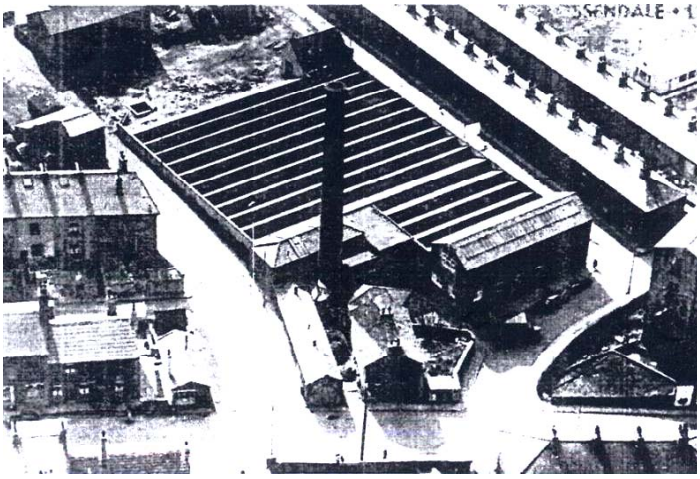

Higher Mill, Rawtenstall, Lancashire

Documentary Research, Building Assessment, Watching Brief and Excavation Report

Oxford Archaeology North

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SUMMARY

B & E Boys Ltd Ltd submitted a planning application for the development of land occupied by Higher Mill, Rawtenstall (SD 814 230). The development proposal included the demolition of the historic structures on site to facilitate the construction of new office accommodation. As a condition of the planning consent, the Local Planning Authority, acting on the recommendation of Lancashire County Archaeology Service (LCAS), requested a programme of rapid documentary research, building assessment and an archaeological watching brief to be undertaken prior to and during the demolition works. Oxford Archaeology North (OA North) was approached by B & E Boys Ltd to submit a project design in response to the verbal brief issued by LCAS (*Appendix 1*). Following the approval of the project design by LCAS, OA North was commissioned subsequently to undertake the work which took place from June to October of 2007.

The historical research demonstrated that Higher Mill operated both the spinning and weaving of cotton. The mill was constructed at some point during the later half of the nineteenth century by Higher Mill Spinning Co, advertising themselves in Slater's Directory of 1879. The building description and map regression describes the basic layout of the mill, including position of the steam plant, weaving sheds, spinning sheds and offices. The physical arrangement of the mill complex does not appear to have undergone any major, significant redevelopment or alteration throughout its working life.

As a result of the watching brief undertaken during the demolition works, structural remains of the engine house, specifically the engine bed were identified. The remains were seen to be in a good state of preservation and following discussions with LCAS a further programme of work was agreed. This comprised the excavation of the engine house and the adjacent area of the site, which was thought to retain further evidence for the steam plant.

The excavation allowed a detailed record of the engine house, chimney, loading bay and possible economiser building to be compiled. Detailed examination of the engine bed would suggest that the engine was a horizontal tandem-compound engine, a type that became popular in cotton mills during the 1870s. The loading bay proved to be of twentieth century construction and was constructed in an area that appeared to be the original entranceway into the mill. The economiser building had been heavily modernised in the twentieth century in order to create a basement, within which what is tentatively interpreted as part of the singeing plant was located.

In the absence for any firm evidence to suggest otherwise, the boiler house appears to have been located within the long covered shed, which is subject to a separate planning application. A watching brief is recommended for all ground disturbance associated with the development of this building.

ACKNOWLEDGEMENTS

Oxford Archaeology North (OA North) would like to thank B & E Boys Ltd Ltd for commissioning and supporting the project. Additional thanks are also due to the staff of the County Record Office in Preston and Rawtenstall Public Library for their assistance with the documentary research.

Karl Taylor undertook the building assessment, Ian Miller carried out the historical research, and Andy Bates and Daniel Taylor undertook the archaeological watching brief and excavation. Karl Taylor and Andy Bates wrote the report and Mark Tidmarsh produced the drawings. Alison Plummer managed the project, and Ian Miller edited the report.

1. INTRODUCTION

1.1 CIRCUMSTANCES OF THE PROJECT

1.1.1 B & E Boys Ltd Ltd submitted a planning application for the development of land occupied by Higher Mill, Rawtenstall (SD 814 230). This included the demolition of the historic building on site to facilitate the construction of new office accommodation. As a condition of the planning the Local Planning Authority acting on the recommendation of Lancashire County Archaeology Service (LCAS) requested a programme of documentary research, building assessment of the structural remains, and an archaeological watching brief during the demolition works. Oxford Archaeology North (OA North) was approached by B & E Boys Ltd Ltd to submit a project design (*Appendix 1*), in response to the verbal brief issued by LCAS. Following the approval of the project design by LCAS, OA North was subsequently commissioned to undertake the work which took place from June to October of 2007.

1.1.2 Substantial structural remains of the former engine house were observed during the course of the watching brief. The presence of these remains required a variation to the original project design allowing more detailed investigation. A method statement for an excavation was agreed between Oxford Archaeology North, LCAS, and B & E Boys Ltd, and this was undertaken in October and November of 2007. This report presents the results of each phase of archaeological work, followed by a concluding chapter outlining the findings.

1.2 SITE LOCATION AND PHYSICAL BACKGROUND

1.2.1 Higher Mill lies to the north-east of the centre of Rawtenstall (SD 814 230), on the eastern edge of the nineteenth-century town, in the Spring Side area (Fig 1). It is bounded to the north by Millgate Road, the east by Higher Mill Street, to the south by a modern building, and to the west by East Parade. Rawtenstall in located the southern Pennines, north of Manchester, in an area of towns, which were formed or expanded during the nineteenth century. Buildings of these towns were historically constructed from the local gritstone with eighteenth and nineteenth century stone and brick-built industrial buildings, including mills lodges and reservoirs originating from the woollen and cotton industry. Some older settlements may be found on the moorland fringe (Countryside Commission 1998, 105)

1.2.2 The solid geology of the region is dominated by coarse-grained sandstones ('gritstone'), which are generally horizontal and separated by softer mudstone and siltstone beds (*op cit*, 107). In broad terms, this has created a terraced landscape of plateaux and interlocking escarpments corresponding to the layers of sandstone and mudstone (*op cit*, 107). The gritstone is overlain by a thick deposit of glacial till which dates from the last period of glaciation in the region, the Devensian (10,000 to 70,000 bp) (Edwards and Trotter 1954).

2. METHODOLOGY

2.1 PROJECT BACKGROUND

2.1.1 The archaeological works were undertaken in adherence with a project design compiled by OA North (*Appendix 1*). The works undertaken complied with the principles and guidelines for archaeology as set down out in and generally accepted best practise.

2.1.2 The buildings were disused and derelict at the time of the archaeological programme of work, and vegetation (scrub) was present within the open areas. Demolition and remediation works were ongoing throughout the duration of the project.

2.2 DOCUMENTARY RESEARCH

2.2.1 A review of the available documentary sources for Higher Mill was carried out to inform the results of the building assessment, and to place them into an historical context. Data was collected from the Local Studies section within Rawtenstall Public Library, and the Greater Manchester County Record Office. The principal sources of information were the sequence of Ordnance Survey maps, trade directories, and local newspapers.

2.3 BUILDING ASSESSMENT

2.3.1 ***Photographs:*** these were captured in both monochrome and colour negative film in 35mm formats with SLR equipment. The photographic archive comprises both external and internal (where available) views of the buildings and detailed photographs of specific architectural details, which do not show on general views. The photograph locations are marked on plan (Fig 8). A duplicate record of high-resolution digital photographs was created for illustrative and record purposes.

2.3.2 ***Descriptive Record:*** brief written records using OA North *pro forma* record sheets were made of all principal building elements, both internal and external, as well as any features of historical or architectural significance. Particular attention was also paid to the relationship between parts of the building, especially those that would show its development and any alterations. These records are essentially descriptive, are not analytical, and are intended to inform the photographic record.

2.3.3 ***Site drawings:*** a general site plan was provided by the client onto which the locations and directions of the photographs were annotated.

2.4 WATCHING BRIEF

2.4.1 A programme of field observation was maintained during the demolition works at the mill. The demolition was conducted under constant archaeological supervision. The buildings were demolished using a 22ton 360° excavator fitted with a 1.0m wide toothed bucket.

2.4.2 A daily record of the nature, extent and depths of ground-works was maintained throughout the duration of the project. A brief written description of building elements and archaeological features or horizons was made on OA North's *pro forma* sheets, with drawings on permatrace completed at a scale of 1:10, 1:20 or 1:100 as appropriate. A photographic record was compiled on colour transparency (slide), monochrome negative film and digital media.

2.5 EXCAVATION

2.5.1 The area of excavation incorporated the north-east part of the site. This comprised the base of the demolished chimney stack; the southern end of the suggested economiser building; the footprint of the loading bay; and the engine house (Fig 9). An area up to 2m in width immediately surrounding these structures was also included within the excavation area in order to expose any adjacent structures or features, where practicable due to extant buildings and services. The exposed basement of the engine house was not entered due to health and safety reasons, but excavated and recorded from the surface.

2.5.2 The overburden of the area was removed using a 5ton 360° mechanical excavator. All further excavation was conducted by hand, with all features and structures identified excavated and recorded stratigraphically. Recording was by means of OA North's context recording system, based on that used by the English Heritage Centre for Archaeology, using context record, photographic record, and object record *pro forma* sheets, with supporting registers and indices. A photographic record in colour transparency (slide) and monochrome negative film was compiled. A detailed survey of the remains was generated using Total Station Theodolite (TST) and pen computer operating a CAD system. Hand planning and section of archaeological interventions and building elevations were completed on permatrace, to a scale of 1:10 or 1:20 as appropriate The survey was located subsequently with reference to National Grid co-ordinates.

2.6 ARCHIVE

2.6.1 The results of all archaeological work carried out will form the basis for a full archive to professional standards, in accordance with current English Heritage guidelines (*Management of Archaeological Projects*, 2nd edition, 1991). The original record archive of project will be deposited with Lancashire SMR.

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

3. BACKGROUND

3.1 HISTORICAL BACKGROUND

3.1.1 The development of Rossendale and its numerous small manufacturing towns is due largely to the textile industries, which expanded at a dramatic pace from the late eighteenth century. The importance of the woollen-manufacturing industry to Rossendale at that time was alluded to by Aikin during his tour of Lancashire, who noted that the area 'has been greatly improved within the last 20 years, chiefly from the increase of the woollen manufacture. The town and hamlets of Haslingden are reckoned now to contain about 3000 inhabitants, which is triple the number they contained 40 years since' (Aikin 1795, 276). The manufacture of worsted was also an important element of the local economy, although these trades began to be superseded by the cotton industry during the early nineteenth century (Elliott 1966).

3.1.2 During the early 1800s, Rawtenstall was little more than a hamlet (Whitehead 1909), yet it is depicted as a dispersed industrial settlement on the Ordnance Survey map of 1848 (Fig 2). The centre of the settlement is shown to have been dominated by two cotton mills: Rawtenstall Lower Mill and Rawtenstall Higher Mill. These mills were established by Thomas Whitehead & Brothers, whose name is synonymous with textile manufacture in Rawtenstall. Higher Mill was built in 1824, and represented an early example of a combined cotton spinning and weaving mill that utilised power looms. In 1833, the firm bought land a short distance to the south-west and built Holly Mount, a school, workers' housing and Lower Mill, which was put into production in 1840 (Whitehead 1909, 11).

3.1.3 Examination of the 1848 Ordnance Survey map shows Whitehead's Higher Mill to lie on the north side of Mill Gate, and is clearly a different entity to the Higher Mill that forms the focus of the present study. The site of the latter is shown by the Ordnance Survey to have been used occupied by a large reservoir, presumably providing a supply of water for the mill's steam plant. The map also shows two terraces immediately to the south of the mill, which is shown on subsequent mapping as back-to-back workers' housing.

3.1.4 Surviving documentation pertaining to the Higher Mill within the present study area is scant, and a resume of its development relies on the sequence of available historic maps, trade directories, and newspaper articles. The mill was seemingly established by the Higher Mill Spinning Co in the late 1870s, who is listed as 'manufacturers of cotton goods and cotton spinners' at Higher Mill in contemporary trade directories (Slater 1879, 626). The term 'manufacturers' implies that the firm was engaged in weaving in addition to spinning, which is corroborated by an article in a local newspaper: 'A number of new looms are about to be put in at Higher Mill Manufacturing Co, supplied by Messrs Butterworth & Dickenson, of Burnley' (*Rossendale Free Press* 1889). A newspaper article published the previous year noted that the Higher Mill Spinning Co employed some 280 workers (*Rossendale Free Press* 1888).

3.1.5 An entry in Worrall's *Cotton Spinners and Manufacturers' Directory* a few years later notes that the mill contained 630 looms, together with 19,350 spindles that spun twist and weft yarn (Worrall 1895). The mill produced coarse counts of yarn (18s – 30s twist and 16s – 40s weft), typical of the Rochdale and Todmorden districts, which was used largely for mass-produced clothing (Marsden 1884, 58). The quantity of machinery in the mill quoted by Worrall implies that Higher Mill was a smaller than average concern, and weaving represented the principal occupation; the average size of cotton mills built in 1901 was 90,000 spindles (Dickinson 2002, 99).

3.1.6 The earliest surviving plan of the mill is that surveyed by the Ordnance Survey in 1891; this was published at a scale of 1:500 and 1:2500 (Figs 3 and 4). This shows the mill to have been of a short L-shape plan, with a reservoir situated immediately to the south; it seems likely that this was a surviving element of the larger reservoir shown on the 1848 Ordnance Survey map. Water from the reservoir was carried to the mill's steam plant via a narrow leat, which is shown on the 1:500 map to have passed along the eastern side of the mill building; the steam plant, comprising an engine, boiler(s), and a chimney, was evidently at the north-eastern end of the mill. A narrow, rectangular building abutting the north-eastern corner of the mill, and fronting onto Higher Mill Street, is likely to have formed part of the mill complex, perhaps housing ancillary processes or warehousing. The map also shows two new rows of terraced housing, South Street and East Parade, to have been built since 1848, which, in contrast to the earlier back-to-back properties, were serviced with small yards to the rear and a back alley.

3.1.7 A later edition of Ordnance Survey mapping, published in 1908 (Fig 5), shows the mill layout as unchanged. Some of the previously open land to the south-east of the mill, however, had been developed with a new row of terraced housing and the construction of Grange Road. The 1930 Ordnance Survey map (Fig 6) similarly shows Higher Mill as unchanged from its original layout, although it had been taken over by the Rawtenstall Cotton Mills Ltd in the 1920s (Mathias 1967). This firm was engaged in the same branch of the textile trades as the Higher Mill Spinning Co, and is listed in contemporary trade directories as 'manufacturers of cotton goods and cotton spinners' (*eg* Kelly 1924, 910). It seems, however, that the output capacity of the mill was reduced slightly under the new owners; part of the mill was used as a brass foundry in the mid-1920s (Davies 1984), and an article published in the *Bury Times* in 1934 states that the mill only contained some 300 looms, representing a considerable reduction in the 630 recorded by Worrall in 1895.

3.1.8 In December 1934, the mill was purchased by David Whitehead Ltd (*Bury Times* 1934). This firm had been established in 1927 as a subsidiary of the David Whitehead & Sons Ltd (owners of Lower Mill), and carried out the design and sales of the furnishing fabric produced by the parent company (*Rossendale Free Press* 1950).

3.1.9 A useful source of information is an aerial photograph of Higher Mill taken in *c*1950 (Plate 1). This shows the site to have been dominated by a single-storey weaving shed, with the characteristic north-light windows. A two-storey building at the north end of the site is likely to have been the spinning block,

whilst three adjacent buildings clustered around the mill chimney almost certainly represent the steam plant. Archaeological excavation resolved the largest of these buildings, with a hipped roof and a gable end fronting onto Higher Mill Street, to be the engine house housing a horizontal steam engine. The boiler house is thought to be longer building with a gable end fronting onto New Church Road, although with a later roof to that when operating as a boiler house. The intended function of the smallest of the three structures, placed against the chimney is uncertain, although it is likely to have formed an element of the steam plant; its size and position suggest that it may have housed a fuel economiser. The reservoir to the rear of the mill, however, is shown to have been infilled, implying that the steam plant was redundant, presumably having been superseded by electric power.

3.1.10 The Ordnance Survey map published in 1930 (Fig 6) shows the layout of the mill as unchanged, although by 1963 part of the front of the mill adjacent to the chimney had been extended (Fig 7). During the 1970s, the mill was occupied by the firm of Ashworth & Hoyle, shoe and slipper manufacturers, and subsequently by Kenyons Footwear Ltd (Davies 1984).

4. BUILDING ASSESSMENT RESULTS

4.1 INTRODUCTION

4.1.1 Higher Mill occupied a sloping site to the north-east of Rawtenstall town centre, and was situated between East Parade and Higher Mill Street (Fig 1). The mill complex comprised a large open area surrounded on three sides by high stone walls and lies on a north-south axis (Plate 2). A small complex of standing structures was located in the north-east corner of the site. These were in a ruinous and derelict state.

4.1.2 Structural remains pertaining to several elements of the steam plant were observed during the building assessment. As a result of evidence arising from the documentary research, the structures on site were interpreted as the remains of the weaving shed (Plate 1); steam plant (engine house, economiser, boiler house and chimney), and the spinning block (warehouse and office accommodation).

4.2 THE INTERIOR SURFACES

4.2.1 Almost the entire internal area of the mill complex appears to have been laid down to flagstones of varying sizes (Plate 10). These were sealed beneath asphalt at some point, which has since degraded and fragmented. The majority of the flagged area represented the internal floor space of the weaving shed. The slightly lower area of flags in the north-west corner of the site was the remains of the basement floor for the spinning block.

4.3 THE WEAVING SHED

4.3.1 The remains of the weaving shed were represented by the flagged floor discussed above (*Section 4.2.1*), and three stone walls located along the west, east and south perimeters of the site.

4.3.2 ***The West Wall:*** this wall survived to a height of 3.5m at its north end and 2.4m at the southern end (Plate 3), and faced out onto East Parade. The external face was finished with rock-faced sandstone bonded with cement mortar. The internal face was constructed from random rubblestone and was loosely bonded (Plate 2). In some places the inner face had been patched and repaired with modern brick. The south end of the wall had been rebuilt with cinder block and it was apparent that there was an internal structure of mid-to late twentieth-century date here, as shown on the aerial view of *c*1950 (Plate 1).

4.3.3 There were three ground floor windows, two doors and four basement window apertures, all of which had been boarded over (Plate 4). All appeared to be contemporary with the wall, having flush lintels, and the windows having slightly projecting sills. There were two modern plywood signs present either side of the doorway, one of which read 'SHOP & OFFICE ENTRANCE'

while text on the other was impossible to read. There was a blocked door approximately half way along the elevation, which appeared to have been inserted at a later date.

4.3.4 A short section of projecting wall with a blocked doorway lay perpendicular to the main elevation (internally), and was of similar construction detail. It probably represented the remains of the south wall of the spinning block (Plate 6). The doorway had a substantial stone surround with pick tool marks, and the door itself was of asymmetrical plank construction.

4.3.5 ***The East Wall:*** the *c*1950 view of the mill (Plate 1) illustrates this wall as standing to a substantial height above Higher Mill Street. At the time of the building assessment the wall had been reduced to the level of the road, approximately 2.7m in height. Where seen, the external face was of random rubblestone construction.

4.3.6 The internal face was of exactly the same rubblestone construction as the west wall, and had been lined partially with modern brick laid in stretcher bond (Plate 9). There were three recesses at ground floor level, each measuring 1.2m wide by 1.4m tall with stone lintels. Wrought iron bolts could be seen to project from the elevation at regular intervals, which probably related to the power transmission system. A slightly projecting ledge was present approximately 1.8m from the ground. A timber staircase was located at the junction of this wall and the south wall (Plate 9). It was partially enclosed by a matchboard structure with an asphalt roof.

