken out and supporting concrete pillars added along the south elevation. The wheel pit and race were filled in, several windows were partially or completely blocked up, and a small 'office' added on top floor. The building was seemingly used for storage from this point onward and there seems to be no record of any existing mill gear from, so it presumably must all have been removed by this time.

## 6.2 Watching Brief

**6.2.1 Discussion:** the most significant feature investigated was the head race, which ran in a north-east/south-west direction into Area A and widened considerably before turning south-east slightly to enter the wheel pit on the west side of the corn mill in Area B. Originally it terminated against the west buttress where there was an opening to allow the water to enter the wheel pit. After the mill ceased to be used for milling the last three metres of the millrace was completely dug out, probably while resurfacing the ground on the west side of the mill. The void was then backfilled and a stone-lined culvert was constructed on the turn of the mill race to redirect the water down the slope on the west side of the mill. It is probable that at the time the mill race was re-routed (see *Section 6.2.2* below) the wheel pit was also backfilled. While the fill of the wheel pit was largely of little interest, the upper part in particular, which contained a considerable amount of modern material, its removal did reveal the structure of a large part of the wheel pit. This included not only features in the south wall of the mill, such as a blocked doorway, but also iron rails in the base of the pit, although these are of unknown function. The fragments of mill stone recovered from the fill, although effectively of unknown provenance, are of interest in their own right.

**6.2.2** The culvert in Area E ran southwards to the end of the site and presumably drained the original tail race back into Newland Beck. The results of the watching brief in Area E revealed no other archaeological features, however, indicating that this land has only been used for agriculture. Area D

also revealed very little of archaeological interest, although the presence of large amounts of haematite-stained soil and presence of blast furnace slag show the close connections between the site and the furnace.

## 6.3 Conclusion

6.3.1 The redevelopment of the mill at Newland has provided a valuable opportunity to record a building with important local historical connections, not only in relation to the development of the hamlet in which it stands, but also its wider connections within the Furness area and beyond, not least the development of Barrow-in-Furness. The building recording and watching brief revealed a considerable amount of interesting features relating to the history and operation of the building, potentially extending back as far as the medieval period, and provided evidence for the location of the forge recorded between c1783 and the early 19<sup>th</sup> century. This investigation has not, however, been able to prove that the forge was located within the mill or confirm that there was a medieval, or even pre-1747, mill on the site, though indications are that this is likely to have been the case. The opportunity to examine in detail documentary sources relating to the mill has also been of great value in understanding the site, and by extension the entire industrial complex, and will hopefully provide a useful body of work of use to future researchers.

## 7. Bibliography

### 7.1 Primary and Cartographic Sources

CRO(B) BD/BUC/40/Bundle 2/58, n.d. *Plan of Estates in Newland*

CRO(B) BD/BUC/42/6/50, 1918-1919 *Correspondence between Messrs Wadham and Son and County Bridgemaster's Department, Farmers at Newland, Hart Jackson & Son, Solicitors, Poole and Son, Solicitor and Nicholl Manisty & Co re Silting up of Newland (Hundred) Bridge, Dam Burst at Newland Mill Dam and Flooding at Newland*

CRO(B) BD/BUC/49/Bundle 1/16, c1804 *Plan of the Lords Allotments at Egton and Newland Showing Areas of Messrs Knott & Ainslie*

CRO(B) BD/HJ 184 7/1 1904 *Copy of Agreement Between the Duke of Buccleuch and James Athersmith: Premises: land at Newland including farm, Newland House, and Corn Mill*

CRO(B) BT/IR 12, 1910 *Duties on Land Values, Record of Valuations Made by the Commissioners of Inland Revenue, in Accordance with Part 1 of the Finance (1909/1910) Act, 1910. County of Lancaster, Division of Lonsdale North: A Valuation Book for the Parish or Place of Egton with Newland*

CRO(B) Z67/2, 1812 *Abstract of Title of the Company of Iron Masters Known by the Name or Firm of Knott Ainslie and Company to Certain Estates at Lorn in Argyleshire and at Nibthwaite, Newland and Other Places in the County of Lancaster*

CRO(B) Z72-73, 1813 *Lease and Release: Shares in Newland Mill and Estate at Barrowhead*

LRO AE/4/5, 1823 *Egton with Newland Commons Enclosure*

LRO DDBB 4/1, 1719-1720 *Presentation of William Benson of Mansriggs for not Dressing his Watercourse from Newland Mill Dam Down to the Poole*

LRO DDBB 4/2, c1719 *Order to Leonard Benson of Bencragg and John his Son*

LRO DDBB 4/3, c1720 *Order to John Townson of Newbiggin and John Jackson of Mansriggs to Scour and Open the Watercourse 12 ins. Deeper and 2 Yards Broad for a Specified Length*

LRO DDBB 4/4, 1731 *Receipt for £8: John Abraham of Swarthmoor Hall, Esq. to John Benson of Mansriggs, yeo.*

LRO DDBB 4/5, 1746 *Bargain and Sale for £160: at Customary Rent of 8s Multures etc John Benson of Mansriggs par. Ulverstone Gent to Agnes Bordley of Hawkshead, Spinster*

LRO DDBB 4/6, 1746 *Bargain and Sale for 5s: Agnes Bordley to John Benson – Liberty to Divert any Quantity of Water Out of the River Called Blaybeck so that it may Flow over any part of his Ground in Mansriggs*

LRO DDBB 4/10, 1787 *Case and Counsel's Opinion Re. Mr Blundell's Right to Turn the Water [into Bottom Mill Race] as it will Prejudice the Water to the Mills Below, Deeds Cited 1692-1782*

LRO DDMC 32/9, 1785 *Marriage Settlement: Henry Ainslie of Kendal and Agnes Ford of Coniston, Waterhead*

Ordnance Survey, 1851, *Lancashire Sheet 11*, 1:10560, surveyed 1846

Ordnance Survey, 1890, *Lancashire Sheet 11.16*, 1: 2500, surveyed 1888

Ordnance Survey, 1913, *Lancashire Sheet 11.16* 1: 2500, revised 1910

Ordnance Survey, 2002 *The English Lakes South-Eastern Area: Windermere, Kendal & Silverdale*, 1:25000

