

Edenwood Mill (2020/013) – Binder 3

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ENGINEERING REPORT 7170

**EDENWOOD MILL
EDENWOOD LANE
OFF BOLTON ROAD NORTH
RAMSBOTTOM
BL0 0EX**

**CLIENT: MR PAUL TURNBULL
TURNBULL & STOCKDALE LTD**

13.03.2020 MP/CH



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1.0 INTRODUCTION

The purpose of this report is to comment on the existing structural condition of the above building with particular regard to dangerous elements of the overall structure and to comment on the feasibility of retention of the building for modern day usage.

The Report is based on a visual inspection only predominantly to the external aspects of the property and was last inspected by this practice in the 1990's (approximately).

The majority of the interior access is extremely limited owing to the potential instability to parts of the building.

The aerial photograph circa 1960 shows the general condition and layout of the mill in better days.



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2.0 PREAMBLE

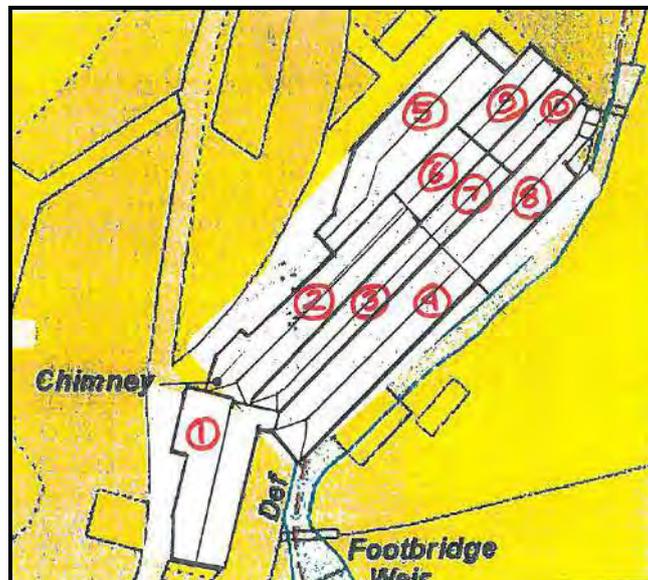
The original mill (Unit 1) was constructed in the early 1800's comprising the three storey back to earth construction located on the Southern end of the current complex at the end of the access road from Edenwood Lane, Off Bolton Road.

The original mill was extended in a three bay gable profile on the level site immediately adjacent to the North Eastern (right hand) bank of the River Irwell, extending for a length in the order of 80 metres x 25 metres wide (three storey) with a further single storey construction on the North Western aspect. (See Plan)

With the exception of the original natural stone solid wall construction mill, the remainder of the development is in Accrington facing brick with reinforced concrete lintels and an internal steel frame construction supporting suspended timber floors at first and second floor levels. (Units 2 – 10).

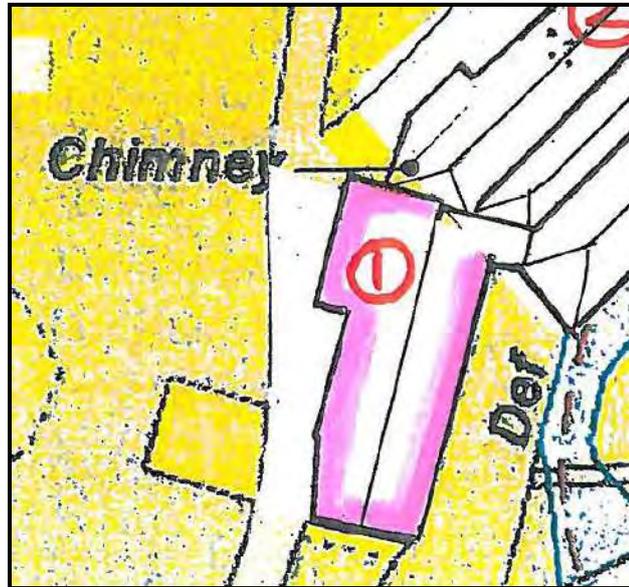
The whole site is heavily overgrown with vegetation with the majority of ground floor windows and openings boarded over or incorporating security fencing.

For location purposes only the various units have been identified as detailed below.



INSPECTION

3.0 UNIT 1 – ORIGINAL MILL



- 3.1 The original mill has a back to earth construction in natural stonework of solid wall construction incorporating three storeys to the front riverside elevation, accessed with a 4 metre wide track located at the site of the variable height retaining wall leading to the Southern front corner of the mill. The mill was completed with a blue slated pitched roof. (Photograph 075, 076, 077).



- 3.2 The building is aligned on an approximate North/South orientation with the front elevation having a predominantly Eastern aspect.
- 3.3 The elevation incorporates a repeated window pattern at ground, first and second floor levels, the windows framed with natural stone heads and cills, with regular stone coursing. The wall thicknesses (not confirmed) probably in the order of 450mm thick.
- 3.4 For identification purposes the windows are numbered from left to right, Bays 1 – 8 with exception of a blank Bay between Bays 1 and 2 on a regular pattern. (Photographs 075, 076, 077).
- 3.5 On the front left hand side (Bay 1) the second floor window has been modified from an original ‘taking-in’ door to form the current reduced window opening. (Photographs 075, 135).
- 3.6 In the vertical plane loss of vertical alignment is evident in the upper levels the loss of vertical alignment increasing towards the right hand aspect. (Photographs 133, 134, 139, 140).



- 3.7 Pattress plates (4 number) originally located at first floor head level between Bays 2 and 3 possibly for wall deflection or internal factory fittings. (Photographs 136, 137).

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- 3.8 The stonework coursing is good notwithstanding the weathering to the pointing and general staining to the masonry owing to the absence of any rainwater systems.
- 3.9 The horizontal profile of the window heads and cills is satisfactory the minor losses not extensive. (Photographs 141, 142).
- 3.10 Of more concern is the evidence of bowing to the front elevation and we would expect separation evident at first and second floor levels between the front walls and any return cross walls. (Photograph 139).
- 3.11 At ground floor level to Bays 7 and 8 a 4 metre wide vehicle opening has been formed in the original wall. (Photograph 143).

4.0 SOUTHERN ELEVATION

- 4.1 The two storey gable fronted Southern elevation is accessed at first floor level, the access road retained on a natural stone wall leading from Edenwood Lane up to the Southern corner of the original mill. Maximum wall height on the front elevation in the order of 4 metres. (Photographs 133, 135).



[REDACTED]

- 4.2 The gable elevation incorporates a sliding doorway on the left hand Western side with a former personnel door completed with an original stone head detail, the doorway has been infilled in stone. (Photograph 001).
- 4.3 At upper level (second floor from front elevation) two original ‘taking-in’ doors with drip stoner details have been partially infilled with matching stone. The gable elevation is asymmetrical in profile.

