



**ALBION MILL,  
BURNLEY ROAD  
EAST,  
NEWCHURCH,  
LANCASHIRE**

**Archaeological Building  
Investigation**



**Oxford Archaeology North**

December 2013

**B & E Boys Ltd**

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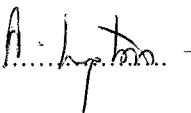
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## SUMMARY

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In October 2013, Oxford Archaeology North (OA North) was commissioned by B& E Boys Ltd to undertake a programme of archaeological building investigation to support a prior notification application for the demolition of the former Albion Mill, in Newchurch, Lancashire (centred at NGR 383750 422520). The mill was established as steam-powered cotton-spinning factory in the mid-nineteenth century, and had been converted for the manufacture of belting for driving machinery by the mid-1880s. This involved adding several new structures to the mill complex, the majority of which survive extant.

The archaeological building investigation was carried out in October and November 2013, and comprised an accurate measured survey of the historic mill complex, coupled with a written description and a detailed photographic record, consistent with English Heritage Level 2/3 standard. A review of the available documentary sources was also carried out. The historic fabric of the mill complex comprised a three-storey spinning block with a contiguous three-storey engine house, a boiler house/warehouse block, a two-storey warehouse, and a single-storey structure that spanned the Whitewell Brook to the rear of the spinning block and engine house.

Evidence obtained from the archaeological investigation indicated that the original spinning block was six bays long originally, with a beam engine house placed transversely across the southern end to form an additional two bays. The buildings were of non-fireproof construction, and built using local sandstone. The spinning block also contained a basement, and whilst its full extent is unknown as it could not be accessed at the time of the archaeological survey, it evidently extended along the bank of the Whitewell Brook, suggesting it may have been intended as a conditioning cellar. It is possible that the original boiler house had been placed immediately to the south of the engine house, with a detached square-section chimney in the southern corner of the site. However, this building may have been replaced with the extant three-storey structure, which had been erected by the early 1890s. The spinning block had also been extended by the early 1890s, with another four bays added to its northern end, together with the single-storey link block that spanned the Whitewell Brook.

## ACKNOWLEDGEMENTS

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Oxford Archaeology North (OA North) would like to thank Peter Boys of B & E Boys Ltd for commissioning and supporting the project. Thanks are also due to Ruth Garratt, the Conservation Officer for Rossendale Borough Council, and Doug Moir of the Lancashire County Archaeology Service, for their advice and support.

The building investigation was carried out by Chris Wild and Andy Phelps, and the documentary research was undertaken by Ian Miller. The report was compiled by Andy Phelps and Ian Miller, and the illustrations were produced by Mark Tidmarsh. The report was edited by Ian Miller, who was also responsible for project management.

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## 1. INTRODUCTION

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### 1.1 CIRCUMSTANCES OF THE PROJECT

- 1.1.1 B & E Boys Ltd has submitted an application to Rossendale Borough Council for prior notification of the demolition of a former textile mill known as Albion Mill, situated on Burnley Road East in Newchurch, Rossendale. A current survey of Lancashire's textile-manufacturing sites has indicated that Albion Mill is potentially of 'medium significance', as it seemingly retains a considerable proportion of its historic fabric (OA North 2013).
- 1.1.2 In response to the application, Rossendale Borough Council has requested that an archaeological record of the mill complex was compiled as part of the method statement for demolition. Following consultation with the Lancashire County Archaeology Service (LCAS), in their capacity as archaeological advisor to Rossendale Borough Council, it was recommended that the archaeological record should be consistent with an English Heritage Level 2/3-type building investigation. This allowed for an accurate measured survey of the historic mill complex, coupled with a written description and a detailed photographic record, supplemented by an appropriate level of historical research.
- 1.1.3 In October 2013, B & E Boys Ltd commissioned Oxford Archaeology North (OA North) to undertake the required programme of archaeological investigation. This was carried out in October and November 2013.

### 1.2 SITE LOCATION

- 1.2.1 Albion Mill lies on the eastern side of Burnley Road East at Newchurch, situated a short distance to the north of Waterfoot and some 2.8km to the east of Rawtenstall, in the Lancashire borough of Rossendale (centred at NGR 383750 422520). The mill complex occupies the northern part of a plot of land bounded by Burnley Road East, Wales Road, and Bridge Street. This plot is dissected by the Whitewell Brook, a tributary of the River Irwell (Fig 1). The site lies at a height of approximately 204m above Ordnance Datum.
- 1.2.2 Albion Mill forms one of a group of former textile mills that was established in Newchurch during the mid-nineteenth century. Whilst many of the component buildings have since been subject to remodelling, partial, or even complete demolition, textile mills still afford a significant contribution to the historic character of the local area (Plate 1).



*Plate 1: Recent aerial view of Albion Mill and adjacent mills on Burnley Road East*

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## 2. METHODOLOGY

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### 2.1 BUILDING INVESTIGATION

- 2.1.1 The archaeological building investigation aimed to provide an understanding of the historic fabric and key architectural features of the former mill complex, and to provide an archive record of the component structures prior to demolition. It has provided a drawn, photographic and textual record of the buildings to English Heritage (2006) Level 2/3 standard. Records were made of all principal structural elements, both internal and external, as well as any features of historical or architectural significance. Particular attention was paid to the relationship between the earliest and latest parts of the buildings, especially those that would show their development and any alterations. All work was carried out in accordance with the relevant standards and procedures provided by the Institute for Archaeologists (IfA), and generally accepted best practice.
- 2.1.2 **Photographic Survey:** a comprehensive photographic archive of the buildings was compiled, consisting of both general and detailed interior photographs, which were captured using high-resolution digital formats. General photographs of the exterior elevations were also taken in digital format.
- 2.1.3 **Instrument Survey:** floor plans of the buildings were surveyed by means of combination of total station and hand-measured survey. The drawings produced from the initial survey were used as a basis for annotation to illustrate the phasing and development of the buildings. Detail captured by the annotation included features such as window and door openings, and changes in building material and phasing. The final drawings are presented through an industry standard CAD package (AutoCAD 2004).
- 2.1.4 **Interpretation and Analysis:** a visual inspection of the buildings was undertaken and a description maintained to English Heritage (2006) Level 2/3. These records are essentially descriptive, and provide a systematic account of the origin, development and use of the mill complex.

### 2.2 ARCHIVE

- 2.2.1 A full archive of the work has been prepared to a professional standard in accordance with current English Heritage guidelines (1991) and the *Guidelines for the Preparation of Excavation Archives for Long Term Storage* (UKIC 1990). The archive will be deposited with the Lancashire Record Office in Preston on completion of the project. In addition, a copy of the report will be forwarded to Rossendale Borough Council and the Lancashire Historic Environment Record (HER).



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### 3. HISTORICAL BACKGROUND

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#### 3.1 HISTORICAL BACKGROUND

- 3.1.1 The administrative district of Rossendale is focused on the long, narrow valley of the River Irwell. This area formed part of the sparsely populated and densely wooded Forest of Blackburnshire until 1507, when Henry VII disafforested the valley and converted the land into copyholdings that were held in perpetuity by the 'immigrants' from Pendle who received them. One important consequence of this act was that the land was used subsequently for sheep farming, thus facilitating the start of Rossendale's woollen industry (Tupling 1927). The principal urban centres in the borough are Haslingden, Rawtenstall, Bacup and Whitworth, which all developed in the nineteenth century as a direct consequence of the growth in the textile industry.
- 3.1.2 The initial growth of the woollen industry in Rossendale was relatively slow, which was in part due to the poor communications network. The industry began to expand in the eighteenth century, with associated settlement centred on the villages of Newchurch and Goodshawfold (Goldsworthy 1965). The application of machinery in the production of woollen goods towards the end of the eighteenth century stimulated an expansion of the industry. One of the first processes to be mechanised was carding. Whilst carding engines were applied to the cotton industry in many other parts of Lancashire, the machine was applied initially to wool in Rossendale. Before the end of the eighteenth century, carding mills had been established at Rising Bridge, Baxenden and Haslingden, with the total number increasing to 34 by 1825 (*ibid*). The number of fulling mills and dye works also increased in the valley during this period, although the application of machinery to the spinning of wool was not progressed as rapidly as it was to cotton. Nevertheless, some 20 new woollen mills were established in Bacup alone during the first 30 years of the nineteenth century (Ensum *nd*, 1), reflecting the continued importance locally of this branch of the textile industry. However, the woollen industry fell into decline from the mid-1830s; by 1840, cotton had superseded wool as the principal branch of the textile industry in Rossendale, and only a few woollen manufacturing firms remained after 1850 (Rothwell 2009, 5).
- 3.1.3 The factory-based cotton industry in Rossendale can be traced back to the late eighteenth century; by the end of the century, there were eight cotton-spinning mills in operation in Rossendale, all being water powered (Tupling 1927). By 1830, this number had increased to approximately 50, the majority of which continued to be water powered despite the widespread adoption of steam power elsewhere in Lancashire. The great increase in the amount of spun cotton that was produced by these new factories outstripped the supply of handloom weavers, leading to the development of powered weaving sheds. The first steam-powered weaving mill in Rawtenstall was Higher Mill, which started in production in 1822. Some four years later, power weaving was being used to produce cotton goods in at least four other mills, including Longholme, Waterbarn, Rockcliffe and Irwell Springs.

- 3.1.4 The precise date at which Albion Mill was established is uncertain, although the site is shown as undeveloped on the Ordnance Survey map of 1849, which was surveyed in 1844-7 (Plate 2). However, the mill was in production by 1853, when it was owned by Henry Taylor, who is named in a newspaper article printed in that year (*Preston Chronicle*, 29 October 1853). Taylor is similarly listed under cotton spinners and manufacturers at Albion Mill in trade directories for 1854 (Mannex 1854, 496) and 1865 (Slater 1865, 12).

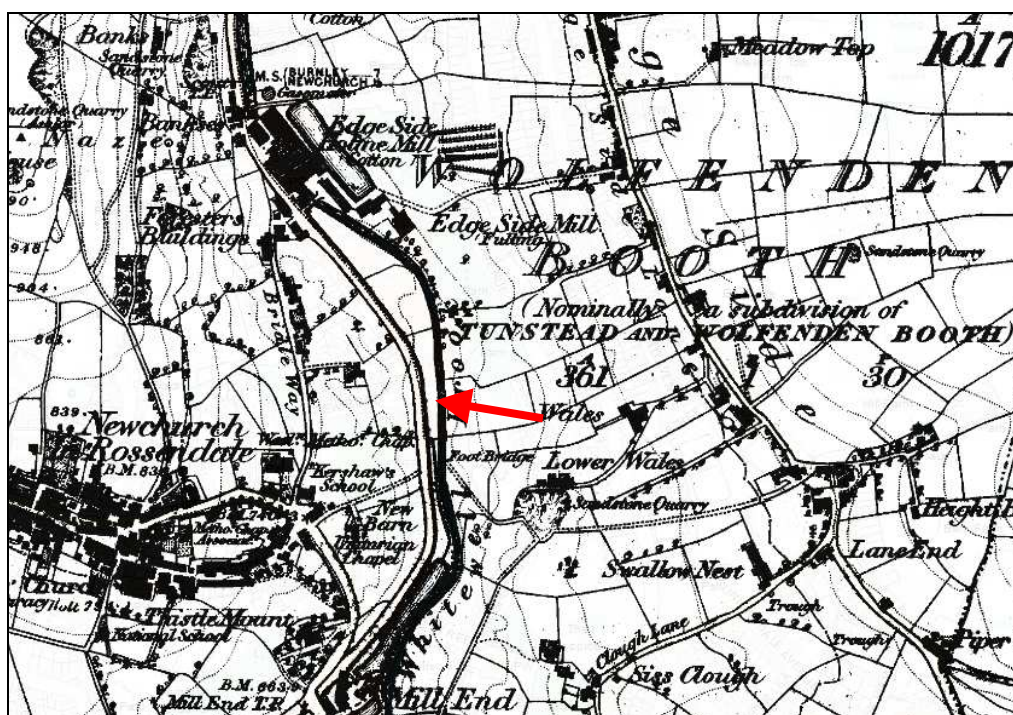


Plate 2: The Ordnance Survey map of 1849, with arrow marking the position of Albion Mill

- 3.1.5 By 1886, Albion Mill was occupied by S Ogden & Co, manufacturers of a wide range of cotton goods (Slater 1886, 300). However, by 1887, the mill was occupied by the Rossendale Belting Co, which was accredited in that year with operating 42 looms producing solid woven hair belting at Albion Mill; an identical listing appears in a trade directory for 1891 (Worrall 1887, 129; Worrall 1891, 141). The company had a stand at the Royal Jubilee Exhibition in 1887, where they were reported to 'have a good collection of their manufactures, consisting of woven hair belts and of cotton duck belting' (*Textile Manufacturer*, 15 August 1887). In 1891, the company expanded their manufacturing capacity to North America, and established an 'extensive works' in Newark, New Jersey. The company's stated intention in designing their hair driving belts was to 'produce a belt that should yield greater friction between belt and pulley, and avoid the necessity of piecing in belts of considerable width' (*The Manufacturer and Builder* 1891, 59).
- 3.1.6 The company head office was on West Mosley Street in Manchester (Plate 3), together with manufacturing premises on Rook Street (Slater 1895, 421), and a branch office in Leeds (Kelly 1888, 26; White 1894, 855), although Albion Mill appears to have been their principal works. A stylised drawing of the mill features in an advertisement for the company in 1893, although this is clearly not a completely accurate depiction of the actual building (Plate 3).