4.3.7 ***The South Wall:*** the partial remains of the internal elevation of the south wall were of identical construction to the east wall (Plate 9). The external face was not visible due to the nature of the slope of the ground, this being the higher end of the slope.

4.4 THE SPINNING BLOCK

4.4.1 ***The North Wall:*** the external face (facing Millgate Road) was of exactly the same construction detail as the west wall of the weaving shed (*Section 4.3.2*) and contained five ground floor and five basement window apertures (Plate 5). These shared the same detail as those in the west wall. All of the windows were boarded over except for a single basement window, which had wrought iron bars. There were two modern property developers signs fixed to the wall together with a smaller sign that read 'NO PARKING ROSSENDALE SLIPPER LOADING AREA'.

4.4.2 Internally, the ground floor windows had shallow reveals and those in the basement were shorter (by being partially infilled) and had sloping sills (Plate 7). It appears that all the window frames were timber casements, and the basement windows were barred. A scar highlighting the position of the removed ground floor/basement ceiling (ceiling height was approximately 2.1m) was observed. A cast-iron bearing box was present in the upper east part of the elevation, adjacent to the easternmost window (Plate 8).

4.5 LOADING BAY

4.5.1 This building was located at the western side of the mill complex, and was constructed from a combination of rock-faced sandstone and random rubblestone, with a flat roof. Parts of the building had been patched and repaired with modern brick (Plate 11). There were two large doorways on both the north and south elevations, the north doorway having a large roller shutter. Both the doorways appear to be later insertions.

4.5.2 There were three other doorways, which allowed access into the adjacent engine house, the spinning block and to the weaving shed. The doorways all had similar chamfered sandstone surrounds. Two windows were present in the west wall and two in the north wall. Roof scars were visible on the upper part of the west wall indicating that the adjacent structure (weaving shed) had a north-light roof (Plate 12). There were also three projecting RSJs visible, which are visible inside and were probably roof drains.

4.5.3 The interior of this building consisted of a high L-shaped room with a flagged-floor loading bay at the south side. The ceiling comprised concrete slabs supported by RSJs (Plate 13). A tall blocked window was present in the south elevation of the eastern part of the room, which was also visible in engine house (Plate 14).

4.6 ENGINE HOUSE

4.6.1 This building was situated to the south of the chimney and was the hipped roof structure illustrated on the aerial photograph from *c*1950. Only the north, east and west walls remained (Plate 15). It was of random rubblestone construction with some brick patching and repair. The east elevation (facing Higher Mill Street) was of rock-faced construction (Plate 16). The floor was partly laid down to quarry tiles and concrete.

4.6.2 There were two windows present, the one in the east wall was substantial and occupied almost the whole of the elevation (Plate 16). A smaller blocked (with brick) aperture in the north wall was the same as that described in the loading bay (Plate 14).

4.6.3 It was apparent that this building had a basement, which is visible through a small aperture in the economiser building. There is no evidence of access arrangements to the basement from within the engine house.

4.7 BOILER HOUSE BUILDING

4.7.1 Accessed via a door in the small courtyard at the north side of the complex, this was a small irregular-shaped building (Plate 17). Externally, it was of yellow rock-faced sandstone construction and vertical butt joins were evident between it and the chimney and ancillary building. It had a modern pressed-steel roof. The internal fabric mostly comprised random rubblestone walls, the west wall (which was the base of the chimney) was of rock-faced sandstone.

The roof was of common rafter construction with supporting RSJs, one of which had a pulley arrangement.

4.7.2 There was a blocked arched aperture at the base of the west wall which possibly allowed access into the base of the chimney (Plate 18). Two further apertures in the south wall opened into the basement below the engine house (Plate 19). Various pipes exited though one of the apertures. A blocked cast-iron bearing box was visible to the left of these apertures, and provided evidence of power transmission (Plate 20).

4.8 ANCILLARY BUILDING

4.8.1 This building consisted of a long, single-storey 'shed' that butted against the engine house and the boiler house. It should be noted that this building is subject to a separate planning application and, as such, is not part of this survey. There was direct access to it from the engine house. It was constructed from rock-faced sandstone, and had a modern pressed-steel roof. The northern end evidently contained a doorway, which had been partly demolished (Plate 21). There was an additional doorway in the west elevation, which had a ledged- and- braced door and was blocked externally with modern brick, and had a sandstone surround. Modern brick walls were present on the west side and appear to have contained oil storage tanks. The remains of a cobbled surface were visible.

4.8.2 Internally, the construction details were the same as those for the economiser building, with random rubblestone walls and a concrete floor. The roof was of common rafter construction, and was lined with hardboard sheets. There was a recess of unknown use in the east wall, which was of brick construction with a substantial sandstone sill.

4.9 THE CHIMNEY

4.9.1 The chimney, which was approximately 3.5m feet wide, was sandwiched in between the engine house and the economiser building and survived to a height of approximately 5.5m (Plate 22). The lower part was constructed from rock-faced sandstone, while the upper part was ashlar. There was a sill band above and the circular chimney stack rested upon a chamfered ashlar plinth. The chimney was, and appeared always to have been, external.

5. RESULTS OF THE WATCHING BRIEF

5.1 INTRODUCTION

5.1.1 An archaeological watching brief was maintained during the demolition of the extant buildings and removal of the flagged floor from the former weaving sheds and spinning block (Plate 23). Flagstones from the basement of the spinning block had already been heavily disturbed prior to the works taking place (Plate 24).

5.2 REMOVAL OF FLAGGED FLOOR SURFACES

5.2.1 The flagged floor was removed by a Skid Steer Loader fitted with forks or a loading bucket (Plate 23). On average, the individual flagstones measured a maximum of 1.27m by 0.66m by 0.10m. Below the flags a very dark grey coarse sand-clay deposit was observed. This appears to have been bedding and levelling for the stones. No further features or structures were observed.

5.3 STEAM PLANT DEMOLITION

5.3.1 ***Engine House:*** during the demolition of the engine house a bearing box was observed in the south-eastern wall (Plate 25). It was located 5m above ground floor, adjacent to the east wall. It measured 0.90m wide and at least 1.0m high. Removal of the modern floor revealed a basement, and an engine bed. Further demolition of this structure ceased until a variation to the project design was agreed, in order to allow a detailed record of this structure to be compiled. The results of this further work are presented in *Section 6* of this report.

5.3.2 ***Chimney:*** during the demolition works the interior of the standing structure was recorded, illustrating the arrangement of the flue entering the chimney. The flue arch measured 1.18m wide and 1.5m high above the flue (Fig 10; Plate 26). It was constructed of roughly-squared, coursed, sandstone measuring a maximum of 0.80m by 0.78m by 0.23m, and bonded with a dark grey cement mortar. The flue and the chimney stack had the same refractory brick lining (Plate 26).

6. EXCAVATION RESULTS

6.1 INTRODUCTION

6.1.1 The results obtained from the excavation at Higher Mill are presented below. The site is broken down into its main components. Detailed descriptions of each deposit or structure are presented in *Appendix 3* of this report.

6.2 LOADING BAY

6.2.1 The current structure was a relatively recent addition to the mill, post-1930, and, consequently, the features seen within its footprint are earlier in date. Although modern, this is the site of the original loading bay, which is known to have had a covered roof, as illustrated by the 1891 OS map (Fig 3).

6.2.2 The natural clay till, ***70***, was located at a depth of 1.61m below the current ground surface. The level of the ground surface had been raised using redeposited glacial till, ***14***, visible in a south-west-facing section (Figs 9 and 11; Plate 28).

6.2.3 Within layer ***14***, at a depth of 0.94m below the current ground surface, a cast-iron pipe, ***4***, was located. It ran from the western corner of the excavation area in a north-easterly direction for a distance of 6.87m, before turning south-east for 3m, at this point it entered the engine house just above the basement floor (Fig 9; Plate 30). The pipe measured 60mm (9 inches) in diameter, and was almost certainly associated with the steam plant; it is likely to have provided a conduit between the engine and the mill reservoir, which was located on higher ground to the south of the site (Fig 3).

6.2.4 A further foundation, ***10***, was observed, however, this served no obvious function (Fig 9; Plate 29). It measured 0.60m wide and 0.9m in height. At the north-east it was keyed into wall ***6*** and to the south-west into wall ***13***. The foundation (***10***) was overlain by a second layer of redeposited clay till, ***3***, measuring a maximum of 0.55m thick. In turn, this was overlain by 0.30m of bedding material, ***2***, for what would have been, prior to the construction of the loading bay, an external flagged surface, ***1***. This comprised squared stones, each measuring 0.20m in length, 0.13m wide and 0.15m thick. Subsequently, this had been covered by a mid-grey concrete floor serving the loading bay.

6.2.5 Within the bedding material (***2***) three pipes had been laid. A ceramic drainpipe, ***34***, was visible in the north-west end of the section (Fig 11; Plate 28), and fed into a square drain 1.17m to north-east (Fig 9). This drainpipe extended to the south-west, across the excavated area, and beyond the limit of excavation. A second ceramic pipe, ***5,*** measured 0.27m in diameter and was located adjacent to the south-western edge of the excavation area. This was most likely a waste water pipe. A metal pipe, ***9***, ran adjacent to the south-western side of wall ***6***. It measured 60mm (2.5 inch) in diameter but its function is unclear.

6.2.6 The foundations of a small room (***30*** and ***32***) were observed immediately to the north of the engine house. The interior dimensions of the room were 3.6m in length by 0.85m in width. Beneath a cement floor, ***33***, a levelling deposit, ***31***, was present. This contained the drain associated with drainpipe ***34***.

6.2.7 To the north of this small room a further foundation wall, ***37***, was present. This comprised a concrete sill upon which a red brick wall with stone cladding wall had been set. This structure forms part of the mid-twentieth century alterations to the mill.

6.3 ENGINE HOUSE

6.3.1 The remains of the engine house (Fig 9; Plate 31) comprised four outer walls (***6***, ***49***, ***50*** and ***51***) enclosing an internal area of 13m by 4.2m. Contained within the footprint of the building could be seen the engine bed (***45***), engine house floor (***46***), and the basement below. The flywheel pit was located to the south of the engine bed.

6.3.2 The engine house walls were stone-built with rubble cores. They measured 0.65m in width, and were recorded at engine floor level. Generally, the walls had keyed corners but the relationship between ***51*** and ***6*** was confused. At the point that the walls met, wall ***51*** had been reduced to foundation level (***8***). It continued to the west as the rear wall to the loading bay area.

6.3.3 Three fixings were located along the inner face of wall ***51*** (Fig 9). Two of these metal rungs, ***65*** and ***66***, (Plate 34) were attached to the basement wall. These may have provided access up from the basement floor for engine maintenance, although it is noticeable that in each case a fish-bellied rail (supporting the floor) would have obstructed this access. The third, a metal plate (***6***7), is fixed to the inner face of the wall by four 20mm bolts (one in each corner). Four further bolts (6mm) protrude from the central lower portion of the plate. These may relate to the engine.

6.3.4 Beneath the flagged floor, ***46***, the basement was present to a depth of 2.6m. This also had a flagged floor, ***69***. The floor of the engine house was suspended above the basement by cast-iron fish-bellied rails, and several flag stones were missing (Plate 31). A metal cover, ***62***, in the centre of the floor, may have been an inspection hatch. Near the northern corner of the engine house a ceramic pipe was fixed to the internal face of wall ***50***, measuring 0.16m in diameter. The top of this pipe was just below the level of floor ***46***, the pipe measuring only 0.30m in height before having been removed. This was most likely a waste water pipe, possibly also a later addition to the building.

6.3.5 An entrance into the engine house existed from Higher Mill Street (Plate 16). A stone block, ***47***, below this entrance served as a step down to the engine house ground floor. Below step ***47***, the floor comprised a single large stone, ***48***, measuring 2.90m in length, 0.6m wide and 0.27m deep, and set into wall ***49***.

6.3.6 The engine bed and associated flywheel pit were positioned slightly to the south of the centre of the engine house (Fig 9; Plate 31). The engine bed itself was seven courses high, measuring a maximum of 1.23m by 1.2m by 0.47m in size. In total, this created a linear structure 12.34m long, 1.23m wide and 2.63m high, the upper surface of which was flush with the flagged floor ***46***.

6.3.7 The arrangement of fixtures and fittings relating to the engine bed suggest that the engine itself would have been a horizontal-type engine, rather than a vertical beam engine. This would have rested upon metal rails, which have worn sections of the stone flat to leave an impression of their location and size (Fig 9; Plate 32). The wear pattern suggests rails of 0.17m (7 inches) in width were used. They were fixed to the engine bed by means of iron bolts, 40mm (2.5 inches) in diameter, rising through holes in the engine bed, and measuring on average 0.13m in diameter (Plate 32 and 33).

6.3.8 The crankshaft and flywheel were located at the north-west end of the engine bed (Plate 33). Between the cylinders and the crankshaft a crosshead would have been positioned, and attached to the aforementioned rails. This allowed the horizontal movement of the piston to be transferred to the connecting bar, the other end of which connected to and matched the movement of the crankshaft. The flywheel housing fitted into recessed area adjacent to the crankshaft location (Fig 9; Plate 23). The primary drive shaft, which transferred the power from the engine to the weaving shed, would have been situated to the south-west side of the fly wheel as indicated by a bearing box that was positioned above the engine bed. Surviving remains of mounting blocks in the weaving shed indicated that the drive shaft was fixed to the western wall of the shed, presumably driving a series of lineshafts.

6.4 BOILER HOUSE

6.4.1 This lies in the northern corner of the excavation area. The modern concrete floor was removed, followed by the underlying rubble, to reveal a basement, which had a doorway through into the basement of the engine house (Fig 9; Plate 36). The basement of the boiler house had a concrete floor, ***18***, and in its northern quarter a circular structure, ***19***, was located (Fig 9; Plate 37). It measured 2.4m in diameter, with an entrance 1.5m wide along its southern edge. The wall comprised an inner and an outer skin both of brick construction. The outer wall was constructed from twentieth-century red bricks, two bricks deep, frogged and stamped with the lettering "NORI" from the Nori Brick Works in Accrington. The inner skin was of refractory brick, ***17***, one brick in depth and pale yellow in colour. These were also seen at the base of the feature, ***15***. The function of this structure was not entirely resolved, although it may be associated with the brass foundry.

6.4.2 A sandstone block, ***43***, measuring 0.97m in length, 0.58m wide and 0.16m thick (Fig 9; Plate 38) was positioned in the south-east corner of the room. Two parallel grooves with the remains of 10mm metal fixings at either end were cut into its upper surface. Similarly, a structure, ***44***, was located in the south-west corner of the building. It comprised red brick construction with a cement top, creating an L-shape matching the corner of the room. In the

surface of the concrete a triangular depression with 20mm metal fixings in each corner, 0.14m apart, was located (Fig 9; Plate 39).

6.4.3 Wall ***20***, bounding the east side of the room, continued to the south as the east wall of the engine house (***49***). A doorway, ***71***, appeared to have been inserted into wall ***50***, and provided access into the basement of the engine house (Fig 12; Plate 40). A bearing box, ***72***, was located at a height of 2.1m above the concrete floor (***18***) (Fig 12; Plate 40). The reason for a bearing box in this location was not entirely obvious, although it is evident that power was being transferred to the north-east end of the building.

6.4.4 Wall ***21*** measured 0.35m wide, and was the north-west corner of the room. It was constructed from roughly-faced stone with a rubble core. Fixed to wall ***21***, was a metal stand ***42***. This measured 0.47m in length and 0.31m wide and stood 0.52m high (Fig 9; Plate 41). Its upper surface created a tray, 15mm deep, which contained a quantity of grease. Residual red paint was visible on the metal. A hole in wall ***21***, 0.76m to the west of the stand, ***42***, measured 0.44m in length and 0.30m high, may indicate the position of a second, similar stand (Plate 41).

6.4.5 The south wall of the boiler house, ***50***, was the north wall of the engine house. The west wall was represented by the flue into the chimney (*Section 6.5 below*).

6.5 CHIMNEY

6.5.1 The mill chimney, located to the immediate north of the engine house, was set upon a substantial stone foundation, ***24*** (Fig 9), and was square in plan. The foundation measured approximately 2.0m by 2.0m. The chimney stack comprised three elements: an outer wall of masonry, ***24***, an inner skin of red brick, ***25***, and the refractory brick lining, ***26***. The inner base or floor of the chimney, ***28***, comprised red brick and the outer base was compacted coarse sandy-silt clay, ***27***, with frequent inclusions of angular stone. The chimney flue measured 1.4m by 1.34m, and entered the chimney stack from the north-east. It had been blocked by a wall, ***29***, at the point where it would have entered the boiler building (Fig 9; Plate 42). Wall ***29*** was of a red brick construction, measuring 1.1m in length and by 0.7m wide, its upper surface at approximately the level of the current ground surface. Above this level, the building assessment shows the flue to have been blocked with breeze blocks (Plate 18).

6.5.2 To the west of the chimney is what appears to be a construction cut, ***36***, the intervening gap between this and the chimney stack was backfilled with redeposited clay till, ***35***.

6.6 WEAVING SHED

6.6.1 A small area of the weaving shed, to the south of the engine house, was included within the excavation area. The features located within this area relate directly to the steam plant.

6.6.2 To the south, and at the east end, of the engine house a manhole was located (Fig 9; Plate 43). It was constructed of red brick, ***56***, with metal surround, ***57***, at its entrance, and was positioned over a cast-iron pipe, ***61***. The pipe measured 0.23m (9 inches) in diameter and was traced from a manhole 2.2m to the south-west, where it turned to the north-west for 2.06m and entered the engine house.

6.6.3 A levelling layer, ***64***, was observed to the south of the engine house (Fig 9). This measured 0.9m thick and comprised a redeposited glacial till similar to layer ***3*** of the loading bay.

6.7 EXTERNAL FEATURES

6.7.1 A small culvert, ***41***, was located to the north of the chimney. It was constructed from nineteenth-century red brick sides, was one course high, and had standstone capping (Fig 9). It measured 3.16m in length and 0.31m wide, and was aligned on an east/west orientation. Its eastern end was a true terminus, but its western end was truncated by the manhole of a twentieth-century service.

6.8 FINDS

6.8.1 The vast majority of deposits excavated contained late twentieth-century material from the recent re-modelling of the mill. This included material such as modern plastic items and a television. In addition, two metal finds were recovered.

6.8.2 A spanner, with an S-shaped handle, was recovered from the overburden removed from economiser building. It fitted 2⅛inch nut. A chisel was recovered from between foundation ***24*** and masonry ***25*** of the chimney. It measured 335mm (13 inches) in length, with a 35mm wide blade and a 30mm^2 handle.

7. DISCUSSION

7.1 SYNTHESIS

7.1.1 The documentary evidence suggests that Higher Mill was operating from the 1870s onwards when it was listed as 'manufactures of cotton goods and cotton spinners'. At this time it belonged to the Higher Mill Cotton Co. Further sources suggest that later in the century weaving represented the principal occupation. No major changes were noted to the layout of the complex, although, by the 1920s it had been taken over by the Rawtenstall Cotton Mills Ltd, and again at this time output seems to have been reduced. In the late 1920s part of the mill was used as a brass foundry. By 1934 a further change in ownership had occurred and the mill was utilised for the design and sales of furnishing fabric by David Whitehead Ltd. The only significant change to the layout of the site was the infilling of the reservoir, which is no longer shown on the 1963 Ordnance Survey mapping. An outline phasing of the mill complex follows.