5.0 WESTERN ELEVATION

- 5.1 The left hand Western elevation reduces in height towards the North to accommodate the rising access road levels to the rear of the site and extends for a length in the order 35 metres. The initial 10 metre section following a skew alignment to follow the original line of the access road and originally incorporated a covered pitched roof section over the roadway.
- 5.2 An infilled former ‘taking-in’ door with hood detail is retained at true second floor level. (Photograph 002).



- 5.3 The profile of the upper pike stonework to the original canopy is still present although the roof trusses and purlins have collapsed.
- 5.4 The central wall section incorporates 3 number windows at second floor level with a partial cover window to the first floor level. (Photographs 003, 004).
- 5.5 Internally the roof incorporates king post trusses approximately 3 metre centres. Collapse of the main roof slope has occurred over the majority of the roof area. (Photograph 168).

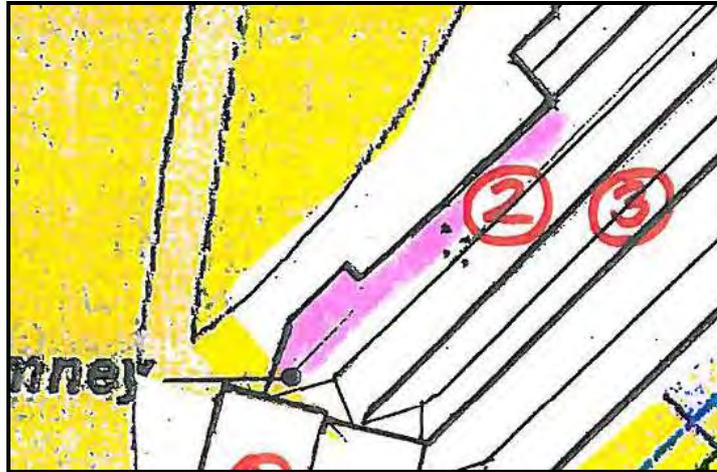


- 5.6 The Northern gable of the original mill has no roof or restraints and is free standing. (Photograph 007).
- 5.7 The rear wall incorporates 4 number windows at second floor level with an increased frontage to that on the front elevation.
- 5.8 The horizontal alignment at wall plate level follows a slight hogging profile. (Photograph 009).

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6.0 NORTH WEST REAR WALL – UNIT 2



- 6.1 The single storey wall in dressed stone follows a skew alignment from the base of the chimney continuing for a length in the order of 20 metres incorporating five window openings with stone heads and cills. (Photographs 017, 018).



- 6.2 The horizontal and vertical profile of the wall is reasonable. (Photographs 019, 020, 021).
- 6.3 From the open windows the interior of Unit 2 can be observed with significant loss of roof structure and slating. (Photographs 022, 023, 175).



- 6.4 Limited view of unit from (East) section of Units 3 and 4. (Photograph 024).

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7.0 UNIT 5



- 7.1 A 3 metre wide gable doorway leads into the South Western elevation (main unit) located on the left hand rear North Western corner of the complex. (Photograph 026).



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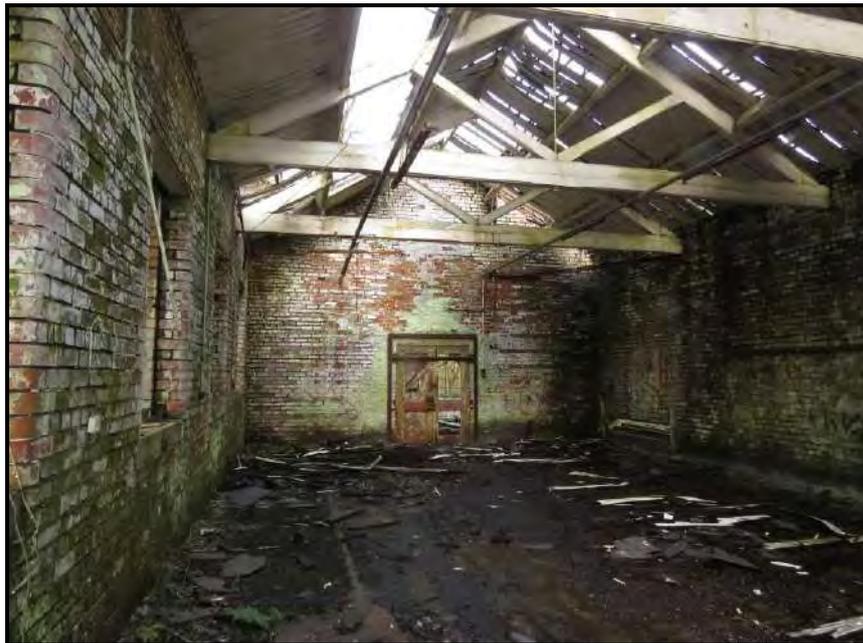
- 7.2 The original outer leaf of dressed stone has been removed from the doorway exposing the random inner wall construction. (Photographs 026, 027).
- 7.3 The external rear wall to the entrance of Unit 3 is completed in dressed stone incorporating three rectangular windows. Some of the stonework at wall plate level is missing. (Photograph 030).
- 7.4 From the entrance into the rear wall follows a skew alignment to the larger area of the main Unit towards the North East. (Photographs 028, 029).
- 7.5 The flank wall constructed in Accrington brick, both wall thicknesses circa 300mm, and incorporating 375mm x 100mm wide piers beneath a four course deep corbelled brickwork at eaves level. (Photographs 030, 031, 032).



- 7.5 The rear North Western wall to Unit 3 extends for a further 30 metres with a 2 metre square opening flanked on the right hand side (South West) by two Bays between brickwork piers incorporating rectangular windows on stone cills beneath a four course deep corbelled brickwork head. (Photographs 034, 035).

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- 7.6 The window details are repeated to the left hand (North East) of the opening with four matching windows. (Photograph 036).
- 7.7 Internally the roof construction incorporates king post with a central steel tie on the largest spans whilst the smaller spans towards the entrance are of tied rafter configuration. (Photographs 037, 038, 039).
- 7.8 The roof is over-boarded but all the slates have been removed. (Photographs 179E, 041, 042, 048).



- 7.9 On the internal cross wall between Unit 5 and 6 the lower first floor level of Unit 6 overlooks the ground floor to Unit 8. (Photographs 039, 040).
- 7.10 The adjoining Unit No. 6 incorporates steelwork beams spanning the full width of the Unit originally incorporating suspended timber floor joists (now missing). (Photographs 043, 044).
- 7.11 The seating of the trusses on the external/internal cross wall is still in place. (Photographs 045, 046, 047).
- 7.12 The gable elevation incorporates a rectangular doorway on the North Eastern corner – Unit 3.
- 7.13 Photograph 048 shows the typical condition of the original pitched roof.



8.0 NORTH EASTERN GABLE – UNIT 5



- 8.1 The gable to Unit 5 extends for a width in the order of 10 metres incorporating three indented panels completed with four courses of brickwork to the upper pike level and a doorway in the central section. (Photographs 049, 050).



