Brooks Meeting Mill
West Shaw Lane, Oxenhope, West Yorkshire: Archaeological Record

March 2018

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SUMMARY

Brooks Meeting Mill, at Oxenhope (NGR: SE 02509 35079), is a former worsted mill, established about 1800 when water-powered, but rebuilt on its present site in the 1880s again with a waterwheel, a very late example of this type of power source in a Yorkshire textile mill. An archaeological record was made for Mr P Maudsley, as required for planning consent, following the demolition of the weaving shed, with the focus of investigation being the waterwheel pit.

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BROOKS MEETING MILL, WEST SHAW LANE, OXENHOPE, WEST YORKSHIRE:

ARCHAEOLOGICAL RECORD

1 Introduction

1.1 This report presents the results of archaeological recording of the remains of Brooks Meeting Mill, at Oxenhope, West Yorkshire, in particular relating to its waterwheel pit of the 1880s. The work was carried out in February 2018 for the owner and developer, Mr Maudsley, to fulfil a condition of planning consent from the City of Bradford Metropolitan District Council (CBMDC) for the conversion of the mill into residential units, and the creation of new dwellings on the site.

1.2 Brooks Meeting Mill was probably established about 1800 as a small water-powered worsted mill, but was entirely rebuilt in the 1880s, to the south of the original mill. The rebuilt mill then comprised a weaving shed and multi-storey spinning mill, with an integral waterwheel pit employing the same water supply as the predecessor, though by the 1890s the mill also had a steam engine. A new warehouse block was added at the south end in 1910, and the spinning mill was destroyed by fire in 1916.

1.3 The recording work was commissioned and carried out following partial demolition of the buildings on the site, and although this was not in accordance with the specification issued on behalf of the local planning authority by the West Yorkshire Archaeology Advisory Service (WYAAS) (see Appendix 1), an alternative recording strategy was then agreed with WYAAS. It involved photography of the site and surviving structures, and a watching brief during the excavation of the waterwheel pit. This report will be submitted to the client, CBMDC, the West Yorkshire Historic Environment Record, and the OASIS project for online publication[1].

2 Location and current use

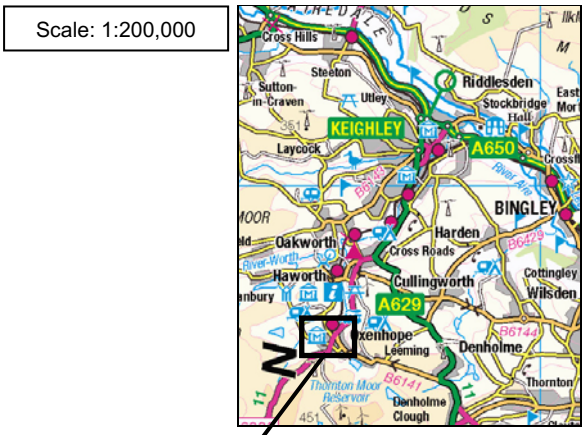
2.1 Oxenhope is a village lying about 8km south-west of Keighley, on the eastern flanks of the South Pennines. The site itself lies within Oxenhope civil parish on the north side of West Shaw Lane, about 0.5km west of the village centre, at NGR: SE 02509 35079 and approximately 215m above Ordnance Datum (figures 1 & 2).

2.2 In 2017 the mill complex comprised a two-and-a-half storey block at the south side with a single storey weaving shed on its north side. There is a detached

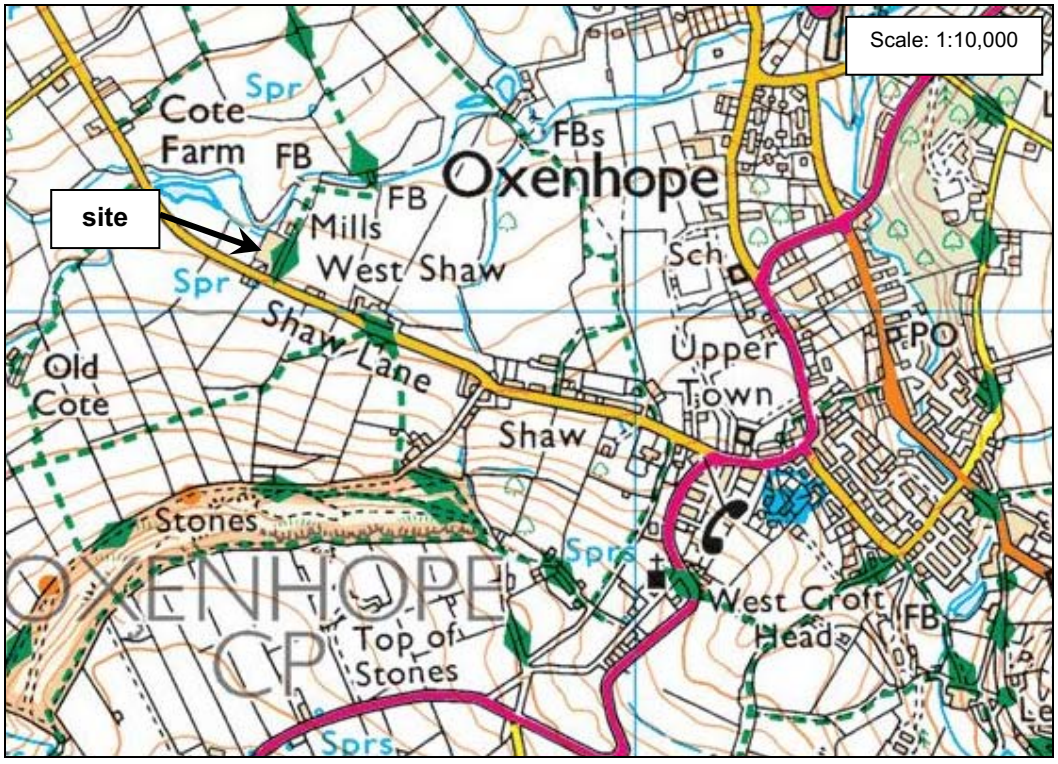
[1] "Online Access to the Index of Archaeological Investigation"

cottage (10, West Shaw Lane) just to the south of the mill, but this is not included within the development (figure 3).

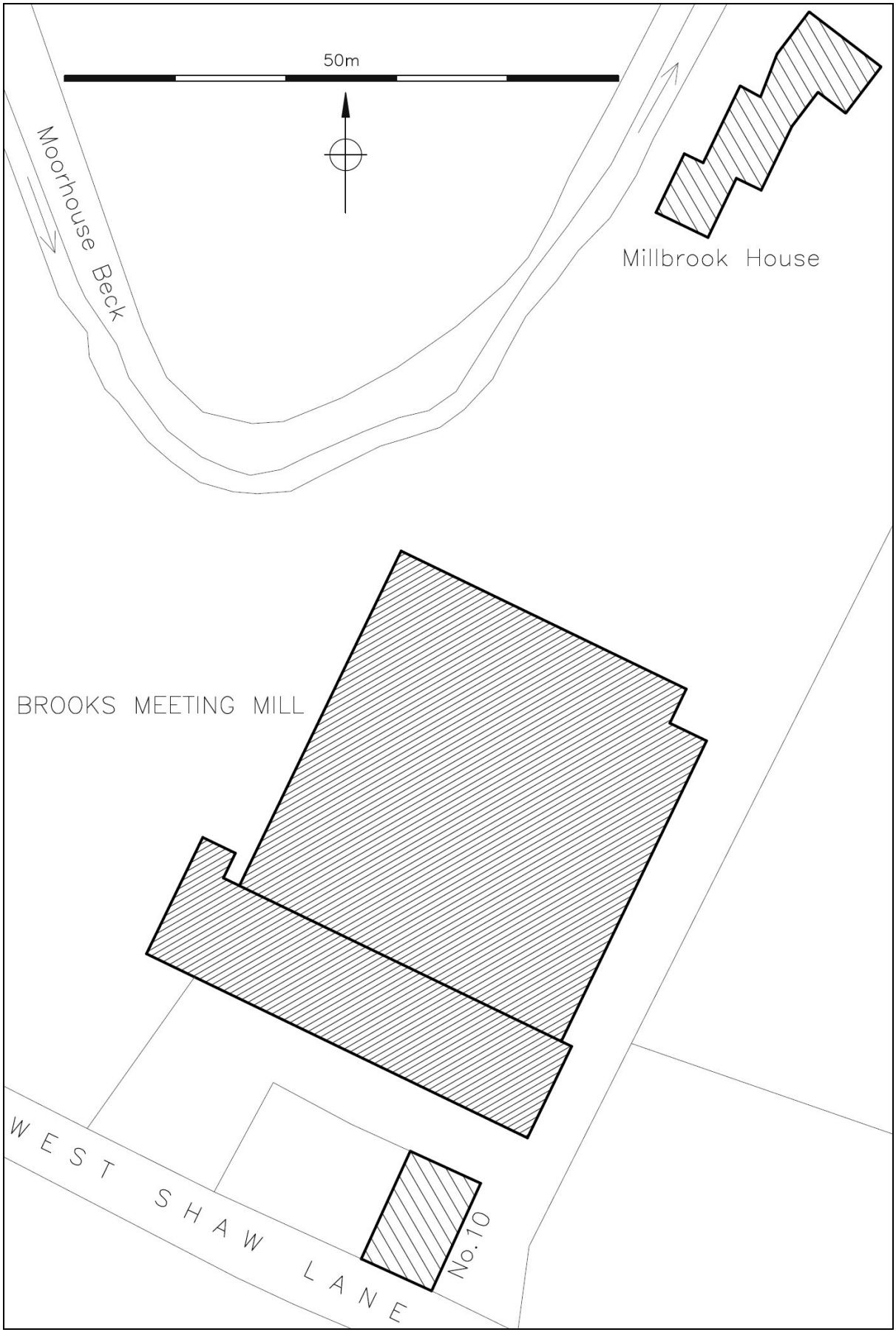
2.3 The mill complex has been disused for a number of years, with its last occupiers being a furniture manufacturer.



1: Location map (i)



2: Location map (ii)



3: Site plan, 2017 (1:500)

3 Planning background

3.1 None of the mill buildings are listed as having special architectural or historic interest, although, an adjacent cottage at 10, West Shaw Lane is grade II listed[2]. However, the site lies within the Oxenhope Upper Town Conservation Area (designated in 1980), with the mill being a "key unlisted building" noted within it[3].

3.2 Planning consent, subject to a Section 106 Agreement, was granted in 2016, for the "Conversion of three storey mill into five houses, demolition of existing northlights shed, construction of five houses, construction of car parking spaces and alterations to existing vehicular access" (application number 15/05054/MAF), though no lawful start was made on that consent.

3.3 Condition 4 of the existing consent stipulates that:

> "No demolition or development shall take place within the application red line boundary until the implementation of a programme of archaeological and architectural recording. Only the agreed works shall be implemented in complete accordance with this written scheme of investigation which has been submitted by the applicant and approved in writing by the Local Planning Authority."

3.4 A written scheme of investigation was requested by the developer from WYAAS on behalf of the local planning authority, in the form of a detailed specification (see Appendix 1). In response, WYAAS visited the site in December 2017 and supplied the specification in January 2018. However, demolition of part of the site took place during the intervening period, meaning that the specification could not then be fulfilled.

3.5 A new planning application was submitted in November 2017 and is currently being considered by CBMDC, for the "Conversion of the former mill into 7 residential units and the creation of ten new dwellings" (application number 17/06489/MAF).

3.6 It is believed that the present recording work will preclude a condition requiring archaeological recording on the pending application.

4 Previous investigative work

4.1 No previous recording or investigation of this type is believed to have been carried out at the site. However, there is an entry for the site in the National Record of the Historic Environment, which only describes it as:

[2] National Heritage List for England, entry number 1134028
https://www.historicengland.org.uk/listing/the-list/list-entry/1134028
[3] CBMDC (undated) *Oxenhope: Assessment of Conservation Areas*

> "18th or 19th century textile mill. Two storey building with attached weaving sheds, engine house and warehouse. It is situated to the south south east of Keighley in the Oxenhope/Haworth area next to the River Dunkirk Beck [sic]. In the 19th century it was used as a worsted mill and run by the firm of William Greenwood."[4]

5 Historical background

5.1 Worsted cloth, whose name derives from Worstead, the Norfolk village where the British industry was begun by Flemish immigrants in the 12th century, is a fabric created from wool, relatively light in weight and with a smooth finish, in contrast to true woollen cloth, which is heavier with a felted texture. The distinction is based on the use of long wool fibres for worsted, rather than the shorter fibres used for woollens. Although the manufacture of worsted cloth began in East Anglia, during the 18th century the centre of production moved to the West Riding, and from the early 19th century became concentrated in Bradford and the surrounding area.