3.1.7 The site is annotated as ‘Albion Mill (Belting)’ on the Ordnance Survey first edition 25”: 1 mile map of 1894, which provides the earliest published plan of the mill (Plate 4). This shows an irregular-shaped building footprint, lying astride the Whitewell Brook at the junction of Burnley Road East and Wales Road. The mill is also shown to lie astride a smaller watercourse, or goit, that flowed parallel to the Whitewell Brook, with a sluice immediately to the south of Albion Mill. The buildings have the same footprint on the Ordnance Survey map published in 1911, which also annotates a chimney midway along the south-facing elevation of the mill (Plate 5).

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\*\* All enquiries respecting above to be addressed to advertiser.

Plate 3: Advertisement for the Rossendale Belting Company printed in 1893, including a stylised drawing of Albion Mill that was included on the company's letterhead

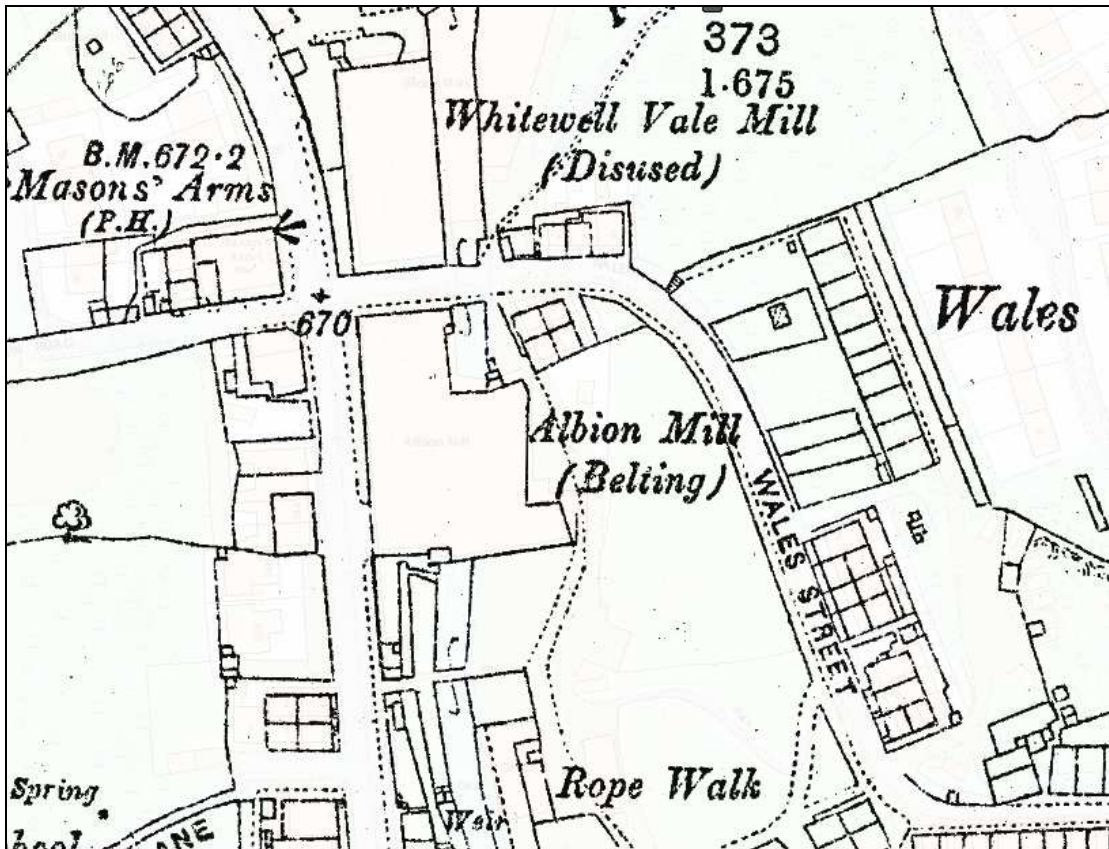


Plate 4: Extract from the Ordnance Survey map of 1894

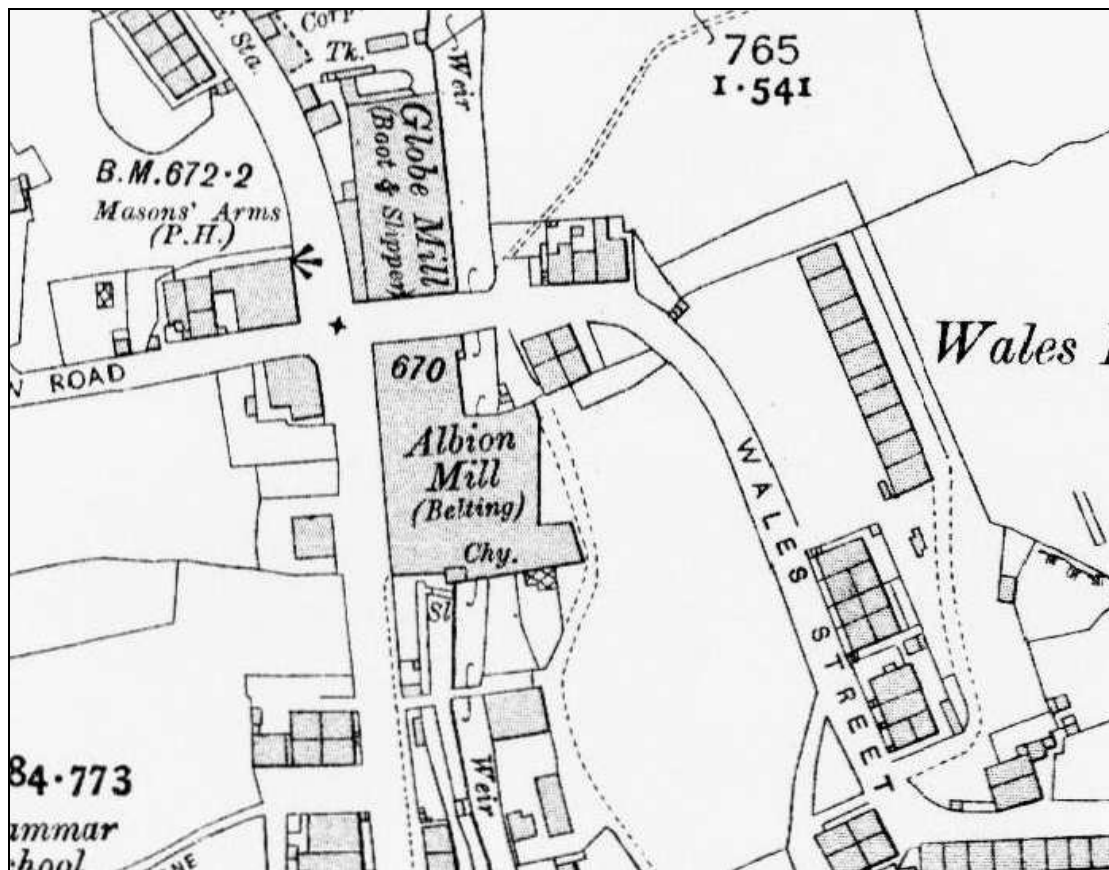


Plate 5: Extract from the Ordnance Survey map of 1911

- 3.1.8 Whilst the Ordnance Survey map of 1911 provides the annotation of ‘Albion Mill (Belting)’, a petition for the winding up of the Rossendale Belting Company was presented to the County Court of Lancashire in 1907 (*London Gazette*, 9 August 1907). However, the Rossendale Belting Company Limited was registered again in April 1908 (*London Gazette*, 3 September 1918), although this resurgence appears to have been a short-lived as another petition for winding up the company was presented to the court in 1913 (*London Gazette*, 28 February 1913).
- 3.1.9 By 1924, Albion Mill was occupied by William Birtwistle, a cardboard box manufacturer (Kelly 1924, 913). This is confirmed by the detail of the Ordnance Survey map of 1930, which annotates the mill as a ‘cardboard box’ factory. This change of use does not appear to have resulted in any significant alterations to the buildings, as their footprint is shown on the map as largely unaltered relative to previous editions.
- 3.1.10 The Ordnance Survey 1:2500 map of 1962 annotates the mill as a warehouse, although the footprint of the buildings does not appear to have been altered. Whilst the detail on the map is not entirely clear, it seems that the mill chimney is shown. However, this had been demolished by the late 1980s, when the mill was captured on aerial photography carried out by the former RCHME (Plate 6). This photograph also shows the southern part of the mill to have been of three storeys



Plate 6: Aerial view of Albion Mill in 1989

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## 4. RESULTS

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### 4.1 INTRODUCTION

- 4.1.1 The historic buildings comprising Albion Mill comprise several structural components: a three-storey spinning block; a contiguous three-storey engine house; an adjacent two-storey structure (reduced from three storeys), which may have housed the steam-raising plant with warehouse space above; a single-storey block spanning the River Whitewell; and a two-storey warehouse forming the southern end of the mill complex (Fig 2). The base of an internal chimney survives in the angle between the boiler house/warehouse block and the adjacent warehouse.
- 4.1.2 The structures appear to represent several main phases of construction, although these are not recorded in the available documentary sources for the development of the site. The date at which the mill was established remains uncertain, although it appears to have been during the period between 1847-53. The earliest element was the southern part of the spinning block, together with the engine house at its southern end. The other buildings had been added to the site by the 1890s, creating the layout that survives largely intact to the present day.

### 4.2 SPINNING BLOCK

- 4.2.1 *Exterior:* the surviving three-storey spinning block comprises 10 x 3 bays, beneath a triple-span slate roof (Plate 6). The building is of local sandstone construction, and given the large number of sandstone quarries within the locality, it is likely that the stone was sourced within the immediate vicinity. The external walls were of dressed blocks laid in regular courses and bonded with a pale lime-based mortar, consistent with a mid-nineteenth-century construction date. The windows had projecting sandstone sills, and flat one-piece lintels.
- 4.2.2 The western elevation, fronting onto Burnley Road East, displays ten windows to each of the first and second floors (Plate 7), and this pattern is repeated on the ground floor, excepting the southernmost bay which provided the main entrance to the building. The lower jambs of this doorway showed signs of having been cut, perhaps with a mechanical saw, and it is possible that this too once served as a window. Alternatively, the original door opening may have been widened for better access.
- 4.2.3 The eastern elevation was similar to that of the western, although the occurrence of only nine windows to each floor reflects a slightly different spacing arrangement, and the presence of a narrow tower at the northern end. With the exception of the northern three bays, the ground-floor windows are largely obscured by the roof line of a later extension (Plate 8), but the presence of a cellar was denoted by at least two windows facing directly on to the Whitewell Brook below ground-floor level.



Plate 7: The western and northern elevations of Albion Mill, looking south-east



Plate 8: The eastern elevation of Albion Mill, showing the first and second floors rising above single-storey buildings to rear, with contiguous engine house at the southern end

- 4.2.4 A narrow rectangular tower projected from the eastern elevation at the north-eastern corner of the spinning block (Plate 9). Its eastern face incorporated a small blocked rectangular window at first-floor height, while on the southern elevation of the floor below a narrow doorway at the base of tower led out onto a small platform adjacent to the bridge carrying Wales Road across the Whitewell Brook (Plate 9). Both the eastern and western elevations displayed iron wall ties at first- and second-floor height, the lower examples being rectangular, and the higher ones of oval design.