- 8.2 The overall profile and condition of the brickwork is satisfactory notwithstanding weathering to the pointing. (Photographs 049, 050).



- 8.3 There is an eroded slope (former footpath) forming a water channel following recent rainfall, running from North to South. (Photograph 051).

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9.0 NORTH EASTERN WALL TO UNITS 9 AND 10



9.1 The North Eastern elevation to the two units is a full height wall in brickwork laid in stretcher bond extending for a total width in the order of 12 metres, incorporating a 1400mm square pier on the right hand Northern corner and a smaller pier on the left hand South Eastern corner. The wall is completed with a probable concrete coping. (Photograph 052).



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- 9.2 Considerable efflorescence is evident to the brickwork but the vertical profile is reasonable. (Photographs 053, 054).



- 9.3 The eroded water channel on the Northern aspect is shown in photograph 055.
- 9.4 The rainwater hopper from the roof valley between Units 9 and 10 still exists against the flank wall, with a personnel door on the left hand North Eastern corner. (Photographs 054, 055).

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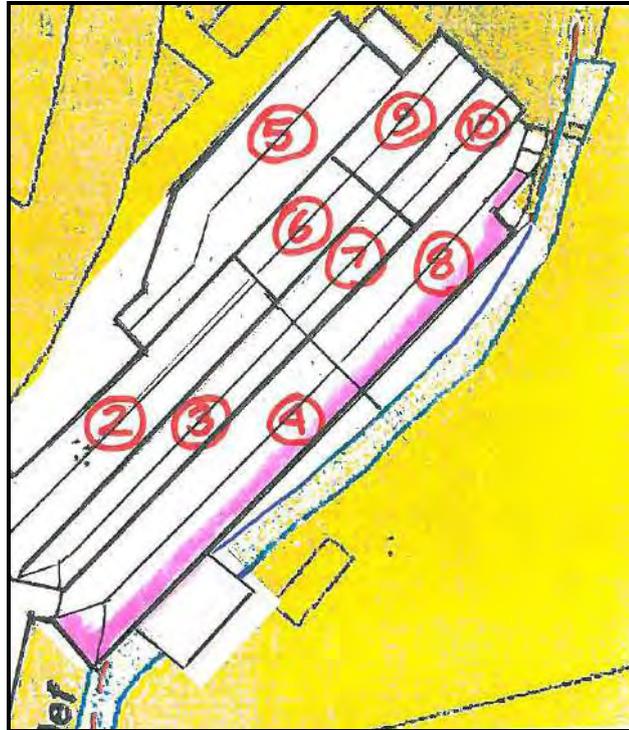
10.0 RIVER ELEVATION NORTH EAST – UNITS 4 AND 8

- 10.1 The North Eastern corner of the main mill overlooks the River Irwell incorporating twin culvert discharge pipe diameters approximately 1.5 metres constructed in a head wall overlooking the downstream section. (Photographs 059, 060).
- 10.2 The North Eastern corner incorporates a 10 metre return wall from Unit 10 with a full height rectangular infill construction between the part gable elevation of Unit 8. (Photographs 061, 062, 063).



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11.0 SOUTH EAST ELEVATION – MAIN MILL



- 11.1 The South East elevation forming the external walls fronting onto the river to Units 4 and 8, is two storeys high extending for a length in the order of 60 metres.
- 11.2 The format of the two Units (4 and 8) is almost identical incorporating 686mm (original 27" piers) by 110mm (4 inch) at 3.61 centres – 12ft) with two windows at ground and first floor level.
- 11.3 The earlier construction of Unit 4 (Bays 1 – 9) includes window openings incorporating natural stone cills and a reinforced concrete head to the window openings at first floor level.
- 11.4 The Bays 10 - 16 incorporate a concrete head detail with visual evidence of minor crazing and spalling to the face.
- 11.5 The elevation is completed in garden wall bond (headers every three courses) on an enlarged brickwork plinth.



- 11.6 The door and windows are seated on a two course deep stone cill beneath a reinforced concrete four course deep lintel at first floor level.
- 11.7 The wall height is in the order of 6.5 metres above external ground level and originally incorporated natural stone coping.
- 11.8 In Bays 1, 5, 9 and 13 the parapet height increases on the remainder of the wall section by five courses of brickwork (approximately 375mm) and the Panels incorporate a projecting brickwork motif. (Photographs 087E, 067, 064).



- 11.9 The North Eastern corner incorporates a rectangular infill structure between the North Eastern gable of Unit 11 and the South of the flank of Unit 10. (Photographs 062, 063).
- 11.10 On the left hand end of the front elevation (South West) there is a single storey brick faced outshoot spanning over the River Irwell extending for a width in the order of 4 metres incorporating 3 number window openings on the two flank walls, with double window openings with adjoining piers on the front South East aspect. (Photographs 0.73, 078, 086).

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- 11.11 Internally, the outshoot is overgrown with the remains of a fire damaged hip on the North Eastern side. (Photographs 078, 079, 080, 081, 082, 084, 085).



- 11.12 At first floor level on the main unit (Unit 4) severe spalling is evident to all the concrete lintels at first floor level to Bays 1 – 4 with spalling of the concrete and exposure of the main reinforcement. (Photographs 081, 082, 083 – close up).



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12.0 FRONT ELEVATION – BAYS 5 – 9

12.1 The window heads to Bay 5 follow a slight hogging profile with settlement towards the right hand and left hand aspect. Spalling to the concrete lintels is evident with exposure of the reinforcement, copings are missing at eaves level with spalling to the concrete window heads at first floor level. (Photographs 070, 072, 087, 088 089, 090, 091, 092).



13.0 BAYS 10 - 13

- 13.1 A later construction evidenced with a slightly improved finish to the concrete lintels at first floor level, although horizontal crazing at mid beam depths is evident to most window heads at ground and first floor level with some cracking and spalling to the ground floor head (Bay 11) and leachate in the parapet brickwork (Bay 12). (Photographs 065, 066, 093, 094, 096).



14.0 BAYS 14 – 16

- 14.1 The end Bay 16 is set back from the right hand bank of the river by a distance in the order of 2 – 3 metres, the bank sustaining intensive tree growth, all copings are absent and crazing is evident to the concrete lintels. The brickwork and pointing are in fair condition. (Photograph 099).



15.0 SOUTH WEST ELEVATION

- 15.1 The South West elevation to the wall extends for a length in the order of 6 metres incorporating a central double bay between single windows. (Photographs 144, 145).
- 15.2 Spalling and reinforcement exposure is evident to all four lintels at both levels. (Photographs 146, 147).



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16.0 INTERNAL INSPECTION

- 16.1 A limited inspection of the ground floor of Units 3 – 4 was made adjoining the windows to the river elevation around Bay 5 (outshoot) to Bay 9.
- 16.2 The section was one of the earlier constructions incorporating 150mm cast iron columns with additional steelwork column supports, and a mixture of timber and steel beams and timber floor joists.
- 16.3 Collapse of the upper floor and roof has occurred to several locations with the remains of the timber debris on the floor. (Photographs 148, 149, 150, 151, 152).