5.2 In worsted production the long fibres are separated from the raw material by combing, a process for which mechanisation was only satisfactorily achieved in the 1840s. However, the spinning of worsted yarn from the fibres ("tops") had been carried out mechanically since the 1780s, with Roberts' self-acting mule being introduced in the 1830s. Power-looms for worsted were introduced in the 1820s, but only became widespread in the 1830s and 1840s.

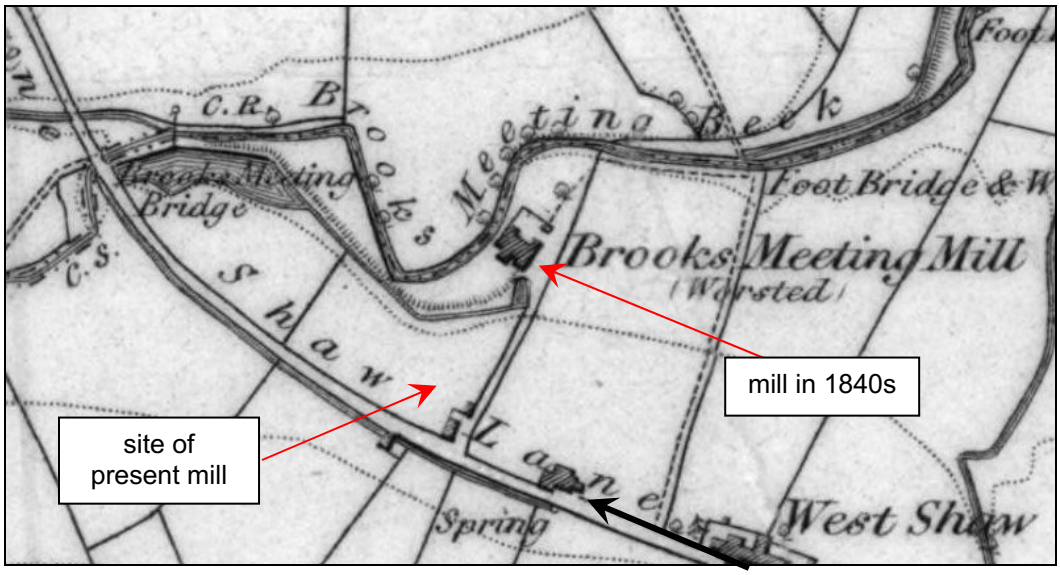
5.3 Oxenhope has a long history of domestic textile production, particularly of woolcombing and weaving, before the industrial revolution of the late 18th century. The area had a good geographical advantage in the abundance of clean water and hilly terrain, which provided a good head for exploiting the potential energy within watercourses. Although no textile mills are thought to have been established at Oxenhope by 1788, by 1817 at least ten water-powered sites, including that at Brooks Meeting, were identified (by simple symbols) by Christopher Greenwood on his county map of Yorkshire[5]. The mill's title derives from the Brooks Meeting Beck, which in the 19th century was the name applied to the watercourse below the confluence of the Rag Clough Beck and the Leeshaw Water, and which later became a tributary of the Bridgehouse

[4] See entry on www.pastscape.org.uk:
http://www.pastscape.org.uk/hob.aspx?hob_id=944668&sort=2&rational=m&recordsperpage=10&maplat=53.81200000&maplong=-1.96320000&mapisa=250&mapist=ll&mapilo=-1.9632&mapila=53.8120&mapiloe=w&mapilan=n&mapios=SE024351&mapigrn=435104&mapigre=402423&mapipc=#

[5] Hindley, R 2004 *Oxenhope: The Making of a Pennine Community*

Beck and then the River Worth[6]. However, the site is also sometimes referred to as Banks Mill.

5.4 Following Greenwood's 1817 map, the Ordnance Survey's first edition 1:10560 map is the next known cartographic depiction of the site, and notes that it was a worsted mill (figure 4). The mill itself is shown as then located well to the north of that surviving in 2017/2018, as can be seen from its distance from the cottages on Shaw lane. The water supply for powering the mill is clearly shown on this map, with a reservoir just below the road, and a dog-legged goit or head-race running south-east and east from it.



4: OS 1:10560 map, 1852[7]

5.5 The Haworth tithe award of 1849 names Joseph Hodgson as owner of the property, and William Dickson as occupier, with the site listed as "worsted mill and premises"[8].

5.6 A sale plan of the mill and surrounding area, of 1879[9], shows essentially the same arrangement as on the 1852 map, so it seems that little had changed there during the second half of the 19th century. The plan shows the mill buildings in some detail (figures 5 & 6). On it, the waterwheel is located in the middle of what was probably the spinning mill, but there are also boiler and engine houses with adjoining chimney at the north-west end of the site, so the factory must have been adapted to run with steam power, perhaps in conjunction with water power.

[6] These names have changed since the 19th century, and the beck adjacent to the mill is now known as Moorhouse Beck
[7] Ordnance Survey 1:10560 map, Yorkshire sheet 200, surveyed 1847-8. Not at original scale.
[8] Feather, G A 1973 *Oxenhope: A Pennine Worsted Community in the Mid 19th Century*, p26
[9] *Plan of Valuable Mill Premises (known as Brooks Meeting Mill) Cottages & Land, situated at Oxenhope in the Township of Haworth and County of York* by James Young Surveyor & Valuer, 1879 (West Yorkshire Archives, Bradford WYB362/7/1)

5: Part of 1879 sale plan[10]

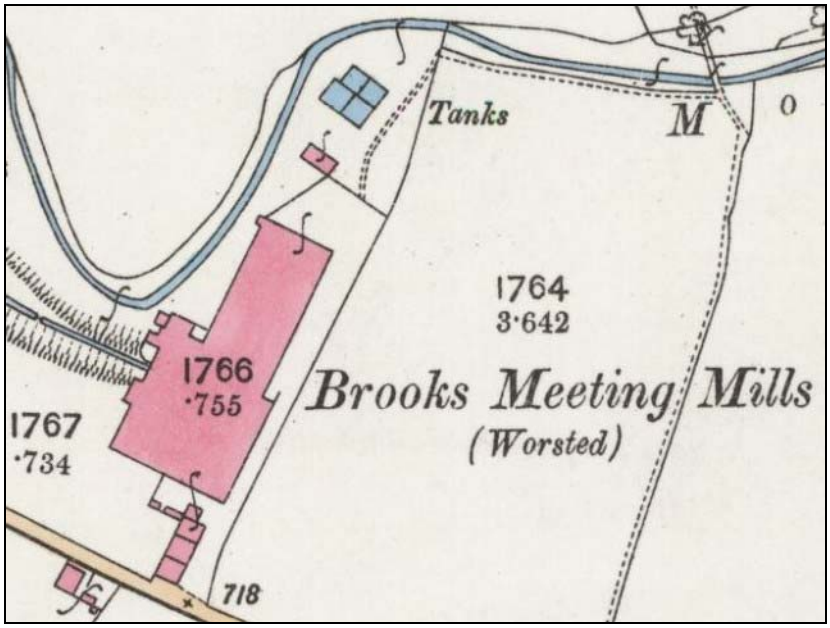
[10] *Plan of Valuable Mill Premises (known as Brooks Meeting Mill) Cottages & Land, situated at Oxenhope in the Township of Haworth and County of York* by James Young Surveyor & Valuer, 1879 (West Yorkshire Archives, Bradford WYB362/7/1)

6: Detail from 1879 sale plan

5.7 It is not certain who purchased the mill in 1879, but by 1882 it was occupied by G F Greenwood, who ran other mills in the village[11]. Between 1879 and 1892, when the Ordnance Survey's first edition 1:2500 map was surveyed (figure 7), the pre-1879 mill was demolished and an entirely new factory building established further to the south-west. An historic photograph shows that the north end of the new complex then comprised a three-and-a-half storey structure, thirteen bays long by five bays wide, with the wider south end of the factory a weaving shed (figure 8).

5.8 A chimney is shown on the west side of the mill on the 1890s map, although it is not annotated as such, but comparison with the 1908 revision of the 1:2500 map shows that it was then present (figure 9), implying that the factory was steam powered by 1892, but as in 1879 there was also a water supply to the mill, in the form of a goit entering the building in the west side close to the chimney.

[11] Hindley, R 2004 *Oxenhope: The Making of a Pennine Community*, p88



7: OS 1:2500 map, 1894[12]

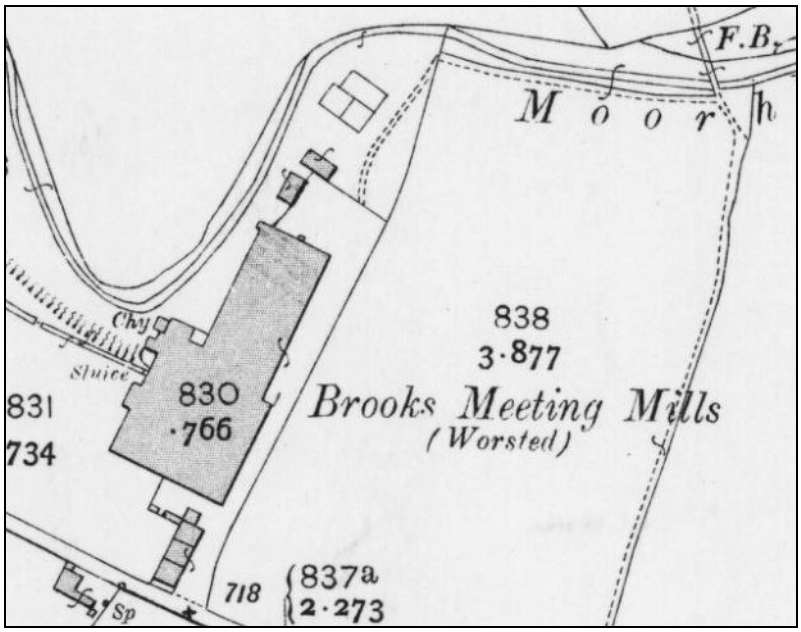
8: Photograph, before the 1916 fire[13]

Probably early 20th century; looking south-west

5.9 By 1910 Brooks Meeting Mill was in the hands of William Greenwood Junior, and in that year he was granted approval by Oxenhope Urban District Council for a new two-and-a-half storey warehouse and mending room, to be added at the south-west end of the site (figure 10), an extension which necessitated the demolition of one of the three cottages perpendicular to West Shaw Lane. (The surviving two cottages have since been amalgamated into the present No.10). These plans show very little detail regarding the mill buildings then standing, but

[12] Ordnance Survey 1:2500 map, Yorkshire sheet 200.14, surveyed 1892. Not at original scale.
[13] Photograph provided by Mr R Heaton

do indicate that the warehouse was to incorporate the south side of the existing weaving shed.



