MARK HIDE ASSOCIATES

2025-11-07

Hinchliffe Mill, Water Street, Holmbridge

Report to accompany an Application to discharge Condition 4e) of Planning Application ref 2021/62/90800/W

4) Prior to the commencement of the development, the following details relating to design and appearance shall be submitted to and approved in writing by the Local Planning Authority:

e) Heritage architect report setting out how internal and external heritage features (including but not limited to the cast iron structural pillars, pulley mechanisms, loading doors) are to be retained, exposed and restored alongside any internal floor plan alterations to enable such works. The development shall be implemented in accordance approved details.



Photo 1. Hinchliffe Mill from the south east

1.00 Previous reports

In 2010, as a response to an Archaeological recording condition in Planning Applications 2010/62/91518/WI and 2010/69/91519/WI, Andrew Swann Historic Building Services surveyed the building and produced an Archaeological Building Report reference 003 dated June 2011.

This comprehensive and authoritative report is available on the Planning website, and it is not intended to reproduce more than a summary here. That report has informed the findings and recommendations below.

2.00 Hinchliffe Mill

As set out in the Andrew Swann report, the remaining multi storey mill (the only surviving building) was the first building to be built on this site, first built in the late 1820s as a water powered fulling and scribbling mill. That building was destroyed in the disastrous Holme valley flood of 1852, caused by the failure of the Bilberry reservoir upstream. The foundations of this earlier mill probably survive as well as above ground remains at the northern end of the building.



Fig. 1. First Edition six inch OS map surveyed 1851-2, published 1854

This five storey building is the one shown on the first edition Ordnance Survey map surveyed between 1851 and 1852.

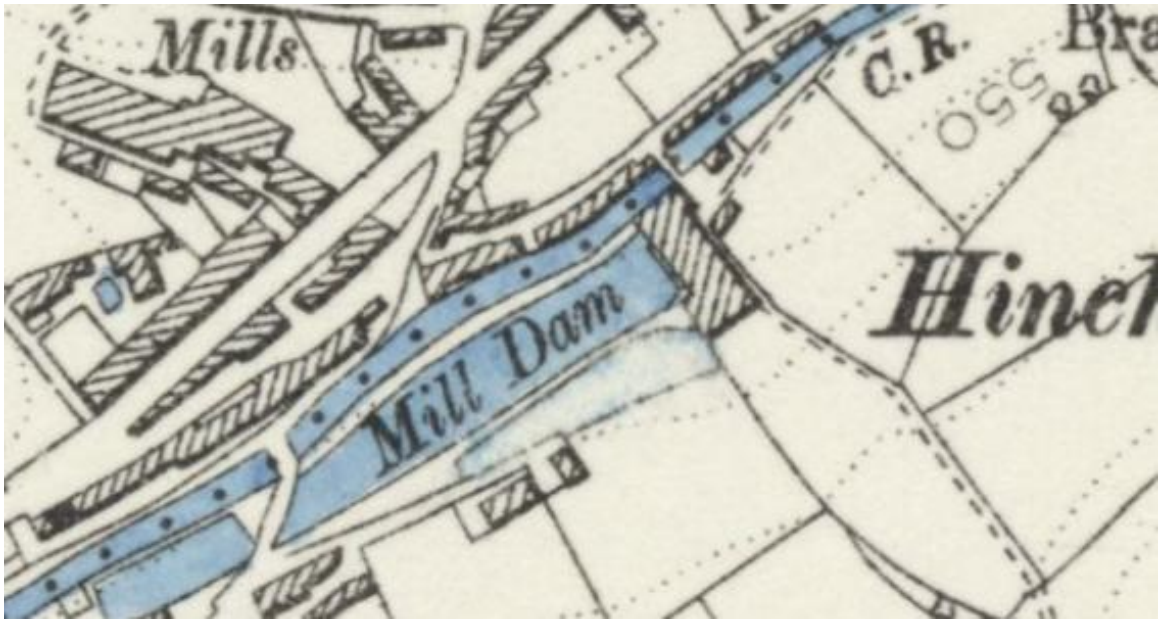


Fig. 2. OS six inch map surveyed 1887-8, published 1894

A four storey mill was built shortly afterwards to replace the original mill, this followed the plan of the earlier structure, extending further to the south as shown on the OS map surveyed between 1887 and 1888. It is interesting to note the colouring on this map, appearing to show an upper level reservoir, this may have been a mistake however as the colour appears to have been partly removed.