Plate 9: The tower abutting the north-eastern corner of the spinning block



- 4.2.5 The ground floor of the northern elevation included a doorway in its westernmost bay, with further doorways in the adjacent bays (Plate 7). A window with low sills was located in the western bay, with a second in the central bay and a third in the eastern bay. Internally, it was clear that the latter had been converted from a doorway.
- 4.2.6 The first floor was arranged more regularly, with a loading door below an iron hoist bracket at the centre of the western bay, a three-over-three light window to the central bay, and a second doorway in the eastern bay (Plate 10). The second floor had windows within western and eastern bays, and a doorway in central bay accessed via an iron fire-escape staircase aligned parallel to the elevation and rising from east to west (Plate 10). This staircase also provided access to the eastern doorway on the first floor, and the initials 'CM' were cast into the supporting brackets beneath each of the two flights of stairs (Plate 11). A hoist gantry is bolted to the wall at the east end of the elevation between the first and second floors.



*Plate 10: The northern and eastern elevations of Albion Mill, showing the iron fire-escape stair to Wales Road, looking south-west*

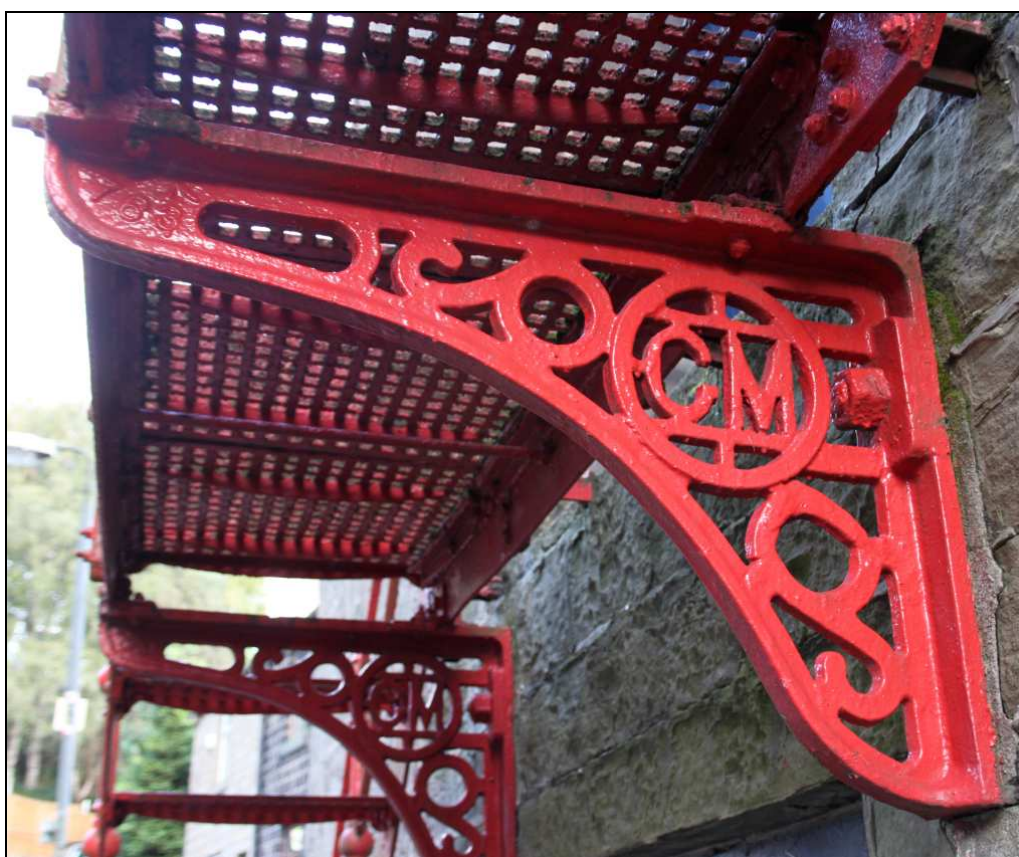


Plate 11: Detail of the iron casting supporting the fire-escape stair

- 4.2.7 **Interior:** internally, the walls of the spinning block are of sandstone coursed rubble construction, typically rough plastered and coated in a white paint or white washed (Plate 12). The building is of non-fireproof construction, with each of the three floors divided into bays by rows of cast-iron columns supporting large-rectangular section transverse timbers (Fig 3). Several Baltic timber marks are visible on these beams on the ground floor.
- 4.2.8 Where visible, the ceiling joists were set at 12” spacings, but the ground and first floors had been clad in plaster board leaving only the beams exposed. The second-floor ceiling was in poor condition, and clad in a mixture of plywood sheets and narrow timber boards. Where these had failed it was possible to see the remnants of lathes nailed to the ceiling beams, suggesting that the ceiling had once been plastered.
- 4.2.9 **Ground floor:** the ground-floor was divided into ten bays, with two rows of cast-iron columns arranged along the length of the building to support transverse timbers (Plate 12). The ground floor had been sub-divided by a modern cinder block partition along the length of the building, with a second creating a corridor at the southern end of the building (Fig 3; Plate 18). A modern toilet block had also been constructed in Bays 8 and 9, and a small office had been created to the north with the erection of a stud wall.
- 4.2.10 The floor was of concrete, which clearly represented a late modification (Plate 13). The concrete retained scars for at least four machine beds at the northern end of the central bay.



*Plate 12: General view across the ground floor of the western part of the spinning block, showing two rows of columns and modern cinder-block partition*



*Plate 13: General view across the ground floor of the eastern part of the spinning block, showing the concrete floor and the late cinder-block partition*

4.2.11 There are two distinct types of column on the ground floor. Those to the north of Bay 4 had a simple hollow chamfer below a quarter roll mould at the head of the shaft (Plate 14). Each corner of the head plates had been replaced with a curved cutaway to leave the bolt holes protruding to the east and west within two curved projecting tabs. The bolt holes on this type had low profile flanges. The second type incorporated a crush box as part of the casting to reduce the load on the transverse floor beam that the column supported (Plate 15). These columns had been cast with a slightly dished bolting face projecting from one side of the shaft. Two vertically arranged bolt holes with heavy projecting flanges were positioned upon the opposing side of the shaft, and a supporting bracket sat beneath each bolting face.



Plate 14: Type 1 column



Plate 15: Detail of Type 2 column

- 4.2.12 The bolting faces of the columns on the ground floor appeared to have been arranged to distribute power across the building, rather than along its length, as evident on the first and second floors. This may indicate that the columns have been repositioned at some point. Each of the columns had a notable lean towards the west.
- 4.2.13 A large, infilled cast-iron bearing box survives at the eastern end of the southern wall, with a recess in the adjacent eastern wall for a bevel gear (Plate 16). This had presumably been intended to enable power to be transmitted across the width of the building. Pairs of bolt holes were identified in transverse timbers repeating (Plate 17), indicating the location of hangers designed to carry the lineshafting along the building.



*Plate 16: Bearing box set into the eastern end of the wall dividing the spinning block from the engine house, together with a cut-out in the eastern wall for bevel gearing.*

- 4.2.14 Against the southern wall, and immediately adjacent to the main entrance from Burnley Road East, a shallow recess almost certainly represented an original doorway into the engine house, which abuts the southern end of the spinning block. The western jamb of this opening is also visible from the southern elevation of this wall. At the opposite end of the southern wall is a large opening with steel lintel above double doors into the ground floor of the engine house (Plate 18). There was no access into this space at the time of the survey, but a steel sheet laid across the floor in front of the entrance was believed by the owners to cover a hatch leading down into the cellar.



*Plate 17: Bolt holts in the beam marking position of a lineshaft*



*Plate 18: Double doors affording access to the ground floor of the engine house, with an additional door leading to the link block (Unit 2)*

- 4.2.15 A doorway at the southern end of the eastern wall provided access to the link block (Plate 18), and from this building it was possible to see the locations of three windows upon what would once have been the external eastern elevation of the spinning block. These windows were boarded up, and their lintels obscured by the roof line of the link block, but the jambs and sills were identical to those on this elevation. Between the southernmost window and the present doorway was another doorway, infilled with cinder blocks. This opening aligned with a doorway on the opposing wall in Unit 5, and it seems probable that the latter was designed with this in mind.
- 4.2.16 At the northern end of the eastern internal wall a modern partition of cinder blocks projected slightly from the walls face. Its specific function remains unclear, although it presumably related to the external tower, and may have been blocking a former opening. A short distance to the south of this feature, on the same wall, there was a narrow blocked doorway with large rectangular recess above which was almost certainly intended originally as a window similar to the others on this elevation. It is possible that the lower portions of this window were in-filled to allow for the insertion of the narrow doorway prior to both being blocked up.
- 4.2.17 Concrete steps set against the northern wall led to an external doorway, affording access to Wales Road. These steps were seemingly replaced an earlier set of steps situated immediately to the east, which had been remodelled as a window and latterly infilled (Plate 19).



*Plate 19: Original and replacement access steps from the ground floor to Wales Road*

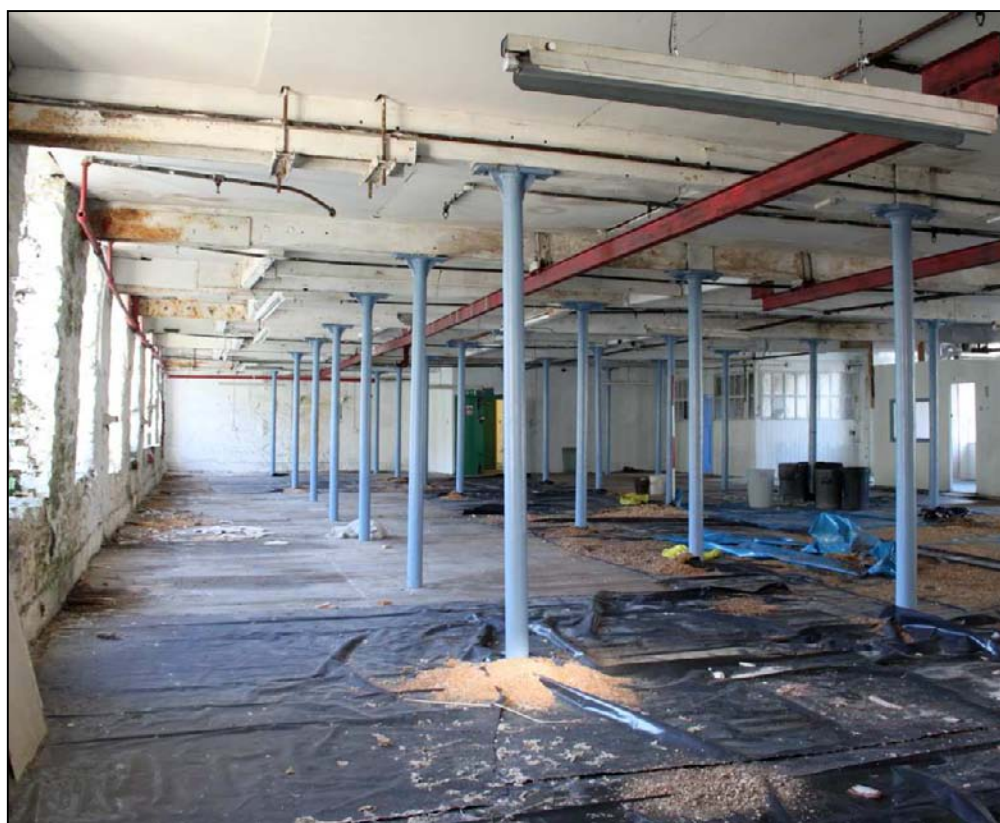
4.2.18 Between Bays 4 and 5, it was possible to identify on the eastern and western walls a butt joint, denoting a break in construction and almost certainly a different phase (Plate 20). In the light of this evidence, it seems likely that the northern four bays of the spinning block were a later addition.