- 16.4 Towards the centre of the area more significant losses to the upper floor level are evident. (Photographs 156, 158, 159, 248, 249).
- 16.5 Access to the base of the chimney confirmed a satisfactory construction. (Photographs 242, 243).
- 16.6 On the cross wall between Units 3 – 2 is a 6 metre high wall extending to the roof valley level, the upper first floor level to Unit 2 supported on the lower retaining wall section and the remains of steelwork cross beams at first floor and lower roof level. (Photograph 252).

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- 16.7 Remains of the of the suspended timber floor joist construction are evident towards the East of Unit 3 and part Unit 4. (Photographs 253, 254, 255).
- 16.8 At ground floor level by the external (river wall) partial remains of the upper floor construction are present. (Photographs 256, 258).
- 16.9 Upper floor and roof collapse has occurred towards the North East end of Units 3 and 4. (Photographs 259, 260, 261, 262, 263, 264, 265, 266, 267, 268).



- 16.10 In the central section Units 7 – 10 roof debris is evident. (Photographs 271, 272, 273).
- 16.11 Photograph 179 shows the general poor condition of the roof structures to the whole of the mill complex.

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11.0 CONCLUSIONS

- 11.1 Since our previous inspection in the mid 1990's severe deterioration has occurred to most of the structural elements.
- 11.2 The overview of the whole roof structure of the complex highlights the total deterioration and collapse to all roof coverings including the original mill (Unit 1) and the multiplicity of the various pitched roofs and valleys in Units 2 – 11.
- 11.3 On the original three storey back to earth Unit no safe internal access was available but the condition of the second floor and roof structure viewed from the rear windows clearly emphasises the total roof collapse with high probability of further deterioration to timber floors.
- 11.4 Externally, the reduced lateral restraint originally offered by suspended timber floors to the front wall of the original mill has no doubt exacerbated the bowing profile to the three storey front elevation, together with loss of horizontal deflection across the frontage.
- 11.5 With movement patterns of this nature separation is usually evident at the junction between external and any internal cross walls and floor beams/floor joists seating. Dependant on the extent of timber wet rot clearly evident in the remainder of the main mill.
- 11.6 Given this loss of lateral restraint the front wall structurally could be classified as free standing and even with an expected wall thickness in the order of 450mm potentially unstable.
- 11.7 On the larger footprint of the main mill complex the roof structures can be totally discounted for any menial reference, retention or reuse.
- 11.8 The suspended floors of the main complex originally incorporate a mixture of structural steelwork beams on a mixture of cast iron and/or steel columns, supporting large section timber floor joists. The photographs of the ground floor interior to Units 3, 4, 7, 8 and 11, clearly shows the severe deterioration to the exposed majority of timber members including the over-boarding to the ground floor levels on a presumed concrete oversite.
- 11.9 The main structural steelwork sections apart from any surface deterioration (rusting) would normally be capable of reuse, although it is questionable whether the current structural layout of the industrial mill could be retained and accommodate any future non-industrial usage.



- 11.10 With regard to the external walls of the main unit the overall line and level of the Accrington brick frontage is satisfactory, although again there will be a loss of lateral restraint at eaves level given the collapse and deterioration to the trussed roof sections.
- 11.11 Severe leachate/efflorescence is evident particularly on the North Eastern end to Units 9 and 10.
- 11.12 The partition/fire break cross walls, between the miscellaneous units spanning laterally across the central section of the site would appear to have little value in a new development.
- 11.13 On the river frontage the first floor lintels to Bays 1 – 9 (18 number) are constructed in reinforced concrete and severe spalling is evident exposing the reinforcement and this will involve the replacement of the eighteen windows including wall replacement above the windows.
- 11.14 On the remaining window sections of the later construction faint crazing is evident to the face of the concrete lintels with further spalling, and again some remedial work will be required to the lintels, although whether repaired concrete lintels of this age could be retained in a new development is questionable.
- 11.15 Regardless of the retention of any of the structural elements work within the whole mill complex would involve considerable health and safety issues with regards to the unsafe nature of all the internal floors and roof constructions.
- 11.16 To conclude, I consider the viability of conversion and retention of the current industrial complex for the domestic housing market to be unrealistic, not only for the Architectural challenges to the existing format but also for the extensive issues of health and safety within the works as a whole. Upgrading and repairing the existing structural layout for today's housing markets would be considerable, and I consider that the costs for any attempted conversion would be excessive and uneconomical in todays climate.

██████████ M. Sc. C. Eng. M.I.C.E. F. Cons. E.



PHOTOGRAPH LIST

UNIT 1 – ORIGINAL MILL

- 001 Gable to original mill
- 002 Rear elevation, Bays 2 – 1
- 003 Rear elevation (left)
- 004 Rear elevation (right)
- 005 Second floor, rear to front elevation
- 006 Second floor, North East, Bays 8 - 5
- 007 North Eastern gable
- 008 Not used
- 009 Western rear elevation, original mill, Unit 1
- 010 Northern gable adjoining chimney
- 011 Access road to rear
- 012 Chimney stack
- 013 Chimney
- 014 Debris looking North – South (Unit 1 first floor)
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- 075 Front elevation Bays 11 – 4
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- 020 North West rear wall Unit 2 (centre)
- 021 North West rear wall Unit 2 (East)



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- 131 Roof slope to Unit 2
- 132 Roof slope to Unit 2

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- 032 Skew link to Unit 5
- 033 Skew link to Unit 5
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- 127 Rear roof, North West Units 2 - 3
- 128 Rear roof, North West Unit 2 and chimney base