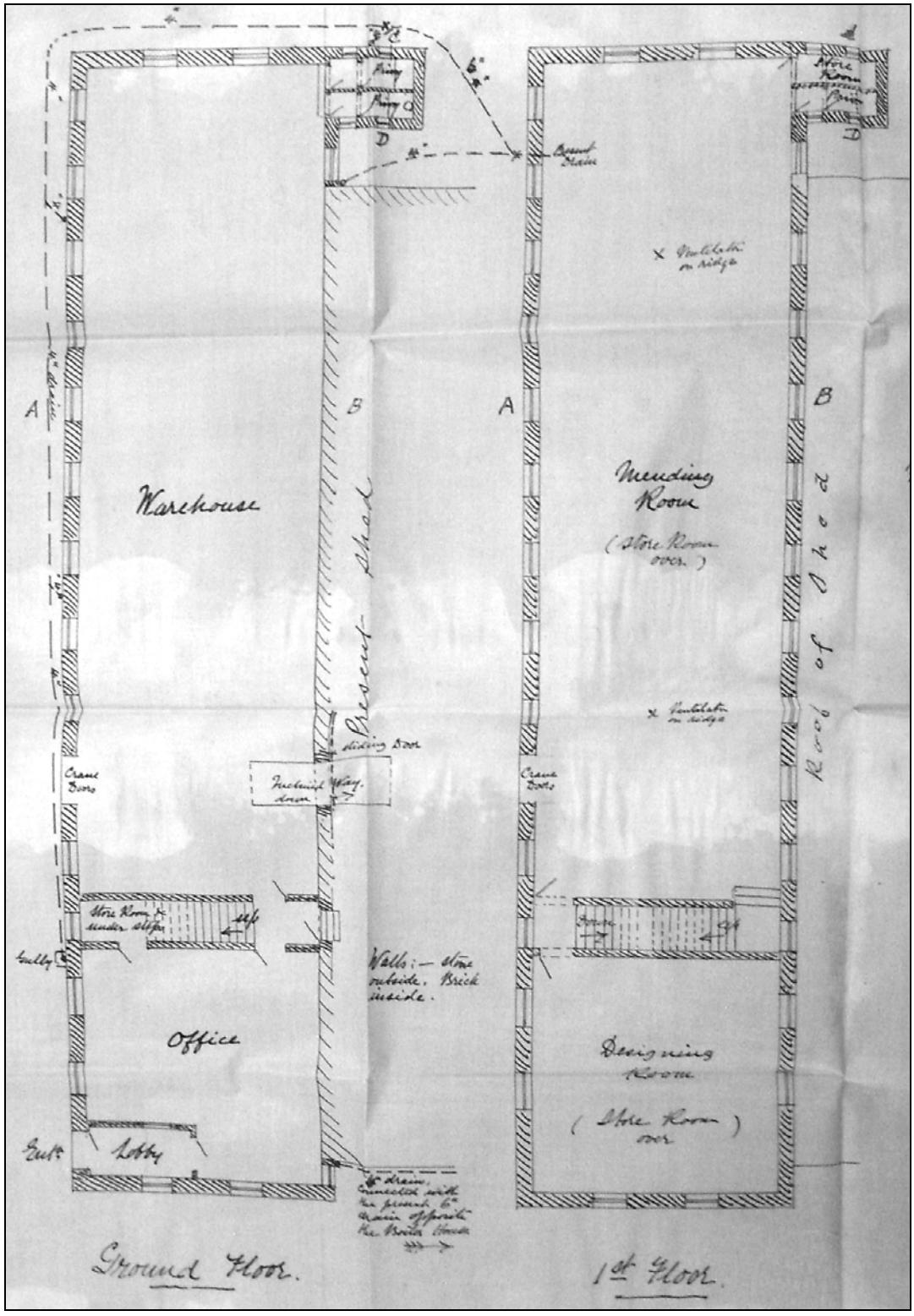
9: OS 1:2500 map, 1908[14]

5.10 One source describes the mill as being entirely rebuilt in 1913, but this is not borne out by any architectural, cartographic, or photographic evidence and so has been disregarded. The same source attributes the engine and boiler house as dating from 1910, though no basis for this assertion is given[15].

5.11 There was a major fire at the mill in 1916, set by an arsonist, which resulted in the gutting of the three-and-a-half storey building at the north end (figures 11 and 12), and which accounts for its depiction as roofless on the 1:2500 maps of 1921 and 1935 (figures 13 & 14). However production continued in the other buildings, probably confined to weaving alone, although the Greenwood family ceased their interest in it in 1957. In the 1960s it was acquired by the Tankard family, who operated a textile business there in some form until 2003, since when it was in use for furniture manufacture.

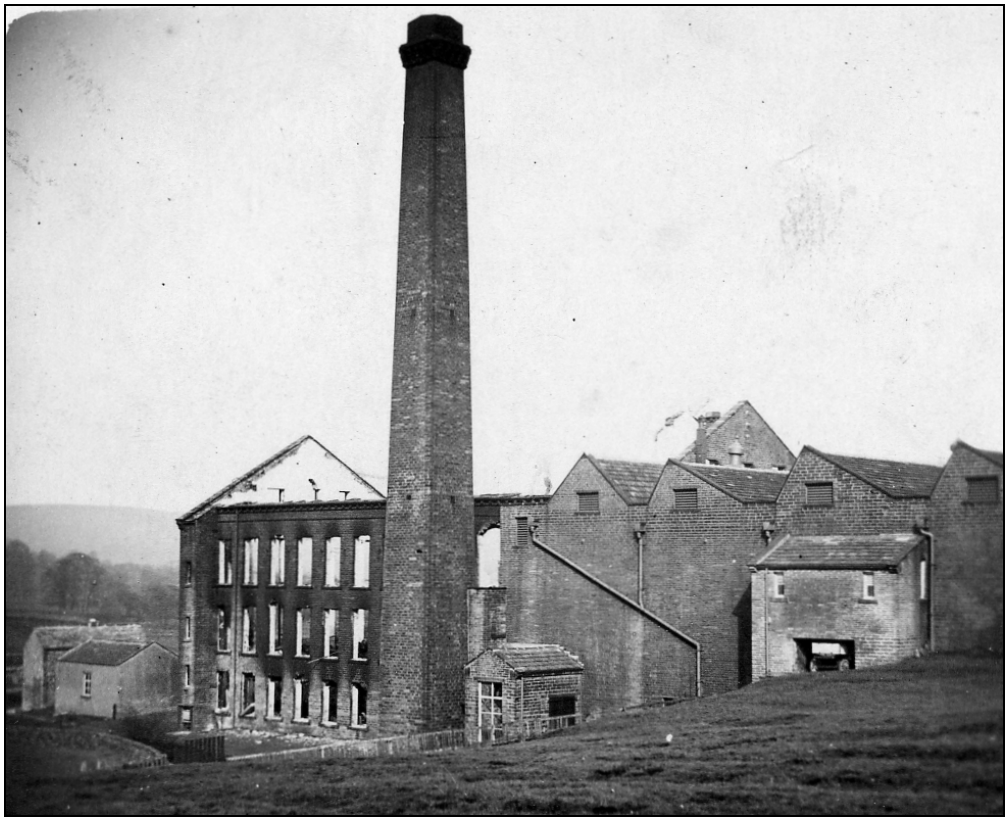
5.12 In summary, it is clear that those parts of the mill which survived until 2017 were the two-and-a-half storey warehouse block of 1910, and on its north side the weaving shed of the 1880s. The derelict remnants of an engine house were also observed by WYAAS at the north-west corner of the complex, though to all intents and purposes those remnants had been demolished along with the weaving shed, by the time that the present recording was commissioned.

[14] Ordnance Survey 1:2500 map, Yorkshire sheet 200.14, revised 1906. Not at original scale.
[15] CBMDC (undated) *Oxenhope: Assessment of Conservation Areas* p12, p65



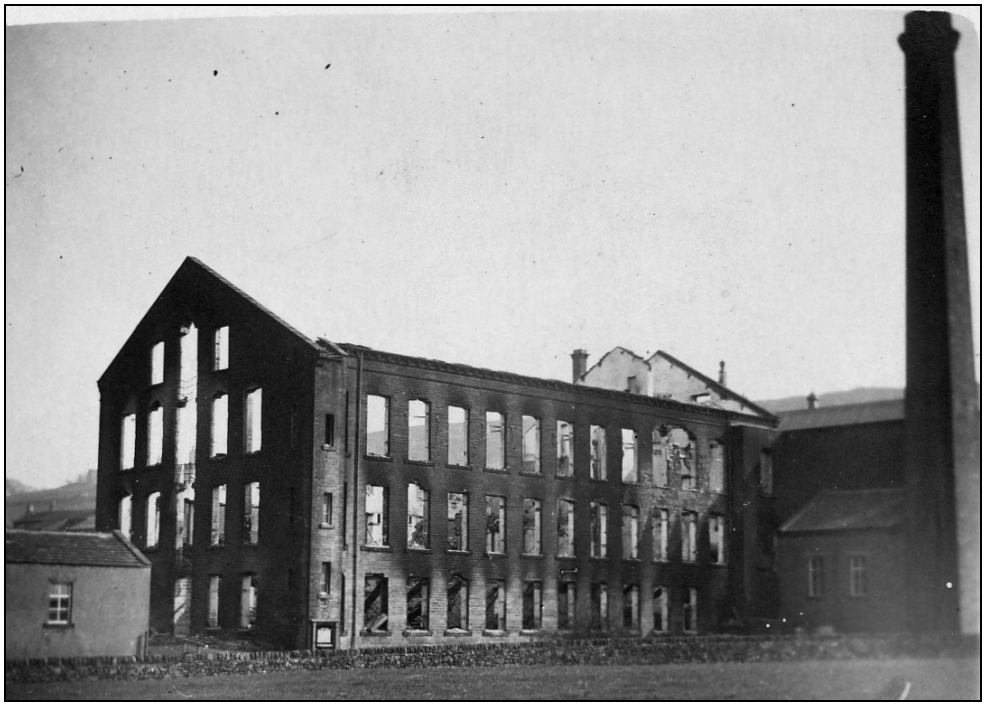
10: Plans of new warehouse, 1910[16]

[16] *Proposed Additions at Waters Meeting* by Wilson Bailey, Architects March 1910. West Yorkshire Archive Service, Keighley Library BMT/OX 6/1/1, plan 244



11: Photograph, after the 1916 fire[17]

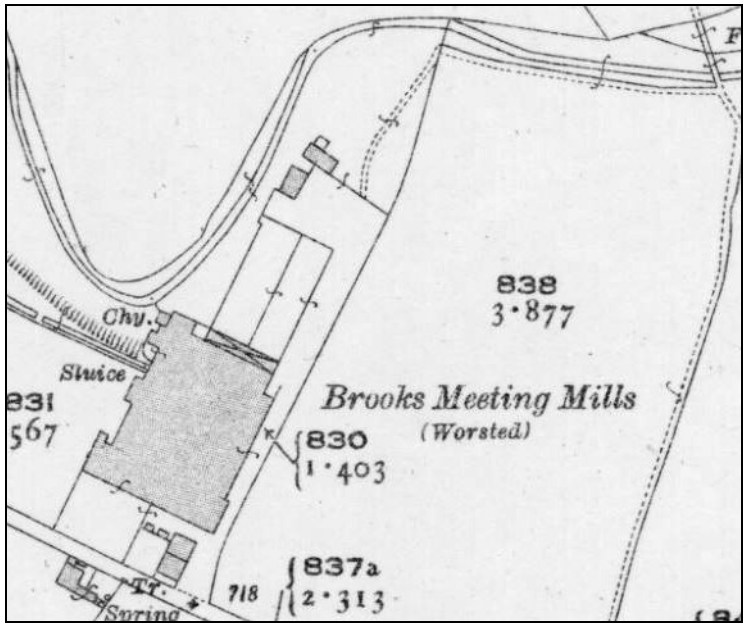
Undated, looking north-east. Note the low gabled projection to the right of the chimney, which overlies the outer part of the wheelpit



12: Photograph, after the 1916 fire[18]

Undated, looking south-east

[17] Photograph provided by Mr R Heaton
[18] Photograph provided by Mr R Heaton



13: OS 1:2500 map, 1921[19]

14: OS 1:2500 map, 1935[20]

6 Recording methodology

6.1 Following the premature demolition of all structures, other than the two-and-a-half storey warehouse block at the south end of the mill, it was apparent that the draft WYAAS specification (Appendix 1) could not be adhered to, and a new recording strategy was agreed with WYAAS, with the focus being on the investigation of power generation in the 1880s mill, where both steam and water

[19] Ordnance Survey 1:2500 map, Yorkshire sheet 200.14, revised 1919. Not at original scale.
[20] Ordnance Survey 1:2500 map, Yorkshire sheet 200.14, revised 1934. Not at original scale.

power were evidently exploited in close proximity at the north-west corner of the weaving shed.

6.2 The present recording, carried out during site visits on 2 and 9 February 2018, comprised drawn recording of the remains of the wheelpit and adjacent areas, though these were very fragmentary, together with external photography of the surviving structures. On the second of these two visits, a watching brief was maintained during excavation of the wheelpit by a 360° mechanical tracked excavator.

6.3 The drawn recording comprised a new plan of the wheelpit, at 1:50 scale, but a copy of a ground floor plan prior to demolition, produced by the applicant's agent, is also included in this report, to illustrate the locations of the mill's main components (figures 15 & 16).

6.4 Photography was carried out using a medium format camera with perspective control and other lenses, and black and white film for archival stability (as required by the specification). The photographs include a scale, in the form of a 1m ranging pole marked with 0.5m graduations, or a 0.5m baton with 0.1m graduations. These black and white photographs have been printed at 7" x 5" or 10" x 8", and are all copied in this report, where they are referred to by numbers in **bold**. A small number of photographs was also taken using a digital camera (see Appendix 2), which will be deposited with WYAAS on CD only. Locations of all photographs taken are marked on copies of the site and wheelpit plans (see figures 17 and 18).

7 Site description

7.1 On approach from the east along West Shaw Lane, the site is set to the rear of the former cottages at No.10, with the two-and-a-half storey warehouse block of 1910 set parallel to the road, facing south (**1**-**3**). This is fifteen bays long, with the main entrance at the far right, over which is the 1910 date-stone of W Greenwood Junior (**4**); the goods entrances to both floors are five bays further to the left. The warehouse has large windows with segmental stone arches to both floors and is generally plain, but the main doorway is embellished by a hood-mould, and the gables by kneelers and ball finials (**5**). At the rear, the warehouse adjoined the weaving shed, but also has a small projecting wing at the west end, originally housing privies (**6**-**9**). The 1910 plans show that the majority of the ground floor of this block was to be used as a warehouse, with an office occupying the three eastern bays, the first floor was to be a mending room with designing room at the east end, and the third floor or attic space was to be a store room.