## 7.2 Secondary Sources

- Atkinson, JC, 1887 *The Coucher Book of Furness Abbey: Part II, Cheetham Soc*, n ser **11**
- Baines, E, 1825 *History, Directory, and Gazetteer of the County Palatine of Lancaster*, **2**, Liverpool
- Bardsley, CW, 1885 *Chronicles of the Town and Church of Ulverston*, Ulverston
- Berg, T, and Berg, P (ed), 2001 *RR Angerstein's Illustrated Travel Diary, 1753-1755*, London
- Brown, DH, 2007 *Archaeological Archives: A Guide to Best Practice in Creation, Compilation, Transfer, and Curation*, IfA, Reading
- Brownbill, J, 1919 *The Coucher Book of Furness Abbey: Volume II, Part III, Cheetham Soc*, n ser **78**
- CHES, 2008 *Brief for an Archaeological Building Recording Project & Watching Brief at Corn Mill Barn, Newlands, Ulverston, Cumbria*
- Countryside Commission, 1998 *Countryside Character, Volume 2: North West*, Cheltenham
- Crew, P, 2004 Perforated Tiles From Corn Driers and Malt Kilns, *British Brick Society Information*, **95**, 4-12
- Cumbria County Council (CCC) and English Heritage, 2002 *Extensive Urban Survey, Archaeological Assessment Report, Ulverston*, unpubl rep
- Davies-Shiel, M, 1978 *Watermills of Cumbria*, Clapham
- Davies-Shiel, M, 2008 Gotta KNOW one to See One (Vindicated), *Cumbria Industrial History Society Bulletin*, **72**, 12-14
- Elsworth, DW, 2005 *Hoad, Ulverston, Cumbria: Archaeological Landscape Investigation*, unpubl rep
- Elsworth, DW, 2007 The 'Streetgate' at Conishead, the 'Castellum' at Dalton, and Roman Furness, *Trans Cumberland Westmorland Antiq Archaeol Soc*, 3<sup>rd</sup> ser, **7**, 31-48
- English Heritage, 1991 *The Management of Archaeological Projects*, 2<sup>nd</sup> edn, London
- English Heritage, 2006 *Understanding Historic Buildings: A Guide to Good Recording Practice*, Swindon
- Farrer, W (ed), 1915 Events, and Feudal Aids, Part III, AD 1313 – AD 1355, *Record Soc Lancashire Cheshire*, **70**
- Farrer, W, and Brownbill, J, 1914 *The Victoria History of the County of Lancaster*, **8**, London
- Fell, A, 1908 *The Early Iron Industry of Furness and District*, Ulverston
- Goodall, I, 2001 *Newland Furnace, Egton with Newland, Cumbria: Survey Report*, English Heritage unpubl rep
- Greenlane Archaeology, 2006a *Former Stanley Street Garage Site, Stanley Street, Ulverston, Cumbria: Archaeology Excavation*, unpublished report
- Greenlane Archaeology, 2006b *Parkhouse Farm, Parkhouse Road, Barrow-in-Furness, Cumbria: Archaeological Building Recording*, unpubl rep
- Greenlane Archaeology, 2007a *Sowerby Lodge Farm, Bank Lane, Barrow-in-Furness: Archaeological Building Recording*, unpubl rep
- Greenlane Archaeology, 2007b *Sowerby Hall Farm, Bank Lane, Barrow-in-Furness: Archaeological Building Recording*, unpubl rep
- Helme, J, 2002 Newland Iron Furnace, Part II, *The Mine Explorer*, **5**, 67-72
- Helme, J, and Matheson, I, 2009 An Intriguing Find at Newland Furnace, *CAT*, **94**, 8-9
- Horne, T, 2007 Estate Up for Sale, *North-West Evening Mail*, 21<sup>st</sup> September

Institute of Archaeologists (IA), 2001a *Standard and Guidance for Archaeological Desk-Based Assessment*, revised edn, Reading

IfA, 2001b *Standards and Guidance for the Archaeological Investigation and Recording of Standing Buildings or Structures*, revised edn, Reading

IfA, 2001c *Standard and Guidance for Archaeological Field Evaluation*, revised edn, Reading

Kelly, ER (ed), 1873 *The Post Office Directory of Lancashire, Liverpool and Manchester*, London

Mackereth, HW (ed), 1900 *Seventh Annual Furness Year Book*, Ulverston

Marshall, JD, 1958 *Furness and the Industrial Revolution*, Barrow-in-Furness

Marshall, JD, and Davies-Shiel, M, 1969 *Industrial Archaeology of the Lake Counties*, Newton Abbot

Marshall, JD, Helme, J, Wignall, J, and Braithwaite, JC, 1996 The Lineaments of Newland Iron Furness, 1747-1903: An Historical Investigation, *Trans Cumberland Westmorland Antiq Archaeol Soc*, 2<sup>nd</sup> ser, **96**, 195-213

Marshall, JD, and Others, 1989 Life Under the Iron Masters, *North West Evening Mail*, 5<sup>th</sup> September, 9

Mannex, PJ, 1849 *History, Topography, and Directory, of Westmorland and Lonsdale North of the Sands in Lancashire*, London

McKeever, R, and Layfield, J, 2004 *The Industrial Archaeology of South Ulverston*, Ulverston

Moseley, F (ed), 1978 *The Geology of the Lake District*, Yorkshire Geological Society, occ publ **3**, Leeds

OA North, 2003 *Newland Furnace, Ulverston, Cumbria: Conservation Plan*, unpubl rep

OA North, 2004 *Millers Garage, The Gill, Ulverston, Cumbria: Archaeological Desk-Based Assessment, Evaluation and Watching Brief*, unpubl rep

Shotter, DCA, 1989 Roman Coin-Finds in Cumbria, *Trans Cumberland Westmorland Antiq Archaeol Soc*, 2<sup>nd</sup> ser, **89**, 41-50

Slater, I, 1865 *Slater's (Late Pigot & Co's) Royal National Commercial Directory of Lancashire*, Manchester

Ulverston Local Board, 1891 *An Act for Dividing and Inclosing the Commons, Waste Grounds and Mosses, Within the Town and Hamlet of Ulverstone, in the Parish of Ulverstone, in the County Palatine of Lancaster, 39 GEO III, 1799, The Ulverstone Commons Enclosure Award, 1813, Extract from the Ulverston Local Board Act, 37 & 38 VICT, 1874*, Ulverston

Watts, M, 2002 *The Archaeology of Mills and Milling*, Stroud

## **Appendix 1: Project Brief**

**BRIEF FOR AN  
ARCHAEOLOGICAL BUILDING RECORDING PROJECT & WATCHING BRIEF  
AT CORN MILL BARN, NEWLANDS, ULVERSTON, CUMBRIA**

Issued by the

**County Historic Environment Service**

Environment Unit, Economy, Culture and Environment



**Date of Brief: 11 January 2008**

This Design Brief is only valid for 1 year after the above date. After this period the County Historic Environment Service should be contacted. Any specification resulting from this Brief will only be considered for the same period.