7.1.2 ***Phase 1:*** Higher Mill is cut into the slope of a hillside overlooking Rawtenstall. In the 1870s the preparation, and in particular the levelling of the site, would have been a major engineering achievement. The effort and inevitable financial investment in the site would suggest the Higher Mill Cotton Company was very keen to set up in Rawtenstall. Evidence for this first phase of the development was observed within the footprints of the remains of the weaving shed and the loading bay. In both areas redeposited glacial till (***64*** and ***14***) was utilised as a levelling material. In the loading bay this was seen to be up to 1.6m in depth. No pre-nineteenth century remains were observed on site.

7.1.3 ***Phase 2:*** this was the main phase of activity as the site developed as an integrated mill complex, where both spinning and weaving were undertaken, and is characteristic of the cotton industry in Rawtenstall and south-east Lancashire at this time. This second phase spans the period between the 1870s and the 1920s, up to the partial use of the mill as a brass foundry. Once the layout of the site had been established, no major changes appeared to have taken place, and none were evident for this period on the Ordnance Survey plans.

7.1.4 During this period the site comprised the weaving shed, spinning block (with basement), covered entrance and loading bay, the steam plant (chimney, engine and boiler house) and the ancillary building to the extreme north. The building assessment noted the same construction detail for the weaving shed and spinning block, and the construction joints between the boiler house, chimney and ancillary building, suggest they are also contemporary. Physical evidence for this phase of the loading bay was present as foundation walls (***10***, ***30*** and ***32***). There was no evidence to suggest any substantive remodelling of the site took place during this period. A limited amount of undatable areas of repair and blocking were present in the engine house and weaving shed.

7.1.5 ***Phase 3:*** the remodelling and changes that were observed on site are attributed to this phase, and are likely to have occurred from the 1920s onwards. The same collection of buildings as highlighted above were present.

7.1.6 The building assessment recorded the addition of a brick-lining to the south and east walls of the weaving shed. The unlined stone walls would have allowed the movement of moisture through the structure, which was advantageous for weaving purposes. The lining of the walls suggests a change in use or emphasis of the function of the building. The cinder block modification seen at the south end of the west wall is thought to be the remains of a small, internal, early twentieth century structure. The loading bay appears to have undergone substantial remodelling, also in the twentieth century, perhaps reflecting a change in the material being transported and modern changes in transport-related requirements.

7.1.7 The only feature (circular structure ***19)***, that is tentatively attributed to the brass foundry, is located within the boiler house. This strongly suggests that during its life as a brass foundry, the complex no longer depended upon steam power but had converted to electricity. Whether or not the mill had converted to an electric drive prior to this remains unclear. There was no evidence for a transformer building on site, although the basement to the spinning block could have been utilised for this purpose. The good state of preservation of the engine bed would suggest the engine was dismantled for possibly reuse off site rather than broken for scrap. No change in function was noted for the engine house.

7.1.8 Other changes as part of the third phase possibly include the doorway into the basement of the engine house and the concrete floor and brick structure (***44***) in the boiler house.

7.1.9 During the 1970s, the mill was occupied by the firm of Ashworth & Hoyle, shoe and slipper manufacturers, and subsequently by Kenyons Footwear Ltd, before finally falling into a state of disrepair.

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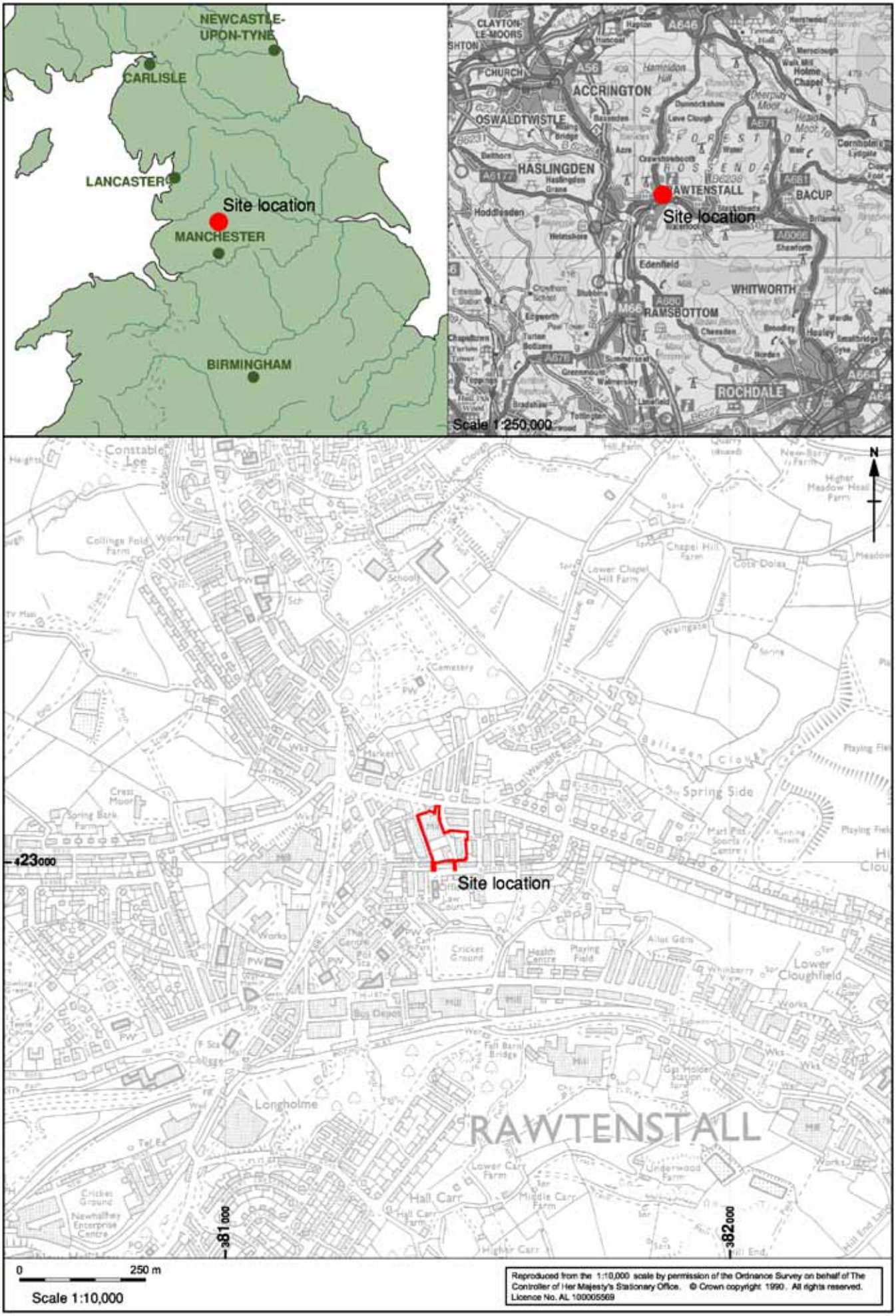