7.2 The only significant part of the 1880s weaving shed which now remains standing is that incorporated within the north side of the warehouse, and a number of cast iron wall bearing boxes can be seen within it, which would have held horizontal line shafts to drive powerlooms (**10**). However, photographs taken by WYAAS before demolition, and the plan made for the current planning application (see figure 15), show the shed to have been stone-faced to the exterior and five bays long, the roof having characteristic saw-tooth profile with north-lights. The entrances were in the east side, as well as from the warehouse to the south, and there were louvred ventilators in both east and west gables. A small outshut on the west elevation probably housed privies: one of the historic photographs above (figure 11) shows a low cart housed within the outshut, perhaps a device for removing waste. The photograph also shows a second, small projecting building on this side, at a much lower level, and this appears to overlie the outer, west end of the wheelpit, the rest of which was located beneath the weaving shed.

7.3 To the north of the outshut in the west elevation was an opening at ground level (much below internal floor level), blocked with brickwork, where the goit or head-race from the mill pond formerly entered the building, and adjacent to it WYAAS noted the remains of a sluice. They also observed a long narrow corridor running along the north end of the weaving shed (as shown on the 2017 plan), and described the corridor as a power alley, with the wheelpit at its western end. However, during the watching brief it became clear that the wheelpit was located to the south of the power alley, and may not have been accessible before demolition. Against the north side of the weaving shed WYAAS also noted a small, derelict engine house which they believed had been added to it in the early 20th century, in a position which would have allowed the earlier drive-train from the wheelpit to have been employed with little alteration. As this had been almost entirely demolished before the present recording it cannot be determined whether or not it was actually secondary to the weaving shed, and given that the chimney appears to be shown on the 1894 map, it is highly likely that there was already an engine house at the mill by that date.

7.4 The water supply to the mill can still be discerned, though it no longer flows. A small pond or reservoir, now silted up and vegetated (**11**), lies to the north-east of West Shaw Lane, and the 1879 sale plan shows that it took water from both the Rag Clough Beck and Leeshaw Water, just above their confluence; this was achieved by the use of weirs and sluices, with the supply from the more distant Leeshaw Water being channelled over the Rag Clough Beck by means of a raised launder or trough. An overflow or bypass channel from the pond allowed water to drain back into the beck. The goit to the mill left the east end of the reservoir, and was also provided with an overflow channel to return water to the

beck; the goit remains distinct as a channel within a terrace in the hillside (**12**,**13**). The 1879 plan shows that the earlier mill, to the north-east of the present site, had a second, small reservoir immediately to the south-west, retained by a wall on its east side, with an outlet to the waterwheel which was then located in the middle of the main building. The north end of the 1880s mill was built on the site of that second reservoir.

7.5 Given the prevalence of steam power in the 1880s, it is of particular interest that the comprehensive 1880s rebuilding of Brooks Meeting Mill included the provision of a waterwheel, located below the north-west corner of the weaving shed, especially so given that the earlier mill was itself at least partly steam powered. The new wheelpit was constructed perpendicular to its predecessor, an orientation perhaps dictated by that of the power transmission system within the new building, but it would have required little alteration to the existing water management system.

7.6 The form and structure of the wheelpit were recorded following demolition of the building, and during targeted, mechanical excavation. At the outset, only the outline of the wheelpit was visible within a large amount of demolition rubble, although a slender iron rod, perhaps a power shaft, emerged from it (**14**-**20**).

7.7 The wheelpit had a maximum length of 7.9m and a width of 1.5m, and had a later turbine installed within it. Three of the walls were vertical, their lower parts built from deeply coursed stone, with rubble to the upper parts, but the east end wall was of coursed ashlar, with a concave profile (perhaps salvaged from the earlier mill); the base of the pit was not exposed (**21**-**25**). There was a doorway through the north wall, and a recess opposite in the south wall, and the axle bearings would have been located within these (**26**). The presence of a large stone block, with oil stains below, at the upper south-east corner (**27**), implies that the wheel was of suspension design with a ring gear, and that the pinion was located at this corner. Another large block with fastening holes was detached from the wheelpit during demolition, and appears to have been the base for a bearing (**28**). Similar oil staining was observed at a higher level at the north-east corner of the wheelpit (**29**,**30**). No evidence survived to show exactly how the water supply was fed to the wheel, but the relative position of the goit feeding it suggests that a pitchback arrangement was employed.

7.8 The water turbine exposed during excavation had been installed on a platform of steel beams spanning the wheelpit, and appears to have been installed in the first half of the 20th century to generate electricity, rather than supply mechanical

power to the mill[21] (**31**). It was spiral in form, of cast iron or steel with a 300mm diameter to the top pipe, from which the penstock had been removed, and from the north side ran a horizontal shaft (**32**,**33**). The outlet pipe descended vertically on the north side.

7.9 To the north of the wheelpit were other, fragmentary structural remains, apparently associated with power generation, but of uncertain purpose (**34**). They include a length of smoke-blackened wall built from refractory bricks, with curved west end, likely to represent part of the boiler house (**35**,**36**). Immediately west of here, set within another brick wall, is a large former wall bearing (**37**,**38**), though its former function and relationship to engine house and weaving shed remains unknown: possibly it took power to the spinning mill to the north, which was burned out in 1916. Within the narrow space of approximately 2m between this wall and the north side of the wheelpit were further remains associated with the turbine, perhaps a means of control (**39**-**42**).

8 Conclusion

8.1 The circumstances of recording, after demolition of the weaving shed, mean that the archaeological information retrieved at Brooks Meeting Mill is small, and largely confined to the nature of the wheelpit below the 1880s weaving shed. However, in combination with historic photographs and documents it is possible to establish something of the functioning and power supply at the mill. In technological terms, the site's significance lies in the very late use of water power for worsted production, and it is highly unusual for a mill newly built in the 1880s to have been equipped with a waterwheel, particularly so as there was already a history of steam power at the site, in the earlier mill. Although the rebuilt mill was certainly provided with steam power by 1892, it cannot now be established archaeologically whether there was a steam engine from the outset, or whether it was added shortly afterwards to replace or supplement water power. It is also significant that the wheelpit was later adapted to house a water turbine, probably for electricity generation. There is no suggestion that the weaving shed was notable in any aspect other than the incorporation of the wheelpit and perhaps the power alley, and the 1910 warehouse block is relatively ordinary in terms of the history of Yorkshire textile mills, as well as being well documented.

[21] The mill was noted as having electrically-driven looms in 1947 *Yorkshire Observer*, 16 January 1947 (WYAS Bradford, WYB362/7/7)

Appendix 1: WYAAS Specification

SPECIFICATION FOR ARCHAEOLOGICAL PHOTOGRAPHIC RECORDING AND STRUCTURAL WATCHING BRIEF AT BROOKS MEETING MILL, OXENHOPE, HAWORTH WEST YORKSHIRE

SE 402509 435079

This specification details the general requirements for an archaeological and architectural photographic record and structural watching brief during targeted demolition of Brooks Meeting Mill.

This specification was produced for ken Robinson of Dales Design (Craiglands Farm, Dick Lane Cowling, Keighley, England, BD22 0JZ Tel.: 07926 459745) on behalf of Wakefield Metropolitan District Council (planning permission 15/05054/MAF).

1.1 This specification covers the requirements for an archaeological and architectural photographic record of Brooks Meeting Mill prior to the demolition of its weaving sheds and former wheel pit and engine house.

1.2 This specification has been written by the West Yorkshire Archaeology Advisory Service (WYAAS), the holders of the West Yorkshire Historic Environment Record.

2.1 Brooks Meeting Mill is a small textile mill complex constructed in stone with a slate roof. On the southern side it comprises a long two storey east-west aligned building which is one room thick. Behind this to the north is a weaving shed with cast iron columns although its wooden truss roof rests on steel beams suggesting a mid –late 20th century recovering. Beyond this are space associated with the generation and distribution of power to the mill. Bearing boxes in the walls and bolting faces on the column indicate the general layout and provision of power to the production spaces

2.2 It is not currently known if the origins of the mill are associated with the grade II listed cottage at the entrance to the site. This cottage bears the date 1826. The mill is shown on the Ordnance Survey First Edition 6” to the mile map which was surveyed in the 1840 and describes it as a worsted mill. There is evidence of a water powered mill a decade before this date when nine Baptists were immersed and baptised in the mill pond during 1839. The early water powered mill was slightly to the east and north of the present weaving shed. The mill pond drew upon the Moorhouse and Rag Clough becks to supply water to the mill.

2.3 By the 1890s the mill had been reconstructed. In this phase the mill has a similar but larger footprint than the current building. The two story front block was then apparently rebuilt in 1910, if a date stone bearing the cypher W+G JR 1910, is to be believed. It is not currently known if the weaving shed is contemporary with W+G’s reconstruction or relates to the 19th century development of the site.

2.4 The mill continued to be water powered throughout the later 19th century (although the WYAAS could not access the relevant part of the mill to confirm details of this during a site visit in December 2017). The leat from the mill pond enters the western side of the mill where a narrow roofed corridor runs separate to and along the northern edge of the weaving shed. This corridor housed a wheel pit and also functioned as a power ally supplying the weaving shed to the south.

2.5 The continued use of water power in the production of textiles is not common in the county during the later 19th century and the provision of new purpose built buildings, wheels etc. exploiting water power is rare. A notable example, employing a huge open air suspension wheel, was provided nearby at the contemporary weaving sheds of Bridgehouse Mills, Haworth (West Yorkshire Historic Environment Record PRN 15922).

2.6 A 1879 plan of the mill is included in Steven Woods' Haworth, Oxenhope and Stanbury From Old Maps (Amberley Publishing 2014) This shows the arrangement of the mill and mill pond and naming a wheel pit on an. However, the precise arrangements of this water powered mill are not currently understood in detail and a water turbine may have been used to provide mechanical power to the mill's machinery (as has been recorded at Garnets Mill, Otley).

2.7 A steam engine was clearly added on northern side of the mill in a brick built engine house and was so positioned so that it could have engaged with the earlier drive train to power the mill's machinery. The general look and feel of the engine house is of an early 20th century building housing a relatively small horizontal steam engine.

2.8 As an unusual and comparatively complete example of a small worsted mill it is important to record the general form and development of the complex. Due to previous demolition and decay and difficulty of access the wheel pit, power ally and later engine house should be recorded during demolition by a structural watching brief and related to the 1879 plan.

2.9 For an understanding of relevant archaeological research priorities for hospital buildings in West Yorkshire please see the historic buildings research agenda available as a PDF document to download from the WYAAS website:

http://www.wyjs.org./archaeologyuk-advisory/

3.1 The aim of the proposed work is to identify and objectively record by means of photographs and structural watching brief significant architectural features and evidence for the original and subsequent historical form and functions of the mill complex, and to place this record in the public domain by depositing it with the West Yorkshire Historic Environment Record (West Yorkshire Archaeology Advisory Service , West Yorkshire Joint Service, Nepshaw Lane South, Morley, Leeds LS27 7JQ tel. 0113 393 9959; email wyher@wyjs.org.uk). The building recorder on site should give particular attention to recording as far as possible the functional arrangements and division of the mill.

4.1 Health and Safety

4.1.1 The building recorder on site will naturally operate with due regard for Health and Safety regulations. Prior to the commencement of any work on site the building recorder may wish to carry out a Risk Assessment on the building / structure in accordance with the Health and Safety at Work Regulations. The building recorder should identify any contaminants which constitute potential Health and Safety hazards (e.g. chemical drums) and make arrangements with the owner / developer for decontamination/making safe as necessary and appropriate. The WY Archaeology Advisory Service and its officers cannot be held responsible for any accidents or injuries which may occur to outside contractors engaged to undertake this survey while attempting to conform to this specification.

4.2 Confirmation of Adherence to Specification

4.2.1 Unauthorised variations are made at the sole risk of the building recorder. Proposed modifications presented in the form of a re-written specification/project design will not be considered. For technical queries see para. 8.1.

4.3 Confirmation of Timetable and Contractors' Qualifications

4.3.1 Prior to the commencement of any work, the building recorder must provide the local planning authority and WYAAS in writing with:

- a projected timetable for the site work
- details of the staff structure and numbers
- names and *CVs* of key project members (the project manager, site supervisor, any proposed specialists, sub-contractors *etc.*)

4.3.2 All project staff provided by the building recorder must be suitably qualified and experienced for their roles. In particular, staff involved in building recording should have proven expertise in the recording and analysis of hospital buildings. The timetable should be adequate to allow the work to be undertaken to the appropriate professional standard.