Plate 20: Butt joint in the east wall, denoting a construction break



4.2.19 *First floor:* the first floor was divided into ten bays, and had five rows of cast-iron columns along the length of the building (Plate 21), although only two rows run the entire length of the floor (Fig 4). The floorboards were laid east/west across the width of the building, and were approximately 6" wide. Sections of the floorboards along the western two bays were arranged at right angles to the rest, presumably reflecting the placement of heavy equipment and the need for increased strength in these areas. Wooden trimmer beams had been inserted between many of the transverse timbers along the eastern half the building, suggesting the location of heavy ceiling-mounted equipment.



*Plate 21: General view across the first floor of the spinning block, looking south*

4.2.20 Access to the narrow tower was possible at the northern end of the eastern elevation, via a small rectangular space off the main floor. Externally, the tower gave no indication of being a later addition (Plate 9), although its walls were constructed slightly differently to the rest of the building, with horizontal wooden timbers inserted at intervals of approximately 3' up the wall.

4.2.21 On the eastern wall of the tower there was a small blocked rectangular window, which is visible externally, while to the south on the wall adjacent to the tower there was a narrow doorway of similar dimension to that on the ground floor. This was also infilled with cinder blocks, but is not visible on the external wall. Its location suggests it would have entered the southern half of the tower. The intended function of the tower remains uncertain, although it is likely to have housed the original privies.

4.2.22 Three types of column were identified on the first floor of the spinning block. One of these was identical to one on the ground floor (Type 1; Plate 14), although the bolting faces for the lineshaft hangers were absent (Plate 22). The second type (Type 2A) had a simple chamfer at the top where it joined the head plate, with a double curved rib on either side rising from the shaft to head plate. The bolt holes lacked the heavy flanges apparent on examples on the ground floor, and there were no bolting faces for lineshaft hangers. The third type had a simple hollow chamfer below a quarter roll mould at the head of the shaft, but its head plate was treated more decoratively. Each corner of the plate had replaced with a curved cutaway to leave the bolt holes protruding to the east and west within two curved projecting tabs (Plate 23). The bolt holes had low profile flanges, and there was a continuous hollow chamfer around the edge of the plate. This design also incorporated a crush box above to reduce the load on the transverse floor beam above (Plate 24).



*Plate 22: Detail of Type 1A column head without the lineshaft bolting face*



*Plate 23: Detail of Type 2A column head without the lineshaft bolting face*

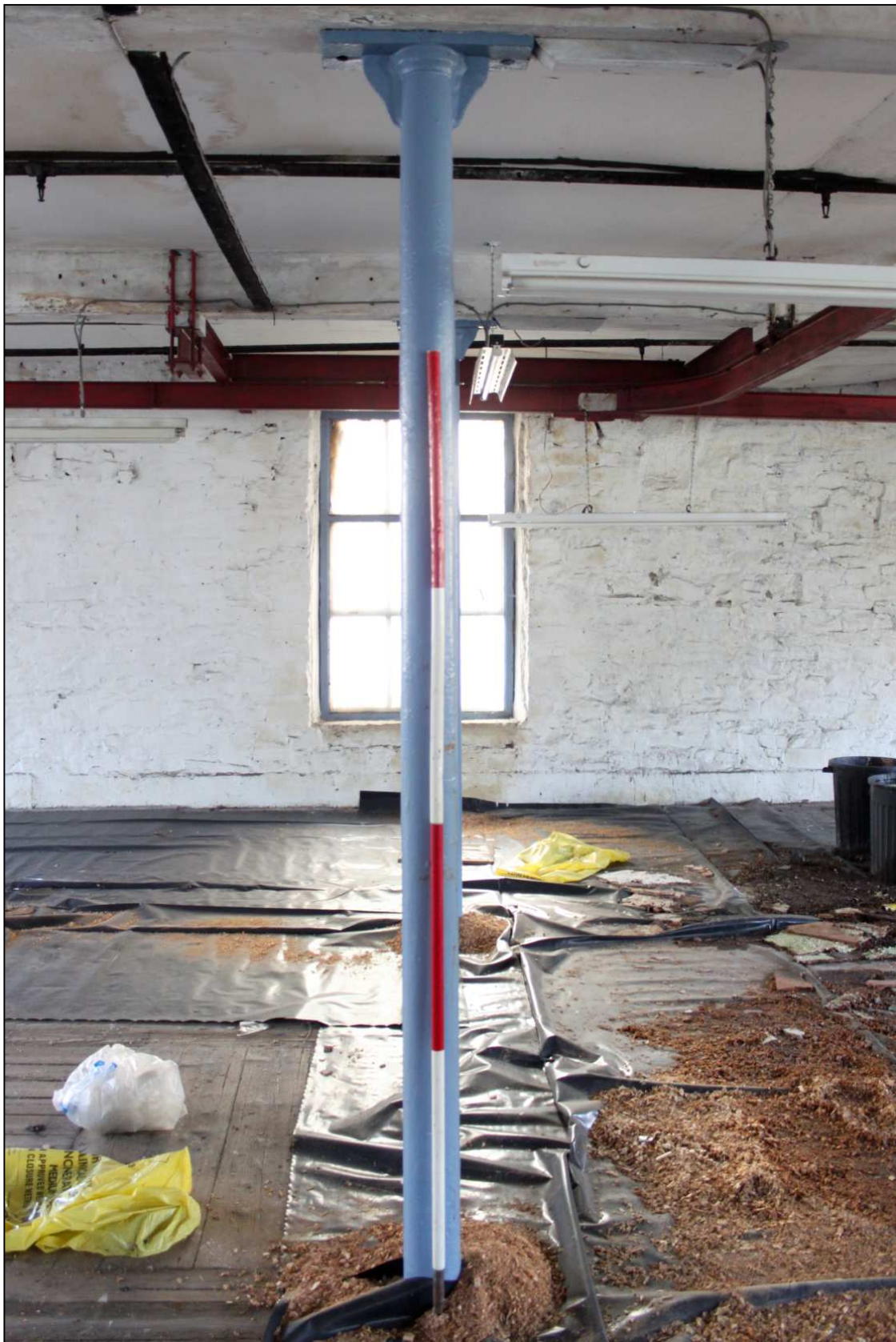


Plate 24: Type 3 column on the first floor of the spinning block

- 4.2.23 A large, rectangular, cast-iron bearing box, which had been infilled with brick, was set into the southern wall of the building (Plate 25). There was also a smaller bearing box on the opposing northern wall (Fig 4), and pairs of bolt-holes on each of the transverse timbers between the two represented the location of the lineshaft hangers.



Plate 25: Large bearing box set into the south wall of the spinning block

- 4.2.24 Another blocked small bearing box was also identified on the southern wall, and a fourth example was noted in the northern wall. The latter also aligned with pairs of bolt-holes on the faces of the transverse beams. A single lineshaft hanger survived *in-situ* (Plate 26).
- 4.2.25 As was noted on the ground floor of the spinning block, a butt joint between Bays 4 and 5 was visible on eastern wall (Fig 4). Whilst this joint was obscured by a modern cladding on the western wall, it nevertheless provided good evidence for two phases of construction.
- 4.2.26 The north wall incorporated two doors (Plate 27). The western door was a loading loop, associated with a hoist beam attached to the external elevation (Plate 10). The eastern door may also have been intended originally as a loading loop, but was converted subsequently as a fire escape, affording access to the external iron stair.
- 4.2.27 A stud wall had been erected in the south-western corner of the floor to create a small rectangular lobby space off the main floor in which the lift was contained (Fig 4). Stud partitions had also been erected on the main floor in the south-western part of the building to create two office spaces.



*Plate 26: Surviving lineshaft hanger on the first floor of the spinning block*



*Plate 27: View north across the first floor, showing the two doors in the north elevation*

4.2.28 *Second floor:* the second-floor was of ten bays, with two rows of cast-iron columns, each set at thirds along the length of each tie beam (Plate 28). The floorboards were aligned north/south, and were each approximately 6" wide. The triple-span roof employed king post trusses, each central post rising to the apex from the centre of its tie beam to intersect with shallow angled principle rafters. The purlins were affixed between principles rafter faces, carrying common rafters on their backs. Wooden battens were nailed to the upper faces of each rafter, onto which were affixed the slate roof tiles.



*Plate 28: General view across the second floor of the spinning block*

4.2.29 The second-floor columns were of two basic designs. The first was very similar to Type 1A on the first floor, with a capital formed of an astragal at the base with quarter roll mould above joining the head plate (Plate 29). The principal difference with this column was that the rib was double-curved along its lower edge, projected from either side of the shaft along the head plate from the top lip of the astragal to heavily flanged bolt-holes (Plate 29). While this design did not incorporate a bolting face, several of the western posts had a lineshaft hanger clamped to their shaft, presumably as a later addition.

4.2.30 The second type of column incorporated a simple astragal set below two transverse supporting ribs, double curved along their lower edges, and rising to a quarter roll mould immediately below the head plate. Each head plate was attached to the tie beam with a single bolt each side of the column. Some of these columns had been cast with a bolting face for the lineshaft hanger on one side, approximately 0.5m from the top and supported by a small bracket below. On the opposing face two heavily flanged vertically arranged bolt holes were threaded through the diameter of the column shaft to the bolting face.



Plate 29: Detail of the Type 1B column capital



Plate 30: Type 4 column on the second floor of the spinning block

- 4.2.31 A blocked cast-iron bearing box was located in the centre of the southern wall (Fig 5). The row of columns along the mill in line with this bearing box had a rectangular cast-iron lineshaft hanger attached to the bolting face. The lineshaft was evidently secured via a bolt from beneath the hanger. Although no other bearing boxes were identified to the west on either the northern or southern walls, pairs of bolt holes were observed in the faces of the transverse beams running along the centre of the western bay. Curiously, these holes were offset slightly further to the east than in the first four bays.
- 4.2.32 Access to the putative privy tower in the north-eastern corner of the spinning block had been completely blocked on the second floor. This had been completed using cinder block.
- 4.2.33 A lift to all floors was installed during the early twentieth century, requiring a square lift shaft to be inserted against the southern wall through the three floors. The lift was manufactured by Herbert Morris Ltd, a firm that was established after 1912.
- 4.2.34 The spinning block incorporated a basement, although all access to this part of the building has been sealed for some time, and it was thus not investigated during the archaeological survey. Light to the basement was provided by at least three windows, which remain as brick-blocked apertures close to the level of the Whitewell Brook in the eastern elevation of the building (Plate 31). These were only noted in the original section of the spinning block, to the south of the construction break noted between Bays 4 and 5 (Plate 31).



*Plate 31: Blocked basement window in the eastern wall of the spinning block, also showing the construction break between Bays 4 and 5*



### 4.3 ENGINE HOUSE

- 4.3.1 **Exterior:** the three-storey engine house was of two bays, and of an identical width to the spinning block, with which it shared its northern wall and triple-span slate roof. The western external wall, fronting onto Burnley Road East, was of coursed dressed sandstone construction, with plain projecting window sills and flat lintels above (Plate 32). The western elevation of the engine house was approximately 11 courses higher than the spinning block, the wall here having been extended in height to accommodate a water tower (Plate 32).



Plate 32: The west-facing elevation of the engine house

- 4.3.2 The western elevation had a pair of nine-light windows on the first and second floors, with a ground-floor doorway surmounted by a simple classical entablature resting on square-section pilasters topped by plain capitals (Plate 32). A pair of rectangular windows with projecting sills chamfered along their top edge, and plain flat lintels above, lay to the south of the doorway. It was clear from their relative position in relation to the other windows and the surrounding stonework that these two windows were not original.
- 4.3.3 A butt joint to the south of these windows represented the break in construction between the engine house and the adjacent boiler house, despite some efforts to match both materials and coursing heights. This joint was also visible on the eastern elevation of the building. Oval iron wall ties similar to those used on the exterior of the spinning block were employed on both the eastern and western elevations.
- 4.3.4 The ground floor of the eastern elevation was obscured by the later addition of the link block, but from within this building it was possible to inspect what had originally been the exterior wall of the engine house. The central portion of this wall had been taken down to improve access between the engine house and the link block, with a metal lintel supporting the wall above. The opening had been boarded up, and no access was available to the engine house from this direction. To the south there was a small blocked rectangular opening with sandstone surrounds in the face of the wall.
- 4.3.5 On the first floor there was a single, centrally placed, large, 12-light window with a three-light semi-circular headed fan above, and typical of the nineteenth-century textile mill engine houses (Plate 33). The second floor had two rectangular nine-light windows, identical to those on the western elevation at the same level.