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Figure 1: Site Location

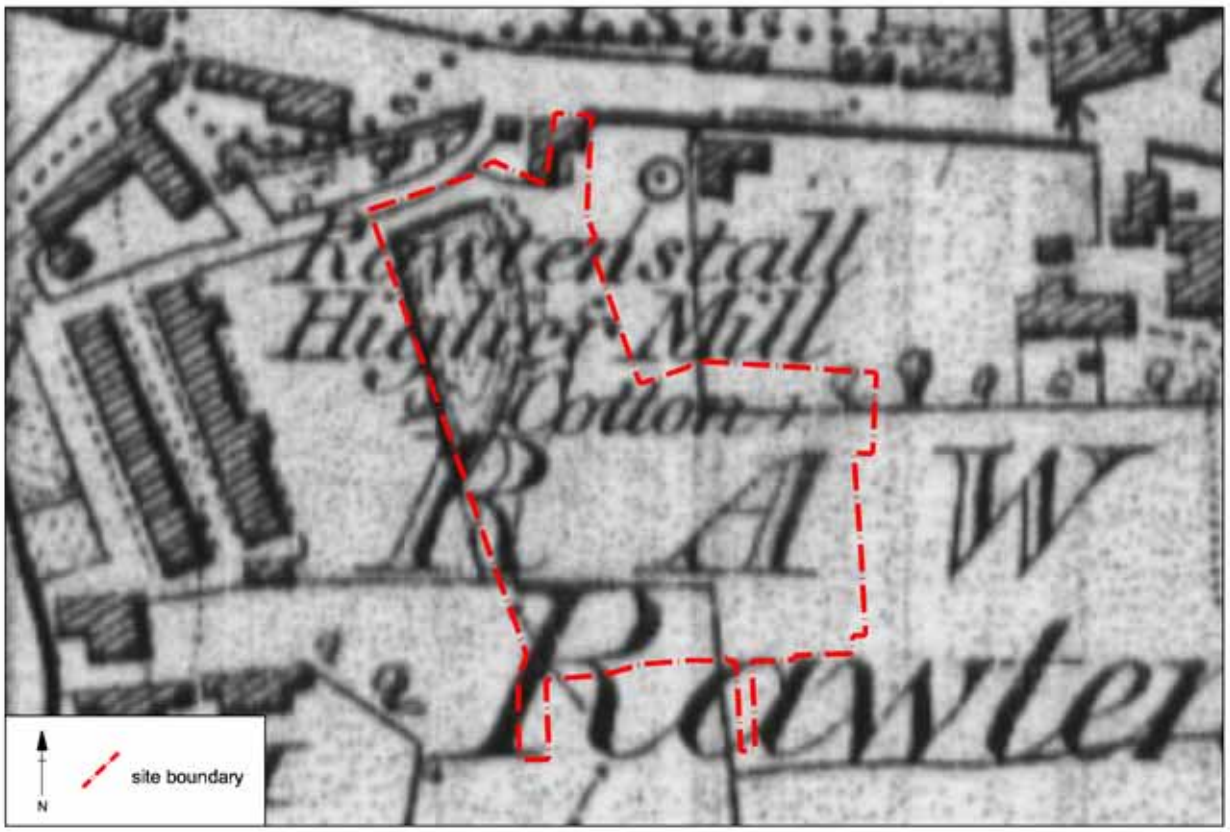


Figure 2: Extract from Ordnance Survey 6" : 1 mile map, 1848

Figure 3: Extract from Ordnance Survey 1:2500 map, 1891

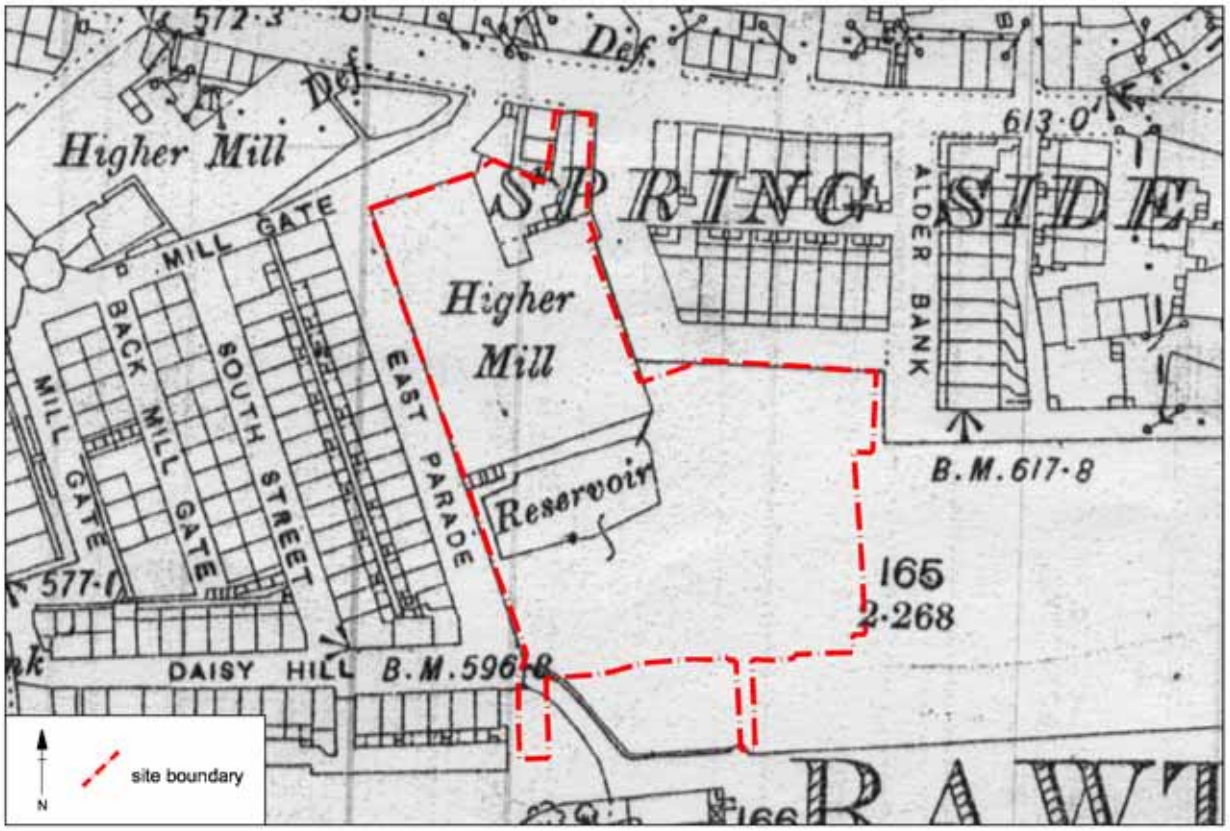


Figure 4: Extract from Ordnance Survey 1:2500 map, 1893

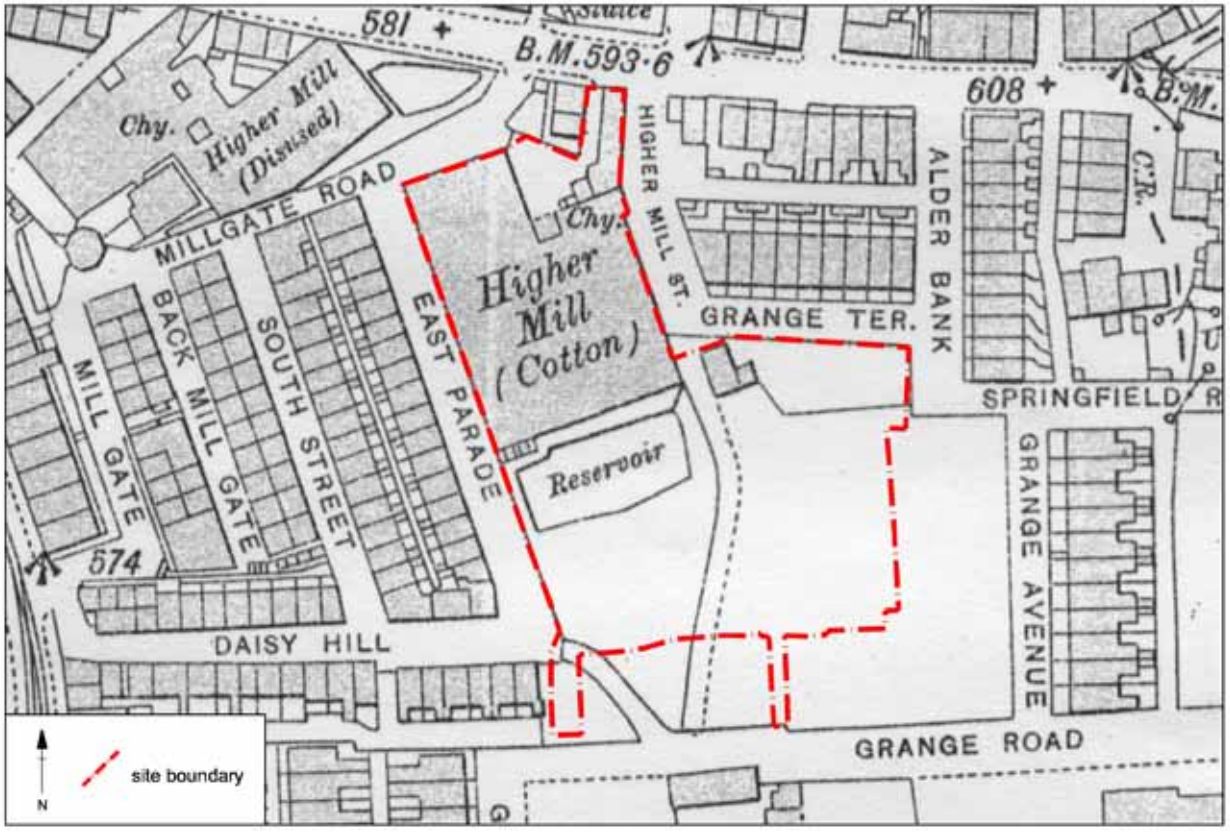


Figure 5: Extract from Ordnance Survey 1:2500 map, 1911

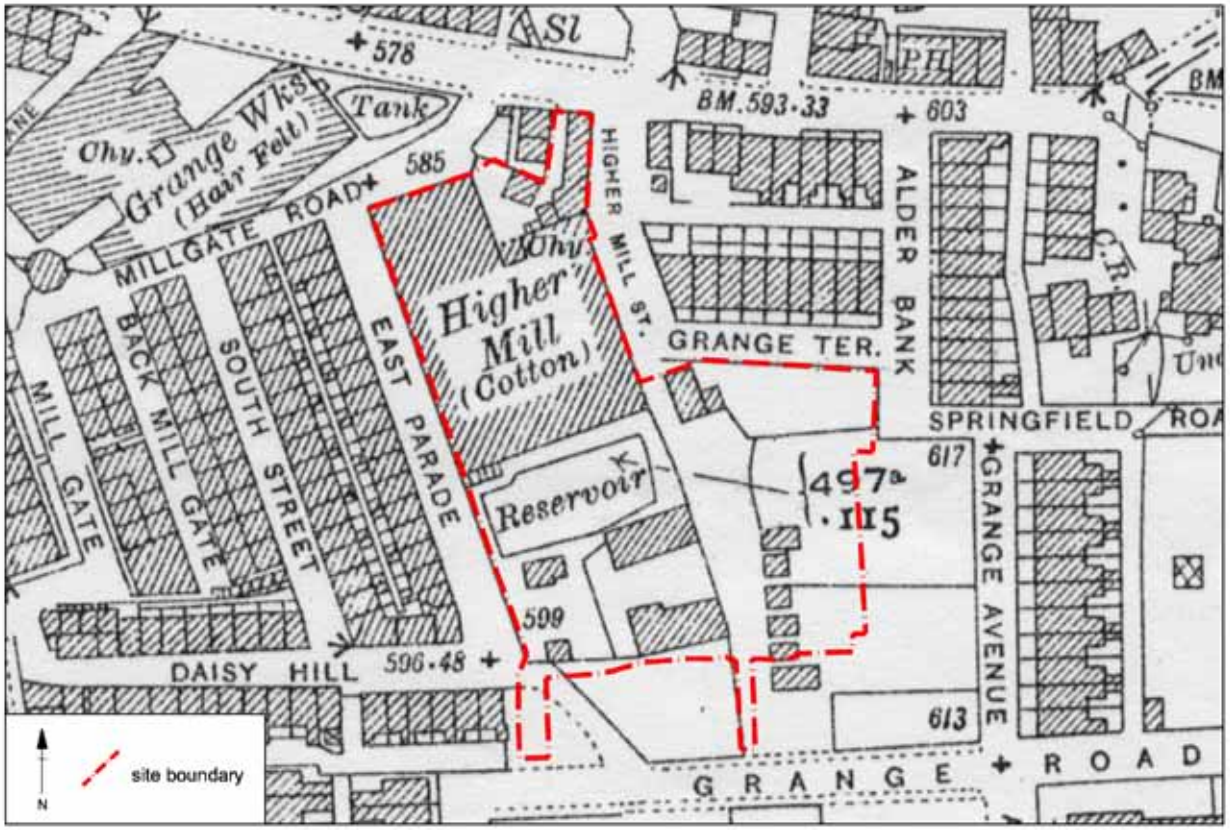


Figure 6: Extract from Ordnance Survey 1:2500 map, 1930

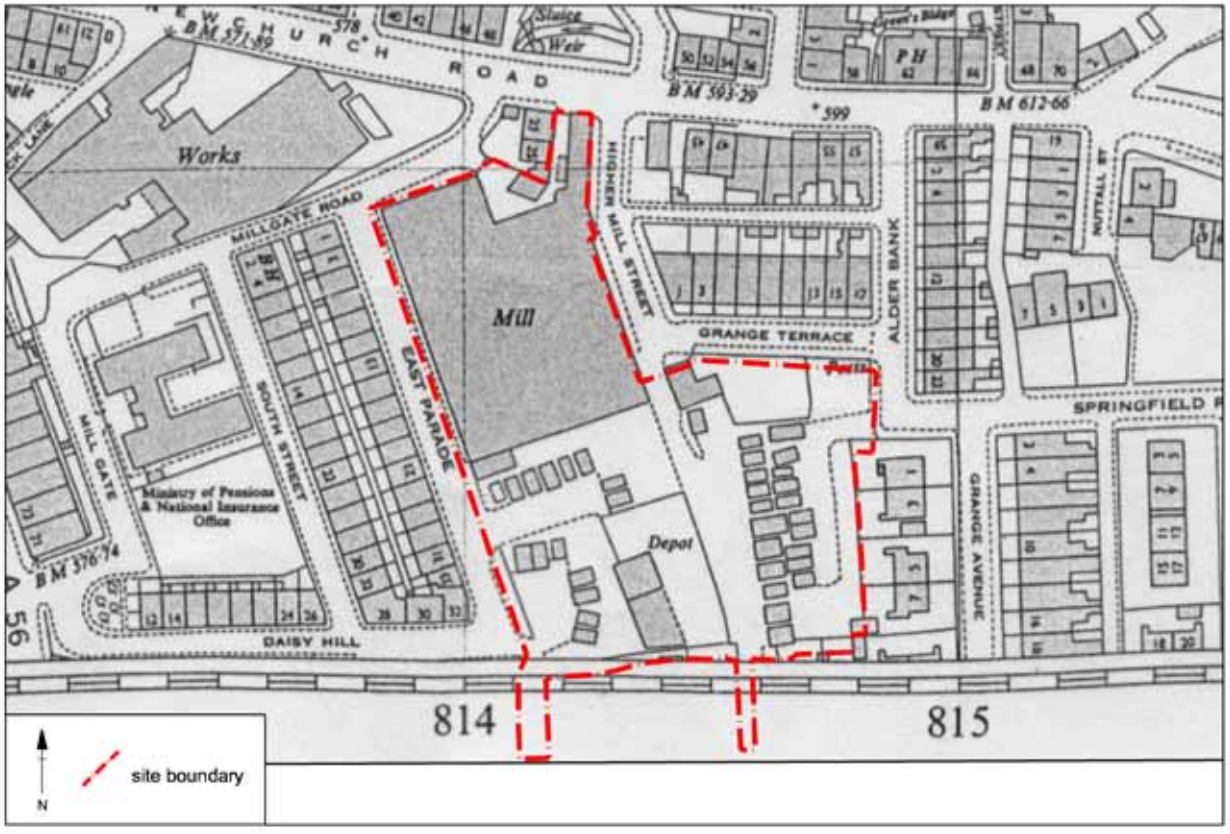


Figure 7: Extract from Ordnance Survey 1:2500 map, 1963

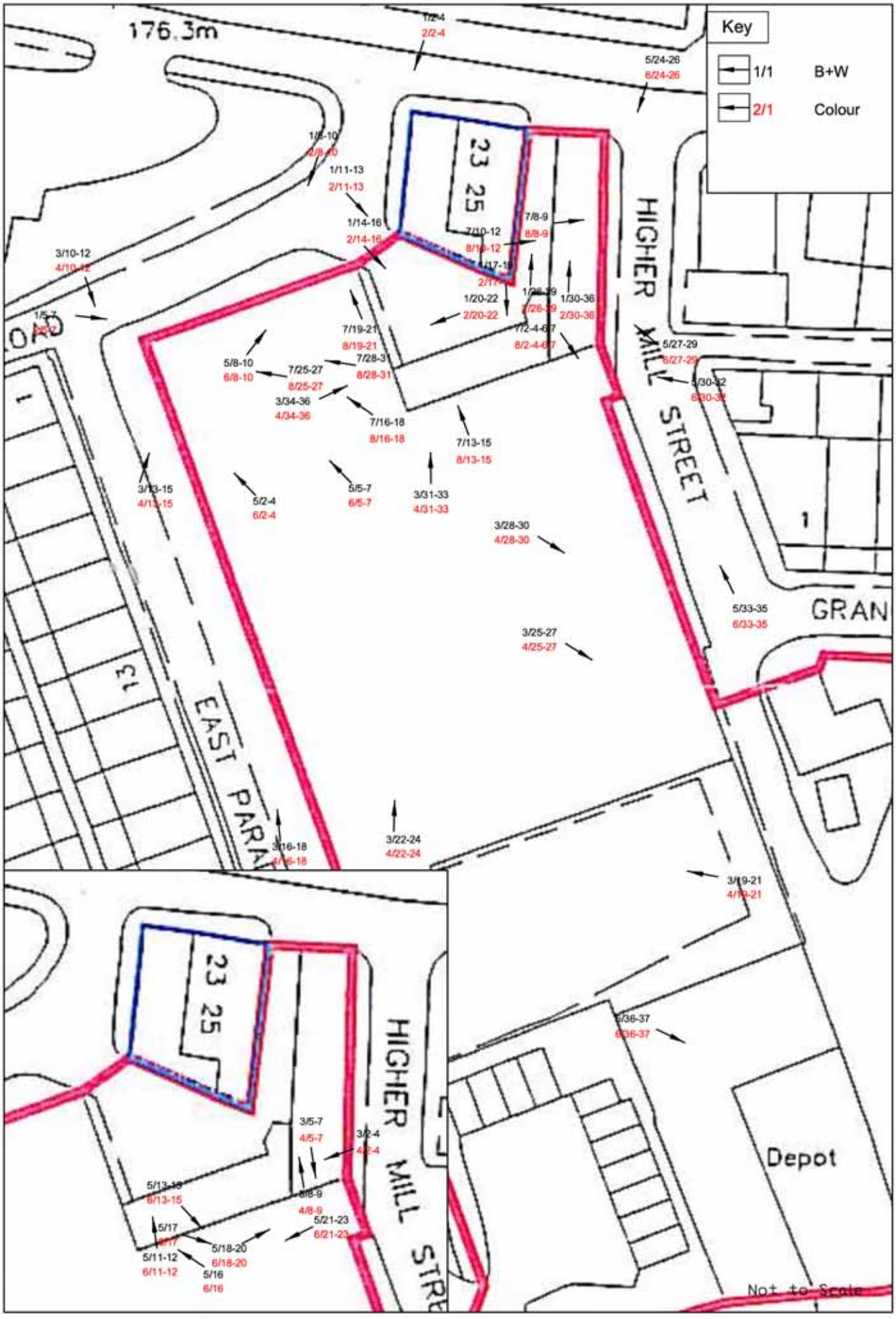


Figure 8: Photograph location plan

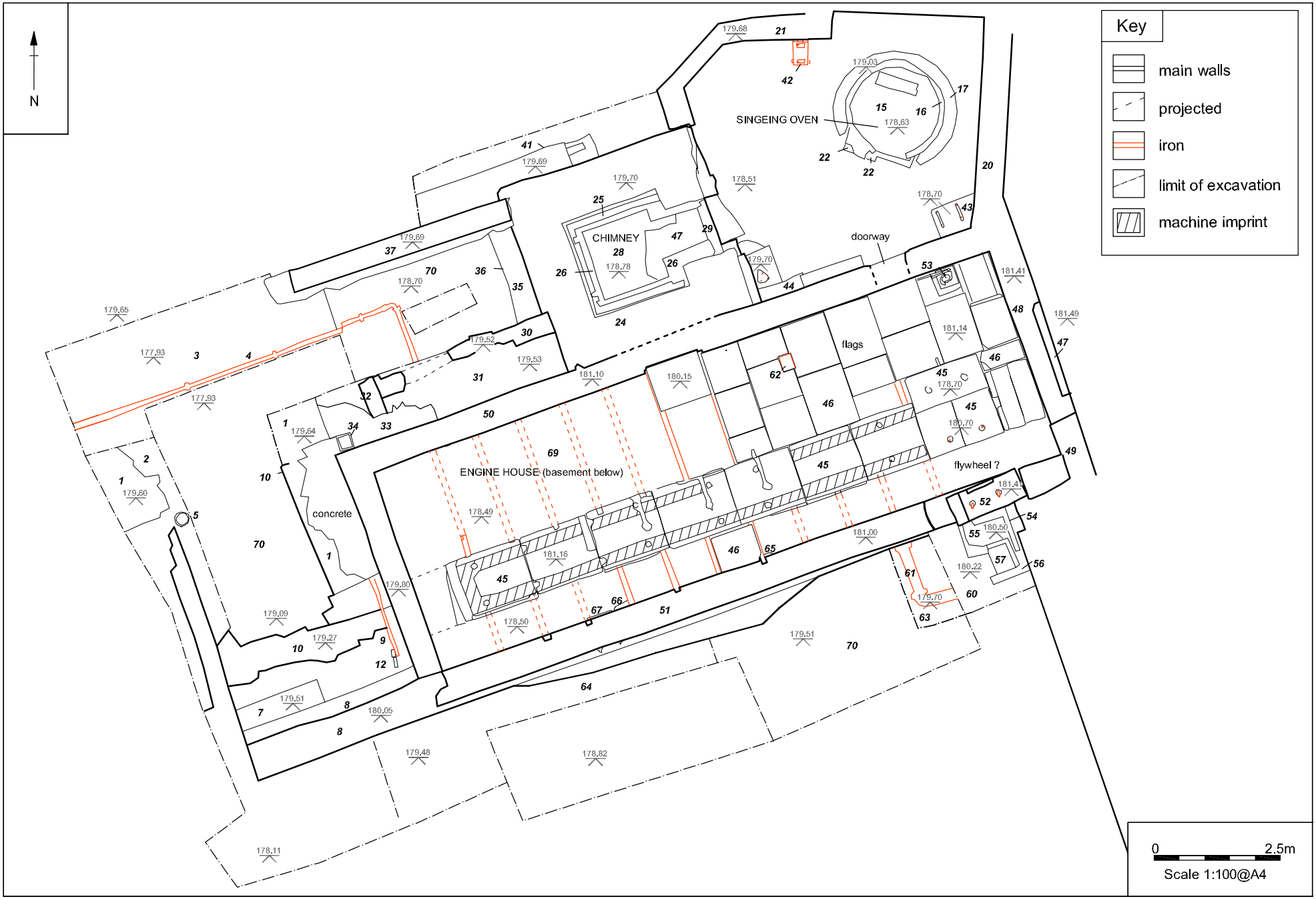


Figure 9: Plan of the Engine House and associated features

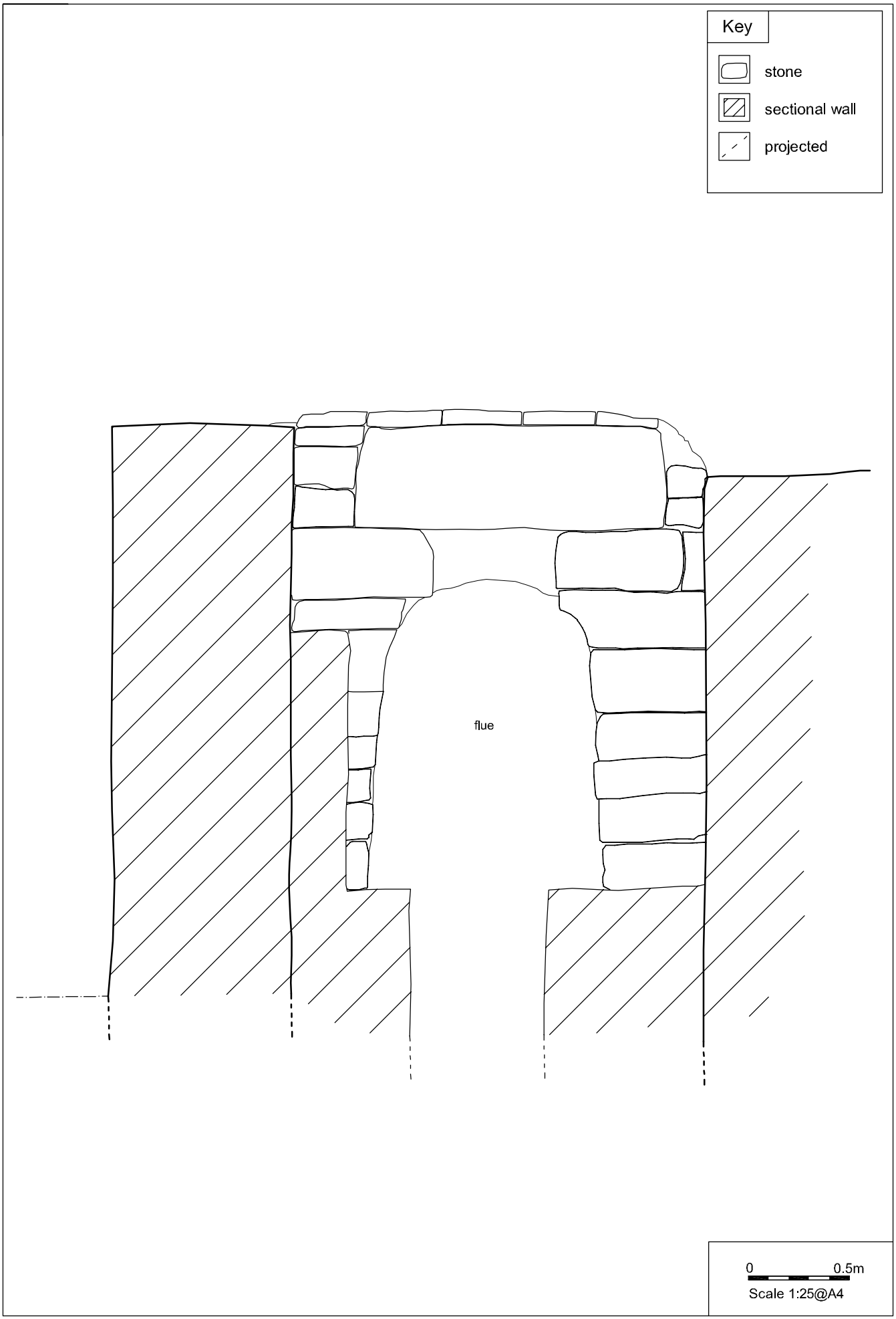
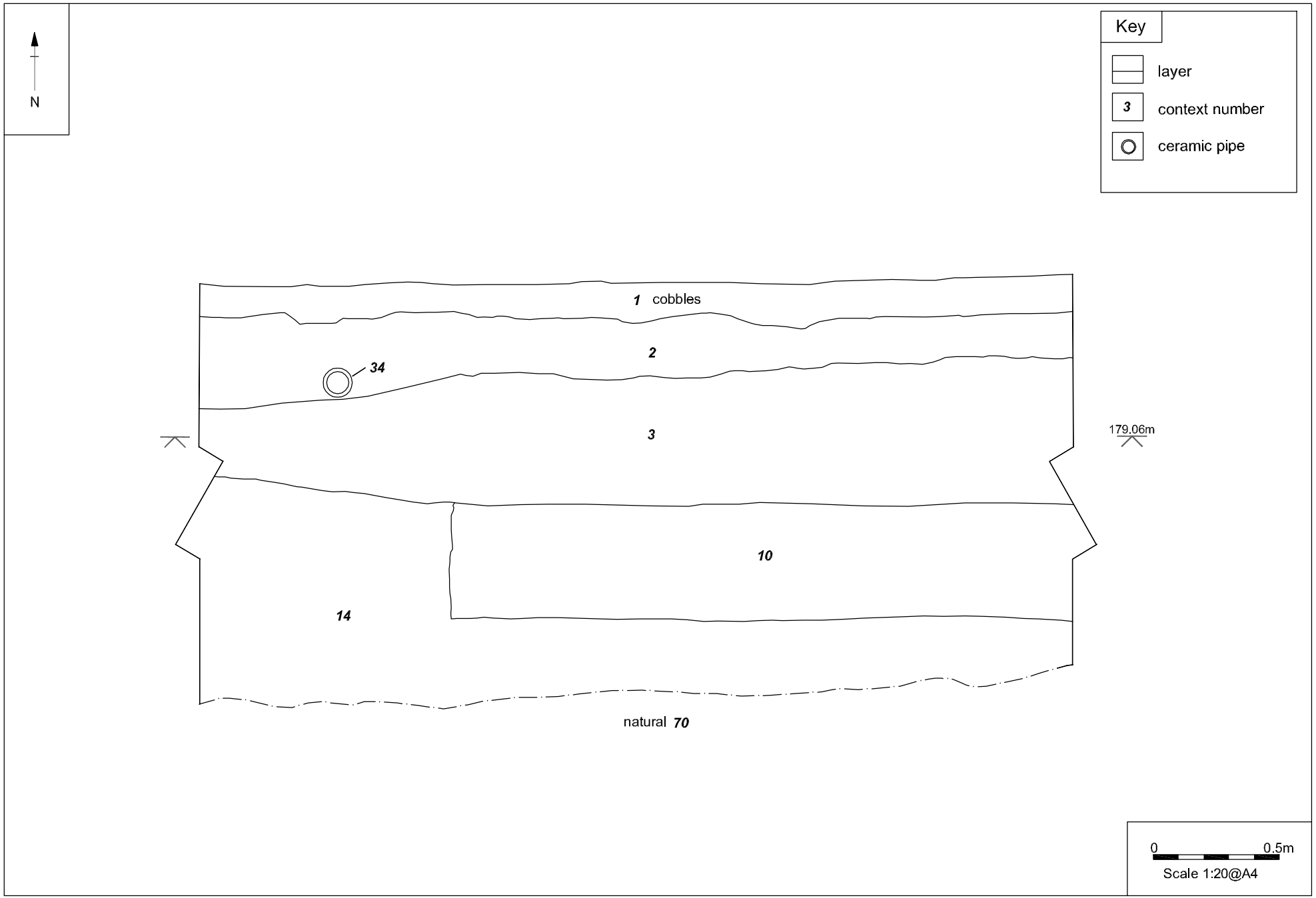