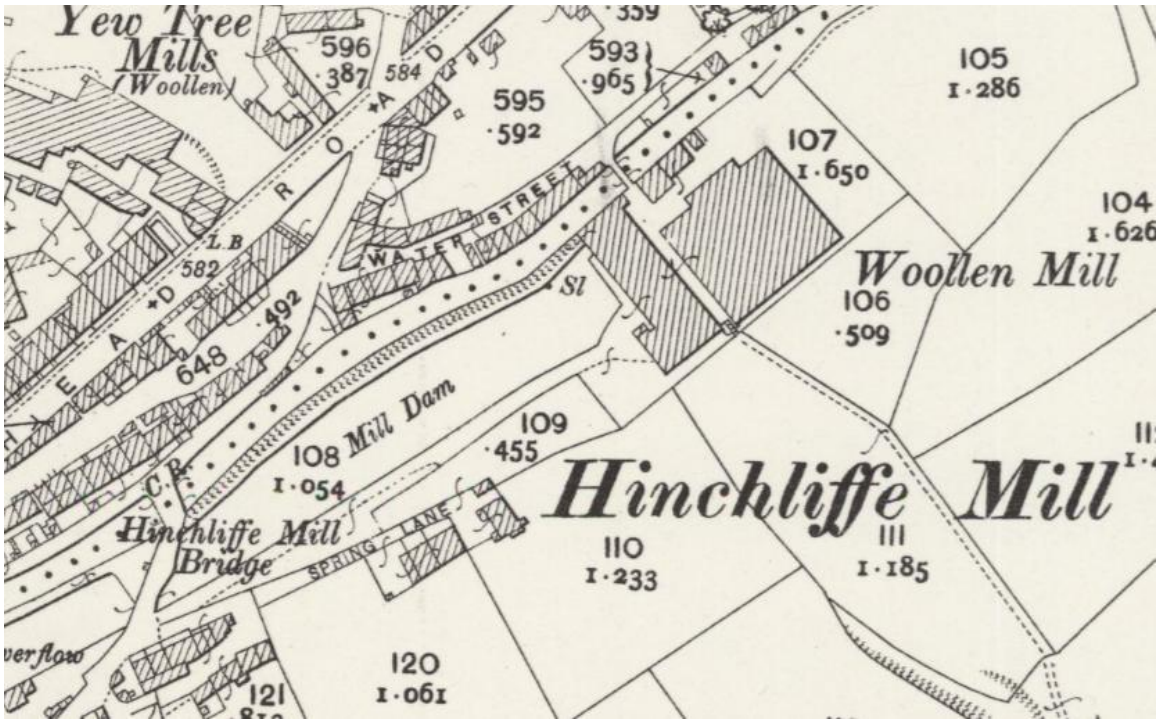


Fig. 3. 25 Inch OS map surveyed 1904, published 1906

In 1901, a fire destroyed the upper floor of the mill, which was reduced in height to three stories and re-roofed. The footprint of the mill remained as it was in the 1850s rebuilding. A new steam engine was installed in 1922.

3.00 Methodology of this report

The building is not Listed, however it could be considered to be a Non-designated Heritage Asset, and as such offered a measure of protection. The planning condition recognises this, and some rigour is required to identify those features which are worthy of protection.

The Andrew Swann report includes a detailed description of the elements within the existing structure which can be used to trace the development of the mill and which mark significant changes to the use and technology of the processes housed within it. This has been used to inform this current report, identifying those features which it should be considered for retention and if possible exposure within the converted building. A marked-up copy of the relevant part of the Andrew Swann report is included at Appendix 1 below.

A marked up copy of drawings and photographs from the Swann report is set out below which shows the locations of the features identified. (features described on the elevations are marked on the plans as well but the description is not repeated)

It is recognised, however, that it will not be possible for a number of reasons to retain and show all the identified features, a draft scheme of suggested alterations to the proposals in the Consented scheme was prepared, this is set out below.

The copyright of the marked up drawings and the photographs below belongs to Andrew Swann

4.00 Identification of features to be retained



Fig. 4. West elevation

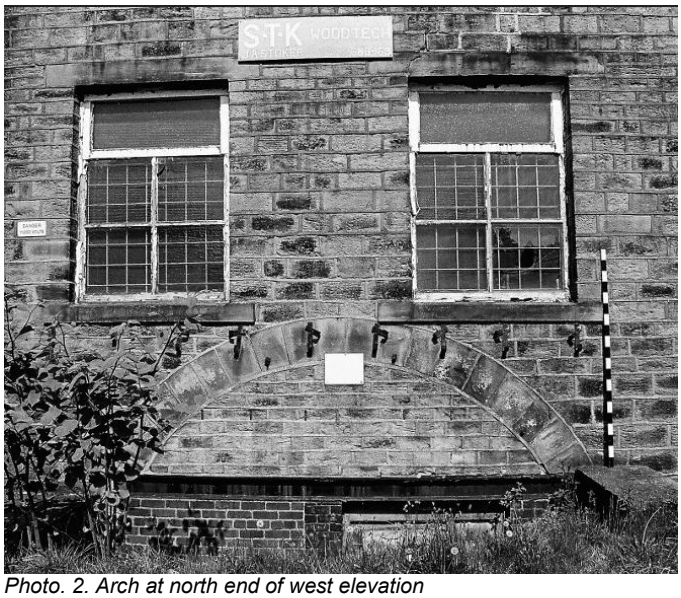


Photo. 2. Arch at north end of west elevation



Photo 3. Loading doors and landing

West Elevation

- The arch at the north end; This almost certainly remains from the water-powered phase of the mill's history. The later steel beam will have to be removed in an event for structural reasons, and the stone voussoirs should be repaired. The infilling masonry will almost certainly need to be removed and replaced, and if this is the case, the infilling stonework should be set back by say 25mm from the face of the arch. The windows above the arch should be retained (rather than converted to doors as shown on the Architect's elevations, and the area in front of the elevation should not be infilled to adjacent ground level.
- Loading doors; The loading door openings should be retained and differentiated from the other window openings.
- The cast iron landing should be retained if possible. The rather crude steel stairs can be removed.



Figure. 6. North Elevation

North Elevation

- The windows at lower ground and ground floor level; there were 4 windows at each level, some of which have been blocked and altered. The brick infilling should be removed and the jambs and cills returned to their original form. If the openings cannot be retained for windows, they should be infilled with stone, set back from the adjacent wall face.
- The cast iron bracket to the right of the westernmost lower ground floor window should be retained.
- The cast iron gutter at the valley gutter position should also be retained, and could retain its function at the head of a downpipe.
- The bearing boxes which do not conflict with window openings should be retained



Photo. 4. East elevation

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East Elevation

- The taking-in doors; The openings should be retained and repaired at all three levels. This will require the amendment of the plan to allow another structural bay to be used as a garage entrance. The lower ground floor opening will make a good entrance door. It is suggested that a simple glazed window without glazing bars be used above. None of the existing doors are original or of a traditional design. The beam and pulley should be retained above if possible (this is not of great age, but helps to explain the function of the doors).
- The door at the south end at upper ground floor, the design already has this retained as a door, it should be as treated as simply as possible
- The cast iron pipe brackets should be retained.