## SITE DESCRIPTION AND SUMMARY

**Site:** Corn Mill Barn, Newlands, Ulverston

**Grid Reference:** SD 30010 79650

**Planning Application No.:** 5/06/1373

*Detailed proposals and tenders are invited from appropriately resourced, qualified and experienced archaeological contractors to undertake the archaeological project outlined by this Brief and to produce a report on that work. The work should be under the direct management of either an Associate or Member of the Institute of Field Archaeologists, or equivalent. Any response to this Brief should follow IFA Standard and Guidance for an Archaeological Watching Brief, 2001. No fieldwork may commence until approval of a specification has been issued by the County Historic Environment Service.*

## PLANNING BACKGROUND

- 2.1 Cumbria County Council's Historic Environment Service (CCCHES) has been consulted by South Lakeland District Council regarding a planning application for the conversion of Corn Mill Barn, Newlands to a dwelling.
- 2.2 The scheme affects a building of historic interest that is recorded on the County Historic Environment Record (reference 16061) and also lies in an area of archaeological significance. The proposal will affect the appearance and historic fabric of the building and may disturb archaeological deposits below ground. As a result, a programme of archaeological building recording undertaken prior to the works taking place and a watching brief during the course of the construction work is required.
- 2.3 This advice is in accordance with guidance given in Planning Policy Guidance note 15 (Planning and the Historic Environment), Planning Policy Guidance note 16 (Archaeology and Planning), and with local planning policy.

## ARCHAEOLOGICAL BACKGROUND

- 3.1 Corn Mill Barn was formerly Newlands Corn Mill, which is shown on an estate map dating to the mid 19<sup>th</sup> century (HER no. 16061). Documentary records indicate that there has been a corn mill on or near the site since the medieval period.

## SCOPE OF THE PROJECT

- 4.1 **Objectives**
  - 4.1.1 To make a record of the historic structure prior to alteration.
  - 4.1.2 To identify, investigate and record any surviving archaeological remains revealed during the course of the development ground works.
- 4.2 **Work Required**
  - 4.2.1 Desk-Based Assessment

4.2.1.1 A desk-based assessment of the existing resource, to be undertaken before any work commences on site. This should include an assessment of primary and secondary maps and documents relating to the site, to set the results in their geographical, topographical, archaeological and historical context. Records held by the County Historic Environment Record and the County Records Office should be consulted.

#### 4.2.2 Programme of Building Recording

4.2.2.1 To carry out a *measured survey of the building*. The survey should include the requirements of a 'Level 3' Survey, as described by English Heritage *Understanding Historic Buildings A Guide to Good Recording Practice*, 2006.

4.2.2.2 The requirements of the survey are:

- ❖ The precise location of the building, providing an address and National Grid Reference
- ❖ A date when the project was undertaken and by whom
- ❖ A description of the building's plan, form, function, age, development sequence and construction materials. Where known, the building's architects, builders, patrons and owners should be provided
- ❖ A description of the building's landscape and historic context, for example it's relationship with nearby buildings in architectural and functional terms, it's relationship to field systems, settlement patterns and other man-made features
- ❖ An architects scaled plan of the building showing the location of each photographed feature of architectural or archaeological interest
- ❖ Where appropriate, section drawings of the building showing it's vertical relationships
- ❖ A photographic record including: photographs of the building in it's landscape context; detailed photographs of the buildings external appearance; internal photographs of the main rooms of the building; detailed photographs of features of architectural or archaeological significance. Photographs should include a scale.

#### 4.2.3 Watching Brief

4.2.3.1 All topsoil stripping, ground reduction, and excavation of footings and services trenches must be carried out under archaeological supervision. Any putative archaeological features must then be cleaned by hand and if possible a stratigraphic record made. Finds and environmental samples should be retrieved as appropriate. A reasonable period of uninterrupted access should be allowed to the archaeologist for all necessary archaeological recording.

## SPECIFICATION

5.1 Before the project commences a specification must be submitted to and approved by the County Historic Environment Service.

5.2 Proposals to meet this Brief should take the form of a detailed specification prepared in accordance with the recommendations of *The Management of Archaeological Projects*, 2<sup>nd</sup> ed. 1991, and must include:

- ❖ A description of the methods of observation and recording system to be used
- ❖ A description of the building recording system to be used
- ❖ A description of the finds and environmental sampling strategies to be used
- ❖ A description of the post excavation and reporting work that will be undertaken
- ❖ Details of key project staff, including the names of the project manager, site supervisor, finds and environmental specialists and any other specialist sub-contractors to be employed
- ❖ Details of on site staffing, e.g. the number of people to be employed on site per day
- ❖ A projected timetable for all site work and post excavation work (through to final publication of results)

5.3 Any significant variations to the proposal must be agreed by the County Historic Environment Service in advance.

## REPORTING AND PUBLICATION

- 6.1 The archaeological work should result in a report, this should include as a minimum:
- ❖ A site location plan, related to the national grid, produced at an appropriate scale to show the relationship of the building to be converted to nearby buildings or significant features
  - ❖ A front cover/frontispiece which includes the planning application number and the national grid reference of the site
  - ❖ A concise, non-technical summary of the results
  - ❖ A date when the project was undertaken and by whom
  - ❖ A description of the methodology employed, work undertaken, and the results obtained
  - ❖ A scaled plan of the building to be converted showing the location of each photographed feature of architectural or archaeological interest
  - ❖ Photographs of the building to be converted should be accompanied by an appropriate description
  - ❖ Plans and sections at an appropriate scale showing the location and position of deposits and finds located
  - ❖ A brief photographic record of the site must be included, showing any features of archaeological interest. Where the results of the project revealed no significant archaeological remains a single photograph showing an indicative section of trench will suffice.
  - ❖ A list of, and dates for, any finds recovered and a description and interpretation of the deposits identified
  - ❖ A description of any environmental or other specialist work undertaken and the results obtained
- 6.2 Three copies of the report should be deposited with the County Historic Environment Record within six months of completion of fieldwork. This will be on the understanding that the report will be made available as a public document through the County Historic Environment Record.
- 6.3 A summary report should be submitted to a suitable regional or national archaeological journal within one year of completion of fieldwork. If archaeological remains of significance are identified, one or more full reports should also be submitted to a suitable journal or other publication in due course.
- 6.4 Cumbria HER is taking part in the *Online Access to Index of Archaeological Investigations* (OASIS) project. The online OASIS form at <http://ads.ahds.ac.uk/project/oasis> must therefore also be completed as part of the project. Information on projects undertaken in Cumbria will be made available through the above website, unless otherwise agreed.