Figure 10: South-west-facing internal elevation of surviving chimney



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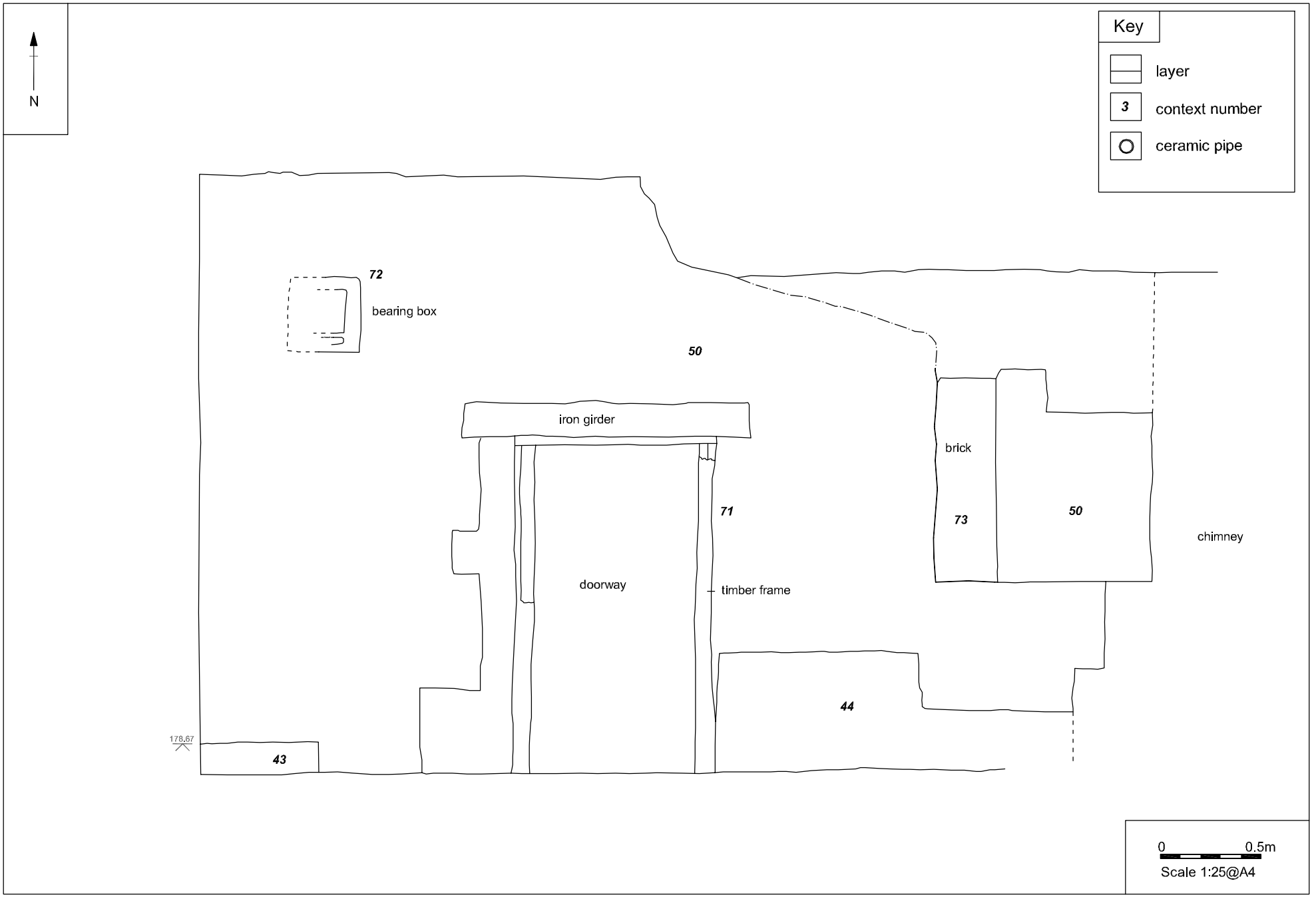

Figure 12: North-west-facing elevation of basement, showing door to engine house

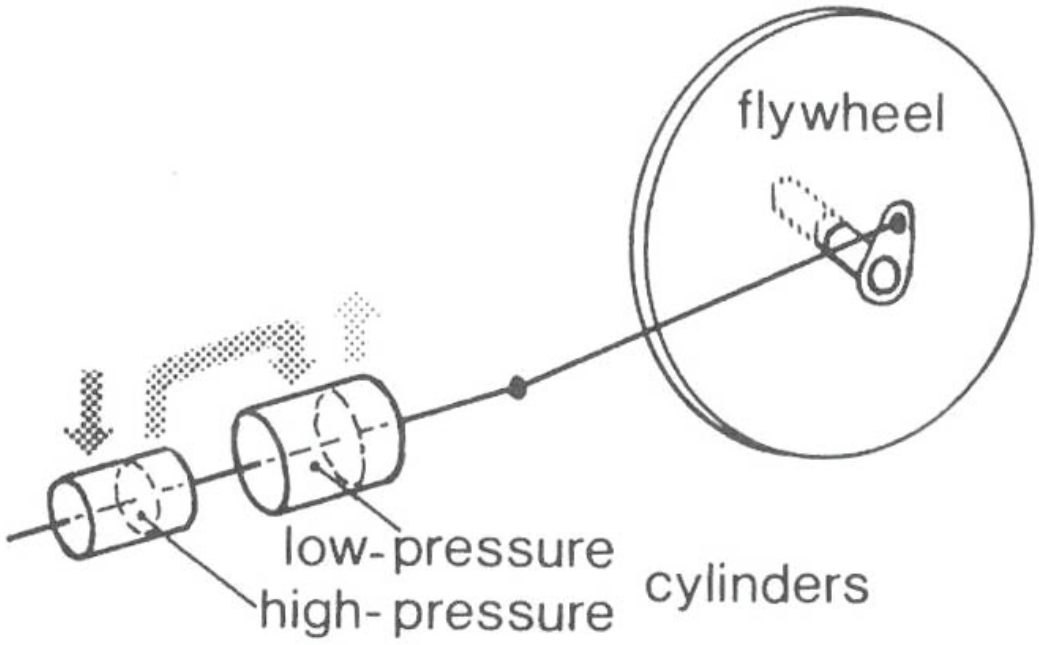

Fig 13: Schematic of horizontal tandem-compound steam engine (Cossons 1993, 74)

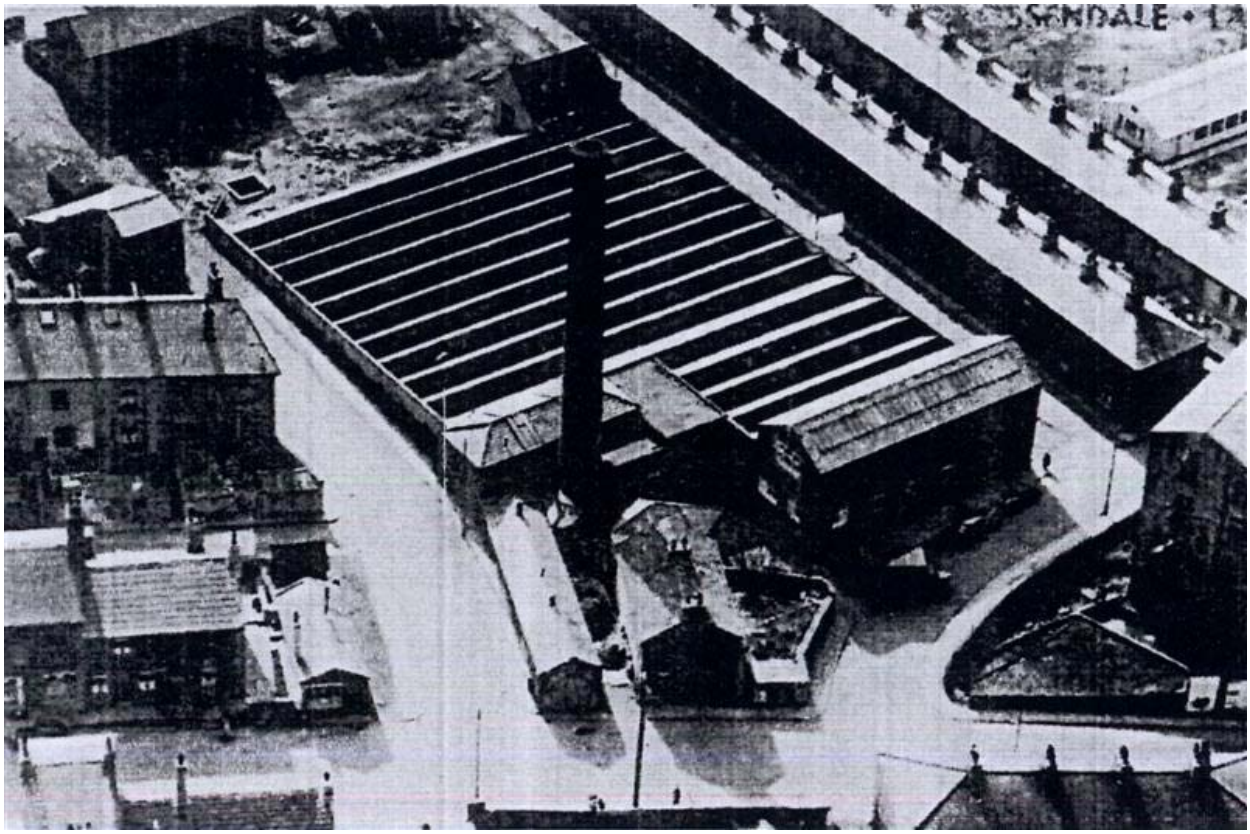

Plate 1: Aerial view of Higher Mill *c*1950

Plate 2: General view of the site facing north-west

Plate 3: Remains of the west wall of the weaving shed

Plate 4: Boarded windows and doorway at the north end of the west wall of the weaving shed

Plate 5: North wall of the spinning block

Plate 6: Remains of the south elevation of the spinning block projecting from the west wall of the weaving shed

Plate 7: Internal view of the north wall of the spinning block

Plate 8: Bearing box (centre) in the internal elevation of the north wall of the spinning block

Plate 9: Internal view of the east and south walls of the weaving shed, together with stairs, showing brick lining of the stone walls

Plate 10: remains of the flagged floor of the waving shed

Plate 11: South elevation of the loading bay

Plate 12: West elevation of the loading bay illustrating saw-tooth roof scar

Plate 13: Interior of the loading bay**,** facing north

Plate 14: Blocked window the loading bay

Plate 15: The remains of the engine house**,** facing east

Plate 16: East elevation of the engine house

Plate 17: Small courtyard at the north side of the complex

Plate 18: Arched aperture in the economiser house

Plate 19: Apertures in the south wall of the economiser house

Plate 20: Blocked bearing box in the south wall of the economiser house

Plate 21: Boiler house, facing south

Plate 22: The chimney base

Plate 23: Removal of the flagged floor within the weaving shed, looking west

Plate 24: Basement in north-west corner of mill complex, looking east

Plate 25: Bearing box within the south-eastern wall of the engine house, looking north

Plate 26: South-west-facing elevation of the interior of the chimney, looking north-east

Plate 27: Metal fittings in eastern wall of weaving shed for supporting line shafting

Plate 28: South-west-facing section, taken through floor ***1*** and exposing foundation ***10***

Plate 29: Foundation ***10***, within the loading bay, looking north-east

Plate 30: Pipe ***4*** entering engine house, looking north-west

Plate 31: General view of the engine house, looking south-west

Plate 32: South-western end of engine bed ***45***, looking south-west

Plate 33: Fittings for flywheel and crankshaft at north-eastern end of engine bed ***45***, looking south-east

Plate 34: Rung ***65*** attached to wall ***51***, looking south

Plate 35: Metal plate ***67*** attached to wall ***51***, looking south

Plate 36: Working shot of the economiser house showing a doorway into the engine house, looking east

Plate 37: Basement of the economiser house, showing the possible singeing oven, looking north

Plate 38: Stone bed ***43***, looking south-east

Plate 39: Brick and concrete structure ***44***, with fitting, looking north-east

Plate 40: North-west-facing elevation of wall ***50*** within the economiser building, looking south-east

Plate 41: South-facing elevation of wall **21** showing metal structure ***42***

Plate 42: Base of demolished chimney, looking north-east

Plate 43: Exterior area, at the north-eastern end of wall ***46*** showing pipe ***62*** and manhole, looking north-east

APPENDIX 1: PROJECT DESIGN

HIGHER MILL, RAWTENSTALL, LANCASHIRE

Archaeological Photographic Survey, Desk-Based Assessment and Watching Brief Project Design

Oxford Archaeology North

June 2007

B&E Boys Ltd

OA North Job No: L9879
NGR: SD 814 230

1. INTRODUCTION

1.1 PROJECT BACKGROUND

1.1.1 B & E Boys have requested that Oxford Archaeology North (OA North) submit proposals to undertake an archaeological investigation of Higher Mill, Higher Mill Street, Rawtenstall, Lancashire (NGR SD 814 230) prior to demolition works taking place.

1.1.2 The proposals include demolition of the existing structures and as a result a condition for the archaeological recording certain structures was attached to the planning consent. Subsequently, a verbal brief was issued by Lancashire County Archaeological Services (LCAS).

1.2 OXFORD ARCHAEOLOGY NORTH

1.2.1 OA North has considerable experience of the interpretation and analysis of buildings of all periods, having undertaken a great number of small and large-scale projects during the past 24 years. Such projects have taken place within the planning process, to fulfil the requirements of clients and planning authorities, to very rigorous timetables. In recent years OA North also has extensive experience of archaeological work in Northern England.

1.2.2 OA North has the professional expertise and resources to undertake the project detailed below to a high level of quality and efficiency. OA North is **an Institute of Field Archaeologists (IFA) registered organisation, registration number 17**, and all its members of staff operate subject to the IFA Code of Conduct.

2 OBJECTIVES

2.1 The archaeological programme of work aims to provide a photographic record of the remaining standing building scheduled for demolition together with a desk based assessment, which will attempt to identify previous site uses. A watching brief will be maintained during demolition in order to identify any previously hidden archaeological features.

2.2 To achieve the objectives outlined above the following listed specific aims are proposed:

2.3 ***Photographic Survey*:** to provide a photographic survey of standing structures remaining on the site.

2.4 ***Desk-based Assessment*:** to provide a historical background specifically relating to Higher Mill and to provide context for the results of the watching brief.

2.5 ***Watching Brief*:** to carry out a watching brief during associated ground disturbance to determine the quality, extent and importance of any archaeological remains on the site.

2.4 ***Report and Archive**:* a written report will assess the significance of the data generated by this programme within a local context. It will present the results of the desk-based assessment and watching brief.

3. METHOD STATEMENT

3.1 REPORT /ARCHIVE

3.1.1 ***Rapid Desk-Based Assessment***: the focus of the assessment will Higher Mill but mention will be made of the immediate surroundings to allow an historical background to the setting of the site to be established. The assessment will comprise the following elements:

(i) ***Documentary and Cartographic Material:*** this will include a rapid appraisal of the data in the County Record Office and Rawtenstall Library;

(ii) ***Historic Map Regression***: cartographic sources will be consulted in an attempt provide information on the origin and development of the site.

3.1.2 ***Photographic Archive:*** a photographic archive will be produced utilising a 35mm SLR camera to produce both colour slides black and white contact prints. A full photographic index will be produced and the position of photographs will be marked on a general plan of the site. The general archive will comprise the following:

(i) The external appearance and setting of the buildings;;

(ii) Any external or internal detail, structural or architectural, which is relevant to the design, development and use of the buildings, and which does not show adequately on general photographs;

(iii) Any internal detailed views of features of especial architectural interest, fixtures and fittings, or fabric detail relevant to phasing the building.

3.1.3 Either the contact print sheets/prints or digital versions of these will be submitted to LCAS for approval upon development. The LCAS will be responsible for returning the contact sheets to OA North for inclusion in the report and project archive.

3.1.4 ***Watching Brief*:** a programme of field observation will accurately record the location, extent, and character of any surviving archaeological features and/or deposits within the proposed ground disturbance. This work will comprise observation during the excavation for these works, including building foundations and service trenches, the systematic examination of any subsoil horizons exposed during the course of the groundworks, and the accurate recording of all archaeological features and horizons, and any artefacts, identified during observation.

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

3.1.6 During this phase of work, recording will comprise a full description and preliminary classification of features or materials revealed, and their accurate location (either on plan and/or section, and as grid co-ordinates where appropriate). Features will be planned accurately at appropriate scales and annotated on to a large-scale plan previously provided by the client. A photographic record will be undertaken simultaneously.

3.1.7 A plan will be produced of the areas of groundworks showing the location and extent of the ground disturbance and one or more dimensioned sections will be produced.

3.1.8 ***Contingency plan:*** in the event of significant archaeological features being encountered during the watching brief, discussions will take place with the Planning Archaeologist or his representative, as to the extent of further works to be carried out. All further works would be subject to a variation to this project design. In the event of environmental/organic deposits being present on site, it would be necessary to discuss and agree a programme of palaeoenvironmental sampling and or dating with the Planning Archaeologist.

3.2 REPORTS /ARCHIVE

3.2.1 ***Report:*** the content of the report will comprise the following:

(i) a site location plan related to the national grid;

(ii) a front cover to include the planning application number and the NGR;

(iii) a concise, non-technical summary of the results;

(iv) an explanation to any agreed variations to the brief, including any justification for any analyses not undertaken;

(v) a description of the methodology employed, work undertaken and results obtained;

(vi) copies of plans, photographs, and other illustrations as appropriate;

(vii) a copy of this project design, and indications of any agreed departure from that design;

(viii) the report will also include a complete bibliography of sources from which data has been derived;

(ix) a photographic index;

(x) list of archive contents.

3.2.2 The report will be in the same basic format as this project design; a copy of the report can be provided on CD, if required. Two copies of the report will be supplied to the client and further digital copies to the SMR.

3.3.3 ***Archive:*** the results of all archaeological work carried out will form the basis for a full archive to professional standards, in accordance with current English Heritage guidelines (*Management of Archaeological Projects*, 2nd edition, 1991). The project archive represents the collation and indexing of all the data and material gathered during the course of the project.

3.2.4 The deposition of a properly ordered and indexed project archive in an appropriate repository is considered an essential and integral element of all

archaeological projects by the IFA in that organisation's code of conduct. OA North conforms to best practice in the preparation of project archives for long-term storage. This archive will be provided in the English Heritage Centre for Archaeology format and a synthesis will be submitted to the Lancashire SMR (the index to the archive and a copy of the report). OA North practice is to deposit the original record archive of projects with the appropriate County Record Office.

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

3.2.6 ***Confidentiality:*** all internal reports to the client are designed as documents for the specific use of the Client, for the particular purpose as defined in the project brief and project design, and should be treated as such. They are not suitable for publication as academic documents or otherwise without amendment or revision.

4. HEALTH AND SAFETY

4.1 OA North provides a Health and Safety Statement for all projects and maintains a Unit Safety policy. All site procedures are in accordance with the guidance set out in the Health and Safety Manual compiled by the Standing Conference of Archaeological Unit Managers (1997). A written risk assessment will be undertaken in advance of project commencement and copies will be made available on request to all interested parties.

5 PROJECT MONITORING

5.1 ***Access:*** liaison for basic site access will be undertaken through the client.

5.2 Whilst the work is undertaken for the client, the County Archaeologist or his representative will be kept fully informed of the work and its results and will be notified a week in advance of the commencement of the fieldwork. Any proposed changes to the project design will be agreed with the Planning Officer at LCAS in consultation with the client.

6 WORK TIMETABLE

6.1 ***Rapid Desk-Based Assessment:*** two days would be required to complete the documentary search.

6.2 ***Photographic Survey:*** approximately one day in the field will be required to complete this element.

6.3 ***Reports/Archive:*** the final report and archive will be produced within eight weeks of completion of the fieldwork. OA North can execute projects at very short notice once a formal written agreement has been received from the client.

7 STAFFING

7.1 The project will be under the direct management of **Alison Plummer BSc (Hons)** (OA North senior project manager) to whom all correspondence should be addressed.

7.2 The fieldwork will be undertaken by a suitably qualified archaeologist experienced in the recording and analysis of historic buildings in the North West. Present timetabling constraints preclude who this will be.