4.4 Notification and Monitoring

4.4.1 The Local Authority and WYAAS should receive at least one week's notice in writing of the intention to start fieldwork.

5 Recording Methodology

5.1 Site preparation

5.1.1 Prior to the commencement of work on site the building recorder should identify all removable modern material (including late 20th and 21st-century partitions, dry-boarding, suspended ceilings etc.) which may significantly obscure material requiring a photographic record, and should contact the developer in order to make arrangements for its removal. It is not the intention of this specification that large-scale removal of material of this type should take place with the building recorder's manpower or at that contractor's expense.

5.2 Documentary research

5.2.1 The building recorder should undertake a rapid map-regression exercise based on the readily-available map and photographic evidence, the 1879 plan mentioned above and sources held by the Bradford Local History Library and the Bradford office of the West Yorkshire Archive Service (WYAS Bradford, , Prince's Way, Bradford BD1 1NN Telephone: +44 (0)113 393 9785 [sic] Email: bradford@wyjs.org.uk), and a rapid examination of the available 19th- and 20th-century Trades and Postal directories, the appropriate census returns and all other available primary and relevant secondary sources. This work is intended to inform the building recording by providing background information with regard to function and phasing. Please note that this exercise is not intended to be a formal desk-based assessment, and should not represent a disproportionate percentage of the time allowed for the project overall.

5.3 Site/building plans

5.3.1 If as "existing plans" of the mill have been located then, if appropriate, these plans may be used for any annotation relative to the photographic record (permission of the copyright holder must be sought).

5.3.2 Failing this, an accurate sketch plan of the hospital layout, marked with a north pointer, should be derived from the most appropriate large-scale historic mapping and reproduced at an appropriate scale (not smaller than 1:100). This plan should then be used for any annotation relative to the photographic record.

6 Photographic Record

6.1 External photographs

6.1.1 An external photographic record should be made of all elevations of the mill complex, from vantage points as nearly parallel to the elevation being photographed as is possible within the constraints of the site. The contractor should ensure that all visible elements of each elevation are recorded photographically; this may require photographs from a number of vantage points. A general external photographic record should also be made which includes a number of oblique general views of the mill from all sides, showing it/them and the complex as a whole in its setting. In addition, a 35mm general colour-slide survey of the building should also be provided (using a variety of wide-angle, medium and long-distance lenses). While it is not necessary to duplicate every black-and-white shot, the colour record should be sufficiently comprehensive to provide a good picture of the form and general appearance of the mill. The colour slide record should also include some internal shots. (See para. 6.5 below for possible use of digital photography in place of colour transparency)

6.2 Internal photographs

6.2.1 A general internal photographic record should be made of the hospital. General views should be taken of each room or discrete internal space from a sufficient number of vantage points to adequately record the form, general appearance and manner of construction of each area photographed. In areas which are wholly modern in appearance, character and materials, a single shot to record current appearance will suffice.

6.3 Detail photographs

6.3.1 In addition, detailed record shots should be made of all features of archaeological and architectural interest identified during the process of appraisal. Typically, items of interest would include:

- All original structural elements, roof structures / trusses
- Any inscriptions, dedications or date stones
- Original doors and window frames
- Evidence of original floor coverings
- Evidence of original wall coverings e.g. glazed brick
- Original staircases and other access arrangements
- Evidence of the original heating and ventilation arrangements, e.g. central heating, open fires etc.
- Evidence of original specialist rooms or structures, e.g. offices, weaving shed, engine house, wheel pit
- Evidence of the mill's prime movers and power sources
- Evidence of water, steam and electrical power

But this list should not be treated as exhaustive. The building recorder on site should also identify and note:

- any significant changes in construction material – this is intended to include significant changes in stone/brick type and size
- any blocked, altered or introduced openings
- evidence for phasing, and for historical additions or alterations to the building.

6.3.2 Elements for which multiple examples exist (e.g. each type of roof truss, column or window frame) may be recorded by means of a single representative illustration. N.B. Detail photographs must be taken at medium-to-close range and be framed in such a way as to ensure that the element being photographed clearly constitutes the principal feature of the photograph.

6.3.3 Areas which cannot be safely entered should be subject to a structural watching brief during demolition.

6.4 Equipment

6.4.1 General photographs should be taken with a Large Format monorail camera (5" x 4" or 10" x 8"), or with a Medium Format camera that has perspective control, using a tripod. The contractor must have proven expertise in this type of work. Any detail photographs of structural elements should if possible be taken with a camera with perspective control. Other detail photographs may be taken with either a Medium Format or a 35mm camera. All detail photographs must contain a graduated photographic scale of appropriate dimensions (measuring tapes and surveying staffs are not considered to be acceptable scales in this context). A 2-metre ranging-rod, discretely positioned, should be included in a selection of general shots, sufficient to independently establish the scale of all elements of the structure.

6.5 Film stock

6.5.1 All record photographs to be black and white, using conventional (not chromogenic) silver-based film only, such as Illford FP4 or HP5, or Delta 400 Pro that is replacing HP5 in certain film sizes (such as 220). Dye-based films such as Ilford XP2 and Kodak T40CN are unacceptable due to poor archiving qualities.

6.5.2 Also see alternative for archiving digital images below.

6.5.3 Use of Digital Archiving in Place of Medium Format Film

6.5.3.1 In response to the mounting costs and decreasing numbers of practitioners offering professional photographic building recording on large and medium format chemical film the WYAAS have investigated other means to secure the long term preservation of photographic images. The WYAAS are satisfied that it is now feasible to substitute digital photography for this aspect of building recording in some projects as an alternative to monochrome photography as specified above.

6.5.3.2 The long-term archiving and curation of image captured during building recording will be carried out by the Archaeological Data Service (ADS). The ADS charge for this service and it is the contractor's responsibility to pay for this long term curation. See:

http://archaeologydataservice.ac.uk/advice/chargingPolicy.xhtml

6.5.3.3 An estimate of the cost of archiving digital images and reports using the ADS Easy service can be obtained from the ADS website:

http:/archaeologydataservice.ac.uk/easy/costing

6.5.3.4 The buildings archaeologist should be aware of the ADS' polices and requirements for metadata accompanying digital files. Comprehensive guidance can be found on the ADS website dealing with planning for the creation of a digital archive, collecting data, selection and discard policies, file structures, licencing and the transfer of material to the ADS.

6.5.4 Equipment

6.5.4.1 A digital SLR with a resolution of at least 10 megapixel should be employed. Cameras with an FX sensor, which is close to equivalency with 35mm film, are preferable to DX sensor equipped cameras. A variety of lenses should be used to best capture the subject and its setting

6.5.4.2 Care should be taken to ensure sharply focused well composed photographs are taken and when appropriate the camera should be set up and levelled on a tripod, e.g. when recording facades and larger interior spaces. The use of perspective shift lenses or pan and tilt adaptors may be necessary in some situations to achieve an acceptable image. Alternatively lens distortion may be removed post-capture by software but this must be recorded in the photographic catalogue and details of the software used given in the report. Original pre-correction images should be included in the site archive.

6.5.4.3 Photographs should be taken with a low ISO setting to reduce noise in the images captured.

6.5.4.4 The camera should also be Exchange Image File (EXIF) compliant and accurate time, date and, where applicable, GPS information and other metadata set up prior to commencing recording work on site. Further requirements relating to metadata are described below.

6.5.5 Archiving Digital Photographs

6.5.5.1 Photographs and reports should be archived using the ADS Easy online service. (http://archaeologydataservice.ac.uk/easy/home) An estimate of the cost to archive digital images and reports using the ADS Easy service can be obtained from the ADS website

http://archaeologydataservice.ac.uk/easy/costing

6.5.5.2 The buildings archaeologist should be aware of the ADS' polices and requirements for metadata accompanying digital files. Comprehensive guidance can be found on the ADS website dealing with planning for the creation of a digital archive, collecting data, selection and discard policies, file structures and naming conventions, licencing and the transfer of material to the ADS

http://archaeologydataservice.ac.uk/advice/guidelinesForDepositors.xhtml

6.5.5.3 Meta data: in addition to the EXIF data stored in each image the contractor should create Project Level meta data. The coverage field in this document should include the historic township, site name and grid reference of the site (http://guides.archaeologydataservice.ac.uk/g2gp/CreateData_1-2)

6.5.5.4 A raster data meta data file, cataloguing the digital photographs, should also be prepared. A template for this spreadsheet is available to download from the ADS (a template & examples of the latter are available from the ADS at:

http://archaeologydataservice.ac.uk/advice/FilelevelMetadata.xhtml

6.5.5.5 When depositing files with the ADS the contractor should enable the automatic notification of the completion of this process and have an email sent from the ADS to the WYAAS at the following address wyher@wyjs.org.uk.

6.5.5.6 The WYAAS will only recommend the discharge of planning conditions upon receipt of a notification from the ADS that photographs have been archived.

6.5.5.7 Please note the WYAAS still require hard copy of the report accompanied by laser prints of the photographs on archivally stable paper and a facsimile copy of the report in PDF format and the images on a "gold" archive quality CD.

6.6 Digital photography In place of colour slide film

6.6.1 As an alternative for colour slide photography, good quality digital photography may be supplied, using cameras with a minimum resolution of 10 megapixels. Digital photography should follow the guidance given by Historic England in Digital Image Capture and File Storage: Guidelines for Best Practice, July 2015. Note that conventional black and white print photography is still required and constitutes the permanent record. Digital images will only be acceptable as an alternative to colour slide photography if each image is supplied as both a JPEG and a TIFF versions. The latter as an uncompressed 8-bits per channel TIFF version 6 file of not less than 25Mbs (See section 2.3 of the Historic England guidance). The contractor must include metadata embedded in the TIFF file. The metadata must include the following: the commonly used name for the site being photographed, the relevant centred OS grid coordinates for the site to at least six figures, the relevant township name, the date of photograph, the subject of the photograph, the direction of shot and the name of the organisation taking the photograph. **Any digital images are to be supplied to WYAAS on archive quality "gold" CDs by the archaeological contractor accompanying the hard copy of the report.**

6.7 Printing

6.7.1 Record photographs should be printed at a minimum of 5" x 7" .In addition a small selection of photographs (the best of the exterior setting shots and interior shots with important detail) should be printed at 10" x 8". Bracketed shots of identical viewpoints need not be reproduced, but all viewpoints must be represented within the report.

6.7.2 Prints may be executed digitally from scanned versions of the film negatives, and may be manipulated to improve print quality (but not in a manner which alters detail or perspective). All digital prints must be made on paper and with inks which are certified against fading or other deterioration for a period of 75 years or more when used in combination. If digital printing is employed, the contractor must supply written details of the paper/inks used in writing to the local authority with supporting documentation indicating their archival stability/durability.

7 Documentation

7.1.1 A photographic register and photo location plan are required. The photographic register should (as a minimum) include location, direction and subject of shot must accompany the photographic record; a separate photographic register should be supplied for any colour slides and digital photographs. Position and direction of each photograph and slide should be noted on a scaled copy of the building plan (minimum acceptable scale 1:100), which should also be marked with a north pointer. Separate plans should be annotated for each floor of the building/ structure. (See also para. 5.3 above.)

8 Structural watching brief

8.1.1 Subsequent to the commencement of demolition work on site, a structural watching brief should be maintained by the contracting archaeologist to record any pertinent historic structural or functional detail of the engine house and wheel pit areas which may be exposed during the course of demolition but which are currently inaccessible, overbuilt or obscured by later alterations to a degree not remediable under normal circumstances of site preparation.

8.1.2 This record should be obtained by means of notes, drawings and photographs as appropriate, to the standards outlined elsewhere in this specification. This detail should then be incorporated into the completed record.

8.2 Written Record

8.2.1 The archaeologist on site should carefully examine all parts of the building prior to the commencement of the drawn and photographic recording, in order to identify all features relevant to its original use and to obtain an overview of the development of the building and of the site as a whole. As part of this exercise, the archaeologist on site should produce written observations (e.g. on phasing; on building function) sufficient to permit the preparation of a report on the structure. This process should include the completion of a Room Data Sheet or similar structured recording pro-forma[22] for each room or discrete internal space within the volume of the structure. The crucial requirement is that each room should be examined individually, that the results of that examination should be noted in a systematic fashion, and that these objective observations should be used to inform an analytical interpretation of the overall development and operation of the site.