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- 053 North Eastern flank to Unit 10
- 054 Flank wall, Units 9 – 10
- 055 Eroded channel
- 056 Ground floor, North East – South West (Unit 10) looking North East – South West
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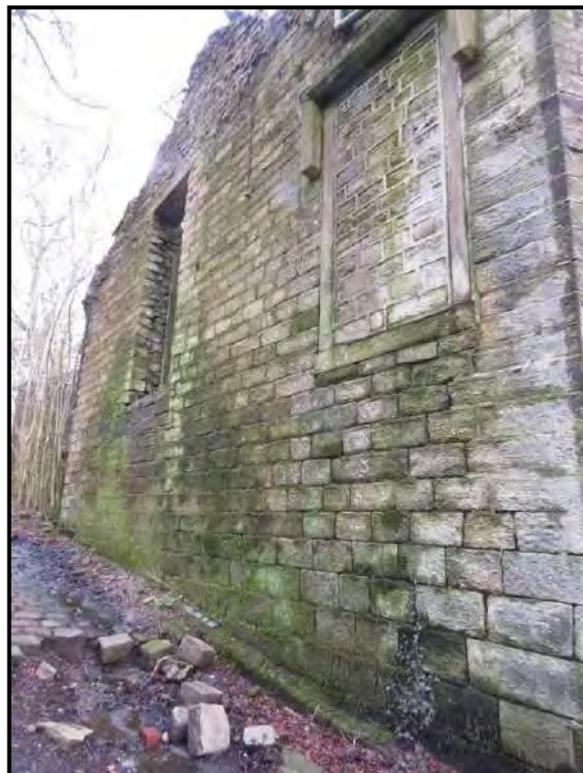
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- 255 Units 4 – 3, ground floor collapse, North East – South West
- 256 Units 4 – 3, ground floor river wall
- 257 Units 4 – 3, ground floor river wall
- 258 Units 4 – 3, ground floor river wall
- 259 Roof collapse, Unit 3
- 260 Unit 3, cross wall 3 – 2 floor collapse
- 261 Units 3 – 7 roof collapse
- 262 Units 7 – 4, king post truss
- 263 Units 8 – 7, internal cross wall to river elevation
- 264 Floor and roof collapse looking North West – South East
- 265 Floor and roof collapse, cross wall Units 2 – 3
- 266 Floor and roof collapse, cross wall Units 2 - 3
- 267 Floor and roof collapse, Units 8 - 10
- 268 Units 10 – 8 North East elevation
- 269 Floor and roof collapse, Units 10 – 8 looking North West
- 270 Looking North East, Units 9 - 10
- 271 Units 8 – 10 North West external wall
- 272 Unit 8 river wall looking North East – South West
- 273 Unit 8 – 10 looking North East – South West
- 274 Unit 8 looking to cross wall
- 275 Unit 8 looking to cross wall
- 276 First floor and roof collapse above Units 6 - 7

179E Roof to Unit 5





001 Gable to original mill



002 Rear elevation, Bays 2 - 1

[Redacted text]





003 Rear elevation (left)



004 Rear elevation (right)

[Redacted text]





005 Second floor, rear to front elevation



006 Second floor, North East

[Redacted text]





007 North Eastern gable



009 Western elevation, original mill

[Redacted text]





010 Northern gable adjoining chimney



011 Access road to rear

[REDACTED]
[REDACTED]
[REDACTED]





012 Chimney stack



013 Chimney





014 Debris looking North - South



016 Inside face of front elevation

[Redacted text]





075 Front elevation Bays 11 - 14



076 Front elevation Bays 2 - 6

[Redacted text]





077 Front elevation 4 - 8



129 Chimney and roof to Unit 1

[Redacted text]





133 Southern gable and front elevation



134 Loss of vertical alignment to front

[Redacted text]





135 Bays 1 - 2



136 Bays 2 - 3

[REDACTED]





137 Pattress plate, Bays 2 - 3



138 Pattress plate, Bays 2 - 3

████████████████████
████████████████████
████████████████████





139 Vertical profile, Bays 1 - 4



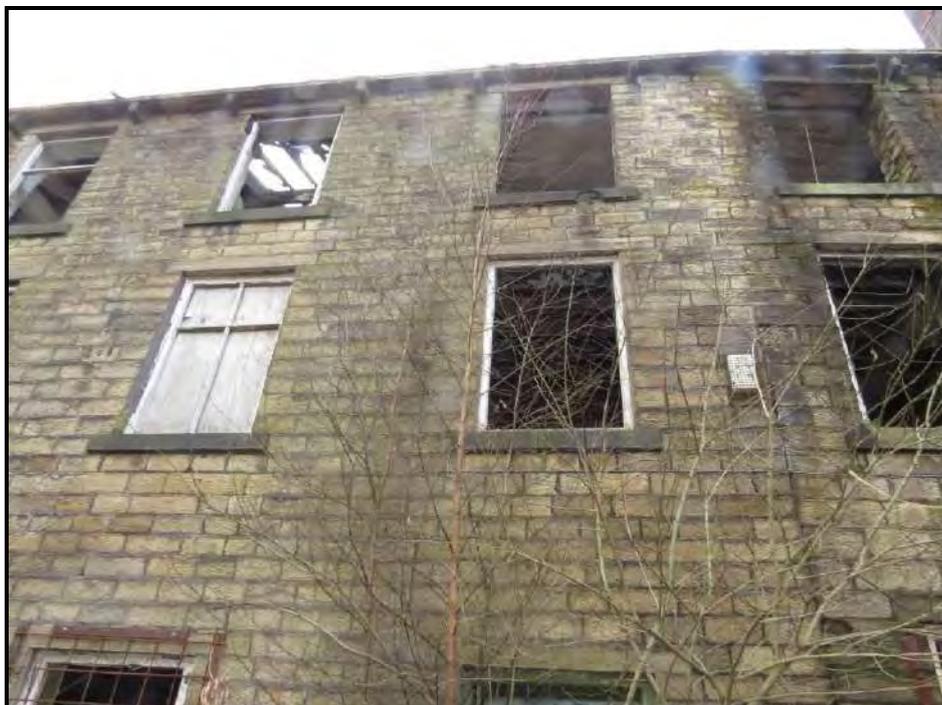
140 Vertical profile, Bays 2 - 4

[Redacted text]





141 Ground floor and first floor, Bay 2



142 First and second floor, Bays 2 - 4

[Redacted text]





143 Construction joint 5 - 6, Bays 5 - 8



144 South West flank to main mill

[Redacted text]





017 Wall return by chimney



018 Single storey, North West elevation

[REDACTED]
[REDACTED]
[REDACTED]



019 North West rear wall Unit 1 (West)



020 North West rear wall Unit 2 (centre)

[Redacted text]



021 North West rear wall Unit 2 (East)



022 Internal rear bay, Unit 2

[Redacted text]





023 Unit 2



024 Unit 2 looking to central and front bay

[REDACTED]
[REDACTED]
[REDACTED]



025 Unit 2 North West, Bays 5 – 4



130 Roof slope to Unit 2

[Redacted text]





131 Roof slope to Unit 2



132 Roof slope to Unit 2

[Redacted text]





026 Gable door to Unit 5



027 Original door, Unit 5

[Redacted text]



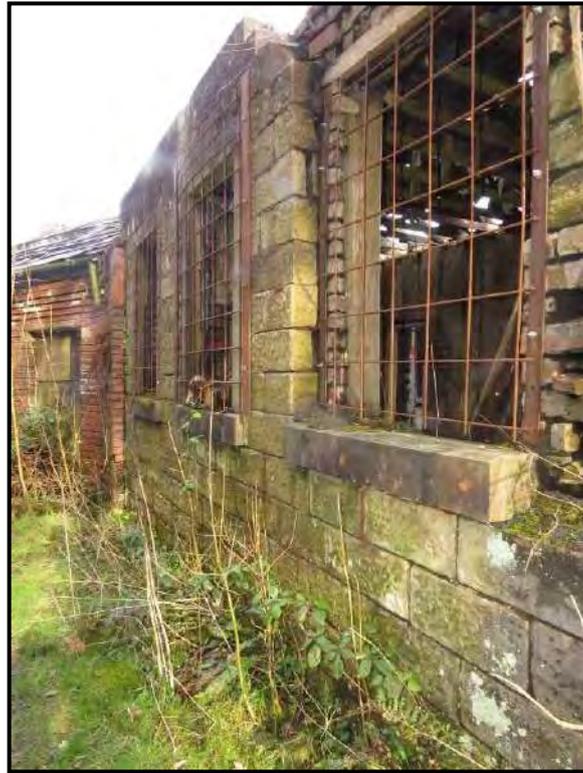


028 Internal cross wall Units 5 - 6



029 Internal cross wall Units 5 - 9

[REDACTED]
[REDACTED]
[REDACTED]