## THE ARCHIVE

- 7.1 An archive must be prepared in accordance with the recommendations in Brown, DH, 2007, *Archaeological Archives A Guide To Best Practice In Creation, Compilation, Transfer and Curation*, Archaeological Archives Forum. Arrangements must be made for its long term storage and deposition with an appropriate repository. A copy shall also be offered to the National Monuments Record.
- 7.2 The landowner should be encouraged to transfer the ownership of finds to a local or relevant specialist museum. The museum's requirements for the transfer and storage of finds should be discussed before the project commences.
- 7.3 The County Historic Environment Service must be notified of the arrangements made.

## PROJECT MONITORING

- 8.1 One weeks notice must be given to the County Historic Environment Service prior to the commencement of fieldwork.

## FURTHER REQUIREMENTS

- 9.1 It is the archaeological contractor's responsibility to establish safe working practices in terms of current health and safety legislation, to ensure site access and to obtain notification of hazards (eg. services, contaminated ground, etc.). **The County Historic Environment Service bears no responsibility for the inclusion or exclusion of such information within this brief or subsequent specification.**

- 9.2 The Code of Conduct of the Institute of Field Archaeologists must be followed.
- 9.3 All rooms should be clear of obstructions as far as practically possible in order to provide an adequate photographic record to be made.
- 9.4 The involvement of the County Historic Environment Service should be acknowledged in any report or publication generated by this project.

## FURTHER INFORMATION

For further information regarding this Brief, contact

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*As part of our desire to provide a quality service to all our clients we would welcome any comments you may have on the content or presentation of this design brief. Please address them to the Assistant Archaeologist at the above address.*

## Appendix 2: Project Design

# CORN MILL BARN, NEWLANDS, ULVERSTON, CUMBRIA

Archaeological Building Recording and Watching Brief Project Design



Client: Paul Glass

April 2008

Planning Application No. 5/06/1373

*Commercial in confidence*

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Client: Paul Glass

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# 1. Introduction

## 1.1 Project Background

1.1.1 Paul Glass (hereafter 'the client') intends to convert the former corn mill at Newland, Ulverston, Cumbria (NGR SD 30010 79650). Planning permission was applied for by and granted to the previous owner of the site (No. 5/06/1373). A condition of the planning permission was that a programme of archaeological work was carried out. The Historic Environment Officer at Cumbria County Council Historic Environment Service (CHES) confirmed this was to comprise a Level 3 recording of the building (CHES 2008), and a watching brief to be carried out during ground works undertaken as part of the building conversion. The client has re-submitted the previous owner's planning application with some changes to the elevations (No. SL/2008/0260), and it is anticipated that the archaeological condition that was placed on the previous planning application will also apply to the current application.

1.1.2 A mill is recorded at Newland from as early as 1347, as part of property held by William de Coucy and Robert de Coucy of Gynes (Farrer 1915, 1534). It is later, in 1537-1538, recorded as having paid rent to Furness Abbey (Marshall *et al* 1996, 211), and was subsequently taken into the ownership of the crown before being sold in 1662 (Davies-Shiel 1978, 111). A runner stone that was removed from the site in the 1940s bore the date 1720 (*op cit*, 58), possibly indicating the period at which the present building was constructed. In 1746 it was acquired from John Benson of Mansrigg Hall of behalf of the partners of the company that established the Newland Furnace in order to control the valuable water system that existed in the valley (OA North 2003, 12). The mill continued to operate after that date, however, and only appears to have gone out of use in the 20<sup>th</sup> century.

1.1.3 A brief site visit prior to compiling the project design indicated that the surviving elements of the complex comprise the main part of the mill, with evidence for the position of the main shaft in the form of an aperture in the south-west wall, and later power transmission in the form of iron bearing boxes. The position of the access for the main shaft and the direction of the covered leat, which is visible to the north of the building, suggests that the wheel pit was on the south-west side. The ruined structure attached to the south has been identified as a blacksmith's shop shown on the Ordnance Survey mapping of 1846 (OA North 2003, 30), and the extension to the north-east is likely to be a drying kiln.

## 1.2 Greenlane Archaeology

1.2.1 Greenlane Archaeology is a private limited company based in Ulverston, Cumbria, and was established in 2005 (Company No. 05580819). Although a relatively new company, its directors, Jo Dawson and Daniel Elsworth, have a combined total of over 16 years continuous professional experience working in commercial archaeology, principally in the north of England and Scotland. Greenlane Archaeology is committed to a high standard of work, and abides by the Institute of Field Archaeologists' (IFA) Code of Conduct. The building recording and watching brief will be carried out according to the Standards and Guidance of the Institute of Field Archaeologists (IFA 2001a; 2001b).

## 1.3 Project Staffing

1.3.1 The project will be managed by **Jo Dawson (MA (Hons), AIFA)**. Since graduating from the University of Glasgow in 2000 with a joint honours degree in Archaeology and Mathematics, Jo has worked continuously in commercial archaeology. Her professional career started at Glasgow University Archaeological Research Division (GUARD), for whom she worked for six months, following which she worked for Headland Archaeology, in Edinburgh, for two years, and for Oxford Archaeology North, in Lancaster, for three years. During this time she has been involved in a range of different archaeological projects, and, over the past few years, has concentrated on desk-based assessments and environmental impact assessments, as well as finds reports. She has extensive experience of both planning and pre-planning projects, and has undertaken assessments of all sizes. She has managed many recent archaeological building recording projects in Cumbria, including warehouses in Buxton Place, and on Upper Brook Street in Ulverston (Greenlane Archaeology 2007a; 2007c), and an the excavation of a steam corn mill on Hindpool Road in Barrow-in-Furness (Greenlane Archaeology 2007e).