8.3 Drawn Record

8.3.1.1 The drawn record should comprise:

- A plan / measured drawings of the engine house, wheel pit and power alley at a scale of 1:100

8.3.1.2 Plans and elevations should be made at an appropriate scale (not smaller than 1:100 for plans; not smaller than 1:50 for sections & elevations). The scale employed for diagrams should be determined by the buildings archaeologist. The structures should be recorded as existing, but a clear distinction should be made on the final drawings between surviving as-built features and all material introduced in the structure during the late 20th-century.

8.4 <u>Provision for Additional Drawings</u>

8.4.1 The recording requirements outlined above are based on a brief inspection of the site by the WY Archaeology Advisory Service. However, detailed examination and analysis of the site by the archaeological contractor may reveal features which merit detailed recording beyond what has been specifically required. In addition to what is requisite to complete the work specified above, the archaeological contractor should tender for a contingency period of two days recording on site (with two day drawing-up time off site – 4 days in total) in order that features so identified may be adequately recorded. This contingency should be clearly and separately identified in any tender document.

[22] The WY Archaeology Advisory Service would recommend the employment of the attached pro-forma, but will consider any suitable alternative which the archaeological contractor may wish to submit (Note that agreement for the employment of an alternative *schema* must be obtained in writing from the WY Archaeology Advisory Service prior to the commencement of work on site).

8.4.2 If features requiring additional drawing are identified during the course of work on site, the WY Archaeology Advisory Service should be contacted as soon as possible, and should be provided in writing with a schedule of proposed additional work. A site visit will then be arranged by the WYAAS to examine the features in question and to assess the need to apply the contingency (this visit will usually be combined with a routine monitoring visit). Implementation of the contingency will be at the decision of the West Yorkshire Archaeology Advisory Service, which will be issued in writing, if necessary in retrospect after site discussions.

8.5 Scope of record

8.5.1 See paragraph 6.3.1 above.

8.6 Dimensional accuracy

8.6.1 Dimensional accuracy should accord with the normal requirements of the English Heritage Architecture and Survey Branch (at 1:20, measurements should be accurate to at least 10mm; at 1:50, to at least 20mm; at 1:100, to at least 50mm).

8.7 Drawing method

8.7.1 The survey may be executed either by hand or by means of reflectorless EDM as appropriate.

8.7.2 Consultation with commercial and academic practitioners suggests high resolution terrestrial time of flight laser scanning would also be a viable means to collect metric data but note the finished product remains clearly executed drawings to the standard outlined below. Point cloud data should be archived in accordance with the guidance provided by “3D Laser Scanning for Heritage 2nd Edition” (English Heritage 2011 p.15 -16) and Archaeological Data Service’s Big Data Project and use the .LAS (.las) format.

8.7.3 6.4.6 In accordance with national guidelines[23], drawings executed on site should be made either on polyester-based film (minimum thickness 150 microns) with polymer-bonded leads of an appropriate thickness and density, or on acid-free or rag paper. If finished drawings are generated by means of CAD or a similar proven graphics package, recorders should ensure that the software employed is sufficiently advanced to provide different line-weight (point-size); this feature should then be used to articulate the depth of the drawings. CAD repeats or cloning of features should **not** be used. What is required as an end product of the survey is a well-modelled and clear drawing; ambiguous flat-line drawings should be avoided. Drawing conventions should conform to English Heritage guidelines as laid out in English Heritage 2006, Understanding Historic Buildings – a guide to good recording practice, and the WYAAS would recommend that the CAD layering protocol detailed in the same volume (8.3, Table 2) should be adhered to.

9 Post-Recording Work and Report Preparation

9.1 Report Preparation

9.1.1 Report format and content

9.1.1.1 A written report should be produced. This should include:

[23] English Heritage 2006, *Understanding Historic Buildings – a guide to good recording practice*, 7.1.1ff

- an executive summary including dates of fieldwork, name of commissioning body, planning application reference and condition number and a brief summary of the results including details of any significant findings
- an introduction outlining the reasons for the survey
- a brief architectural description of the mill presented in a logical manner (as a walk around and through the complex, starting with setting, then progressing to all sides of the structure in sequence, and finally to the interior from the ground floor up) and discuss how it was powered
- a discussion placing the mill in its local and historical contexts, describing and analysing the development of individual structures and of the complex as a whole. This analysis should consider the historical plan form, and layout of the hospital building.

Both architectural description and historical/analytical discussion should be fully cross-referenced to the photographic record, sufficient to illustrate the major features of the site and the major points raised.

9.1.2 Report Illustrations

9.1.2.1 Illustrations should include:

- a location map at a scale sufficient to allow clear identification of the building(s)/structure in relation to other buildings in the immediate area
- a complete set of site drawings at a legible scale, on which position and direction of each photograph has been noted
- any relevant historic map editions, with the position and extent of the site clearly indicated
- A plan of the engine house and wheel pit areas
- any additional illustrations pertinent to the site
- a complete set of good-quality laser copies of all photographs. All photographs should be accompanied by detailed captions clearly locating and identifying any pertinent features.

9.1.2.2 The latter should be bound into the report, appropriately labelled (numbered, and captioned in full) and fully referenced within the report. When captioning, contractors should identify the individual photographs by means of a running sequence of numbers (e.g. Plate no. 1; Plate no. 2), and it is this numbering system which should be used in cross-referencing throughout the report and on the photographic plans. However, the relevant original film and frame number should also be included in brackets at the end of each caption.

9.2 Report deposition

9.2.1 The report should be supplied to the client and to the local planning authority and an identical copy (but also including the photographic prints and any colour slides) supplied to the West Yorkshire HER – see para.7.3 below for details). A facsimile copy of the report in ISO 19005 compliant .pdf(A) format should also be supplied on an archive quality “gold” CD. The finished report should be supplied within twelve weeks of completion of all fieldwork unless otherwise agreed with the local authority. The report will become publicly accessible once deposited with the West Yorkshire Historic Environment Record, unless confidentiality is explicitly requested, in which case it will become publicly accessible six months after deposit.

9.2.2 The West Yorkshire HER supports the Online Access to Index of Archaeological Investigations (OASIS) project. The overall aim of the OASIS project is to provide an online index to the mass of archaeological grey literature that has been produced as a result of the advent of large-scale developer funded fieldwork. The building recorder must therefore complete the online OASIS form at http://ads.ahds.ac.uk/project/oasis/. Contractors are advised to contact the West Yorkshire HER officer prior to completing the form. Once a report has become a public document by submission to or incorporation into the HER, the West Yorkshire HER may place the information on a web-site. Please ensure that you and your client agree to this procedure in writing as part of the process of submitting the report to the case officer at the West Yorkshire HER.

9.2.3 With the permission of the client, the building recorder is encouraged to consider the deposition of a copy of the report for this site with the appropriate Local History Library.

10 Archive Deposition

10.1.1 Deposition with WYAAS (as holders of the West Yorkshire Historic Environment Record)

10.1.2 The report copy supplied to the WY Archaeology Advisory Service (see address at the base of this document) should also be accompanied by both the photographic negatives and a complete set of labelled photographic prints (mounted in KENRO display pockets or similar, and arranged in such a way that labelling is readily visible) bound in a form which will fit readily into a standard filing cabinet suspension file (not using hard-backed ring-binders). Labelling should be on the back of the print in pencil giving film and frame number only (taking care not to damage the print) and on applied printed labels stuck on the front of the relevant photographic sleeve and which should include:

- film and frame number
- date recorded and photographer's name
- name and address of building
- national grid reference
- specific subject of photograph.

Negatives should be supplied in archivally stable mounts (KENRO display pockets or similar), and each page of negatives should be clearly labelled with the following:

- national grid reference
- Site name and address
- Date of photographs (month/year)
- Name of archaeological contractor
- Film number

10.1.3 Colour slides should be mounted, and the mounts suitably marked with the ‘Castleford Hospital’ the site name at the top of the slide; grid reference at the bottom; date of photograph at the right hand side of the mount; subject of photograph at the left hand side of the mount. Subject labelling may take the form of a numbered reference to the relevant photographic register. The slides should be supplied to the WY Archaeology Advisory Service in an appropriate, archivally stable slide hanger (for storage in a filing cabinet). In all other respects, standards for archive compilation and transfer should conform to those outlined in Archaeological Archives – a guide to best practice in creation, compilation, transfer and curation (Archaeological Archives Forum, 2007).

10.1.4 7.3.3 Copyright - Please note that by depositing this report, the contractor gives permission for the material presented within the document to be used by the WYAAS, in perpetuity, although The Contractor retains the right to be identified as the author of all project documentation and reports as specified in the Copyright, Designs and Patents Act 1988 (chapter IV, section 79). The permission will allow the WYAAS to reproduce material, including for use by third parties, with the copyright owner suitably acknowledged.

11 Technical Queries

11.1.1 Any technical queries arising from the specification detailed above, should be addressed to WYAAS without delay.

12 Valid Period of Specification

12.1.1 This specification is valid for a period of one year but may then need to be revised to take account of changing techniques and approaches.

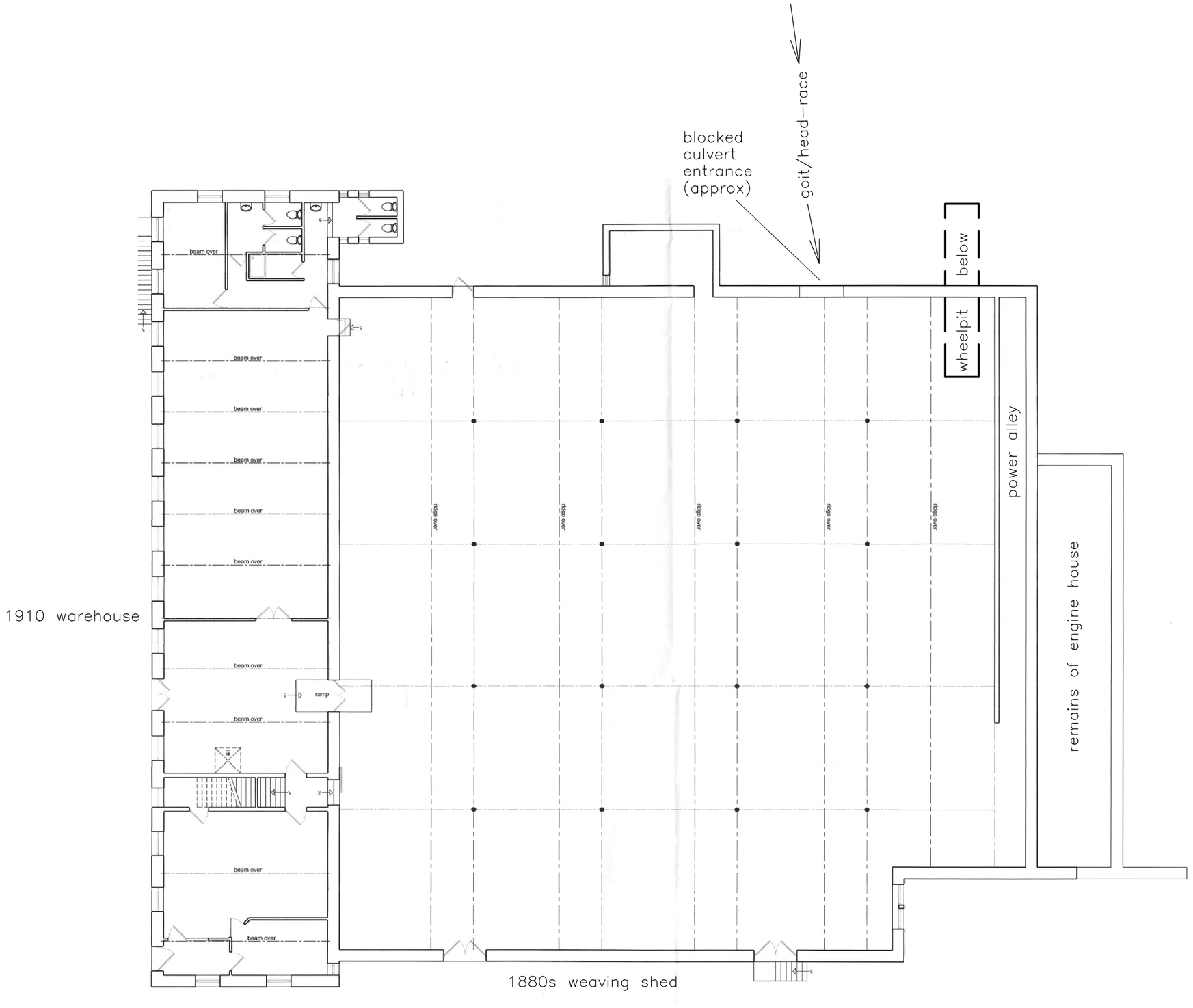
West Yorkshire Archaeology Advisory Service **January 2018**
West Yorkshire Joint Service,
Nepshaw Lane South,
Morley,
Leeds
LS27 7JQ