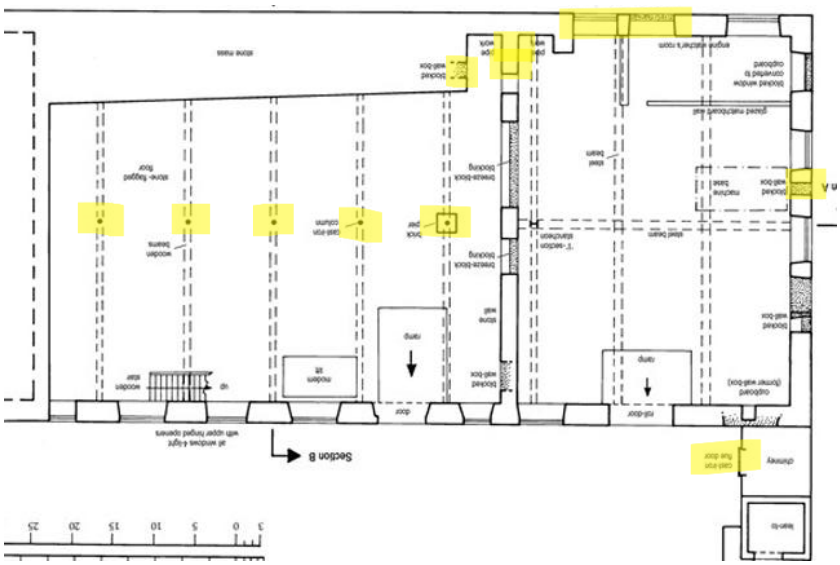


Figure 8 Lower Ground Floor Plan

Lower Ground Floor

- Structural columns and beams**;** The building has a simple repeated structural system (much altered), if possible, the design should work with this to retain and expose as many structural elements as possible. These should left on show as a structural system rather than individual elements.
  It may be possible to offset the dividing walls between the units so that the columns are retained on view and the timber east-west spanning beams also retained.
- Cross-wall; It would be good to keep as much of this wall as possible, and at least the section where it meets the west elevation. This will also be important from a structural point of view
- Cast iron flue door in chimney. If it is not possible to keep this in situ, it should be retained and fixed to adjacent masonry
- Generally at all levels, the cast iron bearing wall boxes should be retained and left on view if possible

Ground Floor

- Structural columns and beams**;** As at lower ground floor, if possible, the design should work with these to retain and expose as many structural elements as possible. These should left on show as a structural system rather than individual elements.

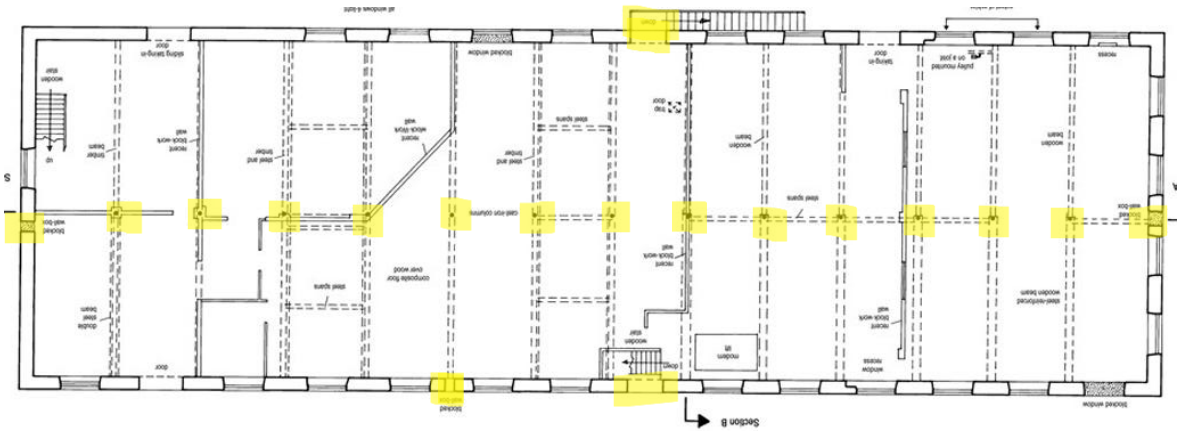


Figure 9. Upper Ground Floor Plan

The roof trusses; The timber trusses should be retained and exposed wherever possible as a structural system. This will also involve keeping the cast iron valley gutter. The consented design shows a flat central section to the roof with large rooflights, which will be an attractive feature, but possible to achieve while retaining the roof structure.