1.3.2 The building recording and watching brief will be carried out by **Daniel Elsworth (MA (Hons), AIFA)** and **Sam Whitehead (BSc (Hons), MA)**. Daniel graduated from the University of Edinburgh in 1998 with an honours degree in Archaeology, and began working for the Lancaster University Archaeological Unit, which became Oxford Archaeology North (OA North) in 2001. Daniel ultimately became a project officer, and for over six and a half years worked on excavations and surveys, building investigations, desk-based assessments, and conservation and management plans. These have principally taken place in the North West, and Daniel has a particular interest in

the archaeology of the area. Relevant recent projects in Cumbria include several archaeological building recording projects such as a series of industrial buildings at Hindpool Road in Barrow-in-Furness (Greenlane Archaeology 2007d), and a warehouse on Queens Court in Ulverston (Greenlane Archaeology 2006).

1.3.3 Sam has more than seven years continuous professional experience in commercial archaeology, much of which was in a supervisory capacity. He has extensive experience of excavations, evaluations, and watching briefs, as well as report writing and illustration production. He joined Greenlane Archaeology in 2006, and since then he has increasingly been involved in all aspects of building recording projects, in which he has a great interest. He has built on his existing CAD skills and has also become highly proficient in the production of building recording illustrations. He has recently undertaken several building recording projects in Cumbria including warehouses in Buxton Place and on Upper Brook Street in Ulverston (Greenlane Archaeology 2007a; 2007c), and a watching brief at Furness Abbey (Greenlane Archaeology 2008).

1.3.4 All artefacts will be processed by Greenlane Archaeology, and it is envisaged that they will initially be assessed by Jo Dawson, who will fully assess any of post-medieval date. Finds of earlier date will be assessed by specialist sub-contractors as appropriate, and in this case it is envisaged that these may include Ian Miller for medieval pottery. CHES will be notified of any other specialists, other than those named, who Greenlane Archaeology wishes to engage, before any specialist contracts are awarded, and the approval of CHES will be sought. Environmental samples and faunal remains will be processed by Greenlane Archaeology. It is envisaged that charred plant remains will be assessed by Scott Timpany of Headland Archaeology Ltd, and faunal remains by Steve Rowland or Andy Bates, both at Oxford Archaeology North.

## 2. Objectives

### 2.1 Desk-Based Assessment

2.1.1 To examine early maps of the site and any other relevant primary and secondary sources in order to better understand the dating and development of the buildings, and set them in their historic context.

### 2.2 Building Recording

2.2.1 To undertake a programme of archaeological building recording of the building to a Level 3-type standard (English Heritage 2006). This will provide a detailed record of the structure, as well as providing outline information about its development, form and function.

### 2.3 Watching Brief

2.3.1 To identify any surviving archaeological remains and to investigate and record any revealed archaeological remains or deposits.

### 2.4 Report

2.4.1 To produce a report detailing the results of the building recording and watching brief, which will outline the character, form and development of the historic fabric of the building and the development of any deposits and features revealed during the watching brief.

### 2.5 Archive

2.5.1 Produce a full archive of the results of the building recording and watching brief.

## 3. Methodology

### 3.1 Rapid Desk-based Assessment

3.1.1 A rapid examination of easily available sources, particularly maps, relating to the site will be carried out. These will include:

- **Cumbria Record Office (Barrow-in-Furness):** the majority of original and secondary sources relating to the site are deposited in the Cumbria Record Office in Barrow-in-Furness. Of principal importance are early maps of the site, particularly any that pre-date the first edition Ordnance Survey, such as tithe and

enclosure plans. These will be examined in order to establish the date of the structure, any periods of alteration, and, where possible, the function of the building in order to set it in its historic context. In addition, any details of the building's architect(s), patrons and owners will be acquired where available.

- **Historic Environment Record:** this is a database linked to GIS mapping containing information about all archaeological sites and objects recorded in the county. Details of relevant archaeological projects carried out in the vicinity of the site and any other pertinent information will be obtained, as well as any additional details about the mill that might be available.
- **Lancashire Record Office, Preston:** details of any relevant original sources relating to the mill will be obtained as necessary from their online listings (A2A);
- **Greenlane Archaeology:** a number of copies of maps and local histories are held by Greenlane Archaeology. These will be consulted in order to provide information about the date of the building, and any obvious phases of alteration.

## 3.2 Archaeological Building Recording

3.2.1 A programme of archaeological building recording to English Heritage Level 3-type standards is required (English Heritage 2006; *Appendix 1*). This is a relatively detailed form of investigation intended to record the form, function and phasing of the building, incorporating the results of the desk-based assessment. It will comprise three types of recording:

- **Drawn Record:** plans of all of the principal floors will be produced, indicating alterations to the building and the location of each photographed feature of architectural or historic interest. These are compiled through hand measured survey techniques utilising 'as existing' architect's plans. These are then drawn up to produce the final illustrations. In addition, a plan showing the location of the building in relation to other nearby buildings, structures and landscape features will also be produced;
- Copies of 'as existing' elevations will be included. Where necessary these will be annotated to show features of architectural or historic interest. Section drawings will also be produced as necessary by annotating 'as existing' drawings in order to show the vertical relationships within the building;
- **Written Record:** descriptive records of all elements of the building will be made on Greenlane Archaeology standard *pro forma* record sheets. These records will describe the building's plan, form, function, age, and construction materials. They will then be used to provide an account of the development of the building, making use of the results of the desk-based assessment to discuss in detail the evidence upon which this is based. In addition, the landscape and historic setting of the building will be described, in particular its relationship with other nearby buildings, field systems, settlements and other structures;
- **Photographic Record:** photographs in both colour print film and colour digital format will be taken. These will cover both general and detailed shots of the external elevations, individual rooms and circulation areas, but also scaled photographs of specific features of architectural or archaeological interest. In addition, a record of the associated landscape and nearby buildings will also be made. Digital photographs will also be used for illustrative purposes within the report, and a written record will be kept of all of the photographs that are taken.

## 3.3 Watching Brief

3.3.1 All ground works are to be monitored, with one archaeologist on site. This applies specifically to the excavation of footings and foundations associated with any new building, the removal of floors, the excavation of service trenches, and any terracing associated with the creation of gardens and external spaces. In addition, the removal of internal flooring and any associated excavation will be monitored as necessary.