8 INSURANCE

8.1 OA North has a professional indemnity cover to a value of £2,000,000; proof of which can be supplied as required.

REFERENCES

English Heritage, 1991 *Management of Archaeological Projects*, second edition, London

English Heritage, 2006 *Understanding Historic Buildings: A Guide to good recording practice*

APPENDIX 2: PHOTOGRAPHIC INDEX

OXFORD ARCHAEOLOGY NORTH

PHOTOGRAPHIC INDEX

OA NORTH 13

PROJECT NAME	PROJECT CODE	SITE CODE
HIGHER MILL, RAWTENSTALL	L9879	

FILM NO:	FILM TYPE	ISO
1	35MM BLACK AND WHITE	400

FRAME	DATE	SITE	DESCRIPTION	DIR	CONDITIONS	PHOTO-GRAPHER
1	26/06/07		ID SHOT		OVERCAST	KIT
2	26/06/07		GENERAL VIEW OF THE NORTH SIDE OF THE MILL	SW	OVERCAST	KIT
3	26/06/07		GENERAL VIEW OF THE NORTH SIDE OF THE MILL	SW	OVERCAST	KIT
4	26/06/07		GENERAL VIEW OF THE NORTH SIDE OF THE MILL	SW	OVERCAST	KIT
5	26/06/07		GENERAL OF THE NORTH SIDE OF THE MILL	SE	OVERCAST	KIT
6	26/06/07		GENERAL OF THE NORTH SIDE OF THE MILL	SE	OVERCAST	KIT
7	26/06/07		GENERAL OF THE NORTH SIDE OF THE MILL	SE	OVERCAST	KIT
8	26/06/07		OBLIQUE VIEW OF THE NORTH ELEVATION	S	OVERCAST	KIT
9	26/06/07		OBLIQUE VIEW OF THE NORTH ELEVATION	S	OVERCAST	KIT
10	26/06/07		OBLIQUE VIEW OF THE NORTH ELEVATION	S	OVERCAST	KIT
11	26/06/07		GATE AT NORTH END OF THE MILL	SE	OVERCAST	KIT
12	26/06/07		GATE AT NORTH END OF THE MILL	SE	OVERCAST	KIT
13	26/06/07		GATE AT NORTH END OF THE MILL	SE	OVERCAST	KIT
14	26/06/07		COURTYARD AT NORTH EAST CORNER OF MILL	SE	OVERCAST	KIT
15	26/06/07		COURTYARD AT NORTH EAST CORNER OF MILL	SE	OVERCAST	KIT
16	26/06/07		COURTYARD AT NORTH EAST CORNER OF MILL	SE	OVERCAST	KIT
17	26/06/07		CHIMNEY BASE	SE	OVERCAST	KIT
18	26/06/07		CHIMNEY BASE	SE	OVERCAST	KIT
19	26/06/07		CHIMNEY BASE	SE	OVERCAST	KIT
20	26/06/07		EAST FACING WALL OF THE COURTYARD	W	OVERCAST	KIT

DIR = the direction in which the camera is pointed, expressed as a compass point eg NW

PROJECT NAME: HIGHER MILL, RAWTENSTALL		PROJECT CODE: L9879		SITE CODE:		
FILM NO: 1		FILM TYPE: 35MM CLACK AND WHITE		ISO: 400		
FRAME	DATE	SITE	DESCRIPTION	DIR	CONDITIONS	PHOTO-GRAPHER
21	26/06/07		EAST FACING WALL OF THE COURTYARD	W	OVERCAST	KIT
22	26/06/07		EAST FACING WALL OF THE COURTYARD	W	OVERCAST	KIT
23	26/06/07		VOID		OVERCAST	KIT
24	26/06/07		VOID		OVERCAST	KIT
25	26/06/07		VOID		OVERCAST	KIT
26	26/06/07		OIL TANKS	N	OVERCAST	KIT
27	26/06/07		OIL TANKS	N	OVERCAST	KIT
28	26/06/07		OIL TANKS	N	OVERCAST	KIT
29	26/06/07		OIL TANKS	N	OVERCAST	KIT
30	26/06/07		COBBLES NEAR TANKS	N	OVERCAST	KIT
31	26/06/07		COBBLES NEAR TANKS	N	OVERCAST	KIT
32	26/06/07		COBBLES NEAR TANKS	N	OVERCAST	KIT
33	26/06/07		GENERAL VIEW OF ROOM 4	N	OVERCAST	KIT
34	26/06/07		GENERAL VIEW OF ROOM 4	N	OVERCAST	KIT
35	26/06/07		GENERAL VIEW OF ROOM 4	N	OVERCAST	KIT
36	26/06/07		GENERAL VIEW OF ROOM 4	N	OVERCAST	KIT
37	26/06/07		GENERAL VIEW OF ROOM 4	N	OVERCAST	KIT
DIR = the direction in which the camera is pointed, expressed as a compass point eg NW						

OXFORD ARCHAEOLOGY NORTH

PHOTOGRAPHIC INDEX

OA NORTH 13

PROJECT NAME	PROJECT CODE	SITE CODE
HIGHER MILL, RAWTENSTALL	L9879	

FILM NO:	FILM TYPE	ISO
2	35MM COLOUR SLIDE	200

FRAME	DATE	SITE	DESCRIPTION	DIR	CONDITIONS	PHOTO-GRAPHER
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2	26/06/07		GENERAL VIEW OF THE NORTH SIDE OF THE MILL	SW	OVERCAST	KIT
3	26/06/07		GENERAL VIEW OF THE NORTH SIDE OF THE MILL	SW	OVERCAST	KIT
4	26/06/07		GENERAL VIEW OF THE NORTH SIDE OF THE MILL	SW	OVERCAST	KIT
5	26/06/07		GENERAL VIEW OF THE NORTH SIDE OF THE MILL	SE	OVERCAST	KIT
6	26/06/07		GENERAL VIEW OF THE NORTH SIDE OF THE MILL	SE	OVERCAST	KIT
7	26/06/07		GENERAL VIEW OF THE NORTH SIDE OF THE MILL	SE	OVERCAST	KIT
8	26/06/07		OBLIQUE VIEW OF THE NORTH ELEVATION	S	OVERCAST	KIT
9	26/06/07		OBLIQUE VIEW OF THE NORTH ELEVATION	S	OVERCAST	KIT
10	26/06/07		OBLIQUE VIEW OF THE NORTH ELEVATION	S	OVERCAST	KIT
11	26/06/07		GATE AT NORTH END OF THE MILL	SE	OVERCAST	KIT
12	26/06/07		GATE AT NORTH END OF THE MILL	SE	OVERCAST	KIT
13	26/06/07		GATE AT NORTH END OF THE MILL	SE	OVERCAST	KIT
14	26/06/07		COURTYARD AT NORTH EAST CORNER OF MILL	SE	OVERCAST	KIT
15	26/06/07		COURTYARD AT NORTH EAST CORNER OF MILL	SE	OVERCAST	KIT
16	26/06/07		COURTYARD AT NORTH EAST CORNER OF MILL	SE	OVERCAST	KIT
17	26/06/07		VOID			
18	26/06/07		VOID			
19	26/06/07		VOID			
20	26/06/07		VOID			

DIR = the direction in which the camera is pointed, expressed as a compass point eg NW

PROJECT NAME: HIGHER MILL, RAWTENSTALL		PROJECT CODE: L9879		SITE CODE:		
FILM NO: 2		FILM TYPE: 35MM COLOUR SLIDE		ISO: 200		
FRAME	DATE	SITE	DESCRIPTION	DIR	CONDITIONS	PHOTO-GRAPHER
21	26/06/07		VOID			
22	26/06/07		VOID			
23	26/06/07		EAST FACING WALL OF THE COURTYARD	W	OVERCAST	KIT
24	26/06/07		EAST FACING WALL OF THE COURTYARD	W	OVERCAST	KIT
25	26/06/07		EAST FACING WALL OF THE COURTYARD	W	OVERCAST	KIT
26	26/06/07		OIL TANKS	N	OVERCAST	KIT
27	26/06/07		OIL TANKS	N	OVERCAST	KIT
28	26/06/07		OIL TANKS	N	OVERCAST	KIT
29	26/06/07		OIL TANKS	N	OVERCAST	KIT
30	26/06/07		COBBLES NEAR TANKS	N	OVERCAST	KIT
31	26/06/07		COBBLES NEAR TANKS	N	OVERCAST	KIT
32	26/06/07		COBBLES NEAR TANKS	N	OVERCAST	KIT
33	26/06/07		GENERAL VIEW OF ROOM 4	N	OVERCAST	KIT
34	26/06/07		GENERAL VIEW OF ROOM 4	N	OVERCAST	KIT
35	26/06/07		GENERAL VIEW OF ROOM 4	N	OVERCAST	KIT
36	26/06/07		GENERAL VIEW OF ROOM 4	N	OVERCAST	KIT

DIR = the direction in which the camera is pointed, expressed as a compass point eg NW

OXFORD ARCHAEOLOGY NORTH

PHOTOGRAPHIC INDEX

OA NORTH 13

PROJECT NAME	PROJECT CODE	SITE CODE
HIGHER MILL, RAWTENSTALL	L9879	

FILM NO:	FILM TYPE	ISO
3	35MM BLACK AND WHITE	400

FRAME	DATE	SITE	DESCRIPTION	DIR	CONDITIONS	PHOTO-GRAPHER
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2	26/06/07		APERTURE AT THE BASE OF THE CHIMNEY IN ROOM 3	SW	INDOORS	KIT
3	26/06/07		APERTURE AT THE BASE OF THE CHIMNEY IN ROOM 3	SW	INDOORS	KIT
4	26/06/07		APERTURE AT THE BASE OF THE CHIMNEY IN ROOM 3	SW	INDOORS	KIT
5	26/06/07		APERTURE AT THE BASE OF THE WALL IN ROOM 3	S	INDOORS	KIT
6	26/06/07		APERTURE AT THE BASE OF THE WALL IN ROOM 3	S	INDOORS	KIT
7	26/06/07		APERTURE AT THE BASE OF THE WALL IN ROOM 3	S	INDOORS	KIT
8	26/06/07		PULLEYS IN ROOM 3	N	INDOORS	KIT
9	26/06/07		PULLEYS IN ROOM 3	N	INDOORS	KIT
10	26/06/07		GENERAL VIEW UP EAST PARADE	S	OVERCAST	KIT
11	26/06/07		GENERAL VIEW UP EAST PARADE	S	OVERCAST	KIT
12	26/06/07		GENERAL VIEW UP EAST PARADE	S	OVERCAST	KIT
13	26/06/07		VIEW OF WINDOWS AND DOORS AT NORTH END OF WEST WALL	E	OVERCAST	KIT
14	26/06/07		VIEW OF WINDOWS AND DOORS AT NORTH END OF WEST WALL	E	OVERCAST	KIT
15	26/06/07		VIEW OF WINDOWS AND DOORS AT NORTH END OF WEST WALL	E	OVERCAST	KIT
16	26/06/07		GENERAL VIEW DOWN EAST PARADE	NE	OVERCAST	KIT
17	26/06/07		GENERAL VIEW DOWN EAST PARADE	NE	OVERCAST	KIT
18	26/06/07		GENERAL VIEW DOWN EAST PARADE	NE	OVERCAST	KIT
19	26/06/07		GENERAL OVERVIEW OF THE SITE	NW	OVERCAST	KIT
20	26/06/07		GENERAL OVERVIEW OF THE SITE	NW	OVERCAST	KIT

DIR = the direction in which the camera is pointed, expressed as a compass point eg NW

PROJECT NAME: HIGHER MILL, RAWTENSTALL		PROJECT CODE: L9879		SITE CODE:		
FILM NO: 3		FILM TYPE: 35MM BLACK AND WHITE		ISO: 400		
FRAME	DATE	SITE	DESCRIPTION	DIR	CONDITIONS	PHOTO-GRAPHER
21	26/06/07		GENERAL OVERVIEW OF THE SITE	NW	OVERCAST	KIT
22	26/06/07		FLAGGED FLOOR IN THE WEAVING SHEDS	NE	OVERCAST	KIT
23	26/06/07		FLAGGED FLOOR IN THE WEAVING SHEDS	NE	OVERCAST	KIT
24	26/06/07		FLAGGED FLOOR IN THE WEAVING SHEDS	NE	OVERCAST	KIT
25	26/06/07		STAIRS AT THE SOUTH EAST CORNER OF THE SITE	SE	OVERCAST	KIT
26	26/06/07		STAIRS AT THE SOUTH EAST CORNER OF THE SITE	SE	OVERCAST	KIT
27	26/06/07		STAIRS AT THE SOUTH EAST CORNER OF THE SITE	SE	OVERCAST	KIT
28	26/06/07		WEST WALL OF THE WEAVING SHEDS	SE	OVERCAST	KIT
29	26/06/07		WEST WALL OF THE WEAVING SHEDS	SE	OVERCAST	KIT
30	26/06/07		WEST WALL OF THE WEAVING SHEDS	SE	OVERCAST	KIT
31	26/06/07		VIEW OF BUILDING 1	NE	OVERCAST	KIT
32	26/06/07		VIEW OF BUILDING 1	NE	OVERCAST	KIT
33	26/06/07		VIEW OF BUILDING 1	NE	OVERCAST	KIT
34	26/06/07		WEST ELEVATION OF BUILDING 1	E	OVERCAST	KIT
35	26/06/07		WEST ELEVATION OF BUILDING 1	E	OVERCAST	KIT
36	26/06/07		WEST ELEVATION OF BUILDING 1	E	OVERCAST	KIT
DIR = the direction in which the camera is pointed, expressed as a compass point eg NW						

OXFORD ARCHAEOLOGY NORTH

PHOTOGRAPHIC INDEX

OA NORTH 13

PROJECT NAME	PROJECT CODE	SITE CODE
HIGHER MILL, RAWTENSTALL	L9789	

FILM NO:	FILM TYPE	ISO
4	35MM COLOUR SLIDE	200

FRAME	DATE	SITE	DESCRIPTION	DIR	CONDITIONS	PHOTO-GRAPHER
1	26/06/07		ID SHOT		OVERCAST	KIT
2	26/06/07		APERTURE AT THE BASE OF THE CHIMNEY IN ROOM 3	SW	INDOORS	KIT
3	26/06/07		APERTURE AT THE BASE OF THE CHIMNEY IN ROOM 3	SW	INDOORS	KIT
4	26/06/07		APERTURE AT THE BASE OF THE CHIMNEY IN ROOM 3	SW	INDOORS	KIT
5	26/06/07		APERTURE AT THE BASE OF THE WALL IN ROOM 3	S	INDOORS	KIT
6	26/06/07		APERTURE AT THE BASE OF THE WALL IN ROOM 3	S	INDOORS	KIT
7	26/06/07		APERTURE AT THE BASE OF THE WALL IN ROOM 3	S	INDOORS	KIT
8	26/06/07		PULLEYS IN ROOM 3	N	INDOORS	KIT
9	26/06/07		PULLEYS IN ROOM 3	N	INDOORS	KIT
10	26/06/07		GENERAL VIEW UP EAST PARADE	S	OVERCAST	KIT
11	26/06/07		GENERAL VIEW UP EAST PARADE	S	OVERCAST	KIT
12	26/06/07		GENERAL VIEW UP EAST PARADE	S	OVERCAST	KIT
13	26/06/07		VIEW OF WINDOWS AND DOORS AT NORTH END OF WEST WALL	E	OVERCAST	KIT
14	26/06/07		VIEW OF WINDOWS AND DOORS AT NORTH END OF WEST WALL	E	OVERCAST	KIT
15	26/06/07		VIEW OF WINDOWS AND DOORS AT NORTH END OF WEST WALL	E	OVERCAST	KIT
16	26/06/07		GENERAL VIEW DOWN EAST PARADE	NE	OVERCAST	KIT
17	26/06/07		GENERAL VIEW DOWN EAST PARADE	NE	OVERCAST	KIT
18	26/06/07		GENERAL VIEW DOWN EAST PARADE	NE	OVERCAST	KIT
19	26/06/07		GENERAL OVERVIEW OF THE SITE	NW	OVERCAST	KIT
20	26/06/07		GENERAL OVERVIEW OF THE SITE	NW	OVERCAST	KIT

DIR = the direction in which the camera is pointed, expressed as a compass point eg NW

PROJECT NAME: HIGHER MILL, RAWTENSTALL		PROJECT CODE: L9789		SITE CODE:		
FILM NO: 4		FILM TYPE: 35MM COLOUR SLIDE		ISO: 200		
FRAME	DATE	SITE	DESCRIPTION	DIR	CONDITIONS	PHOTO-GRAPHER
21	26/06/07		GENERAL OVERVIEW OF THE SITE	NW	OVERCAST	KIT
22	26/06/07		FLAGGED FLOOR IN THE WEAVING SHEDS	NE	OVERCAST	KIT
23	26/06/07		FLAGGED FLOOR IN THE WEAVING SHEDS	NE	OVERCAST	KIT
24	26/06/07		FLAGGED FLOOR IN THE WEAVING SHEDS	NE	OVERCAST	KIT
25	26/06/07		STAIRS AT THE SOUTH EAST CORNER OF THE SITE	SE	OVERCAST	KIT
26	26/06/07		STAIRS AT THE SOUTH EAST CORNER OF THE SITE	SE	OVERCAST	KIT
27	26/06/07		STAIRS AT THE SOUTH EAST CORNER OF THE SITE	SE	OVERCAST	KIT
28	26/06/07		WEST WALL OF THE WEAVING SHEDS	SE	OVERCAST	KIT
29	26/06/07		WEST WALL OF THE WEAVING SHEDS	SE	OVERCAST	KIT
30	26/06/07		WEST WALL OF THE WEAVING SHEDS	SE	OVERCAST	KIT
31	26/06/07		VIEW OF BUILDING 1	NE	OVERCAST	KIT
32	26/06/07		VIEW OF BUILDING 1	NE	OVERCAST	KIT
33	26/06/07		VIEW OF BUILDING 1	NE	OVERCAST	KIT
34	26/06/07		WEST ELEVATION OF BUILDING 1	E	OVERCAST	KIT
35	26/06/07		WEST ELEVATION OF BUILDING 1	E	OVERCAST	KIT
36	26/06/07		WEST ELEVATION OF BUILDING 1	E	OVERCAST	KIT

DIR = the direction in which the camera is pointed, expressed as a compass point eg NW

OXFORD ARCHAEOLOGY NORTH

PHOTOGRAPHIC INDEX

OA NORTH 13

PROJECT NAME	PROJECT CODE	SITE CODE
HIGHER MILL, RAWTENSTALL	L9879	

FILM NO:	FILM TYPE	ISO
5	35MM BLACK AND WHITE	400

FRAME	DATE	SITE	DESCRIPTION	DIR	CONDITIONS	PHOTO-GRAPHER
1	26/06/07		ID SHOT		OVERCAST	KIT
2	26/06/07		DOORWAY AT WEST SIDE OF WEAVING SHEDS	NW	OVERCAST	KIT
3	26/06/07		DOORWAY AT WEST SIDE OF WEAVING SHEDS	NW	OVERCAST	KIT
4	26/06/07		DOORWAY AT WEST SIDE OF WEAVING SHEDS	NW	OVERCAST	KIT
5	26/06/07		VIEW OF NORTH END OF SITE	NW	OVERCAST	KIT
6	26/06/07		VIEW OF NORTH END OF SITE	NW	OVERCAST	KIT
7	26/06/07		VIEW OF NORTH END OF SITE	NW	OVERCAST	KIT
8	26/06/07		VIEW OF INTERIOR OF NORTH WALL OF SITE	NE	OVERCAST	KIT
9	26/06/07		VIEW OF INTERIOR OF NORTH WALL OF SITE	NE	OVERCAST	KIT
10	26/06/07		VIEW OF INTERIOR OF NORTH WALL OF SITE	NE	OVERCAST	KIT
11	26/06/07		INTERIOR VIEW OF BUILDING 1	NE	OVERCAST	KIT
12	26/06/07		INTERIOR VIEW OF BUILDING 1	NE	OVERCAST	KIT
13	26/06/07		LARGE WINDOW IN BUILDING 1	SE	INDOORS	KIT
14	26/06/07		LARGE WINDOW IN BUILDING 1	SE	INDOORS	KIT
15	26/06/07		LARGE WINDOW IN BUILDING 1	SE	INDOORS	KIT
16	26/06/07		DRAIN IN BUILDING 1	NW	INDOORS	KIT
17	26/06/07		STEPS INTO BUILDING 2	E	INDOORS	KIT
18	26/06/07		VIEW OF INTERIOR OF BUILDING 2	E	OVERCAST	KIT
19	26/06/07		VIEW OF INTERIOR OF BUILDING 2	E	OVERCAST	KIT
20	26/06/07		VIEW OF INTERIOR OF BUILDING 2	E	OVERCAST	KIT