Plate 33: East-facing elevation of the engine house

- 4.3.6 **Interior:** the primary access to the ground floor of the engine house was from the western elevation, opening onto a narrow hallway with a wooden staircase at the eastern end rising to the first floor. Immediately to the north it was just possible to identify the western jamb of the original blocked doorway into the spinning block, while to the south a doorway led into small rectangular room, decorated as a modern office space. This room was lit by the two ground-floor windows on the western elevation, but otherwise lacked any features of historical note. At the western end of the northern wall was a deep rectangular recess, which prior to its blocking also opened into the southern bay of the spinning block.
- 4.3.7 A doorway in the eastern wall led onto the ground floor of what had once been the engine room. This room had sandstone walls coated in white paint, a concrete floor and a plaster board ceiling, which revealed little evidence of its previous use (Plate 34). Near the eastern end of the north wall was a second set of double doors, which led through into the southern bay of the spinning block (Fig 3). Situated immediately adjacent to these doors was a blocked bearing box, which had carried the main drive shaft into the spinning block (Plate 35). A second casting set into the southern wall housed the end bearing. A third bearing box was identified in the western wall of the engine house, adjacent to another set of double doors that afforded access to the link block (Plate 36).



Plate 34: Interior of the engine house at ground-floor level



*Plate 35: Bearing box situated in the north-eastern corner of the engine house, carrying the main drive shaft into the spinning block*



*Plate 36: Bearing box in the eastern wall of the engine house*

- 4.3.8 *First floor:* a doorway in the eastern wall at the top of the staircase led into the first floor of the engine house (Fig 4). This room had painted floorboards, aligned east/west, plastered walls coated in white paint, and a ceiling clad in plaster board, all of which had been inserted following the removal of the steam engine. The only natural illumination into the room was afforded by the large 12-light semi-circular headed window in the eastern wall (Plate 37).
- 4.3.9 A large rectangular wooden beam in the eastern half of the room was affixed on iron hangers with large, flat, iron wall bracket plates between the northern and southern walls (Plate 37). At the centre of the northern elevation was a large cast-iron bearing box projecting slightly from the wall face. Another, smaller bearing box lay directly opposite on the southern wall, almost certainly intended to house the end bearing (Fig 4). Both bearing boxes had been blocked with brick.



Plate 37: The first floor of the engine house

- 4.3.10 A metal door with riveted fixings in the southern wall at the western end led into the first floor of the boiler house, with access to the first floor of the spinning block through a similar doorway upon the opposite wall (Fig 4). Two large, rectangular, nine-light windows of the western wall lit the space between and the lower flight of the concrete dog-leg staircase, with a half pace landing from which the second floor could be reached.
- 4.3.11 *Second floor:* at the top of the staircase, the landing was lit by a single rectangular nine-light window in the western wall. A doorway to the north led onto the second floor of the spinning block, while to the south a door opened onto the second-floor of the engine house (Fig 5). The latter room had been partitioned off from the staircase creating an L-shaped space with roughly plastered sandstone rubble walls to the north, south and east. A doorway at the western end of the southern wall led into the roof space of the boiler house/warehouse.

- 4.3.12 A pair of large rectangular nine-light windows is present in the eastern wall (Plate 38), with another pair on the western wall. Most of the original lath and plaster ceiling had been removed, but a short section survived in poor condition at the eastern end of the room (Plate 38). Without a ceiling it was therefore possible to establish that the roof was a continuation of the triple-span roof above the second floor of the spinning block, with large rectangular longitudinal beams at the base of each valley. The western end of the roof structure had been modified, however, with a flat roof to accommodate the water tower over the stairwell.



*Plate 38: The second floor of the engine house, looking towards the eastern wall*

- 4.3.13 There is evidence for at least three cast-iron bearing boxes set into the northern wall (Fig 5), with reciprocating boxes in the southern wall (Plate 39). The central bearing box was of the larger type noted on the first floor. All of the bearing boxes were blocked with brick. The southern wall also had what appeared to be infilled sockets, which may have supported cross beams associated with the engine frame, or a gantry providing access to the beam level.
- 4.3.14 Following the removal of the steam engine, a floor was inserted to create the second floor. The floor covering comprised large plywood sheets, which may have been laid on wooden floorboards, although this was not confirmed.



*Plate 39: The second floor of the engine house, showing bearing boxes set into the south wall*



*Plate 40: The second floor of the engine house, looking towards the western wall, showing central bearing box set into the south wall*

#### 4.4 BOILER HOUSE/WAREHOUSE

- 4.4.1 **Exterior:** the sub-rectangular, two-storey boiler house/warehouse is of three bays, and abuts the southern side of the engine house (Plate 41). The fabric of the building comprises coursed sandstone blocks bonded with a pale lime mortar, which to the south and east were laid in water-shot fashion with weather struck pointing. The base of a square chimney stack was located at the south-eastern corner of the building, although it had been truncated down to second-floor height. It was similarly constructed in the water-shot style.
- 4.4.2 The top floor and the original roof of the building were removed after the late 1980s, and the existing roof comprises a shallow single pitch with tin covering (Plate 41). The windows display projecting sandstone sills and flat lintels, maintaining the architectural uniformity established by the spinning block and engine house.
- 4.4.3 A large rectangular opening with a substantial iron lintel in the western elevation at ground-floor level had been partially infilled with sandstone to create a slightly smaller loading door with a separate pedestrian doorway to the south. Above, the first floor had a loading door at the southern end, set back from the face of the wall, and with sandstone surrounds flush to the external wall face. The bays to the north each contained a nine-light window, and directly above these it was possible to identify the blocked and truncated lower portions of at least two second-storey windows, and the sill of an additional loading door at the southern end. In common with the western elevations of the spinning block and engine house, this elevation included several iron wall ties at first- and second-floor levels.
- 4.4.4 The southern elevation had a boarded up ground-floor window at the western end, with a doorway to the east (Plate 42). Directly above each of these was a four-light window with horizontally arranged glazing panes.
- 4.4.5 The eastern wall of the building was not square to the remaining walls, making the southern end of the building significantly narrower than the northern. This alignment presumably reflected the bank of the Whitewell Brook, while allowing the partial incorporation of a square-section chimney at the south-eastern corner.
- 4.4.6 Much of the eastern elevation was obscured by the warehouse and linking block immediately to the east (Fig 2), although two windows were visible at the northern end, one on the first floor and another on the second. The upper portions of the second-floor window had been truncated with the lowering of the wall head and the remainder was blocked up, but its projecting sandstone lintel remained. The sill of the first-floor window was not visible, but its sandstone lintel sat flush to the wall face. It was a rectangular opening of four lights below a bank of three smaller glazed panels.





Plate 41: The front elevation of the boiler house/warehouse



Plate 42: The south elevation of the boiler house/warehouse

- 4.4.7 **Interior:** all of the walls on the ground floor of the buildings are painted white, whilst the ceiling comprises plaster board, and the floor is of concrete, representing late modifications. At the southern end of the eastern wall, a large opening with riveted metal roller shutter doors allowed access between the ground floor of the building and the adjacent warehouse. Immediately to the south-west of this opening, the north-western corner of the square chimney protruded into the room slightly, although this was largely obscured by stored equipment (Plate 43). A modern partition had been erected on the western wall, dividing the south-western corner off from the remainder of the space. The building is fitted with automatic fire sprinklers throughout.
- 4.4.8 Five timber rectangular-section beams, aligned north/south, are spaced regularly across the width of the building. The second, third and fourth of these beams from the east were supported by two steel I-section joists, stamped with 'cargo fleet Sheffield – England', and these in turn were supported by I-section posts, riveted to the underside of the joists (Plate 43). The easternmost timber joist did not extend across the full length of the building, but stopped short of the southern wall. It was crudely abutted to the end of another joist at right angles, which extended to the east. At the junction of these two timbers, a cast-iron column with a wide fillet at the base of the capital and narrow fillet and quarter roll mould at the head supported the load (Plate 44). It was clear from the position of the head plate in relation to the timbers above that this was not likely to be its original position.
- 4.4.9 The timber joist at the western end of the room is supported by a second cast-iron column, although this example varied slightly in its design, incorporating an astragal at the base of the capital beneath a fillet and quarter roll mould at the head. A crush box had also been incorporated into the head plate (Plate 45).
- 4.4.10 A substantial, blocked cast-iron bearing box is set into the eastern end of the north wall (Plate 46). It seems from the position of this feature that the power transmission came directly from the engine house via a horizontal bearing box still present in the adjacent wall, and across to the buildings on the opposite side of the Whitewell Brook via a rope drive.
- 4.4.11 Two further blocked openings were probably windows originally. The first was located towards the centre of the northern elevation, and had stone jambs and lintel, while the second was located at the northern end of the eastern wall, but lacked any formal surrounds. It is possible that the latter would correspond with the first- and second-floor windows, clearly establishing it to be an earlier structure than the adjacent warehouse to the east.

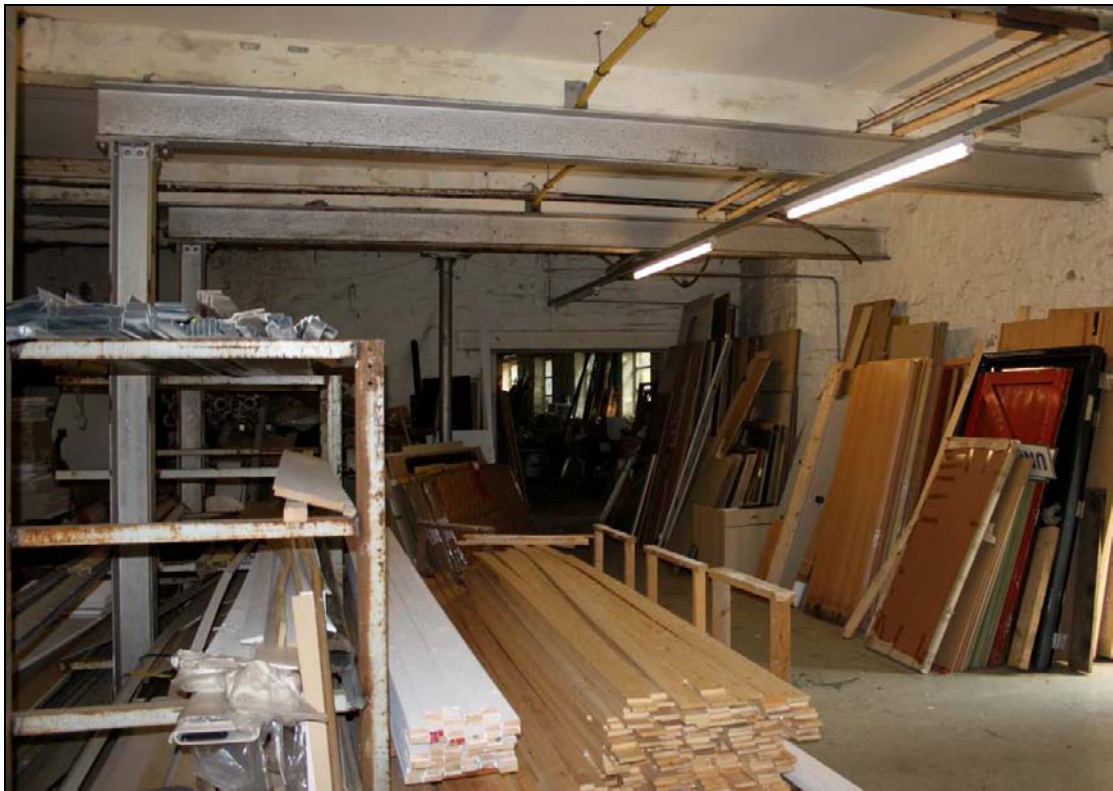


Plate 43: View of the interior of the eastern part of the boiler house/warehouse, showing the access to the adjacent warehouse, and the north-western corner of the chimney



Plate 44: Column (Type 5) inserted to support remodelled joists



*Plate 45: Column (Type 6) incorporating a crush box in its casting*



*Plate 46: Substantial bearing box set into the north wall of the boiler house/warehouse*

- 4.4.12 *First floor:* the first floor of the building is accessed via the staircase in the western end of the engine house. The room has roughly plastered walls coated in white paint, with wooden floor boards and a plasterboard ceiling. A modern stud partition divided the room into a larger northern and smaller southern cell, with a corridor along the western side of the building connecting the two. Five equally spaced north/south-aligned square-section timber ceiling joists were supported at thirds along their lengths by a row of cast-iron columns to the south, and timber posts to the north (Plate 47). The timber posts had a makeshift appearance, and showed signs of previous use elsewhere, while the three columns each varied in type.
- 4.4.13 The easternmost column had no capital, but double-curved ribs near the head projecting from each side up to the head plate (Plate 48). The middle column had a narrow capital consisting of two fillets and a roll mould leading up to a hollow chamfer and fillet. It incorporated a crush box at the head. The third column had a larger capital with a wide fillet at the base leading up to a smaller fillet and quarter roll mould at the head. The bolts holes on the head plate were flanged. This column design was also used on the ground floor.
- 4.4.14 The room is lit by five large rectangular windows, two to the west, two to the south, and another at the northern end of the eastern elevation. At the eastern end of the southern wall, as on the floor below, the chimney stack projects partially into the room (Plate 49), and there is a metal doorway at the southern end of the eastern elevation providing access to the first floor of the warehouse.
- 4.4.15 Power was transferred into the room through a single, large, blocked bearing box in the centre of the northern wall. There are three iron trimmers spanning between the timbers of this bay, which may have supported the drive.