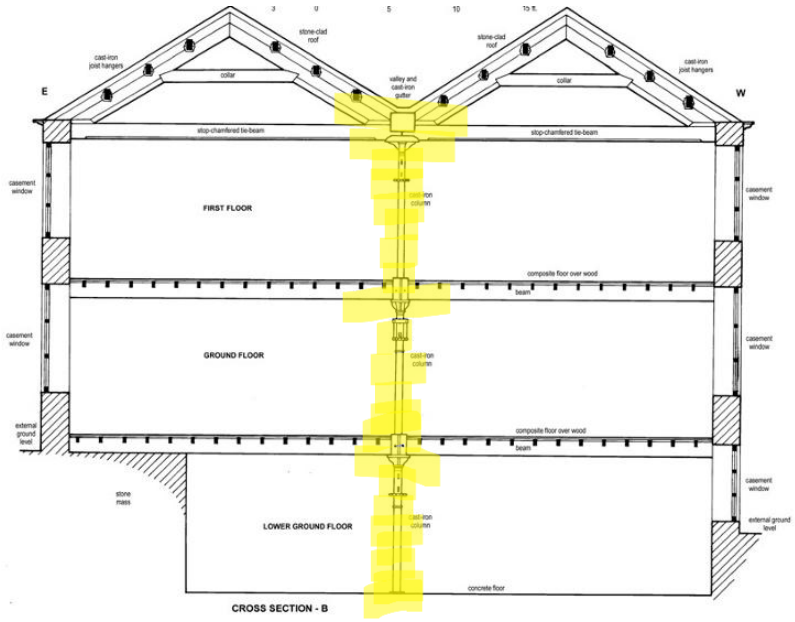
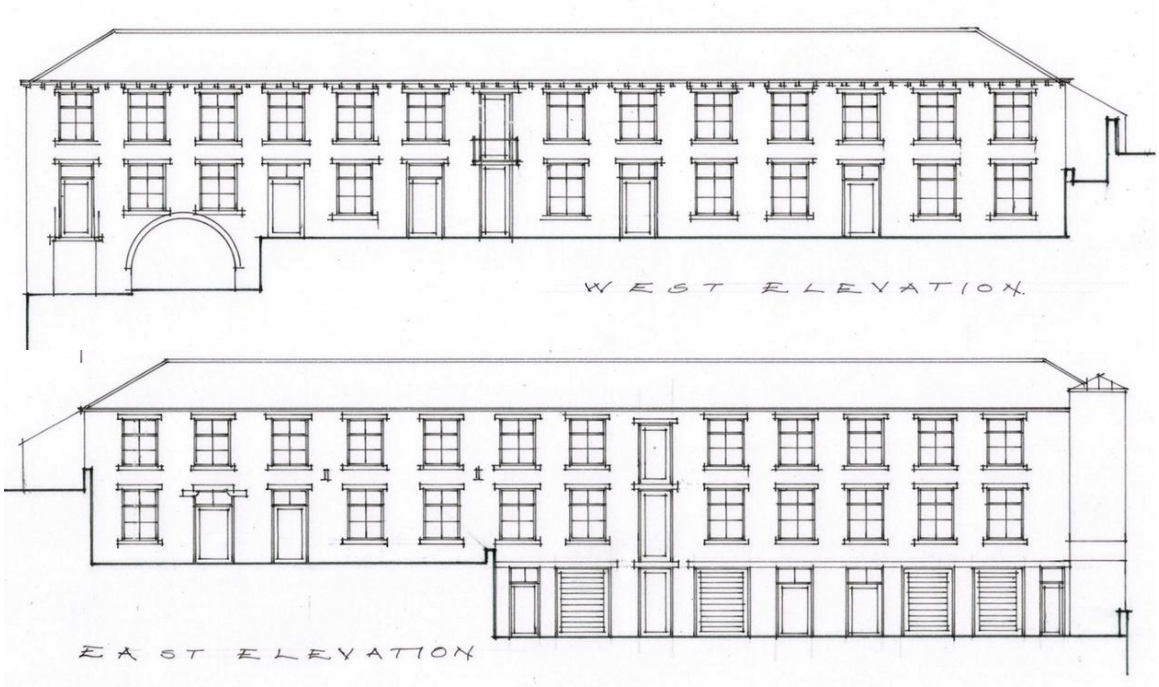
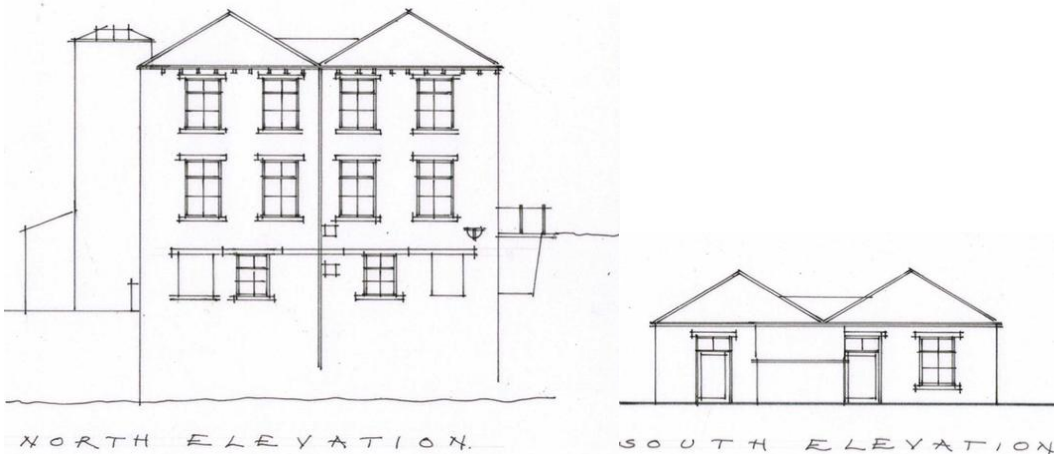