DIR = the direction in which the camera is pointed, expressed as a compass point eg NW

PROJECT NAME: HIGHER MILL, RAWTENSTALL		PROJECT CODE: L9879		SITE CODE:		
FILM NO: 5		FILM TYPE: 35MM BLACK AND WHITE		ISO: 400		
FRAME	DATE	SITE	DESCRIPTION	DIR	CONDITIONS	PHOTO-GRAPHER
21	26/06/07		VIEW OF INTERIOR OF BUILDING 2	W	OVERCAST	KIT
22	26/06/07		VIEW OF INTERIOR OF BUILDING 2	W	OVERCAST	KIT
23	26/06/07		VIEW OF INTERIOR OF BUILDING 2	W	OVERCAST	KIT
24	26/06/07		VIEW OF BUILDING 4	S	OVERCAST	KIT
25	26/06/07		VIEW OF BUILDING 4	S	OVERCAST	KIT
26	26/06/07		VIEW OF BUILDING 4	S	OVERCAST	KIT
27	26/06/07		SIDE VIEW OF BUILDING 4	NW	OVERCAST	KIT
28	26/06/07		SIDE VIEW OF BUILDING 4	NW	OVERCAST	KIT
29	26/06/07		SIDE VIEW OF BUILDING 4	NW	OVERCAST	KIT
30	26/06/07		EAST SIDE OF BUILDING 2	W	OVERCAST	KIT
31	26/06/07		EAST SIDE OF BUILDING 2	W	OVERCAST	KIT
32	26/06/07		EAST SIDE OF BUILDING 2	W	OVERCAST	KIT
33	26/06/07		VIEW DOWN HIGHER MILL STREET	N	OVERCAST	KIT
34	26/06/07		VIEW DOWN HIGHER MILL STREET	N	OVERCAST	KIT
35	26/06/07		VIEW DOWN HIGHER MILL STREET	N	OVERCAST	KIT
36	26/06/07		BUILDING AT REAR (SOUTH) OF SITE	SE	OVERCAST	KIT
37	26/06/07		BUILDING AT REAR (SOUTH) OF SITE	SE	OVERCAST	KIT
DIR = the direction in which the camera is pointed, expressed as a compass point eg NW						

OXFORD ARCHAEOLOGY NORTH

PHOTOGRAPHIC INDEX

OA NORTH 13

PROJECT NAME	PROJECT CODE	SITE CODE
HIGHER MILL, RAWTENSTALL	L9879	

FILM NO:	FILM TYPE	ISO
6	35MM COLOUR SLIDE	200

FRAME	DATE	SITE	DESCRIPTION	DIR	CONDITIONS	PHOTO-GRAPHER
1	26/06/07		ID SHOT		OVERCAST	KIT
2	26/06/07		DOORWAY AT WEST SIDE OF WEAVING SHEDS	NW	OVERCAST	KIT
3	26/06/07		DOORWAY AT WEST SIDE OF WEAVING SHEDS	NW	OVERCAST	KIT
4	26/06/07		DOORWAY AT WEST SIDE OF WEAVING SHEDS	NW	OVERCAST	KIT
5	26/06/07		VIEW OF NORTH END OF SITE	NW	OVERCAST	KIT
6	26/06/07		VIEW OF NORTH END OF SITE	NW	OVERCAST	KIT
7	26/06/07		VIEW OF NORTH END OF SITE	NW	OVERCAST	KIT
8	26/06/07		VIEW OF INTERIOR OF NORTH WALL OF SITE	NE	OVERCAST	KIT
9	26/06/07		VIEW OF INTERIOR OF NORTH WALL OF SITE	NE	OVERCAST	KIT
10	26/06/07		VIEW OF INTERIOR OF NORTH WALL OF SITE	NE	OVERCAST	KIT
11	26/06/07		INTERIOR VIEW OF BUILDING 1	NE	OVERCAST	KIT
12	26/06/07		INTERIOR VIEW OF BUILDING 1	NE	OVERCAST	KIT
13	26/06/07		LARGE WINDOW IN BUILDING 1	SE	INDOORS	KIT
14	26/06/07		LARGE WINDOW IN BUILDING 1	SE	INDOORS	KIT
15	26/06/07		LARGE WINDOW IN BUILDING 1	SE	INDOORS	KIT
16	26/06/07		DRAIN IN BUILDING 1	NW	INDOORS	KIT
17	26/06/07		STEPS INTO BUILDING 2	E	INDOORS	KIT
18	26/06/07		VIEW OF INTERIOR OF BUILDING 2	E	OVERCAST	KIT
19	26/06/07		VIEW OF INTERIOR OF BUILDING 2	E	OVERCAST	KIT
20	26/06/07		VIEW OF INTERIOR OF BUILDING 2	E	OVERCAST	KIT

DIR = the direction in which the camera is pointed, expressed as a compass point eg NW

PROJECT NAME HIGHER MILL, RAWTENSTALL	PROJECT CODE L9879	SITE CODE
FILM NO: 6	FILM TYPE 35MM COLOUR SLIDE	ISO 200

FRAME	DATE	SITE	DESCRIPTION	DIR	CONDITIONS	PHOTO-GRAPHER
21	26/06/07		VIEW OF INTERIOR OF BUILDING 2	W	OVERCAST	KIT
22	26/06/07		VIEW OF INTERIOR OF BUILDING 2	W	OVERCAST	KIT
23	26/06/07		VIEW OF INTERIOR OF BUILDING 2	W	OVERCAST	KIT
24	26/06/07		VIEW OF BUILDING 4	S	OVERCAST	KIT
25	26/06/07		VIEW OF BUILDING 4	S	OVERCAST	KIT
26	26/06/07		VIEW OF BUILDING 4	S	OVERCAST	KIT
27	26/06/07		SIDE VIEW OF BUILDING 4	NW	OVERCAST	KIT
28	26/06/07		SIDE VIEW OF BUILDING 4	NW	OVERCAST	KIT
29	26/06/07		SIDE VIEW OF BUILDING 4	NW	OVERCAST	KIT
30	26/06/07		EAST SIDE OF BUILDING 2	W	OVERCAST	KIT
31	26/06/07		EAST SIDE OF BUILDING 2	W	OVERCAST	KIT
32	26/06/07		EAST SIDE OF BUILDING 2	W	OVERCAST	KIT
33	26/06/07		VIEW DOWN HIGHER MILL STREET	N	OVERCAST	KIT
34	26/06/07		VIEW DOWN HIGHER MILL STREET	N	OVERCAST	KIT
35	26/06/07		VIEW DOWN HIGHER MILL STREET	N	OVERCAST	KIT
36	26/06/07		BUILDING AT REAR (SOUTH) OF SITE	SE	OVERCAST	KIT
37	26/06/07		BUILDING AT REAR (SOUTH) OF SITE	SE	OVERCAST	KIT

DIR = the direction in which the camera is pointed, expressed as a compass point eg NW

OXFORD ARCHAEOLOGY NORTH

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OA NORTH 13

PROJECT NAME	PROJECT CODE	SITE CODE
HIGHER MILL, RAWTENSTALL	L9879	

FILM NO:	FILM TYPE	ISO
7	35MM BLACK AND WHITE	400

FRAME	DATE	SITE	DESCRIPTION	DIR	CONDITIONS	PHOTO-GRAPHER
1	28/06/07		ID SHOT		OVERCAST	KIT
2	28/06/07		POSSIBLE BLOCKED BEARING BOX IN ROOM 3	S	INDOORS	KIT
3	28/06/07		POSSIBLE BLOCKED BEARING BOX IN ROOM 3	S	INDOORS	KIT
4	28/06/07		POSSIBLE BLOCKED BEARING BOX IN ROOM 3	S	INDOORS	KIT
5	28/06/07		POSSIBLE BLOCKED BEARING BOX IN ROOM 3	S	INDOORS	KIT
6	28/06/07		VIEW INTO BASEMENT BELOW ROOM 2	S	INDOORS	KIT
7	28/06/07		VIEW INTO BASEMENT BELOW ROOM 2	S	INDOORS	KIT
8	28/06/07		NICHE IN WEST WALL OF ROOM 4	E	INDOORS	KIT
9	28/06/07		NICHE IN WEST WALL OF ROOM 4	E	INDOORS	KIT
10	28/06/07		NICHE IN WEST WALL OF ROOM 4	E	OVERCAST	KIT
11	28/06/07		NICHE IN WEST WALL OF ROOM 4	E	OVERCAST	KIT
12	28/06/07		NICHE IN WEST WALL OF ROOM 4	E	OVERCAST	KIT
13	28/06/07		SOUTH ELEVATION OF BUILDING 1	N	OVERCAST	KIT
14	28/06/07		SOUTH ELEVATION OF BUILDING 1	N	OVERCAST	KIT
15	28/06/07		SOUTH ELEVATION OF BUILDING 1	N	OVERCAST	KIT
16	28/06/07		VIEW OF NORTH END OF SITE FOLLOWING CLEARANCE	N	OVERCAST	KIT
17	28/06/07		VIEW OF NORTH END OF SITE FOLLOWING CLEARANCE	N	OVERCAST	KIT
18	28/06/07		VIEW OF NORTH END OF SITE FOLLOWING CLEARANCE	N	OVERCAST	KIT
19	28/06/07		BEARING BOX ON THE NORTH WALL	N	OVBERCAST	KIT
20	28/06/07		BEARING BOX ON THE NORTH WALL	N	OVBERCAST	KIT

DIR = the direction in which the camera is pointed, expressed as a compass point eg NW

PROJECT NAME HIGHER MILL, RAWTENSTALL	PROJECT CODE L9879	SITE CODE
FILM NO: 7	FILM TYPE 35MM BLACK AND WHITE	ISO 400

FRAME	DATE	SITE	DESCRIPTION	DIR	CONDITIONS	PHOTO-GRAPHER
21	28/06/07		BEARING BOX ON THE NORTH WALL	N	OVBERCAST	KIT
22	28/06/07		VOID			
23	28/06/07		VOID			
24	28/06/07		VOID			
25	28/06/07		NORTH EAST CORNER OF INTERNAL WALLS	NW	OVERCAST	KIT
26	28/06/07		NORTH EAST CORNER OF INTERNAL WALLS	NW	OVERCAST	KIT
27	28/06/07		NORTH EAST CORNER OF INTERNAL WALLS	NW	OVERCAST	KIT
28	28/06/07		EXAMPLE OF FLAGGED FLOOR AT NORTH END OF SITE	E	OVERCAST	KIT
29	28/06/07		EXAMPLE OF FLAGGED FLOOR AT NORTH END OF SITE	E	OVERCAST	KIT
30	28/06/07		EXAMPLE OF FLAGGED FLOOR AT NORTH END OF SITE	E	OVERCAST	KIT
31	28/06/07		EXAMPLE OF FLAGGED FLOOR AT NORTH END OF SITE	E	OVERCAST	KIT

DIR = the direction in which the camera is pointed, expressed as a compass point eg NW

OXFORD ARCHAEOLOGY NORTH

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OA NORTH 13

PROJECT NAME	PROJECT CODE	SITE CODE
HIGHER MILL, RAWTENSTALL	L9879	

FILM NO:	FILM TYPE	ISO
8	35MM COLOUR SLIDE	200

FRAME	DATE	SITE	DESCRIPTION	DIR	CONDITIONS	PHOTO-GRAPHER
1	28/06/07		ID SHOT		OVERCAST	KIT
2	28/06/07		POSSIBLE BLOCKED BEARING BOX IN ROOM 3	S	INDOORS	KIT
3	28/06/07		POSSIBLE BLOCKED BEARING BOX IN ROOM 3	S	INDOORS	KIT
4	28/06/07		POSSIBLE BLOCKED BEARING BOX IN ROOM 3	S	INDOORS	KIT
5	28/06/07		POSSIBLE BLOCKED BEARING BOX IN ROOM 3	S	INDOORS	KIT
6	28/06/07		VIEW INTO BASEMENT BELOW ROOM 2	S	INDOORS	KIT
7	28/06/07		VIEW INTO BASEMENT BELOW ROOM 2	S	INDOORS	KIT
8	28/06/07		NICHE IN WEST WALL OF ROOM 4	E	INDOORS	KIT
9	28/06/07		NICHE IN WEST WALL OF ROOM 4	E	INDOORS	KIT
10	28/06/07		NICHE IN WEST WALL OF ROOM 4	E	OVERCAST	KIT
11	28/06/07		NICHE IN WEST WALL OF ROOM 4	E	OVERCAST	KIT
12	28/06/07		NICHE IN WEST WALL OF ROOM 4	E	OVERCAST	KIT
13	28/06/07		SOUTH ELEVATION OF BUILDING 1	N	OVERCAST	KIT
14	28/06/07		SOUTH ELEVATION OF BUILDING 1	N	OVERCAST	KIT
15	28/06/07		SOUTH ELEVATION OF BUILDING 1	N	OVERCAST	KIT
16	28/06/07		VIEW OF NORTH END OF SITE FOLLOWING CLEARANCE	N	OVERCAST	KIT
17	28/06/07		VIEW OF NORTH END OF SITE FOLLOWING CLEARANCE	N	OVERCAST	KIT
18	28/06/07		VIEW OF NORTH END OF SITE FOLLOWING CLEARANCE	N	OVERCAST	KIT
19	28/06/07		BEARING BOX ON THE NORTH WALL	N	OVBERCAST	KIT
20	28/06/07		BEARING BOX ON THE NORTH WALL	N	OVBERCAST	KIT

DIR = the direction in which the camera is pointed, expressed as a compass point eg NW

PROJECT NAME HIGHER MILL, RAWTENSTALL		PROJECT CODE L9879		SITE CODE	
FILM NO: 8		FILM TYPE 35MM COLOUR SLIDE		ISO 200	
FRAME	DATE	SITE	DESCRIPTION	DIR	CONDITIONS	PHOTO-GRAPHER
21	28/06/07		BEARING BOX ON THE NORTH WALL	N	OVBERCAST	KIT
22	28/06/07		VOID			
23	28/06/07		VOID			
24	28/06/07		VOID			
25	28/06/07		NORTH EAST CORNER OF INTERNAL WALLS	NW	OVERCAST	KIT
26	28/06/07		NORTH EAST CORNER OF INTERNAL WALLS	NW	OVERCAST	KIT
27	28/06/07		NORTH EAST CORNER OF INTERNAL WALLS	NW	OVERCAST	KIT
28	28/06/07		EXAMPLE OF FLAGGED FLOOR AT NORTH END OF SITE	E	OVERCAST	KIT
29	28/06/07		EXAMPLE OF FLAGGED FLOOR AT NORTH END OF SITE	E	OVERCAST	KIT
30	28/06/07		EXAMPLE OF FLAGGED FLOOR AT NORTH END OF SITE	E	OVERCAST	KIT
31	28/06/07		EXAMPLE OF FLAGGED FLOOR AT NORTH END OF SITE	E	OVERCAST	KIT
DIR = the direction in which the camera is pointed, expressed as a compass point eg NW						

APPENDIX 3: CONTEXT DESCRIPTION

Context	Building	Depth/ Height (m)	Description
1	**1**	0.15	Floor. Comprised rectangular stone sets, 0.20m long by 0.13m wide and 0.15m thick., bonded by a coarse dark grey medium sand. These sets form the originally external floor of the mill. They have been covered with a dark-grey concrete floor with the construction of the loading bay in the mid-twentieth century.
2	**1**	0.30	Very dark grey silt coarse sand, with less than 1% small stone inclusions. A levelling deposit onto which the sets of floor ***1*** have been laid.
3	**1**	0.55	A light brown coarse sand silt-clay, with less than 1% small sub-rounded stone and crushed red brick inclusions. The layer, along with deposit ***14***, forms a thick levelling deposit to raise the level of floor ***1***. This deposit overlay foundation ***10***.
4	**1**	-	Cast iron pipe, 0.10m (4 inches) in diameter (Fig 9; Plate 30). Probably used to take water from the condensers back to the mill pond.
5	**1**	-	Ceramic waste water pipe, 0.27m in diameter with a 0.31m sized collar
6	**1/2**	-	Foundation/wall between engine house and loading bay, orientated on a north-west/south-east direction. It measured 0.50m wide and 4.74m high, constituting the south-western wall of the engine house. The stone measured a maximum of 0.54m by 0.11m by 0.21m in size, tapered inwardly towards the wall core. The stone had been coursed, and squared on its exterior face. The wall core comprised 90% angular sandstone a maximum of 0.12m by 0.08m by 0.70m in size, within a dark grey fine sand silty clay sediment. This wall forms part of the basement of the Engine House, the floor of which, ***69***, is 1.21m below the level of floor ***1***. Wall ***6*** abuts foundation ***8***, although is undoubtedly the same phase of construction. Essentially this is the same structure as wall ***50***. This wall was still standing prior to its demolition during the watching brief.
7	**1**	-	Sandstone block, adjacent to foundations and ***8*** and ***13***, measuring 0.65m long and 0.45m wide and 0.22m thick. It was laid over levelling deposit ***2***, which also surrounded the remaining two sides.
8	**1/2**		Foundation. Aligned on a north-east/south-west direction, upon which wall ***50*** was located. It measured 1.12m wide, constructed from roughly squared sandstone a maximum of 0.36m by 0.20m by 0.24m in size. Its rubble core comprised 90% irregular sandstone, a maximum of 0.18m by 0.15m by 0.05m in size, within very dark grey coarse sand silty-clay sediment. It was bonded with a friable, dark grey, sandy mortar. This foundation comprised the south-eastern wall of the engine house, but continued as one construction to the south-west of the engine house (Fig 9). This foundation was abutted by wall ***6***
9	**1**	-	Cast iron pipe. Oriented in a north-west/south-east direction,

			measuring 0.06m (2.5 inches) in diameter, and a least 1.8m in length. The pipe is located within deposit ***2***, below floor ***1***, adjacent to wall ***6***. It's south-eastern end had a partial brick surround, ***12***.
10	**1**	0.90	Foundation. Comprised roughly squared a sandstone a maximum of 0.30m by 0.30m by 0.16m, roughly coursed, and bonded with a mid-orange brown coarse sand-clay. The north-east/south-west section of this appears to have no real function (Fig 9), as no wall is recorded as being in this position. It may have been a retaining wall associated with the levelling of the area. In this section in measures 0.60m wide. The north-eastern end turns north-east, where it essentially forms the foundation for wall ***6***, as the stone work is keyed into/the same construction as this wall, although giving a total width of 2.30m. Its south-western end also turns north-east, being keyed into wall ***13***, creating a foundation for wall ***13*** 1.50m wide (Fig 9).
11	**1**	-	A mid-orange brown, firm, coarse sand silty-clay. Included within the deposit are less than 1% sub-angular stones, a maximum of 0.13m by 0.10m by 0.08m. This comprised a layer of redeposited glacial till located between foundations ***8*** and ***10***.
12	**1**	0.11	Two nineteenth century red bricks, measuring 0.23m by 0.11m by 0.08m in size, were aligned parallel to the end of pipe ***9***. The bricks were located within deposit ***2***.
13	**1**	-	Wall. Aligned on a north-west/south-east orientation, comprising the south-western wall of the loading bay. It measured 0.35m wide and 4.6m in length, constructed above foundation ***10***, and keyed into foundation ***8***. It was constructed on roughly squared sandstone, a maximum of 0.54m by 0.15m by 0.24m in size, with squared external faces. It's rubble core comprised 90% irregular sandstone, a maximum 0.15m by 0.13m by 0.10m in size. The masonry was bond by a very dark grey, consolidated, cement mortar.
14	**1**	0.87	A layer of mid-orange brown clay, with less than 1% sub-angular stone inclusions of a maximum size of 0.13m by 0.12m by 0.08m. This, along with deposit ***3***, creates a levelling deposit to raise the floor on the area. This deposit surrounds the stone of foundation ***10***, with no construction cut visible. It was speculated that fabric of ***10*** was constructed prior to this deposit being used to level the area.
15	**3**	-	Floor of ***SG19***. Comprised pale yellow refractory brick 0.23m by 0.11m by 0.08m in size, laid on an east-west orientation, and bonded by a dark grey coarse sandy mortar.
16	**3**	0.43	Inner refractory brick wall of ***SG19***. Comprised pale yellow refractory bricks measuring 0.23m by 0.11m by 0.08m in size, bonded by a dark grey coarse sandy mortar The wall was one brick thick, having a total thickness, therefore, of 0.11m. Constructed above floor ***15***.
17	**3**	0.67.	Outer brick wall of ***SG19***. Comprised 20th century red brick, constructed two bricks thick giving a total thickness of 0.23m. The stretchers of this wall were slightly curved, measuring 0.22m long on the outer face, 0.20m long on the inner face, 0.11m wide and 0.07m thick. The headers were therefore tapered, measuring 0.22m long, 0.11m wide on the outer face