3.3.2 The watching brief methodology will be principally as follows:

- Any overburden or topsoil will be removed under supervision by staff from Greenlane Archaeology;
- All deposits of archaeological significance identified in the deposits beneath will be examined by hand if possible in a stratigraphic manner, using shovels, mattocks, or trowels as appropriate for the scale;
- The position of any features, such as ditches, pits, graves, or walls, will be recorded and where necessary these will be investigated in order to establish their full extent, date, and relationship to any other features. If possible, negative features such as ditches or pits will be examined by sample excavation, typically half of a pit or similar feature and approximately 10% of a linear feature;

- All recording of features will include measured plans and sections, and photographs in both 35mm colour print and colour digital format;
- All deposits, drawings and photographs will be recorded on Greenlane Archaeology *pro forma* record sheets as detailed in its excavation manual (Greenlane Archaeology 2007b);
- All finds will be recovered during the watching brief for further assessment as far as is practically and safely possible. Should significant amounts of finds be encountered an appropriate sampling strategy will be devised;
- All faunal remains will also be recovered by hand during the watching brief as far as is practically and safely possible, but where it is considered likely that there is potential for the bones of fish or small mammals to be present appropriate volumes of samples will be taken for sieving;
- Deposits that are considered likely to have preserved environmental remains will be sampled. Bulk samples of between 10 and 40 litres in volume, depending on the size and potential of the deposit, will be collected from stratified undisturbed deposits and will particularly target negative features (gullies, pits and ditches) and occupation deposits such as hearths and floors. An assessment of the environmental potential of the site will be undertaken through the examination of samples of suitable deposits by specialist sub-contractors (see *Section 1.3.4* above), who will examine the potential for further analysis. All samples will be processed using methods appropriate to the preservation conditions;
- Any human remains discovered during the watching brief will be left *in situ*, if possible, covered and CHES will be immediately informed of the discovery of human remains as will the local coroner. Should it be necessary to remove the remains a suitable record of them will be made on site and a Home Office licence, under Section 25 of the Burial Act of 1857, will be applied for;
- Any objects defined as 'treasure' by the Treasure Act of 1996 (HMSO 1996) will be immediately reported to the local coroner and securely stored off-site, or covered and protected on site if immediate removal is not possible;
- Should any significant archaeological deposits be encountered during the watching brief these will immediately be brought to the attention of CHES so that the need for further work can be confirmed. Any additional work and ensuing costs will be subject to a variation to this project design.

## 3.4 Report

3.4.1 The results of the building investigation and watching brief will be compiled into a report, which will provide a summary and details of any sources consulted. It will include the following sections:

- A front cover including the appropriate national grid reference (NGR) and planning application number;
- A concise non-technical summary of results, including the date the project was undertaken and by whom;
- Acknowledgements;
- Project Background;
- Methodology, including a description of the work undertaken;
- Results of the rapid desk-based assessment;
- Results of the building recording;
- Results of the watching brief;
- Discussion of the results including phasing information;
- Bibliography;
- Illustrations at appropriate scales including:
  - a site location plan related to the national grid;
  - a plan or plans showing the location of the building and the areas covered by the watching brief in relation to nearby structures and the local landscape;

- architect's plans of all of the principal floors of the building showing the location of each photographed feature of architectural or archaeological interest;
- annotated copies of existing elevations of the building;
- annotated cross-sections of the building;
- photographs of the building, features of architectural/historic interest and its landscape, accompanied by appropriate descriptions;
- plans and sections as necessary of the area monitored during the watching brief showing the location and form of any features;
- photographs of any significant finds recovered during the watching brief as appropriate.

## 3.5 Archive

3.5.1 The archive, comprising the drawn, written, and photographic record of the building and the watching brief, formed during the project, will be stored by Greenlane Archaeology until it is completed. Upon completion it will be deposited with the Cumbria Record Office in Barrow-in-Furness. A copy will also be offered to the National Monuments Record (NMR). The archive will be compiled according to the standards and guidelines of the IFA (Brown 2007), and in accordance with English Heritage guidelines (English Heritage 1991). In addition details will be submitted to the Online AccesS to the Index of archaeological investigationS (OASIS) scheme. This is an internet-based project intended to improve the flow of information between contractors, local authority heritage managers and the general public.

3.5.2 A copy of the report will be supplied to the client and within two months of the completion of fieldwork, three copies will be provided for the Cumbria Historic Environment Record (HER). In addition, Greenlane Archaeology Ltd will retain one copy. A short summary report of the work, no more than a single paragraph in length, will be submitted to a suitable journal within one year of completion of fieldwork. It is anticipated that this will form part of the yearly compilation of work carried out in the UK as presented in *Medieval Archaeology* and/or *Post-Medieval Archaeology* (as appropriate).

## 4. Work timetable

4.1 Greenlane Archaeology will be available to commence the project on **7<sup>th</sup> April 2008**, or at another date convenient to the client. It is envisaged that the elements of the project will be carried out in the following order:

- **Task 1:** rapid desk-based assessment;
- **Task 2:** on-site building recording;
- **Task 3:** watching brief, starting when the client commences ground works, which is likely to be in May 2008;
- **Task 4:** production of draft report including illustrations;
- **Task 5:** feedback from CHES, editing and production of final report, within two months of completion of watching brief;
- **Task 6:** finalisation and deposition of archive.

## 5. Other matters

### 5.1 Access and clearance

5.1.1 Access to the site will be organised through co-ordination with the client and/or their agent(s). In addition, the building will be cleared by the client in order to allow internal photographs to be taken without obstructions. Greenlane Archaeology reserves the right to increase the price if the building has not been cleared at the time of recording, if this results in additional trips to photograph the building's interior once it has been cleared.

## 5.2 Architects' drawings

5.2.1 Greelane Archaeology agrees to undertake the work set out in this project design, at the price quoted on the Order Form, by utilising architect's 'as existing' plans, elevations, and cross-sections of the building to be recorded. If the drawings include substantial errors, for instance substantially incorrect dimensions and positions of features, Greenlane Archaeology reserves the right to increase the price to cover additional time spent correcting these errors.

## 5.3 Health and Safety

5.3.1 Greenlane Archaeology carries out risk assessments for all of its projects and abides by its internal health and safety policy and relevant legislation. Health and safety is always the foremost consideration in any decision-making process.

## 5.4 Insurance

5.4.1 Greenlane Archaeology has professional indemnity insurance to the value of **£250,000**. Details of this can be supplied if requested.