030 Stone elevation to Unit 5



031 Skew link to Unit 5





032 Skew link to Unit 5



033 Skew link to Unit 5

[Redacted text]





034 Unit 5 main rear wall, panel 1 - 2



035 Doorway and panel 3

[REDACTED]
[REDACTED]
[REDACTED]





036 Panels 3 – 6, Unit 5



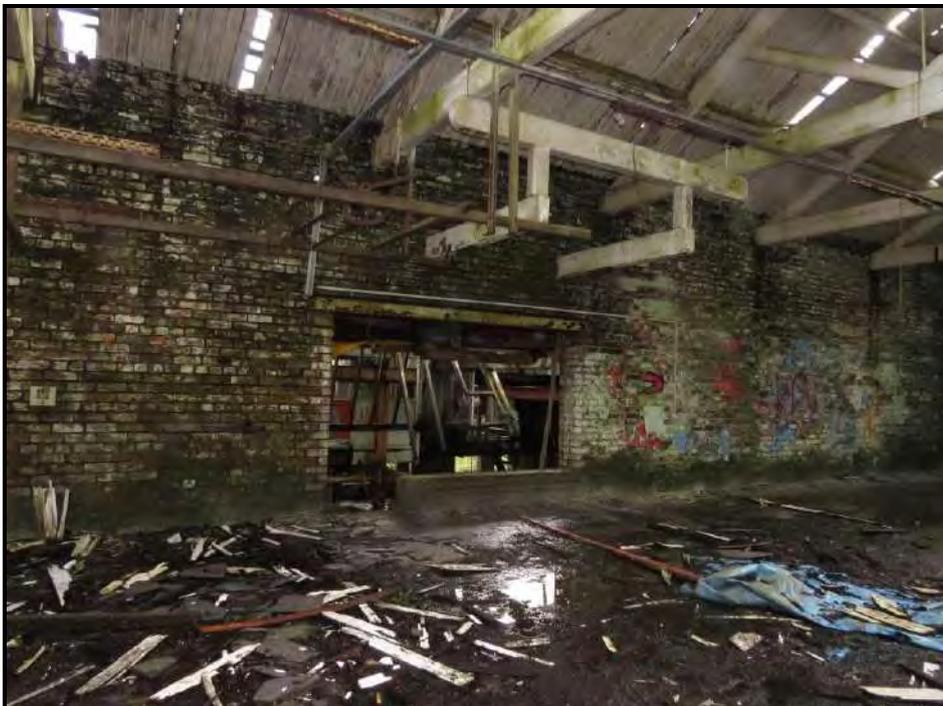
037 Unit 5 internal looking North East – South West

[Redacted text]





038 Tied rafter roof support



039 Internal party wall

[REDACTED]
[REDACTED]
[REDACTED]





040 Cross wall to Unit 6



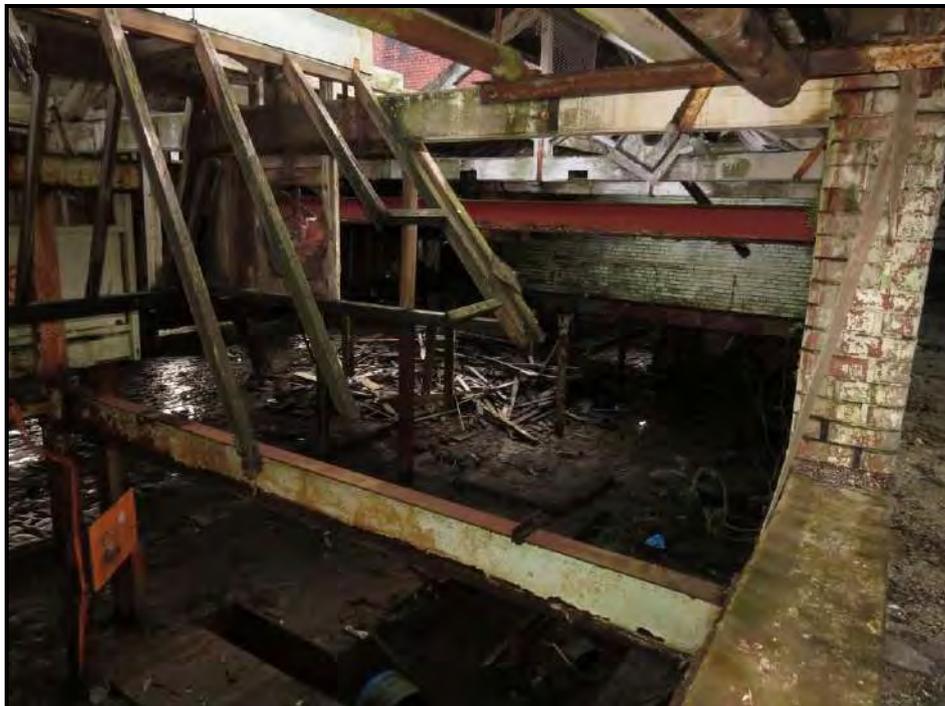
041 King post truss – general arrangement

[Redacted text]





042 North East gable Unit 5



043 First floor collapse above ground floor, Unit 6

[REDACTED]
[REDACTED]
[REDACTED]





044 Collapsed first floor Unit 6 to ground floor Unit 6



045 North West wall to Unit 5

[REDACTED]
[REDACTED]
[REDACTED]





046 Northern corner Unit 5



047 North East gable to Unit 5, internal

[REDACTED]
[REDACTED]
[REDACTED]





048 Collapsed roof South East slope



049 Northern corner

[Redacted text]





050 North Eastern gable



051 Water erosion to slope

[Redacted text]





117 Unit 5, Northern corner



118 Unit 5, North West6 rear wall

[Redacted text]





119 Unit 5, North West rear wall



120 Unit 5, North West rear wall

[Redacted text]





121 Unit 5, doorway – Panel 3, North West elevation



122 Unit 5, doorway – Panels 1 – 2, North West elevation

[Redacted text]





123 Unit 5, North West wall



124 Chimney from North

[Redacted text]





125 Rear roof, North West Unit 5



126 Rear roof, North West Units 2 - 6

[Redacted text]





127 Rear roof, North West Units 2 - 3



128 Rear roof, North West Unit 2 and chimney base

[Redacted text]





052 North Eastern wall



053 North Eastern flank to Unit 10

[Redacted text]





054 Flank wall, Units 9 - 10



055 Eroded channel

[Redacted text]