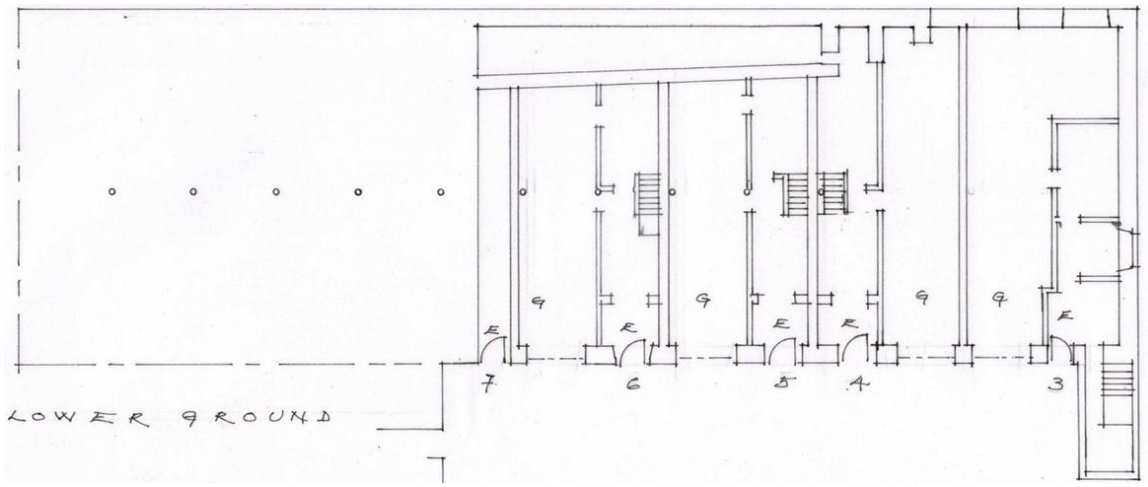
Figure 10. Section

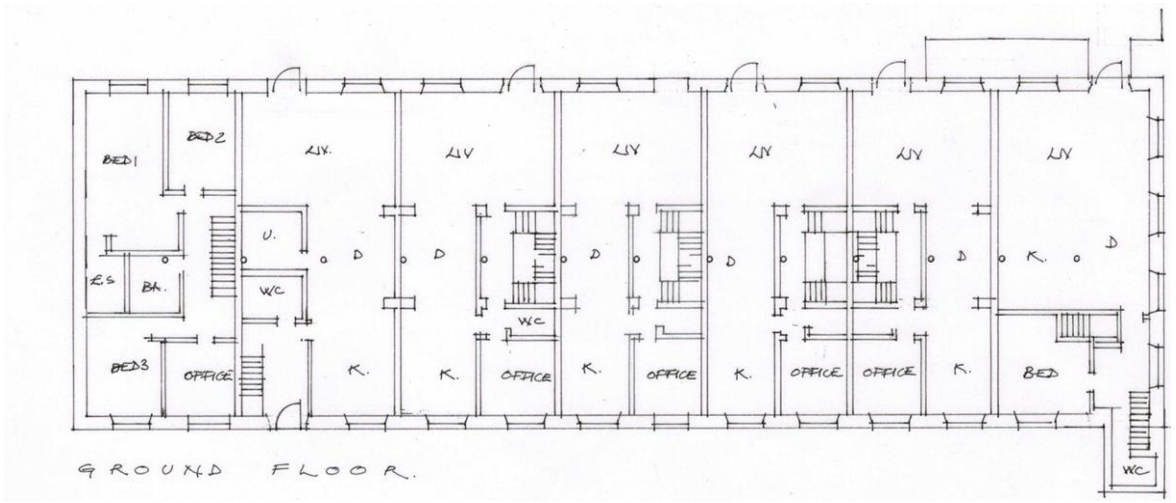
Fenestration generally; The character of the building lies is in its simple industrial aesthetic. The treatment of the windows should be as simple as possible and not too domestic. It would be better to limit the number of window openings which are converted to French doors to 1 per unit per elevation. The division of the window openings with one central glazing bar, a 1/3 top-opening light and glazing bar (six panes) would be more in keeping than the windows drawn in the consented scheme

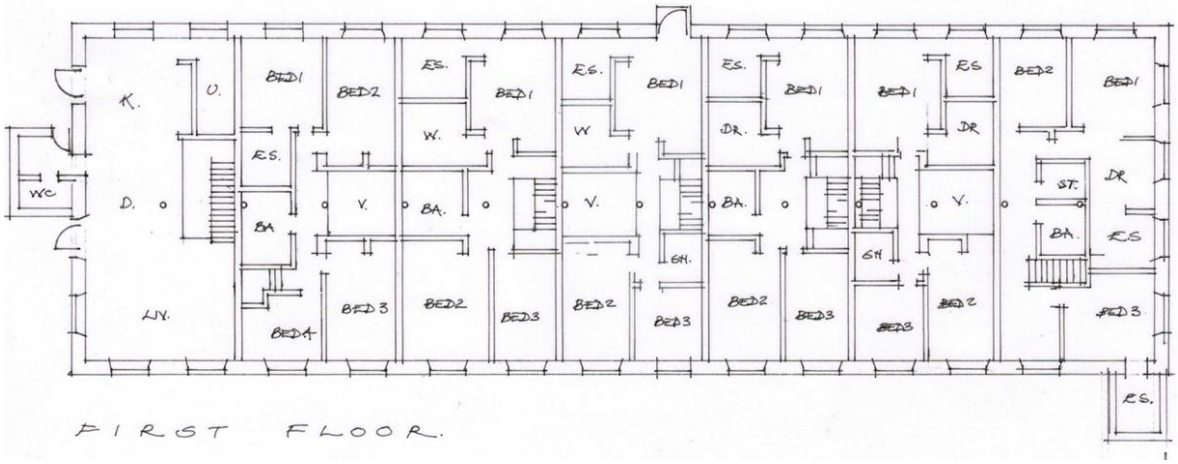
5.00 Suggested revisions to the Consented plans and elevations











The plans and elevations show how the proposals could be ammended to facilitate the retention of the features identified and to maximise the legibility, history and character of the building

BUILDING DESCRIPTION

For the purpose of this report the building will be described as if orientated north to south on its long axis; the although actual orientation is shown on plan. Note also that the only building to be described is the multi-storey mill adjoining the mill pond (most of the other buildings were either demolished or in the process of being demolished at the time of writing this report).

External Description

Hinchliffe Mill is built into the steep hillside of the southern bank of the Holme valley. It is aligned north to south and has a semi lower ground floor at the northern end, with a ground and first floor above. It is a 14 bay by 4 bay structure with a double hipped roof.

Its northern façade is built adjacent to the River Holme with, originally, four symmetrically arranged windows to the ground and first floors, and four shorter windows on a different vertical alignment on the lower ground floor. At the north-east corner is a truncated chimney (Plate 1). The lower ground floor windows have a running lintel band; the westernmost window is brick-blocked whilst the one immediately to its east has a top opening wooden casement frame (Plates 2 and 3). The easternmost window of the series is stone-blocked; the adjacent window to the west is fitted again with a wooden casement frame, but with a smaller central top-opener. The blocked window is cut by the insertion of a large cast-iron bearing box that as a wooden shutter over. Projecting below the sill line are steel beams, probably top support a missing inspection walkway (Plate 4). One ground floor window has been brick-blocked and a lower window inserted in its place. This in turn has blocked with a combination of brick and stone and a smaller fixed frame inserted. To the west, below sill height, is a blocked cast-iron bearing box (Plate 5). This façade is constructed of well-coursed sandstone with ashlar sills and lintels. Guttering is supported on projecting stone brackets and drains into a central down-pipe. Adjacent to the eastern face of the truncated chimney is a small lean-to structure.