*Plate 47: View across the first floor of the boiler house/warehouse*



*Plate 48: Detail of the columns on the first floor of the boiler house/warehouse*



*Plate 49: The chimney passing through the first floor of the boiler house/warehouse*

4.4.16 *Second floor:* the second floor of the building was removed after the late 1980s, but was still accessible as a low crawl space opening off a metal horizontally sliding doorway in the southern wall of the second floor of the engine house (Plate 50). Inspection was limited to observations from this doorway, but it was possible to see the wooden floor boards remained, and the truncated openings on the external eastern and western elevations.



*Plate 50: The modern roof space in the boiler house/warehouse*



## 4.5 LINK BLOCK

- 4.5.1 **Exterior:** the link block comprises a single-storey rectangular building that spans the Whitewell Brook, and abuts the engine house and southern part of the spinning block (Plate 51). The building has a shallow pitched slate roof that incorporates a continuous bank of roof lights either side of the ridge. Structurally, only the roof, internal floor and the northern gable wall could be attributed to the building, with the southern wall forming part of the warehouse block, the eastern wall part of Unit 5, and the western wall part of the spinning block and engine house (Fig 2).
- 4.5.2 The fabric of the northern wall comprises machine-made red bricks, laid in English Garden Wall bond, suggesting it to have been of a later build to the rest of the buildings in the mill complex. The north wall is built upon a steel I-section beam that spans the Whitewell Brook (Plate 51). Essentially, the building is a covered bridge that forms a link between the spinning block on the western bank and Unit 5 on the eastern bank.
- 4.5.3 The north elevation incorporates three equally-spaced rectangular glazed windows, with projecting sandstone sills and flat lintels. The glazing comprises three horizontally arranged lights beneath a bank of three small rectangular lights (Plate 52). The warehouse forms the southern elevation, which does not contain any windows.
- 4.5.4 **Interior:** internally, the floor comprises north/south-aligned wooden floorboards, with a short section in the centre of the building that are aligned east/west. The walls are without plaster and painted white, although the southern wall was almost completely obscured by modern stud work (Plate 53). A large metal lintel was just visible above this stud wall at eaves height with roughly coursed sandstone rubble above it and brick below (Plate 54). This suggests that part of northern wall of the warehouse had been taken down to allow access between the two buildings, and the lintel inserted to support the wall above. This opening evidently fell out of use subsequently, as it was infilled with brick.
- 4.5.5 The seven roof trusses are each of king post design, with mid-height purlins and bracing struts rising from king post to rafter. These are bolted together, and the central truss is marked 'III' in Roman numerals. Each truss was painted light blue (Plate 52). The building is fitted with automatic fire sprinklers throughout.



*Plate 51: The north elevation of the link block, spanning the Whitewell Brook*



*Plate 52: The interior of the northern part of the link block*



*Plate 53: The interior of the southern part of the link block*



*Plate 54: Detail of the steel lintel against the southern wall of the link block*

## 4.6 UNIT 5

- 4.6.1 **Exterior:** the building referred to as Unit 5 lies on the eastern side of the Whitewell Brook, abutting the link block (Plate 55). This element of the mill complex was excluded from the survey specification, as it will be unaffected by the development proposals. However, whilst no internal access was possible, the building clearly forms part of the mill, and its exterior has therefore been recorded to allow a complete record of the site to be compiled.
- 4.6.2 The building is sub rectangular in plan, with its western wall aligned to the eastern bank of the Whitewell Brook (Fig 2). It is constructed of roughly coursed sandstone rubble, with squared blocks at the eastern quoin. The shallow gable roof is covered in slate, with a bank of roof lights along the upper third of each pitch. The southern gable wall stopped short of the adjacent warehouse, leaving a small yard between the two structures. However the western wall continued unbroken to abut the northern elevation of the warehouse, whilst a roof scar on the warehouse wall clearly demonstrated that Unit 5 had originally extended up to the warehouse. The existing southern elevation has two bearing boxes to the east and west of the ridge apex, both of which had been infilled with brick. A doorway exists at the western end of the building, and the entire elevation had been coated in thick white paint.
- 4.6.3 Any openings on the eastern wall were wholly obscured by modern garden sheds, but the northern wall had a single loading door just to the east of centre, with steel roller shutters below a steel I-section beam. This wall had been constructed with an unusual kink, creating a small additional section of walling at the north-eastern corner, which was aligned to the access road immediately to the east. This would have reduced the risk of damage to the corner of the building from vehicles using the access road.
- 4.6.4 The western wall was only visible from the interior of the link block. It included two doors. One at the centre of the existing wall had a single piece rectangular sandstone lintel and jambs. The second door was located at the centre of the southern half of the wall, and had rubble sandstone jambs and a single piece lintel. It retained a modern wooden door.



Plate 55: View across Unit 5, looking north-west

## 4.7 WAREHOUSE BLOCK

- 4.7.1 **Exterior:** the warehouse comprises a two-storey rectangular structure of eight bays, with a pitched slate roof hipped at its eastern end. It extends east across the Whitewell Brook from the western wall of the boiler house/warehouse, which resulted in a slight misalignment with the rest of the complex (Fig 2). The fabric of the building comprises roughly coursed sandstone blocks bonded in a pale lime mortar, with squared blocks at the quoins and jambs of each opening. The windows have projecting sandstone sills with flat lintels (Plate 56).
- 4.7.2 The fabric of the upper 1.5m of the southern and eastern elevations of the building comprise pale cream sandstone, distinct from the mixture of pale cream and iron stained sandstone used beneath. This change in construction material could not be distinguished on the northern elevation, which might suggest either an earlier single-pitch roof draining to the south, or extensive repairs to the southern and eastern elevations.



Plate 56: The north elevation of the two-storey warehouse

- 4.7.3 The southern elevation at ground-floor level included a large loading entrance with steel roller shutters at the eastern end, whilst Bays 1-6 each had a four-light window with horizontally arranged panes. The first floor had just a single four-light window at the western end, suggesting that it was important to exclude sunlight from the south at this level, and raising the possibility that this part of the building had been used for weaving purposes.

- 4.7.4 The eastern elevation contained of a pair of rectangular nine-light windows on the first floor, with an additional nine-light window at the southern end at ground level. Situated to the right of this window is an entrance into the building through double wooden doors, which were topped by a steel I-section lintel.
- 4.7.5 A pair of narrow, rectangular, six-light windows is set into the ground floor of the northern elevation at the eastern end of the building, with a nine-light window at the centre of Bay 7. Further to the west is the roof scar of the demolished section of Unit 5 (*Section 4.6 above*). It seemed that that there may have been a doorway at the western end of this scar, connecting the two buildings. Externally, the western end of the ground-floor elevation was hidden by the southern end of the link block.
- 4.7.6 On the first floor, rectangular nine-light windows are present in Bays 3, 5, 6 and 7, with a doorway in Bay 8 flanked by a four-light window. A steel staircase aligned parallel to the elevation, and rising from west to east, provided access to this doorway.
- 4.7.7 **Interior:** the interior of the ground floor was still in use at the time of the archaeological survey, and areas of the northern wall in particular were obscured by the storage of equipment. However, the walls, where visible, were built in roughly coursed sandstone rubble coated in a thick white paint. The exception to this was the western wall, where the squared and coursed stones were laid in water-shot fashion with weather-struck pointing, but structurally this wall formed part of the adjacent boiler house.
- 4.7.8 Wooden floor boards had been used to span the Whitewell Brook, but beyond Bay 3 the remainder of the floor was laid in large rectangular flag stones. A single row of I-profile columns ran along the centre of the building's long axis, extending from the floor to a longitudinal metal joist supporting the first floor above. The ceiling had been clad in plaster board obscuring the joists above.
- 4.7.9 The internal edges of the window jambs along the northern, southern and eastern elevations had been formed in brick, in a building otherwise entirely of sandstone construction. There was no indication, however, that these were later insertions or modifications, and probably reflects the gradual adoption of brick in an area traditionally dominated by sandstone. Brick had also been used at the western end of the northern elevation to block what must have been a large entrance opening directly into the link block, but any further details were obscured by equipment storage. Similarly, just to the east of this, it was just possible to see the blocked opening that accessed the now demolished southern end of Unit 5.
- 4.7.10 Although few fixtures and fittings had survived, in common with the rest of the complex, the pipework for the sprinkler system remained in place across the ceiling.

- 4.7.11 *First floor:* the lower halves of the walls of the first floor were painted black with the remainder in red (Plate 57), and whilst this was almost certainly a much later decorative scheme, it obscured a more detailed inspection of the wall construction on this floor. The floor was of varnished wooden floor boards, and the king post roof open to the timber rafters. The timbers had been bolted together with iron fittings, and several tie beams displayed the scratches associated with Baltic consignment markings. A continuous bank of roof lights along the upper third of the northern pitch of the roof provided illumination.
- 4.7.12 At the western end of the room, a riveted metal door opened into the first floor of the boiler house, and excepting the external staircase at the western end of the northern elevation, this was the only entrance into the room. In the south-western corner, a small office space had been partitioned off, although this was likely a modern modification.



*Plate 57: View across the first floor of the warehouse block*

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## 5. DISCUSSION

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### 5.1 DEVELOPMENT OF ALBION MILL

- 5.1.1 The archaeological building investigation has enabled several distinct phases in the development of Albert Mill to be identified. Whilst there is little documentary material pertaining to its early development and use, the evidence available indicates that Albion Mill was erected in the late 1840s/early 1850s as a purpose-built cotton-spinning mill. The original spinning block appears to have been six bays long, with a beam engine placed transversely across the southern end to form an additional two bays. The buildings were built of local sandstone, and were of non-fireproof construction.
- 5.1.2 The spinning block also contained a basement, and whilst its full extent is unknown as it could not be accessed at the time of the archaeological survey, it evidently extended along the bank of the Whitewell Brook, suggesting it may have been intended as a conditioning cellar. It is possible, but unconfirmed, that the original boiler house had been placed immediately to the south of the engine house, with a detached square-section chimney in the southern corner of the site. Whilst internal engine houses were common within such structures, boiler houses were often detached, to reduce the risk of fire within the main structures, should they explode, or placed adjacent to the engine house, which would act as a buffer to the main structure (Giles and Goodall 1992).
- 5.1.3 There is no evidence to suggest that the engine was not an original feature, implying that the mill was designed to be steam powered. Notwithstanding the mill's position on the west bank of the Whitewell Brook, and the presence of a goit beneath the floor of the main blocks, with associated water-management features immediately to the south, there is no evidence to indicate that the mill was ever water powered.
- 5.1.4 There is little evidence in the surviving fabric for the layout of the machinery in the original mill. However, the arrangement of the surviving power features, and specifically the bearing boxes set into the walls of the building, are consistent with spinning machinery having been located on the first and second floor, with preparatory machines on the ground floor.