056 Ground floor, North East – South West (Unit 10) looking North East – South West



057 Unit 10 – 9, roof collapse

[REDACTED]



058 Unit 10 – 9, roof collapse



059 Culverted river outlet

[Redacted text]





060 Eastern corner and River Irwell, Unit 10



061 North East flank to Units 9 – 10

[REDACTED]
[REDACTED]
[REDACTED]



062 River Irwell and North East corner detail



063 Front South Eastern elevation, Unit 11 (Bays 15 – 16)

[Redacted text]





064 Bays 11 – 16, Unit 8



065 Bays 9 – 15, Units 8 – 4

[Redacted text]





066 Bays 10 – 16, Unit 8



067 Bays 1 – 11, Unit 4

[REDACTED]
[REDACTED]
[REDACTED]





068 Bays 5 – 10, Unit 4 - 8



069 Bays 5 -9, Unit 4

[Redacted text]





070 Bays 6 – 9, Unit 4



071 Bays 1 – 4, Unit 4

[Redacted text]





072 Bays 5 – 8, Unit 4



073 Front outshoot, Bays 2 – 4, Unit 4

[Redacted text]





074 End Bay 1 and outshoot



078 River outshoot from South

[Redacted text]





079 Interior River outshoot, Bays 2 - 3



080 Interior River outshoot, Bays 2 - 4

[REDACTED]
[REDACTED]
[REDACTED]





081 First floor main mill, Bays 3 – 4, Unit 4



082 First floor, Bays 5 – 7, Unit 4

[REDACTED]
[REDACTED]
[REDACTED]





083 Typical spalling to concrete lintel, Unit 4



084 Remains of hipped roof, Bays 3 – 4, outshoot

████████████████████
████████████████
██████████████





085 Remains of hipped roof, outshoot



086 Right hand flank – North East

[REDACTED]





087 Bays 5 – 6, Unit 4



088 Ground floor, Bays 5 – 6, Unit 4

[Redacted text]





089 Bays 5 – 7, Unit 4



090 Bays 5 – 7, Unit 4

[Redacted text]





091 Bays 6 – 8, Unit 4



092 Bay 9, Unit 4

[Redacted text]





093 Bays 9 – 11, Unit 8



094 Bays 11 – 13, Unit 8

[Redacted text]





095 Bays 13 – 15, Unit 8



096 Bays 10 – 13, Unit 8

[Redacted text]





097 Bays 10 – 11, Unit 8



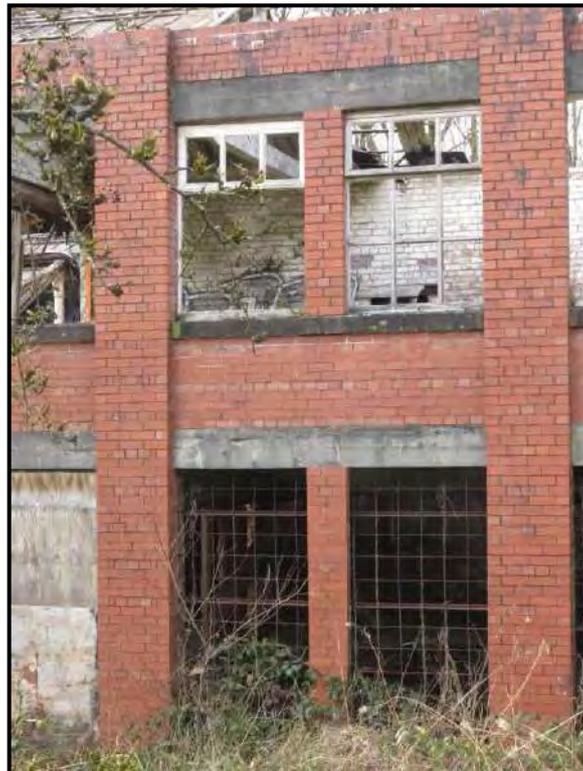
098 Bays 10 – 13, Unit 8

[Redacted text]





099 Bays 13 – 16, Unit 8



100 Bay 11, Unit 8

[Redacted text]





101 Bays 11 – 13, Unit 8



102 Bays 11 – 13, Unit 8

[Redacted text]





103 Bays 12 – 14, Unit 8



104 Bays 12 – 14, Unit 8

██
██
██





107 Bays 13 – 15, Unit 8



108 Bays 13 – 15, Unit 8

[Redacted text]





109 Bays 15 – 16, Unit 8



110 Front wall to Unit 8

[REDACTED]





111 Unit 8



144 South West flank to main mill

[Redacted text]





145 Unit 4 South West elevation



146 Ground floor, South West elevation, Unit 4

[Redacted text]





147 South West elevation Unit 4



112 Culverted river North East

[Redacted text]





113 South Eastern wall to Unit 11



114 River Irwell downstream of culverts

[Redacted text]





115 Personnel door North East Unit 10



116 Valley gutter outlet, Units 9 - 10

[REDACTED]





148 Interior, Unit 3 - centre



149 Unit 3 – river side

[REDACTED]
[REDACTED]
[REDACTED]



150 Access to chimney



151 Unit 3, Bays 3 – 8

[Redacted text]





152 Unit 3, Bays 5 - 8



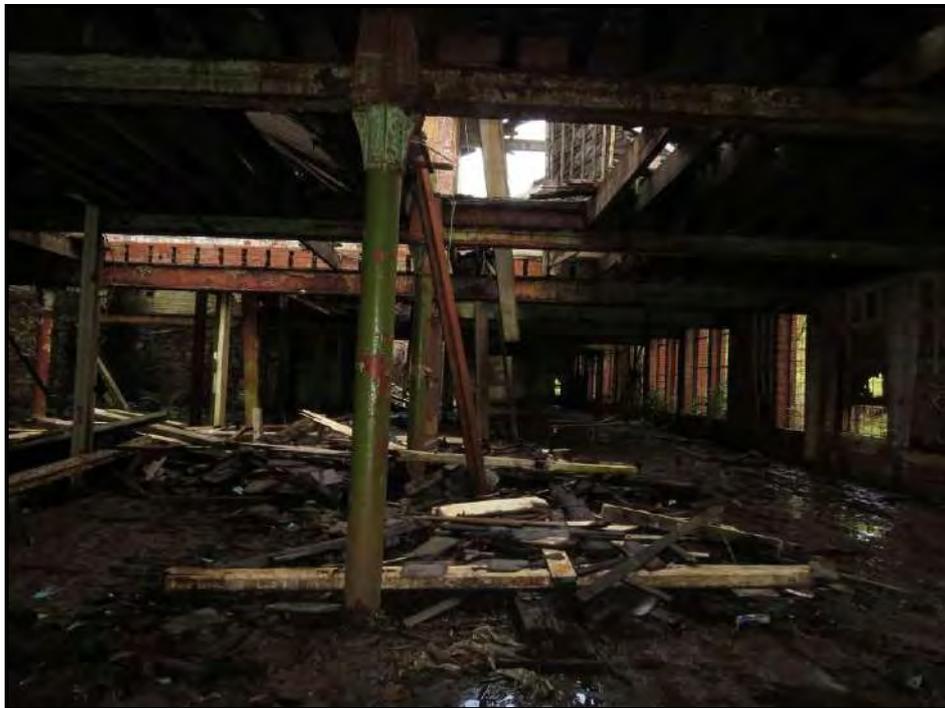
153 Beam and column general arrangement

[REDACTED]
[REDACTED]
[REDACTED]