Telephone: 0113 393 9715
E-mail: david.hunter@wyjs.org.uk

Appendix 2: List of digital photographs

CD of photographs (in JPG & TIFF formats) deposited with the West Yorkshire Historic Environment Record

Photo	Subject
d01	General view of 1910 warehouse block and 10 West Shaw Lane, looking north-west
d02	The 1910 warehouse, looking north-east
d03	The 1910 warehouse, looking north-west
d04	The 1910 warehouse, looking south-west across site of demolished weaving shed
d05	View of goit and former reservoir to west of site, looking west
d06	View north-east towards wheelpit, with beck and Brook House at left
d07	Wheelpit, as visible at start of watching brief, looking south-west with shaft(?) visible
d08	Wheelpit, as exposed during excavation, with turbine in place, looking south-west
d09	Wheelpit, as exposed during excavation, looking west with goit visible beyond
d10	Wheelpit, as exposed during excavation, with turbine in place, looking south-east
d11	Wheelpit: masonry to east end, with bearing for pinion at top, looking south
d12	Wheelpit, as visible at start of watching brief, looking north-east
d13	Turbine within wheelpit, looking south-east
d14	Turbine within wheelpit, looking south
d15	Turbine within wheelpit, looking east
d17	Remains of boiler house and former bearing beyond, looking south-west



10m approx

PLAN BY DALES DESIGN AND DEVELOPMENT, 2017

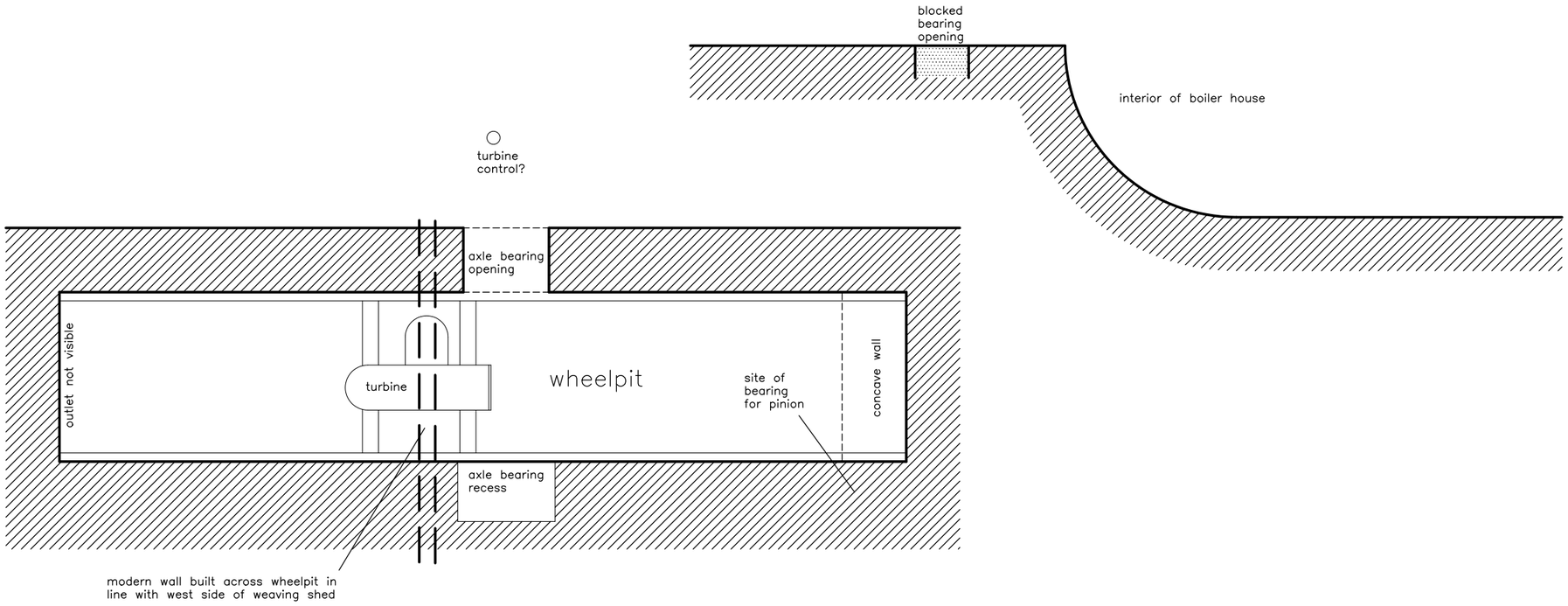
BROOKS MEETING MILL
WEST SHAW LANE
OXENHOPE, WEST YORKSHIRE
(NGR: SE 02509 35079):
ARCHAEOLOGICAL RECORD

FIGURE 15:
GROUND FLOOR PLAN
PRIOR TO DEMOLITION

SCALE: APPROX 1:200 (at A3)

DATE OF SURVEY: JUNE 2017

STEPHEN HAIGH
Buildings Archaeologist



5m

KEY

blocking or infill

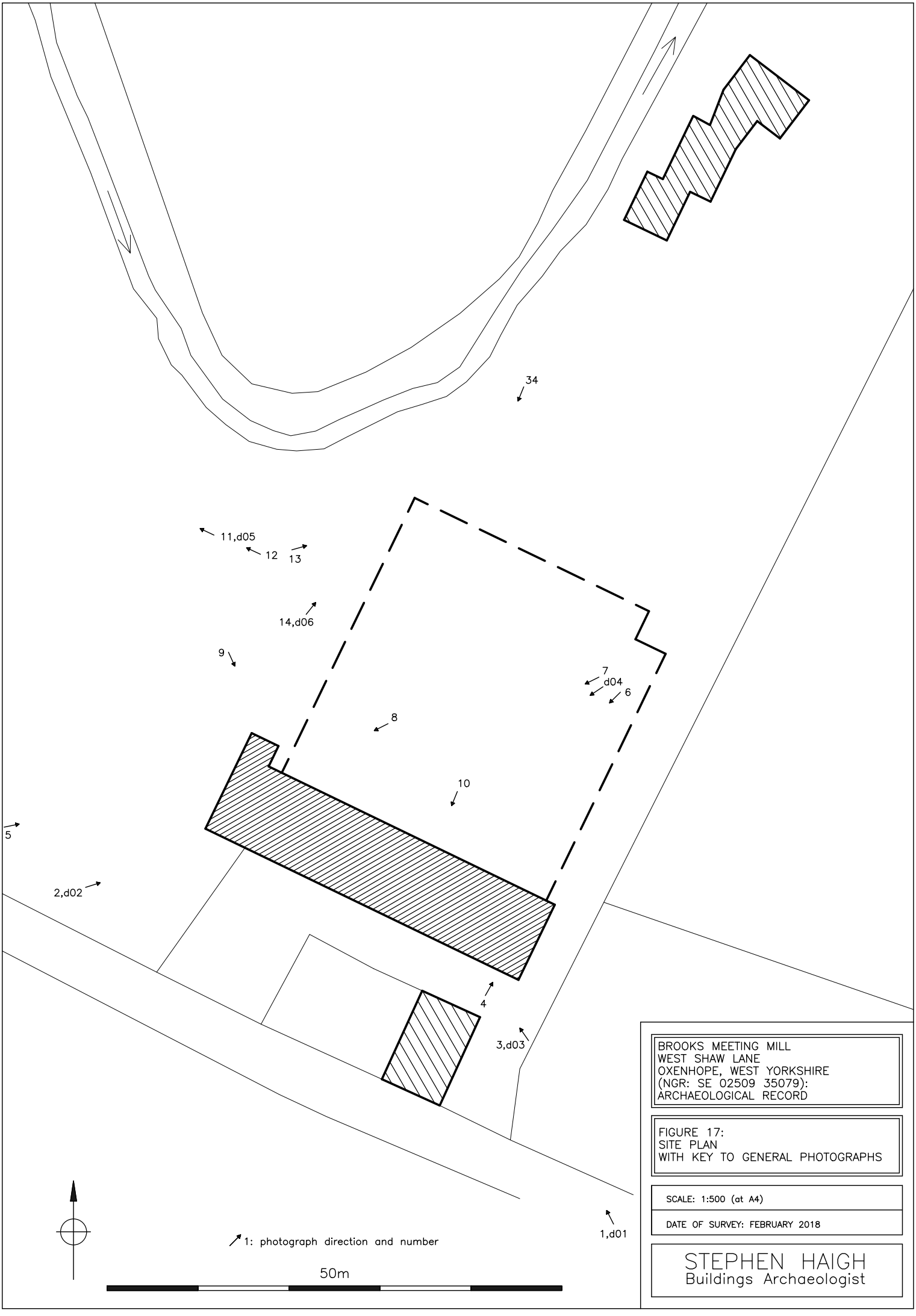
BROOKS MEETING MILL
WEST SHAW LANE
OXENHOPE, WEST YORKSHIRE
(NGR: SE 02509 35079):
ARCHAEOLOGICAL RECORD

FIGURE 16:
PLAN OF WHEELPIT

SCALE: 1:50 (at A3)

DATE OF SURVEY: FEBRUARY 2018

STEPHEN HAIGH
Buildings Archaeologist



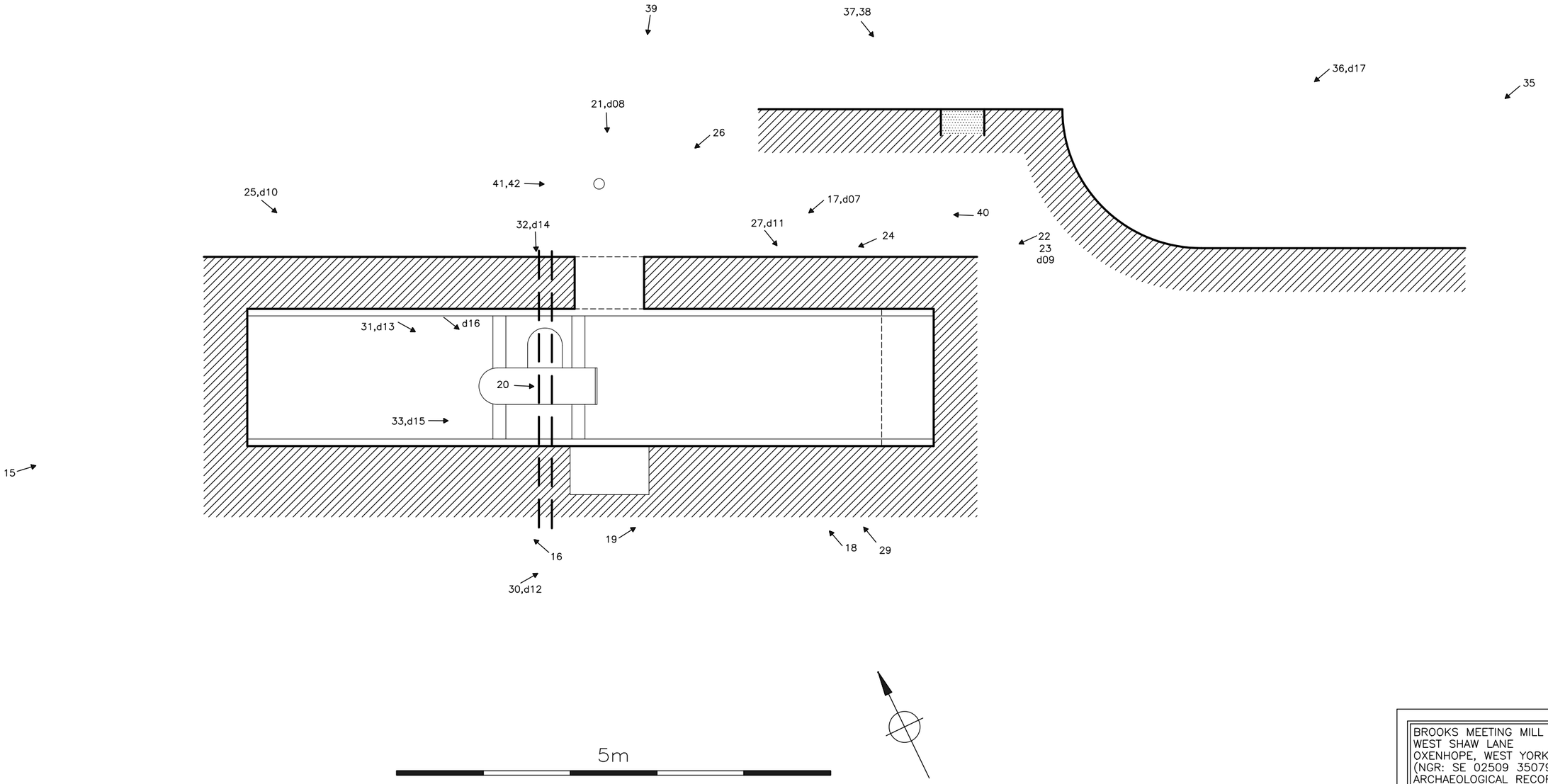
BROOKS MEETING MILL
WEST SHAW LANE
OXENHOPE, WEST YORKSHIRE
(NGR: SE 02509 35079):
ARCHAEOLOGICAL RECORD