## **5.2 NINETEENTH-CENTURY EXPANSION**

- 5.2.1 The original buildings were extended prior to the early 1890s. This included the addition of four new bays to the northern end of the spinning block, providing a significant increase in the mill's capacity. The extant three-bay structure at the southern end of the spinning block/engine house range had also been added by the early 1890s. This was built as a three-storey structure, and may have replaced the original boiler house. The building incorporated the existing chimney in its south-eastern corner.
- 5.2.2 There is no firm evidence in the surviving fabric to demonstrate that this building had been used as a boiler house, although it is difficult to understand where else in the mill complex the boilers may have been located. The width of the mill is consistent with that required to house two boilers, either of the Cornish or Lancashire type. The floors overlying the boiler house may have been used for additional warehousing space.

## **5.3 LATER ADDITIONS**

- 5.3.1 It is possible that the increased capacity of the mill resulted in the construction of an additional warehouse at the southern end of the site. The precise date at which the building was erected remains uncertain, although its footprint is shown on the Ordnance Survey map of 1894.
- 5.3.2 The unusual alignment of this structure is presumably a result of its construction off the pre-existing eastern wall of the boiler house/warehouse block. The almost complete absence of south-facing windows on the first floor of this building might suggest an attempt to prevent sunlight fading the stored goods, and is consistent with the use of the building as a warehouse. The windows on the ground floor have brick jambs, which may suggest they are later insertions, although the external jambs appear to be contemporary with those windows to the west, so it is possible brick was the preferred construction material on the internal jambs.
- 5.3.3 The precise date of construction of Unit 5 to the east of the river is similarly unclear. However, it evidently pre-dated the link block constructed above the river, which connected the spinning block and Unit 5 at ground-floor level. Both Unit 5 and the link block, however, had been completed by the 1890s, as they are shown on the Ordnance Survey map of 1894.
- 5.3.4 The final phase of development comprised the demolition of the chimney during the second half of the nineteenth century, and the reduction of the boiler house/warehouse block to two storeys.

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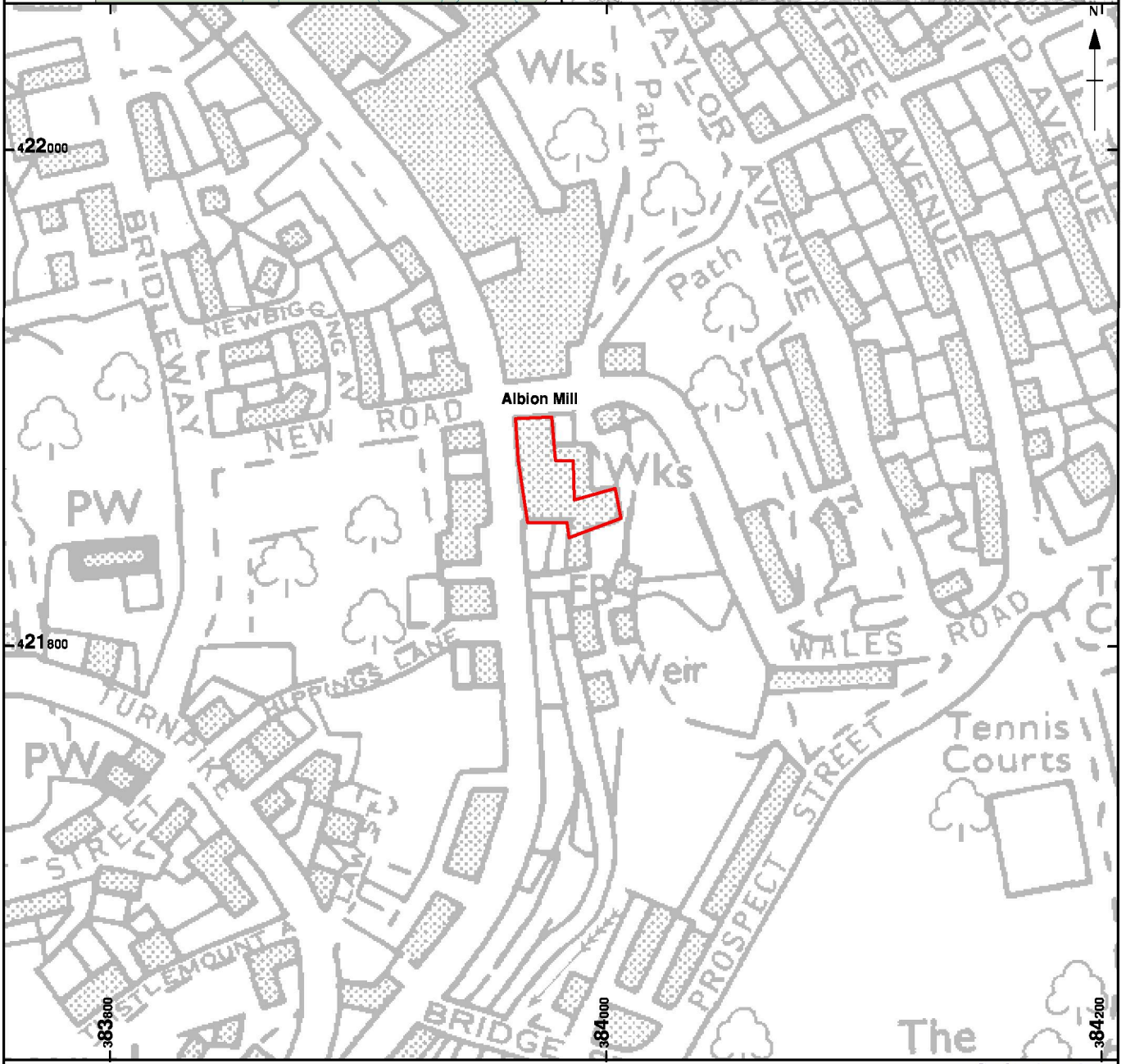
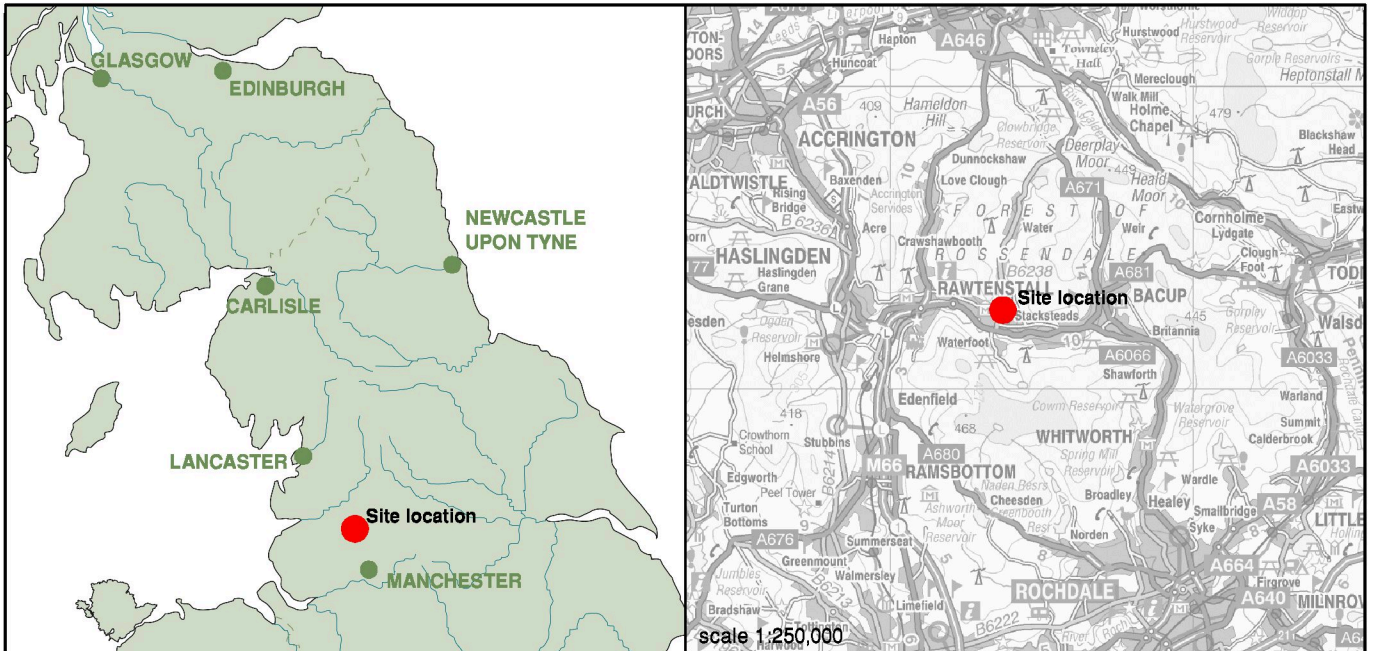


Figure 1: Site location

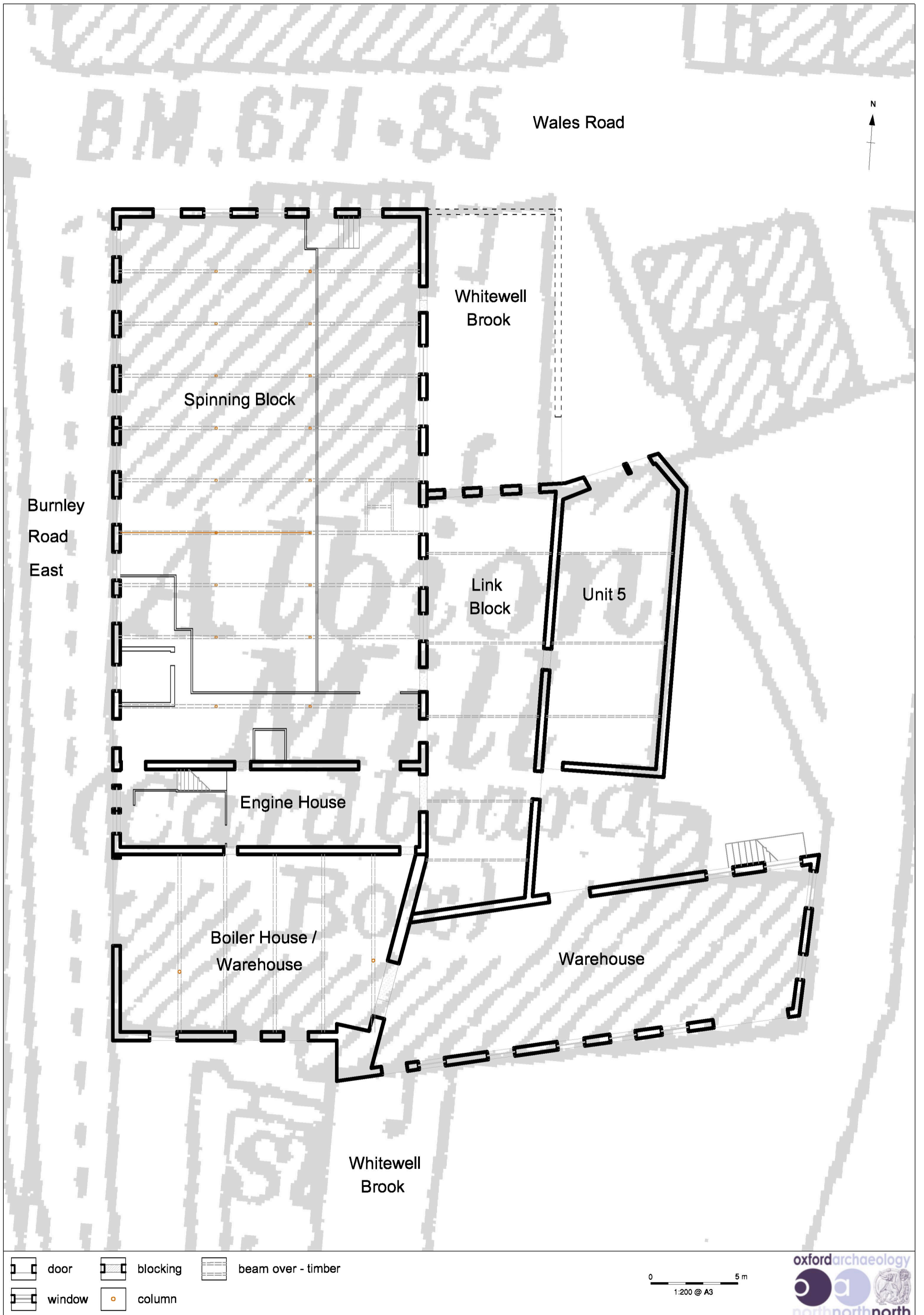
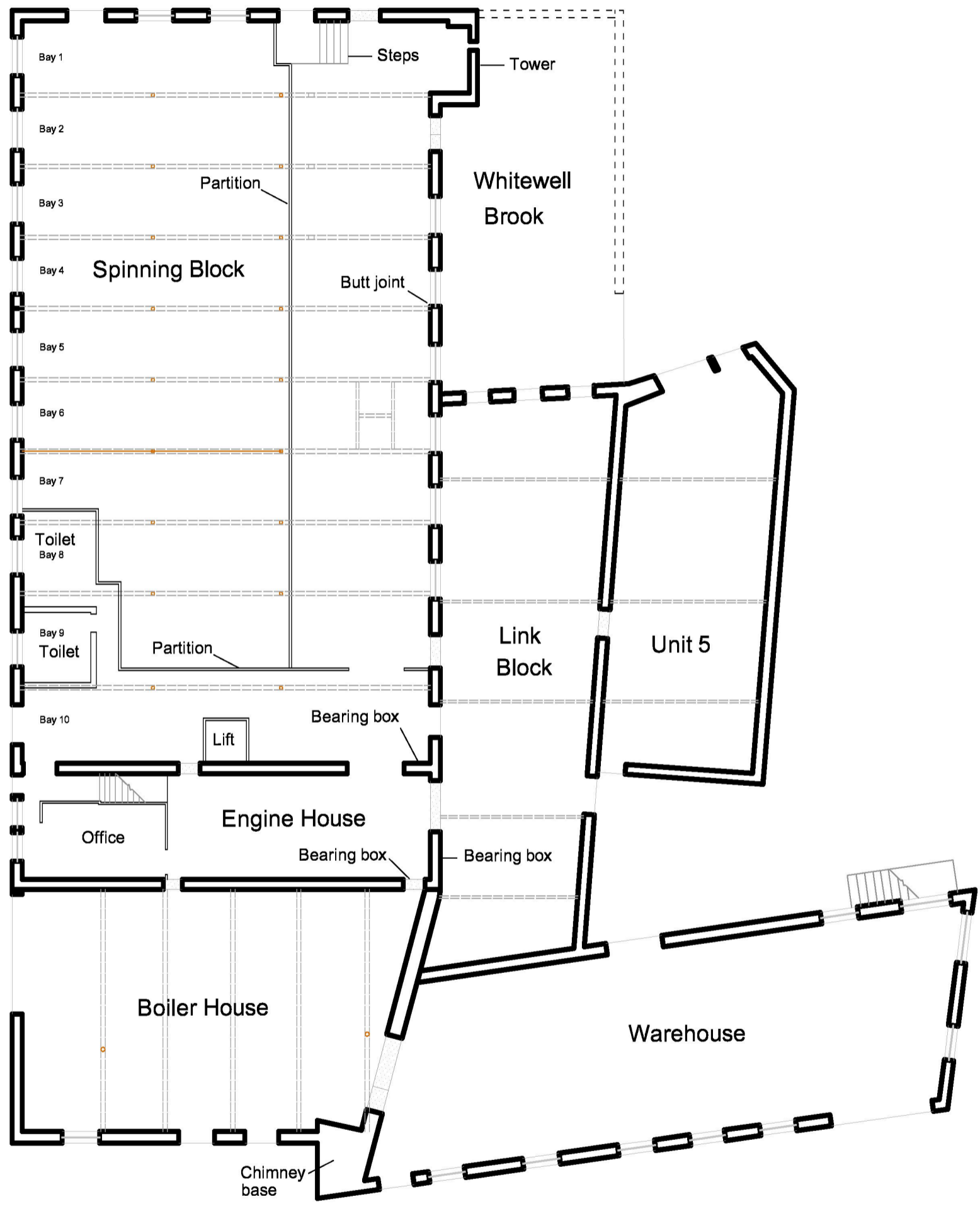