The inner-facing eastern façade has two symmetrical lines of 14 openings at ground and first-floor levels; to the east lie a series of part-demolished structures which were not recorded (Plate 6). The truncated chimney has been constructed over blocked window openings in the northernmost bay. Interestingly, the top four or five courses of stone along the length of the façade appear of a different type and may be evidence for the lowering of the roof. In the seventh bay from the north is a vertical line of three taking-in doors. All other openings at ground and first floor level have ashlar lintels and projecting sills with top-opening wooden casement frames (Plate 7). At the northern end, at the lower ground floor level, is the double-door entry to the lean-to constructed against the face of the chimney (Plate 9). In the southern face of the chimney is a cast-iron flue door, with a makers plate for Green & Son, Wakefield (Plate 10). There is little symmetry in the opening of the lower ground floor. To the south of the brick-blocked window in the first bay a wide roll door has been inserted and cuts a stone-blocked window in the second bay. Moving towards the south, an inserted window has been raised with stone blocking below its new sill. The narrow 3-light vertical window beyond may be an original feature. Over the original window in the fifth bay (from the north) has been placed a part-glazed sliding door; the window in the sixth bay appears original. The vertical line of taking-in doorways have set-back double part-glazed doors; above the one serving the first floor is a steel lintel and a projecting steel beam for a hoist. Beyond the line of taking-in doors, the southern side of the façade has seven window openings at first floor level, all fitted with top-opening wooden casement frames with projecting sills. The ground-floor is lit

by a series of similar window openings. The second bay in from the south has a doorway with a bracketed lintel. At lower ground floor level are two further window openings beyond the taking-in doors (Plate 8).

At the southern end of the building is a raised plateau where a late 20th century shed once stood. The remains of part demolished structures lie to the east (Plate 11). The first floor of the southern elevation of the mill can be seen on the level of the plateau. There are three window openings with top-opening wooden casement frames with a breeze-block blocked doorway on the western side. The double hipped roof is stone clad with stone ridges. A central gutter joins with the front eaves gutter to drain down a central down pipe (Plate 12). There are no ground floor openings in the elevation. The western elevation rises from the foot of the plateau (Plate 13).

The 14-bay western façade of the mill overlooks the mill pond that extends westwards. Although part-silted and overgrown, features such as a sluice gate can still be located (Plate 15). At the southern end of the façade a building that adjoined the mill has been demolished. A concrete floor foundation remains, together with truncated return walls and scaring. It should be noted that there are no ground and first floor windows in the first three bays from the south (Plate 14). At the centre of the scar of the former single-storey building is a sliding doorway with a fireproof steel door. Three mortices in the wall above the level of the doorway may have housed the spine beams and gutters from a four-pitch north-light structure (Plate 16). In the eighth bay from the south are two vertically aligned doorways in the ground and first floors. Between the doorways and the end of the demolished north-light building four windows provide light to each floor. All window openings are of similar type, having projecting stone sills and fitted with top-opening wooden casement frames. A gutter at eaves level is supported on stone brackets and drains into two down pipes (Plate 17). The doorway into the first floor of the mill has double wooden doors set back with an upper double light. It emerges onto the cast-iron platform of a cast-iron and wrought-iron fire-escape. Steps lead down to the ground floor level. The ground floor doorway is set flush with the wall of the elevation and has double wooden doors with lights above (Plate 18). To the northern side of the central doors are a further six bays of windows to the ground and first floors. All are of the same design as other examples in the elevation. One exception to this layout is a doorway, possibly inserted, in the forth bay from the north at ground floor level (Plate 19). Below the sills of the second and third windows from the north is a stone-blocked arch. The feature has large ashlar voussoirs which are interrupted by the insertion of a steel beam at lower ground floor level (Plate 20). At this point the ground is cut away to reveal more features relating to the lower ground floor. Below the steel beam are two phases of brick infill and an inserted window with a large ventilator (Plate 21). Beyond a low concrete buttress to the north is a window in the first bay from the north. This has a steel lintel and is blocked from the inside.

Internal description, lower ground floor

The lower ground floor is limited to the first eight and a half bays from the northern end of the mill due to the rising level of the land. A substantial dividing wall cuts across the width of the floor at the fourth bay, dividing the area into two. To the north, covering an area of just over three bays, is what was probably an engine room. The room has a later concrete floor and a glazed match-board office in the north-west corner (Plate 23). This later feature may have served as the engineer's office and has a plastered brick sill wall at its southern end and a door near to the south-east corner (Plate 24). The interior of the office has walls and a ceiling all match-board lined, with two windows in the western wall and a cupboard in the northern wall (Plates 25 and 26). The secondary concrete floor is set below the level of the main engine room area. At the centre of the eastern wall is an inserted electronic roller door; to the left

side the wall is match-board lined (Plate 27). To the south of the later door is an altered window opening fitted with a three-light wooden frame (Plate 28). To the north of the doorway a tall cupboard has been set into the match-boarding in the recess of a former window (Plate 29). The northern wall of the room originally had four windows. One in the engineer's office and one at the eastern end have been blocked and are not visible from the inside. The latter window blocking has been cut by the insertion of a large cast-iron bearing block, later converted to a cupboard with a wooden door (Plate 30). Of the two unblocked windows, one has a frame with a small central opening whilst the other has a top-opening casement frame (Plate 32). Between the two unblocked windows is blocked cast-iron wall box (Plate 31). In the area between the engineer's office and the cross wall is a forward-projecting buttress of masonry in front of which is a large pipe and valve (Plate 35). Close to where the pipe passes through the cross-wall is an access opening (Plate 34), beyond which is a blocked cast-iron bearing box. Additional steelwork had been provided in this area to support the floor above. This comprised an arrangement of steel beams (some marked 'SHELTON', Plate 37) and riveted steel beams (Plate 36). The only independent vertical support to the steelwork was a single steel stanchion close to the cross-wall (Plate 33). A number of breeze-block blocked openings in the wall were noted.