## 5.5 Environmental and Ethical Policy

5.5.1 Greenlane Archaeology has a strong commitment to environmentally and ethically sound working practices. Its office is supplied with 100% renewable energy by Good Energy, uses ethical telephone and internet services supplied by the Phone Co-op, is even decorated with organic paint, and has floors finished with recycled vinyl tiles. In addition, the company uses the services of The Co-operative Bank for ethical banking, Naturesave for environmentally-conscious insurance, and utilises public transport wherever possible. Greenlane Archaeology is also committed to using local businesses for services and materials, thus benefiting the local economy, reducing unnecessary transportation, and improving the sustainability of small and rural businesses.

## 6. Bibliography

Brown, DH, 2007 *Archaeological Archives: A Guide to Best Practice in Creation, Compilation, Transfer, and Curation*, IFA, Reading

CHES (County Historic Environment Service), 2008 *Brief for an Archaeological Building Recording Project & Watching Brief at Corn Mill Barn, Newlands, Ulverston, Cumbria*

Davies-Shiel, M, 1978 *Watermills of Cumbria*, Clapham

English Heritage, 1991 *The Management of Archaeological Projects*, 2<sup>nd</sup> edn, London

English Heritage, 2006 *Understanding Historic Buildings: A Guide to Good Recording Practice*, Swindon

Farrer, W, 1915, Events, and Feudal Aids, Part III, AD 1313 – AD 1355, *Record Soc Lancashire Cheshire*, **70**

Greenlane Archaeology, 2006 *Workshop on Queens Court, Ulverston, Cumbria: Archaeological Building Recording*, unpubl rep

Greenlane Archaeology, 2007a *23 Upper Brook Street, Ulverston, Cumbria: Archaeological Building Recording*, unpubl rep

Greenlane Archaeology, 2007b *Archaeological Excavation Manual*, unpubl rep

Greenlane Archaeology, 2007c *Former Rogers and Tyson Warehouse, Buxton Place, Ulverston, Cumbria: Archaeological Building Recording*, unpub rep

Greenlane Archaeology, 2007d *Junction of Hindpool Road and Cornmill Crossing, Barrow-in-Furness, Cumbria: Archaeological Building Recording*, unpubl rep

Greenlane Archaeology, 2007e *Junction of Hindpool Road and Cornmill Crossing, Barrow-in-Furness, Cumbria: Archaeological Excavation*, unpubl rep

Greenlane Archaeology, 2008 *Furness Abbey Cottage, Abbey Approach, Barrow-in-Furness, Cumbria: Archaeological Watching Brief*, unpubl rep

HMSO, 1996 *Treasure Act*, <http://www.opsi.gov.uk/acts/acts1996/1996024.htm>

IFA, 2001a *Standard and Guidance for Archaeological Investigation and Recording of Standing Buildings or Structures*, revised edn

IFA, 2001b *Standard and Guidance for an Archaeological Watching Brief*, revised edn

Marshall, JD, Helme, J, Wignall, J, and Braithwaite, JC, 1996 The Lineaments of Newland Iron Furness, 1747-1903: An Historical Investigation, *Trans Cumberland Westmorland Antiq Archaeol Soc*, 2<sup>nd</sup> ser, **96**, 195-213

OA North, 2003 *Newland Furnace, Ulverston, Cumbria: Conservation Plan*, unpubl rep

### Appendix 3: Tenants of Newland Mill

Tenant	Occupation	Year	Source
John Jackson	Miller	1825	Baines 1825, 657
Thos. Barrow	Corn miller	1849	Mannex 1849, 458
Thomas Barrow	-	1865	Slater 1865, 815
Edmund Askew	Miller and farmer	1873	Kelly 1873, 1534
Christopher Thompson		1882	Mannex and Co 1882, 251
James Amersmith	Farmer	1900	Mackereth 1900, 188

## Appendix 4: Transcript of LRO DDBB 4/10 1787

### Case and council's opinion re Mr Blundell's right to turn the water [into Bottom mill race] as it will prejudice the water to the mills below. Deeds cited 1692 – 1782

In 1692 Mr John Benson of Mansriggs purch<sup>d</sup> in fee a moiety of a water corn mill called Newland Mill situated near his estate at Mansriggs.

About half a mile above Newland Mill on the same stream stood another ancient water corn mill called Bottom mill which paid a yearly water rent of 13 shillings and 4 pence to the crown.

The water which fed Bottom Mill was taken from a rivulet (below the confluence of two streams called Blaybeck and Broughton Beck) in Mr Bensons estate of Mansriggs by a race and channel called Miller Beck. This beck ran through part of his ground and the grounds of Mary Sawrey and others to Bottom Mill and after serving that mill fell into a channel which conveyed it to Newland Mill.

In 1712 Mr John Benson purch<sup>d</sup> Bottom Mill and in 1725 he also purch<sup>d</sup> the water rent of 13/4 and upon his purchase of Bottom Mill he dismantled it or suffered it to be so to ruin and the source of the watercourse which conveyed the water to it have never been made use of but the water has ever since Mr Bensons purchase in 1712 run in the rivulet or beck race out of which it had formerly been taken to Bottom Mill there on to Newland Mill.

1746. 13 Sept. Mr John Benson sold his moiety of Newland Mill with its water rights and appurts to Mrs Agnes Bordley in the conveyance of which no mention is made of Bottom Mill the same being then obsolete and in ruins. But there is the following reservation (except and always reserving to the said John Benson his heirs and assistants for ever liberty of diverting or Turning water out of the river or rivulet commonly called or known by the name of Blaybeck running or following from Blaybeck bridge through the ground of the said John Benson by his messuage or dwelling house wherein he now dwells and inhabits in Mansriggs af<sup>d</sup> down to the Hagg foot so that the said water may flow or spread o'er any part of his ground in Mansriggs af<sup>d</sup> for the improvements of the same at all times and seasons of the year

1746. 16 Sept. Mrs Bordley by deed of this date confirmed the said exception. Immediately after this purchase by Mrs Bordley, ***the proprietors built an iron furnace adjoining or near to Newland Mill, rebuilt that mill upon a very extensive and improved plan and lately very near it an iron shop*** all which works ever since there erection have been and still are served and wrought by the rivulet in Mr Bensons estate as is also another mill above Newland Mill and between that and Bottom Mill erected about eight or nine years ago.

In 1753 Mr John Benson sold and conveyed all his estates at Mansriggs to his brother and heir at law Mr Wm Benson.