FIGURE 17:
SITE PLAN
WITH KEY TO GENERAL PHOTOGRAPHS

SCALE: 1:500 (at A4)

DATE OF SURVEY: FEBRUARY 2018

STEPHEN HAIGH
Buildings Archaeologist



KEY

↗ 1: photograph direction and number

BROOKS MEETING MILL
WEST SHAW LANE
OXENHOPE, WEST YORKSHIRE
(NGR: SE 02509 35079):
ARCHAEOLOGICAL RECORD

FIGURE 18:
PLAN OF WHEELPIT
WITH KEY TO PHOTOGRAPHS

SCALE: 1:50 (at A3)

DATE OF SURVEY: FEBRUARY 2018

STEPHEN HAIGH
Buildings Archaeologist

Photo 1: General view of 1910 warehouse block and 10 West Shaw Lane, looking north-west (film 1, frame 1)

Photo 2: The 1910 warehouse, looking north-east (film 1, frame 4)

Photo 3: The 1910 warehouse, looking north-west (film 1, frame 2)

Photo 4: The 1910 warehouse: detail of date-stone (film 1, frame 5)

Photo 5: The 1910 warehouse, looking north-east (film 2, frame 10)

Photo 6: The 1910 warehouse, looking south across site of demolished weaving shed (film 1, frame 6)

Photo 7: The 1910 warehouse, looking south-west across site of demolished weaving shed (film 1, frame 7)

Photo 8: The 1910 warehouse, looking south-west to privy block (film 1, frame 10)

Photo 9: The 1910 warehouse, looking south-east across site of demolished weaving shed (film 1, frame 11)

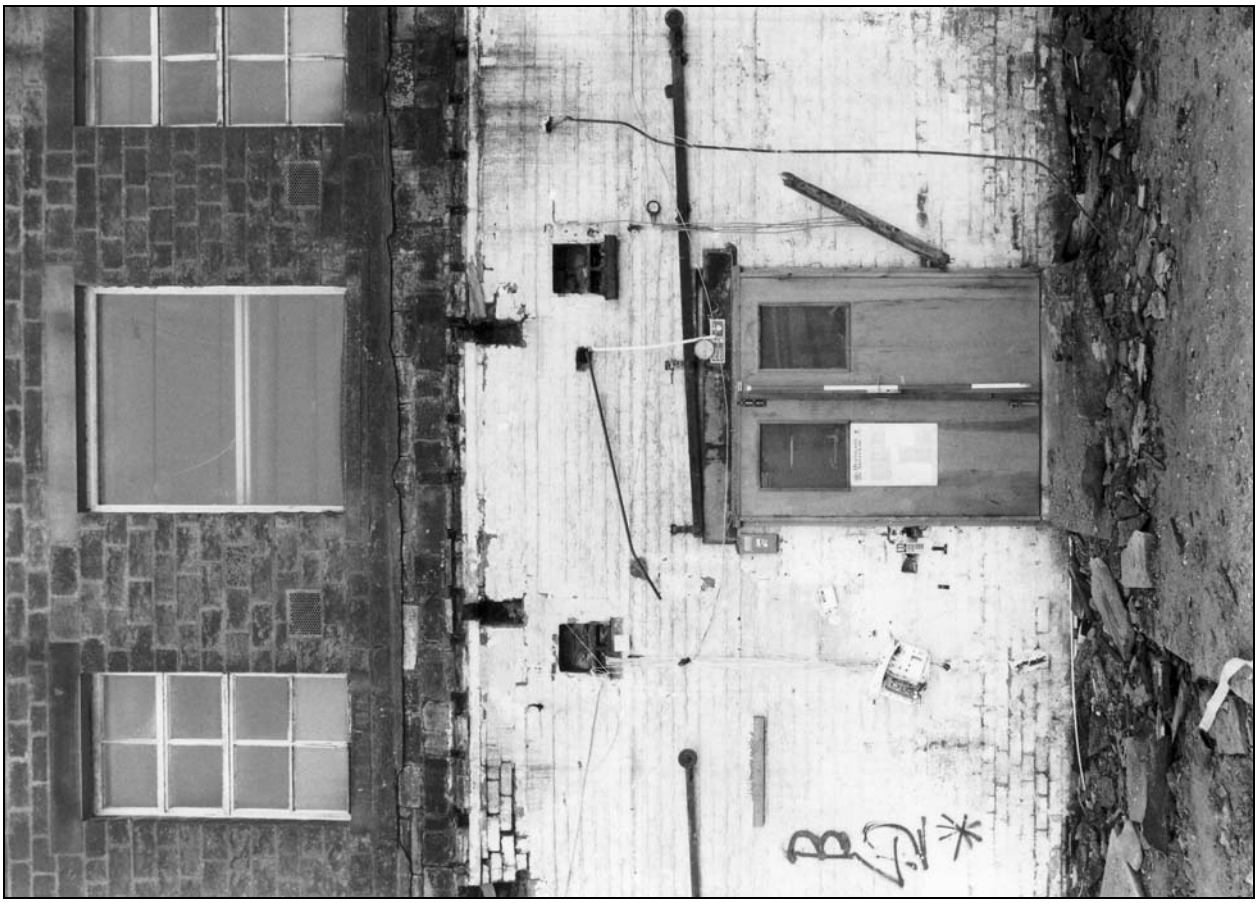


Photo 10: The 1910 warehouse, looking south across site of demolished weaving shed (film 1, frame 8)

Photo 11: View of goit and former reservoir to west of site, looking west (film 1, frame 12)

Photo 12: View of goit, looking west (film 1, frame 14)

Photo 13: View of goit, looking north-east towards wheelpit (at top left) (film 2, frame 8)

Photo 14: View north-east towards wheelpit, with beck and Brook House at left (film 1, frame 13)

Photo 15: Wheelpit, as visible at start of watching brief, looking east (film 1, frame 18)

Photo 16: Site of former outlet from wheelpit, as visible at start of watching brief, looking west (film 2, frame 4)

Photo 17: Wheelpit, as visible at start of watching brief, looking south-west with shaft(?) visible (film 2, frame 5)

Photo 18: Wheelpit, as visible at start of watching brief, looking north towards doorway (film 2, frame 1)

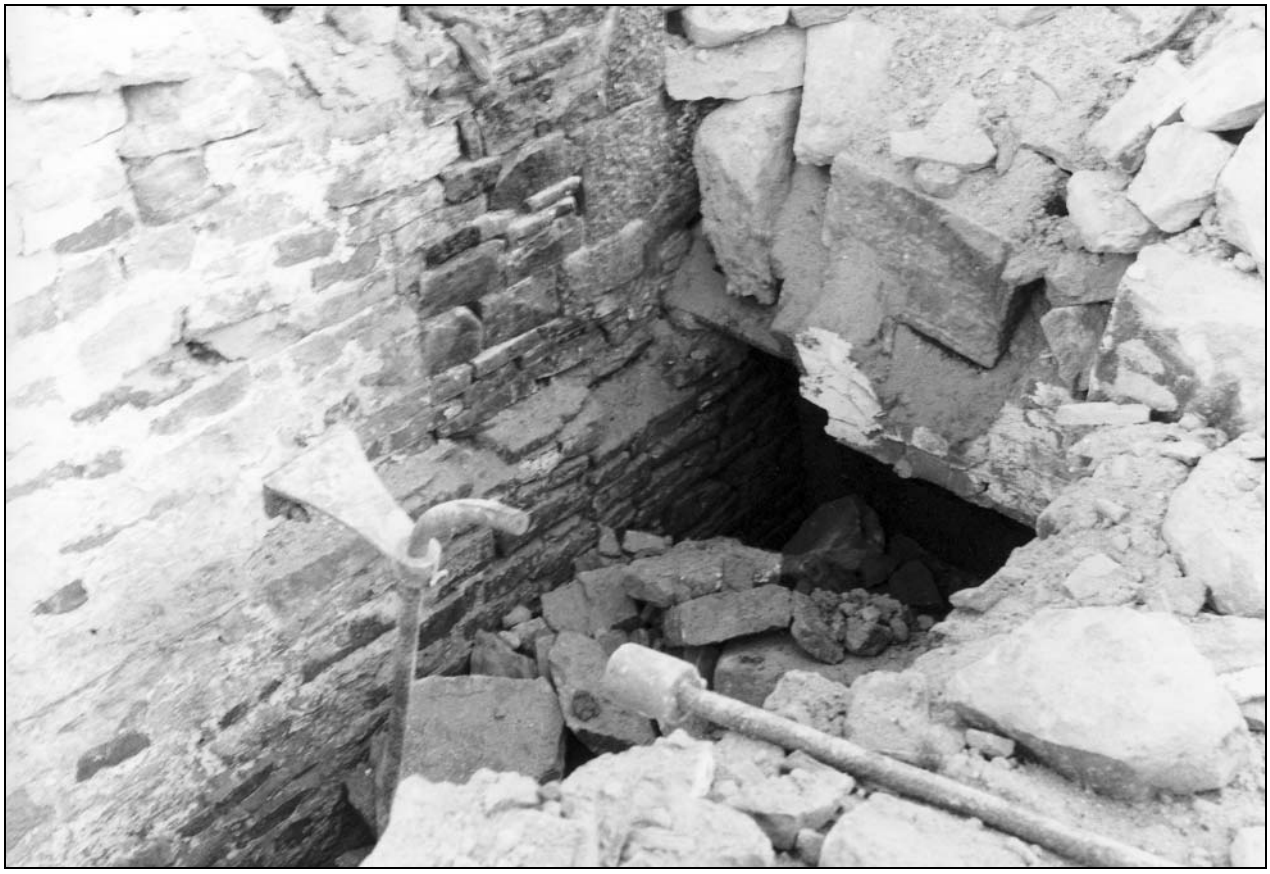


Photo 19: Wheelpit, as visible at start of watching brief, looking east (film 2, frame 2)

Photo 20: Wheelpit, as visible at start of watching brief, looking south-east (film 3, frame 3)

Photo 22: Wheelpit, as exposed during excavation, looking west (film 3, frame 15)

Photo 21: Wheelpit, as exposed during excavation, with turbine in place, looking south-west (film 3, frame 11

Photo 23: Wheelpit, as exposed during excavation, looking west with goit visible beyond (film 3, frame 17)

Photo 24: Wheelpit, as exposed during excavation, looking west (film 3, frame 14)

Photo 25: Wheelpit, as exposed during excavation, with turbine in place, looking south-east (film 3, frame 7)

Photo 26: Wheelpit: doorway in north side, looking south-west (film 3, frame 6)

Photo 27: Wheelpit: masonry to east end, with bearing for pinion at top, looking south (film 3, frame 8)

Photo 28: Detached stone block with bolt holes for bearing, close to wheelpit (film 2, frame 7)

Photo 29: Wheelpit, as visible at start of watching brief, looking north (film 1, frame 15)

Photo 30: Wheelpit, as visible at start of watching brief, looking north-east (film 1, frame 17)

Photo 31: Turbine within wheelpit, looking south-east (film 3, frame 12)

Photo 32: Turbine within wheelpit, looking south (film 3, frame 9)

Photo 33: Turbine within wheelpit, looking east (film 3, frame 13)

Photo 34: View towards site of engine house and wheelpit, looking south (film 2, frame 17)

Photo 35: Remains of power alley and boiler house, looking south-west (film 2, frame 14)

Photo 36: Remains of boiler house and former bearing beyond, looking south-west (film 2, frame 12)

Photo 37: Former bearing within wall to north of wheelpit, looking south (film 2, frame 11)

Photo 38: Top of former bearing within wall to north of wheelpit, looking south (film 2, frame 6)

Photo 39: North side of wheelpit, with top of turbine control mechanism(?) exposed (film 2, frame 18)

Photo 40: Wheelpit (left) and top of turbine control mechanism(?), looking west (film 3, frame 2)

Photo 41: Turbine control mechanism(?) to north of wheelpit, exposed during watching brief, looking east (film 3, frame 5)

Photo 42: Turbine control mechanism(?) to north of wheelpit, exposed during watching brief, looking east (film 3, frame 1)