			and 0.09m on the inner face, and 0.07m thick. These bricks were frogged and stamped with the lettering "NORI".
18	**3**	-	Mid-grey concrete floor. Not excavated.
19	**3**	-	Stratigraphic Group (SG) number of a possibly singeing oven. Included within this group are the floors, ***15*** and ***22,*** and one wall made of two elements, ***16*** and ***17***. This constituted a circular structure, measuring 2.40m in diameter and surviving to a maximum height of 0.67m. An entrance was located on its southern side, measuring 1.5m.
20	**3/4**	4.25	Wall. Comprised roughly faced, sub-angular, sandstone a maximum of 0.52m by 0.27m by 0.15m in size. The stone was roughly coursed, bonded with a very dark grey, consolidated, cement mortar. It's rubble core comprised 90% angular sandstone a maximum of 0.17m by 0.13m by 0.08m in size, within a dark grey fine sand silty-clay sediment. In total, it measured 0.54m wide, This wall comprised the eastern wall of the economiser building and boiler house, and the engine house. The masonry of wall ***50*** is keyed into this wall.
21	**3**	1.17	Wall. Comprised roughly squared sandstone, a maximum of 0.54, by 0.26m by 0.23m in size. The stone was roughly coursed, and bonded with a very dark grey cement mortar. It total, it measured 0.35m wide. This wall comprised the north-western corner of the economiser building. Prior to demolition, it contained a doorway into the building..
22	**3**	0.035	A very dark grey cement, laid at the entrance of ***SG19*** below bricks ***15***. In total, it measured 1.38m in length.
23	**3**	3.0	20th century red brick wall, measuring 3m in length and 1.43m high. Its bricks measured 0.33m in length and 0.08m high, bonded by a consolidated, light grey, cement mortar. The opposing side of this wall was not visible due to site cabins being placed upon it.
24	**Chimney**	-	Stone foundation of the mill chimney. Comprised coursed, roughly squared, sandstone a maximum of 1.10m by 0.76m by 0.23m in size. The stone was bonded by a very dark grey, friable, coarse sandy mortar. Its rubble core comprised 90% angular sandstone a maximum of 0.46m by 0.30m by 0.13m in size, within a very dark grey fine sandy-silt sediment. In total, the foundation measured a maximum of 1.0m wide, forming a roughly square base to the chimney measuring 4m by 3.75m.
25	**Chimney**	0.81	Red brick element of chimney flue, located between masonry ***24*** and refractory brick ***26***. Comprised nineteenth century brick clamp bricks, measuring 0.22m by 0.11m by 0.08m in size, laid as stretchers one brick thick. These were bonded by a very dark grey, friable, coarse sandy mortar.
26	**Chimney**	0.81	Refractory brick lining of chimney flue. Comprised pale yellow bricks measuring 0.23m by 0.11m by 0.07m in size, bonded by a very dark grey, friable, coarse sandy mortar. The bonding pattern was identified as English Garden Wall, with the headers used to tie ***27*** into bricks ***26***.
27	**Chimney**	-	A layer of firm dark grey coarse sand silty-clay, with *c.* 50% angular stone inclusions a maximum of 0.36m by 0.33m by 0.15m in size, within a dark grey coarse sandy sediment. Also included within this sediment was *c* 10% light grey mortar fragments less then 1mm^2 in size. Deposit comprised part of the chimney floor.

28	**Chimney**	0.07	Chimney and flue floor. Comprised one layer of red brick measuring 0.20m by 015m by 0.07m in size, manufactured in a brick clamp. These were bonded by a consolidated mid-grey cement mortar. The bricks were laid on a north-south orientation, at an angle to the chimney itself.
29	**Chimney**	0.70	Red brick wall blocking flue of chimney, measuring 1.10m in length and 0.70 high. Comprised 20th century red brick, 0.22m by 0.10m by 0.07m in size, bonded by a mid-orangey grey consolidated cement mortar. The bricks had been frogged with an oval frog, 150mm in length, 35mm wide and 5mm deep, but had no stamped. The bonding pattern was identified as English Garden Wall.
30	**1**	0.22	Foundation. A line of roughly squared sandstone, although squared and faced on their exterior surfaces, a maximum of 0.47m by 0.22m by 0.22m in size. The stone was bonded by a very dark grey, firm, coarse sand silty-clay. Some of the stone had tapered towards the interior of the wall. Only one coarse of foundation stones was present, laid into deposit ***31***. No construction cut was visible, with the sediment of ***31*** flush against the stone of ***30***. Foundation for the wall of a small building, depicted on the 1891 OS map of the area (Fig 3).
31	**1**	0.50	A friable, very dark grey, coarse sand silty-clay, with *c*. 25% angular stone inclusions a maximum of 0.13m by 0.10m by 0.10m in size. A levelling deposit.
32	**1**	0.21	Foundation. Two courses of sandstone, the upper comprised an ashlar sandstone block and the lower an irregular sandstone block, a maximum of 0.77m by 0.36m by 0.21m. The stone was bonded by a very dark grey, firm, coarse sand silty-clay. This foundation formed the north-west/south-east return to foundation ***30***.
33	**1**	0.08	A mid-grey concrete floor. Butts up to floor ***1***, and probably formed the interior floor of the small building created by foundations ***30*** and ***32***.
34	**1**	-	Ceramic drain. The entrance to the pipe was squared, measuring 0.30m^2, and the pipe circular measuring 0.12m (5 inches) in diameter.
35	**Chimney**	-	Fill of ***36***. A very dark grey, firm, fine, sand silty-clay. Sediment backfilled between masonry ***24*** and construction cut ***36***, located on the south-western side of the chimney only. Not excavated.
36	**Chimney**	-	Construction cut of foundation ***24***. Not excavated.
37	**1**	0.30	Foundation. Mid-20th century red brick wall laid upon a concrete sill. The concrete measured 0.61m wide and 0.08m thick. The red brick element comprised brick measuring 0.23m by 0.11m by 0.07m in size, bonded by a light grey cement mortar, two bricks thick laid as stretchers for the surviving two courses. On the north-western, external; face of the wall the brick had stone clad. This comprised roughly squared stone a maximum of 0.47m by 0.13m by 0.17m in size. This was intended to keep the architecture of the mid-20th century additions to the

			mill in-keeping with the original structure.
38	**1**	0.10	Capping stone to drain ***41***. Roughly squared stone a maximum of 0.4m by 0.2m by 0.1m in size.
39	**1**	0.10	Red brick sides of drain ***41***. A single course of red brick measuring 0.25m by 0.10m by 0.08m, laid as stretchers either side of drain ***41***. The bricks were bonded by a dark brown silty-clay.
40	**1**	0.10	Fill of ***41***. A very dark grey coarse sand silty-clay, with less than 1% small stone inclusions. Fill of drain.
41	**1**	0.10	Cut for drain. Comprised straight sides and a flat base, measuring 0.27m wide and 3.16m in length, aligned on a east-west orientation. This structure had been truncated at its western end by the construction of a manhole. Its eastern end has an original terminus.
42	**3**	0.35	Metal structure. Comprised a horizontal "tray", 0.47m in length, 0.31m wide and 15mm deep, the metal measuring 5mm thick. This "tray" was fixed to a stand, comprising of four lengths of metal. Two L-shaped verticals at the front of the "tray" measured 60mm wide, 35mm deep and 0.37m in length. The two verticals supported two squared U-shaped horizontals, with the base of the U uppermost, measuring 0.10m wide, 0.10m deep and 0.50m in length. The back end of these horizontals were fixed into wall ***21***. The "tray" of this structure contained residual grease. Residual red paint was also visible in the metal.
43	**3**	0.16	Moulded sandstone, located in the eastern corner of the economiser building. It measured 0.97m in length, 0.58m wide and 0.16m thick. On its upper surface two parallel linear grooves with rounded ends, measuring 0.33m long and 67mm wide, were located. Iron studs or fixing, 10mm in diameter, were located at each end of these grooves.
44	**3**	0.60	A red brick structure, capped with concrete, creating an L-shape in the southern corner of the economiser building. The north-east/south-west element of this structure measured 2.28m in length, 0.25m wide and 0.60m high, with a 0.24m step half way along its length, located parallel to wall ***50***. The north-west/south-east element of this structure measured 0.98m in length, 0.91m wide and 0.47m high. In the centre of this side of the structure a equilateral triangular depression in the concrete was located, with three iron studs or bolts measuring 20mm in diameter at each corner. The brick from which this structure was constructed measured 0.24m by 0.11m by 0.07m, bonded by a mid-orangey grey cement mortar, laid as stretchers.
45	**2**	2.63	Engine bed (Fig 9; Plate 31). Comprised large, roughly squared, sandstone a maximum of 1.23m by 1.20m by 0.47m in size, seven courses high. The total structure measured 12.34m in length, 1.23 wide and 2.63m high. The cylinder, cross head and crankshaft of the engine would have laid horizontally across these bases. The high and low pressure cylinders were fixed to the south-western end of the engine bases (Plate 32)). The crank-shaft and fly-wheel would be fixed to the north-eastern end of the engine bed (Plate 33). Holes through the engine bed, measuring an average of 0.13m

			in diameter, through which long metal bolts measuring 40mm in diameter fixed the engines to the masonry. At the south-western end the stone is moulded to the shape of part of the engine fittings, in the form of three linear grooves with circular ends, cut across the engine bed from their centre to the north-western edge of the masonry (Plate 32). These measured an average of 0.70m in length, 0.10mm wide and 50mm deep, with the circular ends 0.20m in diameter. A forth bit to moulding of the engine bed, at the south-western end, is represented by wide linear groove measuring 0.72m in length, 0.15m wide and 90mm deep. The engine bed at the north-eastern end of this structure are wider than elsewhere along its length, measuring 1.68m wide (the equivalent of two engine beds) with a recessed area on the south-eastern side measuring 1.57m in length, 0.95m wide and 0.46m deep (Plate 33). This recessed area was arranged by placing two engine beds cross-ways, one course of masonry below the upper course. This effectively created a ledge 0.76m wide on the north-western side of the line of engine beds to which another engine bed could be fixed at the same level as the upper-most course of masonry. It is upon this engine bed that the crank shaft would have been fitted. The engine bed creating the north-eastern side of this recess has been moulded creating a hollow for the machinery of the engine, measuring 0.22m long, 0.10m wide and 0.12m deep (Plate 33). Within this recess the machinery of the flywheel housing would have been fixed. Recess in the side of the engine bed allowed fish-bellied rails upon which floor 46 rested to be fixed. These recesses measure d 0.17m in length, 0.11m wide and 0.12m deep. The position of the metal rails upon which the engine would have sat can be seen on the engine bed where the stone has been worn smooth (Fig 9; Plate 32). This wear suggests rails in the region of 0.17m wide.
46	**2**	0.08	Floor or the engine house. A Yorkshire Stone flag floor, with flags measuring a maximum of 1.02m by 0.91m by 0.08m in size. These rested upon fish-bellied rails fixed to the walls of the engine house or the engine bases. The floor would have surrounded the engine bases except in the position of the fly-wheel (Fig 9; Plate 31). The fish bellied rails were T-shaped in profile, measuring 0.10m wide and a maximum of 0.12m deep. The ends were squared of for the last 0.10m, measuring 0.10m^2.
47	**2**	0.23m	Sandstone step along north-eastern wall of engine house. A single piece of masonry measuring 1.93m in length, 0.18m wide and 0.23m deep.
48	**2**	0.27m	A single large stone set into the north-eastern wall of the engine house, measuring 2.90m in length, 0.60m wide and 0.27m deep. Creates the floor of the engine house in it north-eastern entrance.
49	**2**	1.0	North-eastern wall of the engine house, to the south-east of masonry ***48***. The same construction as wall ***20***, and identical in its fabric, continuing to the south-east as the wall of the weaving shed .

50	**2**	3.19	North-western wall of the engine house. Essentially the same wall as ***2***, and identical in its fabric. The masonry of the walls of the chimney was keyed into wall ***50***..
51	**2**	2.5	The south-eastern wall of the engine house. It measured 0.6m wide, and 2.5m high. It's fabric is identical to wall ***50***. It was constructed upon foundation ***8***.
52	**2**	2.5	Engine bed. Roughly squared sandstone, measuring a maximum of 1.48m by 0.6m by 0.40m in szie. They created part in the south-eastern wall for a length of 2.9m to a height of 2.9m. These are located at the north-eastern end of wall ***51***, and upon which one side of the flywheel housing was located. The 50mm bolts rising though 0.11m holes were used to fix the machinery to the engine bed, as described for engine bed ***45*** (Fig 9; Plate 33). One of the engine bed has been moulded to fit the shape of part of the flywheel machinery, on its internal face. This recess measured, 0.56m in length , 90mm wide and 0.20m deep (Plate 33).
53	**2**	-	Ceramic drain. It measured 0.16m in diameter, with an external mid-reddish brown glaze. It was fixed to wall ***50*** by means of a Yorkshire Stone flag, measuring 0.59m by 0.50m by 40mm, with a central hole for the pipe. Above the flag, surrounding the pipe, were three courses of red brick measuring 0.22m by 0.11m by 0.07m, bonded by a mid-orange brown coarse sand mortar. These formed a brick surround to the pipe, measuring 0.38m^2 by 0.27m high. Below the flag the pipe had been removed.
54	**6**	0.12	A single course of 20th century red brick. The remains of a red brick wall that was built up against the external face of wall ***51***, of the engine house. The bricks measured 0.23m by 0.12, by 0.08m in size, bonded by a consolidated dark grey cement mortar. The bricks were frogged, but with no stamp.
55	**6**	0.04	A layer of mid-grey cement surrounding the entrance to manhole ***56***.
56	**6**	0.55+m	Manhole. Constructed of red brick measuring 0.23m by 0.12, by 0.08m in size, bonded by a consolidated dark grey cement mortar, laid in the English Garden Wall bonding pattern. The bricks were frogged, but with no stamp. The manhole measured 0.59m long and 0.47m wide. The manhole allowed access to pipe ***61***.
57	**6**	0.02	Metal rim of manhole ***56***, measuring 0.59m by 0.47m square.
58	**6**	0.55+m	Pipe trench for pipe ***61***, within which manhole ***56*** is also constructed. It had straight vertical sides, and would have been linear in shape, continuing to the east of the excavation area onto Higher Mill Street. Within the excavation area, however, this feature appeared rectangular in shape, measuring 2.48m in length and by 2.18m wide.
59	**6**	0.08	Single course of 20th century red brick, bounding concrete ***55*** to east between engine bases ***52*** and manhole ***56***, laid in an L-shape. The bricks measured 0.23m by 0.11, by 0.08m in size , bonded by a consolidated dark grey cement mortar. In total, the structure measured 1.19m in length north-west/south-east and 0.41m in length north-east/south-west.
60	**6**	0.55+m	A mid-brown fine sand silty-clay, with less than 1% small

			sub-rounded stone inclusions. Redeposited clay till used to backfill pipe trench ***58***..
61	**6**	-	Cast iron pipe, measuring 0.23m (9 inches) in diameter, laid within pipe trench ***58***. The pipe enters the engine house at the north-eastern end of wall ***51*** adjacent to engine beds ***52***. The pipe turns a corner to the south of wall ***51*** to the east, continues through manhole ***56***, out of mill complex onto Higher Mill Street (Fig 9).
62	**6**	-	Same as ***62***.
63	**6**	-	Same as ***58***.
64	**6**	0.9+	Mid-reddish brown deposit of coarse sand-clay. Included within the deposit was less than 1% fragmented red brick and less than 1% sub-angular small stones. Redeposited glacial till used to level the area.
65	**2**	-	Iron rung measuring 0.34m wide and 0.31m high. The rung is made from a single length of metal, 10mm thick and 40mm wide, bent at right-angles to form a flat bottomed U-shape. The top half of the vertical elements have been twisted 90°, to be flat against the interior surface of wall ***51***, to which it was fixed (Fig 9; Plate 34).
66	**2**	-	Iron rung measuring 0.41m wide and 0.33m high. The rung is made from a single length of metal, 10mm thick and 40mm wide, bent at right angles to form a U-shape. The top half of the verticals are twisted 90° to be flat against the interior surface of wall ***51***, to which it is fixed. This rung is of the same form as rung ***65,*** although with different overall dimensions (Fig 9).
67	**2**	-	Iron plate fixed to the interior of wall ***51***. The plate measured 0.51m wide and 0.55m high. On the lower half of the plate four 6mm bolts were located arranged as the four corners of a square measuring 0.22m high and 0.17m wide. Along the base of the pate a ledge 0.30m in length and protruding 20mm from the plate was located. An element of the machinery of the engine house would have been rested in the ledge and fixed to the plate via the 6mm bolts. The plate itself was fixed to wall ***52*** by means of 20mm bolts at each corner of the plate, which travelled through wall ***52***, and were held in place on the opposing side by circular metal discs 0.17m in diameter.
68	**2**	-	Metal plate, presumably once covering a valve, within floor ***46***. It measured 0.30m in length and 0.26m wide. In the centre a 30mm by 20mm hole allowed the plate to be lifted.
69	**2**	-	Floor of basement of the engine house. The flags measured 0.60m^2, made of a mid grey sandstone. .
70	**-**	-	Glacial till. A mid orange grey clay containing bands of mid-brown orange medium sand.
71	**3**	1.86	Doorway inserted into wall ***50***. In total, the structure of the doorway including modifications to wall ***50*** measured 1.86m in height and 1.48m wide. On it north-eastern side, wall ***50*** had been reconstructed with red brick, measuring 0.27m by 0.11m by 0.07m, bonded by a mid-orange brown cement mortar. The south-western side was modified using stone from wall ***50***. A metal girder measuring 0.40m in length and 0.15m high was inserted over the entrance way. The doorframe was constructed from wood, 0.11m wide and 10mm thick, painted green. These additions to wall ***50*** created a doorway measuring 1.64m in height and 0.80m wide.

72	**3**	0.38	At a height of 2.10m above floor ***18***, near the south-eastern corner of Building **3**, and set into wall ***50*** a bearing box was located. In total, it measured 0.35m^{2,}, and had been blocked up with 20th century red brick measuring 0.22m by 0.11m by 0.07m in size.

APPENDIX 4: FINDS CATALOGUE

Bldg = Building; Ctxt = Context number; OR = Object Record Number; Cat =- Category; u/s = unstratified; Chmy = Chimney

Bldg	Ctxt	OR	Material	Cat	No.	Description	Date
3	U/s	1	Metal	Spanner	1	Spanner with s-shaped handle, both ends fitting 335mm (2⅛ inch) nut	19th/20th century
Chmy	***24/25***	2	Metal	Chisel	1	Chisel measuring 335mm (13 inches) in length, with a 35mm blade and a 30mm^2 handle	19th century