The area to the south of the stone cross-wall has a central line of cast-iron columns supporting wooden beams. The first column from the north is brick encased (Plate 38). To the east of the line of columns is the base for a modern lift shaft. Looking towards the south, the stone wall is totally featureless (Plate 39). Near to the south-east corner, adjacent to the eastern wall, a flight of wooden stairs lead up to the ground floor (Plate 41). The eastern wall has a number of openings. At the southern end is a small window with a double side opening wooden frame. To its north is a splayed opening with a wooden frame and ventilator (Plate 40). Obscured by the stair and the later lift shaft are another window and a former taking-in door. At the northern end is a tall three-light window with a sliding door and ramp to its right (Plate 43). A blocked cast-iron bearing box is located high up in the cross-wall near to the north-east corner (Plate 42). In the north-west corner the pipe-work that emerged from the engine room passes down under the later concrete floor (Plate 44). Of some interest is the widening of the western wall at this point and the use of large ashlar blocks in the construction of the corner of the widening. This feature may be linked to the water-powered phase of the mill. The heads of all four visible columns were similar and had four bolting faces and deep flanges (Plate 45).

Internal description, ground floor

The ground floor has a fourteen by four bay plan with a central line of cast-iron columns originally supporting wooden beams. In many areas these have been augmented by the addition of later steelwork. In general, there is one door or window opening to each bay, however this arrangement differs at the southern end of the western wall. The original area has been subdivided by modern stud and block-work divisions, breaking the floor into six separate areas. The description starts in the northernmost area. This area is just over three bays in extent and is defined by an inserted block-work wall located at the start of the fourth bay from the north. Visible in the western wall are three windows, one of which is recessed to the floor (Plate 46). In the eastern wall one of the three windows has been blocked (Plate 47). The cast-iron columns have been fitted with steel brackets to support steel beams on the eastern side, and steel joists which span the first and third bays from the north (Plate 48). Below sill level between the second and third window in the western wall is a brick-blocked stone arch (Plate 49) which corresponds with the external blocked arch illustrated in Plate 20. A small pulley attached to a joist near to the western wall is a

later feature (Plate 50). At the centre of the northern wall is a brick-blocked cast-iron bearing box (Plate 51).

The second of the divided areas is defined at its southern end by a stud wall on the line of the beam between the sixth and seventh bay from the north. The window details, central columns and secondary steel work are the same as in the first area. Near to the eastern wall is the lift shaft that communicates with the lower ground floor (Plate 52). In the north-west corner of the room is a small lobby (Plate 53) that leads to an external doorway with double wooden doors and light over (Plate 54). The cast-iron columns and attached steel brackets are all of the same design (Plate 55). The same construction methods continue in the third area which is divided off at the southern end by a plastered block-work wall. The floor is a composite material laid over the earlier wooden floorboards (Plate 56). In the north-east corner a stud partition wall leads to the wooden stairs down to the lower ground floor (Plate 57). As with other areas of the floor, later steel beams and joists provide additional strengthening to the floor above (Plate 58). Steelwork in the eighth bay has foundry marks reading 'LANARKSHIRE STEEL CO. LTD. SCOTLAND'. In the seventh bay from the north a trap-door was observed in the floor above (Plate 59). In the same bay, in the western wall, is a taking-in doorway with double wooden doors and a light over (Plate 60). Between bays nine and ten in the eastern wall is a blocked cast-iron bearing box (Plate 61). The fourth divided area comprises the western parts of bays ten to twelve from the north, and is divided off with block-work walling. Steel beams and cross-members have been inserted to reinforce the floor above (Plates 62 and 63). A foundry mark on one of the beams reads 'SKINNINGROVE ENGLAND' (Plate 64). The fifth area is roughly square and comprises the eastern half of the two southernmost bays. A dividing wall has been built on the line of the central columns and on the line of the bay division to the north. In the eastern external wall is a shouldered doorway with double wooden sliding door (Plate 65). To the south of the doorway is a breeze-block blocked window opening. The south wall is featureless. The wooden beam supporting the floor above has been replaced with two steel beams with foundry marks reading 'CARCO STEEL ENGLAND' . A door in the block-work wall leads into the sixth area (Plate 66). This small room is located in the south-west corner of the floor. A segmental-arched doorway with a sliding steel fire-door is the only feature in the western wall (Plate 67). An encased cast-iron column is located at the centre of the inserted eastern wall (Plate 68). Adjacent to the southern wall is a wooden stair (Plate 69). This stair leads up to the first floor (Plate 70).

Internal description, first floor

The floor is open to the roof structure and has no later sub-divisions, with the exception of a small watcher's office in the south-east corner. It follows the same plan as the floor below, with door or window openings to each of its fourteen bays, and openings in the north and south walls. A central line of cast-iron columns support a large encased cast-iron gutter and pairs of 'A'-frame trusses. The composite floor overlies an earlier wooden floor (Plates 71 and 72). In several areas, particularly at the southern end, are the scars of former machines (Plate 73). In the south-west corner, close to the wooden stairs, is a breeze-block blocked doorway with a steel hoist jib above (Plate 74). At the same point hip-rafters can be seen. The small match-board office in the south-east corner is constructed out of reclaimed material; some boards are un-planed whilst others have a wood-grain surface finish. It has a doorway in its western side (Plate 75). The interior stone and wooden walls of the office have been white-washed and the upper part of both partition walls are glazed (Plate 76). Set into the western partition wall is a small sliding hatch (Plate 77). Spanning the third, fourth and tenth bay from the north, pieces of non-structural timber have been bolted to the soffits of the tie-beams (Plate 78). The heads of the cast-iron columns are of sufficient size to take the full width of the gutters that they

support (Plate 80). Wall-mounted bearing blocks were noted in two locations; between bays nine and ten, from the north (Plate 79) and centrally placed in the northern wall (Plate 86). All windows are fitted with top-opening wooden casement frames and most stone sills flush with the inner face of the wall. There are two exceptions. In the fourth bay from the north in the eastern wall the window is recessed to the level of the floor (Plate 84). In the third bay from the north the window is also recessed to the floor and cut-out on its southern side (Plate 85). There are two opposed taking-in doors in the seventh bay from the north. The one in the western wall has double wooden doors with a double light above (Plate 81), whilst that in the eastern wall is fitted with semi-glazed double wooden doors (Plate 82). The double-pitch roof is hipped at both ends. It is supported on two lines of thirteen identical trusses. All have deep tie-beams supporting principal rafters and a collar. To each side are three vertically set purlins, the ends resting in cast-iron hangers bolted to the faces of the principal rafters. Above the apex formed by the principal rafters is a narrow ridge board (Plate 83). Many of the tie beams had shipping marks.