Figure 2: Plan of Albion Mill superimposed on the Ordnance Survey map of 1930



-  door
-  window
-  blocking
-  column
-  beam over - timber

0 5 m  
1:200 @ A3

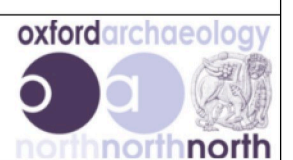
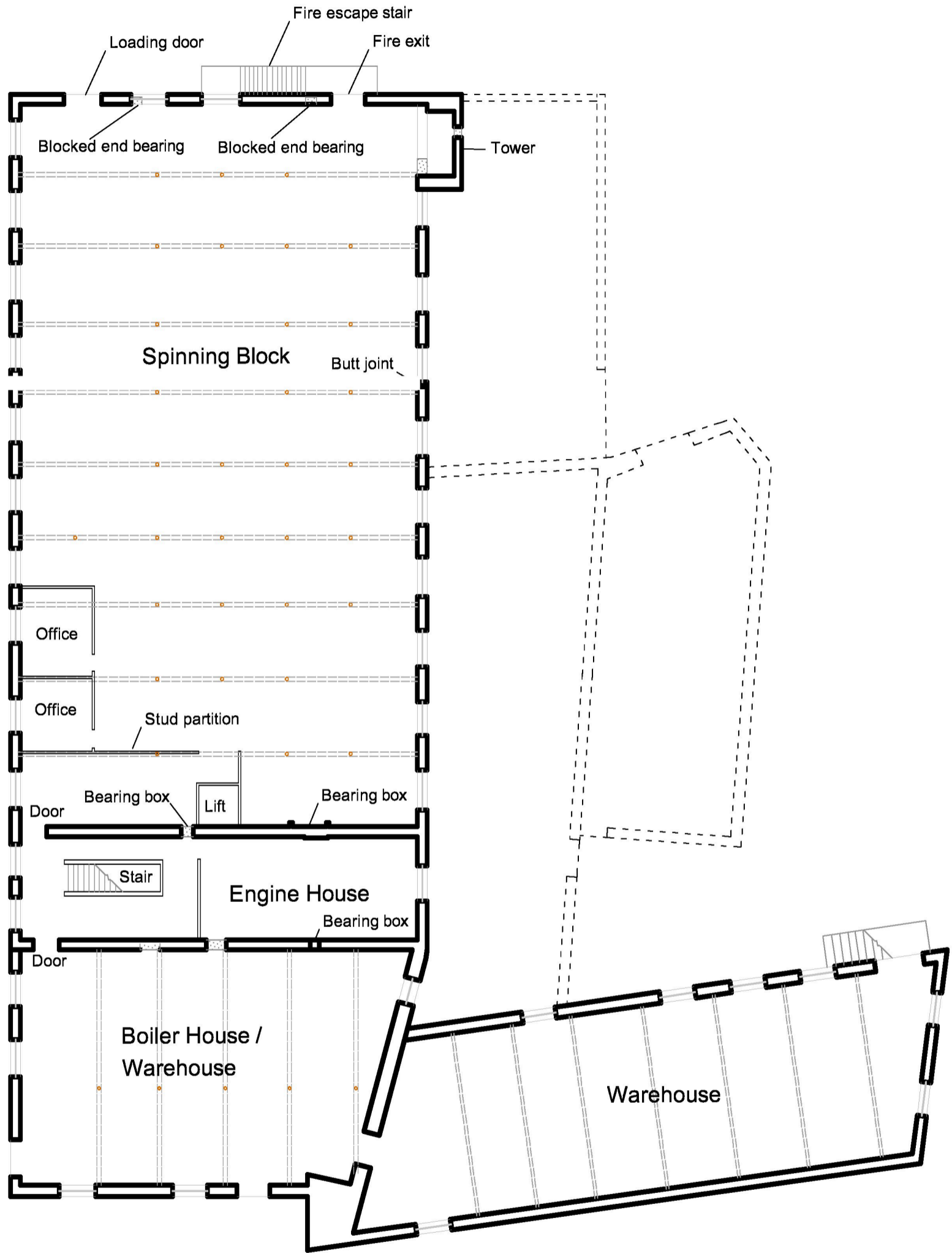


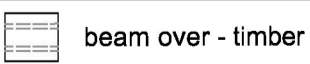




Figure 3: Ground-floor plan of Albion Mill



(Fig 4)



-  door
-  blocking
-  beam over - timber
-  window
-  column

0 5 m  
1:200 @ A3

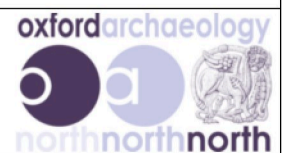
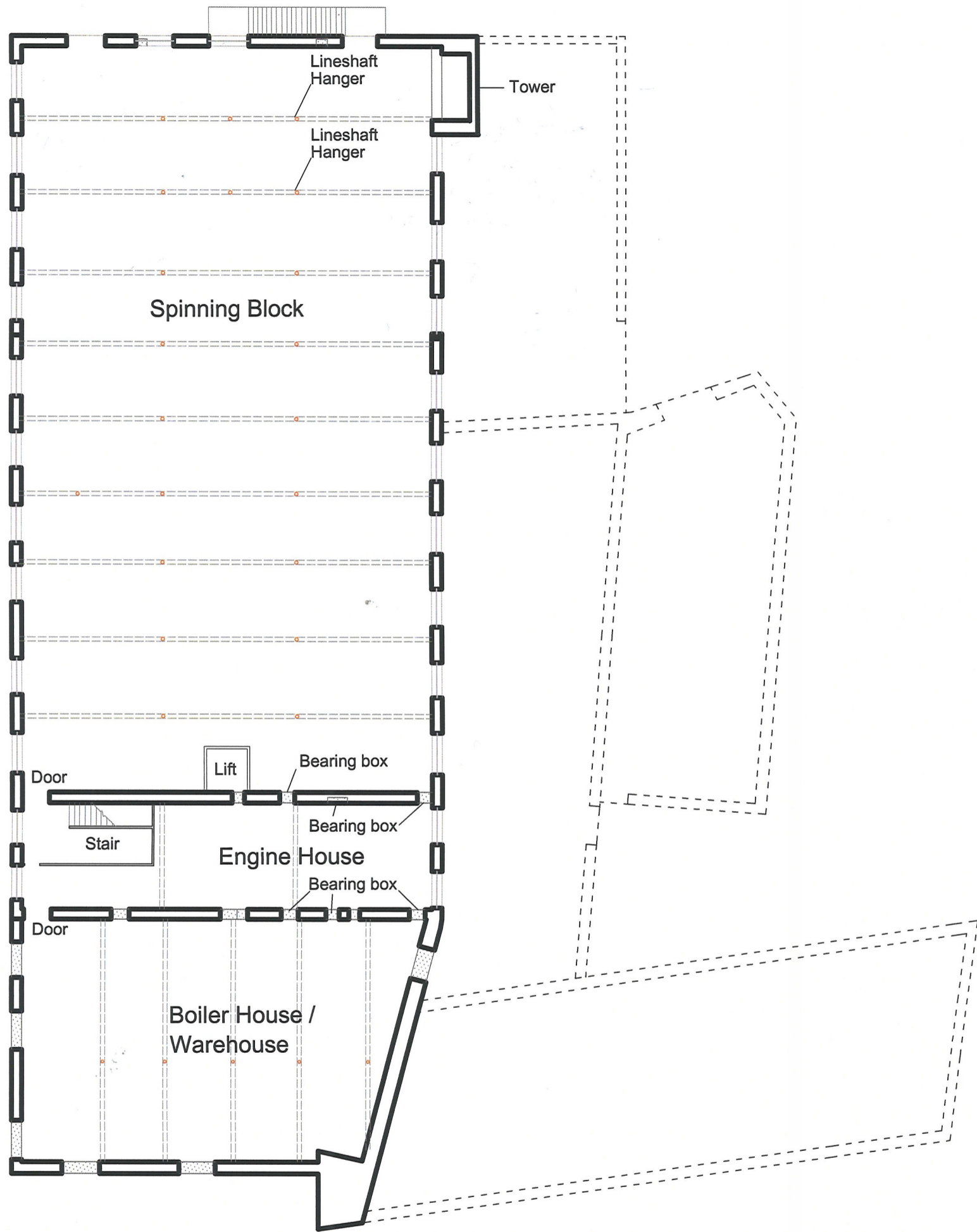






Figure 4: First-floor plan of Albion Mill





-  door
-  blocking
-  beam over - timber
-  window
-  column

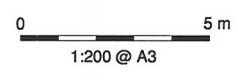


Figure 5: Second-floor plan of Albion Mill