176[?]. Mr Wm Benson by his will of that date duly executed and assessed gave all his real and purch<sup>d</sup> estates to Trustees in Trust for the use of his infant granddaughter and heiress of law Miss Jane Benson (now the wife of Henry Blundell Esq.) in fee on her obtaining the age of 20 years and in case of her death before that age to give all his estates to other persons in the will proves and died 1769.

1782. Mrs Blundell obtained the age of 21 years now (or Mr Blundell in her right) seized in fee of the estate at Mansriggs and of the said Bottom Mill the outshell or outwalls of which are still standing and the mill race still plainly visible tho' by time much over-run up.

Mr Blundell has some thoughts of erecting a cotton mill or some other water work upon the foundation of Bottom Mill or in some other part of his estate at Mansriggs.

Qu. Can Mr Blundell after so long a disuse of Bottom Mill race now justify turning the water into it again as it will not prejudice or lessen the water to the mills below the fall being such as to render a damn unnecessary and can he now legally even into the ground of Henry Sawrey and others without their consent to channel and repair the said Bottom Mill race and can he safely make a dam upon his own ground and impound and detain therein the water of Blaybeck or Broughton Beck for the use and purpose of any water work he may erect upon the foundation of Bottom Mill or elsewhere upon the estate of Mansriggs. Suffering the said water afterwards to flow and run as usual to Newland Mill.

After the demise of Bottom Mill race for so long a time I am of opinion that Mr Blundell would not be able to support a right to enter the grounds of Sawrey and others to cleanse and repair it without their consent. Mr Blundell may, I think, make any use of the water as it passes through his estate and may raise dams or other works for that purpose, provided that he can do so without depriving the mills or lands below such as use of the water as has been enjoyed for years past.

J. Mansfield.

Bath 22 Oct. 1787

## Appendix 5: Summary Context List

Context	Type	Location	Description	Interpretation
<b>100</b>	Layer	Mill race	Greyish black friable silty sandy clay	Topsoil
<b>101</b>	Wall	Mill race	Dry stone wall	Inner wall of mill race
<b>102</b>	Layer	Mill race	Greenish grey firm clay	Lining of mill race
<b>103</b>	Fill	Mill race	Re-deposited topsoil and stone	Fill of mill race wall
<b>104</b>	Wall	Mill race	Dry stone wall	Outer mill race wall
<b>105</b>	Deposit	Mill race	Reddish black silty sandy gravel	Silt from upstream
<b>106</b>	Deposit	Mill race	Greyish black silty sandy clay	Silt from upstream
<b>107</b>	Wall	Mill race	Dry stone wall	Inner wall of mill race
<b>108</b>	Wall	Mill race	Dry stone wall	Outer mill race wall
<b>109</b>	Deposit	Wheel pit and mill race	Industrial waste, stone, brick etc	Back fill
<b>110</b>	Deposit	Mill race	Thin charcoal rich layer below <b>106</b>	Silt from upstream; earlier than laying of clay lining?

## Appendix 6: Summary Finds List

<b>Cxt</b>	<b>Type</b>	<b>Qty</b>	<b>Description</b>	<b>Date range</b>
106	Glass	1	Turquoise bottle, marked 'Essence of Coffee & Chicory, Camp Coffee, Patterson's, Glasgow', with mould seams	1876 - early 20 <sup>th</sup> century
106	Glass	1	Turquoise bottle with moulded seams	Late 19 <sup>th</sup> - early 20 <sup>th</sup> century
106	Glass	1	Colourless decanter top	Late 19 <sup>th</sup> - early 20 <sup>th</sup> century
106	Pottery	1	White earthenware plate rim with 'Willow' transfer-printed pattern	19 <sup>th</sup> - early 20 <sup>th</sup> century
106	Pottery	1	White earthenware bowl rim, sponge printed	19 <sup>th</sup> - 20 <sup>th</sup> century
106	Pottery	2	Refitting white earthenware bowl rims with blue painted decoration	19 <sup>th</sup> - 20 <sup>th</sup> century
106	Pottery	1	Stoneware marmalade jar, mark on base incomplete	19 <sup>th</sup> - 20 <sup>th</sup> century
106	Pottery	1	Brown-glazed grey-bodied stoneware jar rim	18 <sup>th</sup> - 20 <sup>th</sup> century
106	Pottery	1	Black-glazed red earthenware pancheon rim	Late 17 <sup>th</sup> - 20 <sup>th</sup> century
106	Pottery	1	Brown-glazed red earthenware pancheon rim	Late 17 <sup>th</sup> - 20 <sup>th</sup> century
u/s	Pottery	2	Black-glazed red earthenware, including pancheon rim	Late 17 <sup>th</sup> - 20 <sup>th</sup> century
u/s	Pottery	1	Brown-glazed red earthenware body fragment	Late 17 <sup>th</sup> - 20 <sup>th</sup> century
u/s	Pottery	1	White slip-coated red earthenware body fragment	Late 17 <sup>th</sup> - 20 <sup>th</sup> century
u/s	Pottery	2	White earthenware plate rims, 'Asiatic Pheasants' transfer printed pattern	Mid 19 <sup>th</sup> - 20 <sup>th</sup> century
u/s	Pottery	4	White earthenware body fragments, plain	19 <sup>th</sup> - 20 <sup>th</sup> century
u/s	Pottery	1	White earthenware saucer rim, plain	19 <sup>th</sup> - 20 <sup>th</sup> century
u/s	Pottery	1	White earthenware body fragment with bright green rim stripe	Late 19 <sup>th</sup> - 20 <sup>th</sup> century
u/s	Glass	1	White press-moulded vessel fragment	19 <sup>th</sup> - 20 <sup>th</sup> century
u/s	Pottery	1	Stoneware body fragment	19 <sup>th</sup> - 20 <sup>th</sup> century
u/s	Pottery	2	White earthenware, blue transfer printed patterns	19 <sup>th</sup> - 20 <sup>th</sup> century

## Appendix 7: Environmental Samples

Table 1: Environmental samples

Sample	Context	Volume (litres)	Description
1	110	0.25	Thin layer beneath 106

Table 2: Volume and contents of retents

Sample number	1
Charcoal	+++
Iron pan	+++

(Key: + = 1-5, ++ = 6-20, +++ = 21-100, ++++ = >100)

Table 3: Volume of flots and contents

Sample number	1
Volume (millilitres)	c15
Charcoal	++
Charred seed	+

(Key: as for Table 2 for charred seeds; all other remains + = 1-5%, ++ = 6-20%, +++ = 21-100%)