PHASING

The phasing is based upon documentary data and upon indicative features within the structure. The series of 25 inch Ordnance Survey maps consulted as part of the historical research show the development of the complex between the late 19th century and the 1930s. Later information to show development is taken from the aerial photographs produced in the 1980s. The dates of key events are known; documentary evidence points to the existence of a mill by the early 1830s (indeed, Giles postulates an establishment in the 1820s), the Bilberry Reservoir disaster of 1852 causing *extensive damage* to the five storey main mill, a fire in 1901 causing the main mill to be reduced in height, and the arrival of a new engine in 1922.

Structural evidence for changes and developments exists in several areas. At the northern end of the eastern elevation are a number of courses of larger blocks of stone below the existing eaves line (Plate 7). It is likely that this is a result of 'levelling up' the top of the wall following the fire of 1901 and its subsequent reduction in height. If that was the case, then the majority of visible stonework below this level must date from after 1852, the year of the Bilberry Reservoir disaster. It does, however, seem likely that the mill would have been rebuilt within a year or two. One feature does not tie into either of these phases. The western wall of the lower ground floor is (certainly at its northern end) of a totally different character to any other masonry in the building (visible through the opening in Plate 34 and on the left side of Plate 44). It is at an angle with all other walls and only exists within the lower floor. It is probable that this is a remnant of the foundation from the 1820s mill that survived the destruction of the flood. The match boarding used in the northern end of the lower ground floor could date from 1922, the year when a new steam engine was introduced into the complex. The truncated chimney attached to the northern end of the eastern wall is later than the 1850s wall (note the blocked window opening in Plate 7) and probably earlier than the 1901 reworking.

It is evident, therefore, that three distinct phases can be demonstrated, and a sequence of phases and sub phases can be built up.

Phase 1, *c.* 1820s. A multi-storeyed water-powered mill dating from the 1820s. The evidence for the physical existence of this building is the part-ashlar wall in the lower ground floor, and the mill pond. Further evidence may be revealed in during the watching brief phase of work. This is backed up by documentary evidence; the map of 1834 shows the mill and mill dam, the 1853 map, surveyed earlier, shows the same mill and dam. The 1851 census shows several members of the extended

Roberts family resident at Hinchliffe Mill, and trade directories list Roberts and Sandford, scribbling millers at Hinchliffe Mill.

Phase 2, *c.* 1853. A five-storey water-powered mill on a similar but slightly different plan. The 1893 plan shows this building with what appears to be a through passage at its southern end and a narrow channel entering the mill at the northern end. The blocked archway visible in the building today probably coincides with the channel feeding an internal waterwheel. It is assumed that the 1820s plan had a narrower cross section than this later mill.

Phase 3, *c.* 1870s. Steam power is introduced to the mill. According to one account both water and steam power was used in tandem until the introduction of a new steam engine in 1922. The mounting for a horizontal engine may exist below the later floor in the northern lower ground floor room. The truncated chimney at the north-east corner of the building may be linked to this phase. The firm of Whitley and Green Ltd took over the mill in 1879; it may be the case that the introduction of steam power coincided with that date.

Phase 4, post 1901. A fire in 1901 destroyed the upper floors of the mill. The fabric of the 1850s mill was reduced to its current height (with some new masonry incorporated on the eastern side, Plate 7). Logically, the original roof structure would have been destroyed; therefore the existing double-pitch hipped roof with 'A' frame trusses must be of early 20th century date. The top-opening casement frames may have been installed in this phase; the mid 19th century frames would have probably been vertical sashes. A series of structures introduced to the complex towards the end of the 19th century include weaving sheds and a multi-storey warehouse.

Phase 5, 1922. Records show that a new steam engine was introduced in 1922. Although relatively late for the introduction of a new engine, it is not unparalleled. At Bancroft Mill, Barnoldwick there is a 1922 example of a horizontal engine with Corliss valves on both cylinders. The match-board engineer's office at the northern end of the lower ground floor may date from this period. It is certain by this date that the use of water power would have been discontinued. The arch, therefore, would have been blocked up and later window openings installed within the blocking (Plate 21). It is also possible that the steelwork introduced on the ground and lower ground floors belongs to this phase. Foundry marks noted in the building include Cargo Steel, England, Lanarkshire Steel Co. Ltd. Scotland (established in 1889), Skinningrove, England, and Shelton Steel. The Shelton foundry was established in 1841 (adjacent to Josiah Wedgewood's Eturia works) at Shelton, North Staffordshire, where it was a market leader, being the first works to make steel successfully; others had tried and failed. In the late 19th century four open-hearth furnaces were installed, to operate by the Siemans-Martin's process, with the first steel being produced in April 1888. The use of structural steel from at least four different foundries at the same time in a single building is not unusual; it simply reflects what was held by the supplying stock holder at the time. The introduction of the sliding fire door on the western side of the building and the sheds which it communicated may be dated to this period, together with the restyling of some doorways on the eastern side. The small match-board office on the first floor may also be of this period.

Phase 6, 1950s and later. The phase sees the introduction of composite floors at ground and first-floor levels. The roll-door at the northern end of the eastern elevation is a later feature. The large shed that stood on the plateau was constructed in 1959. Stud and block-work divisions on the ground floor are late 20th century in date.

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