154 First floor column



155 First floor column

[Redacted text]





156 Centre floor and roof collapse



157 Centre floor and roof collapse

[REDACTED]
[REDACTED]
[REDACTED]





158 Floor joists general arrangement



159 Cross wall, Bays 3 – 7

[Redacted text]





160 Floor joists on beam and column



163 Internal return wall, Bays 7 – 8

[REDACTED]
[REDACTED]
[REDACTED]



165 Roof layout from North East (North – South)



166 Roof layout from North East (North – South)

[Redacted text]





167 Roof layout from North East (North – South)



168 Units 1, 2, 3, and 4 damaged roof

[Redacted text]





169 Cross wall centre/South East, Units 2, 3 and 4



170 Cross wall centre/South East, Units 6, 7 and 8

[REDACTED]
[REDACTED]
[REDACTED]





171 Damaged roof Unit 5



172 Damaged roof Units 9, 10 and 8

[REDACTED]
[REDACTED]
[REDACTED]





173 Lateral cross wall, Units 4 – 8, 7 – 8, 6 - 2



174 Deterioration to mill view from North West

[REDACTED]
[REDACTED]
[REDACTED]





175 Central and North Eastern roofs



176 North Eastern end of mill, Units 8, 7, 6, 9 and 10

[Redacted text]





177 Layout Northern aspect



178 Layout Northern aspect

[Redacted text]





179 Rear Northern aspect



180 Roof – general arrangement

[Redacted text]





181 Roof – general arrangement



182 General arrangement

[Redacted text]





183 General arrangement



184 Roof damage North – North East corner

[Redacted text]





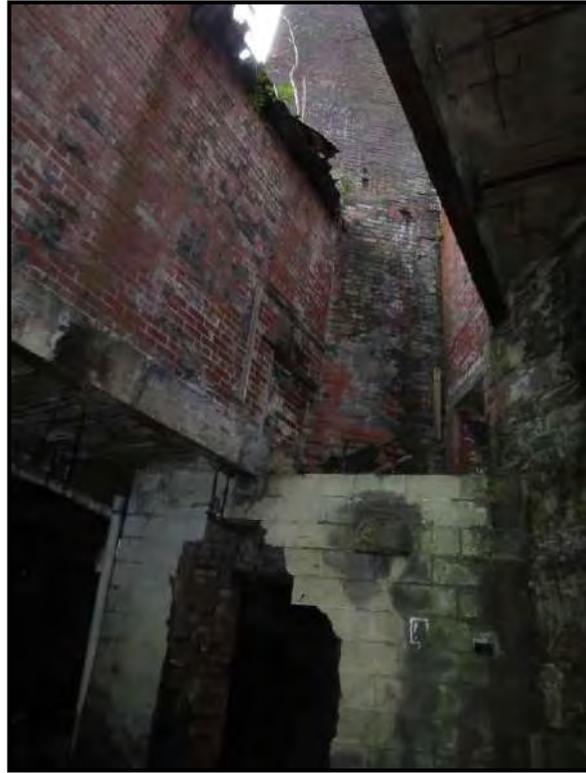
185 Damage to South Western section and original mill



242 Chimney base

[Redacted text]





243 Chimney base



244 Chimney base

[Redacted text]





245 Ground floor Unit 4 looking South West



247 Internal wall to river outshoot

[REDACTED]





248 Unit 4 floor and roof collapse



249 Unit 3 – 2 floor and roof collapse

████████████████████
████████████████
██████████████





251 Internal cross wall, floor collapse



252 Ground floor, Units 3 - 2

████████████████████
████████████████████
████████████████████





253 Ground and first floor, Units 3 - 4



254 Unit 4 – 3, river elevation, ground floor

[REDACTED]
[REDACTED]
[REDACTED]





255 Units 4 – 3, ground floor collapse, North East – South West



256 Unit 4 – 3, ground floor river wall

[Redacted text]





257 Units 4 – 3, ground floor river wall



258 Units 4 – 3, ground floor river wall

[Redacted text]





259 Roof collapse, Unit 3



260 Unit 3, cross wall 3 – 2 floor collapse

[Redacted text]





261 Units 3 – 7 roof collapse



262 Units 7 – 4, king post truss

████████████████████
████████████████
██████████████





263 Units 8 – 7, internal cross wall to river elevation



264 Floor and roof collapse looking North West – South East

[Redacted text]





265 Floor and roof collapse, cross wall Unit 2 - 3



266 Floor and roof collapse, cross wall Units 2 - 3

[Redacted text]





267 Floor and roof collapse, Units 8 – 10



268 Units 10 – 8 North East elevation

[Redacted text]





269 Floor and roof collapse, Units 10 – 8 looking North West



270 Looking North East, Units 9 - 10

[Redacted text]





271 Units 8 – 10 North West external wall



272 Unit 8 river wall looking North East – South West

[Redacted text]





273 Unit 8 – 10 looking North East – South West



274 Unit 8 looking to cross wall

[Redacted text]





275 Unit 8 looking to cross wall



276 First floor and roof collapse above Units 6 - 7

[REDACTED]
[REDACTED]
[REDACTED]





179E Roof to Unit 5

[REDACTED]



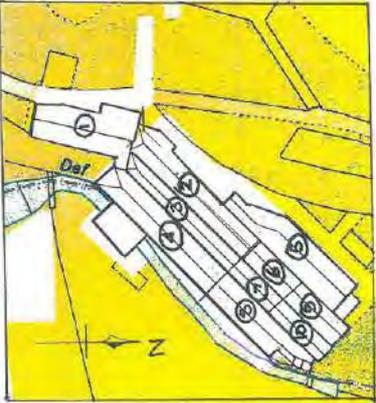


Bing No
Profile



ROOF DETERIORATION

FRONT ELEVATION RIVER SIDE
(SOUTH WEST)



UNIT LOCATION

CONTRACT:
 CONTRACT NO. 7170
 EDENWOOD MILL,
 RAMSBOTTOM



CONTRACT:
 CONTRACT NO. 7170
 EDENWOOD MILL,
 RAMSBOTTOM



[Redacted]
[Redacted]
[Redacted]



DATE OF INSPECTION: 13th March 2020

REPORT NUMBER: 7170

ENGINEERING REPORT: [Redacted]
[Redacted]
[Redacted]
[Redacted]
[Redacted]

PREPARED BY:

[Redacted]
M.Sc.,C.Eng.,M.I.C.E.,F.Cons.E.

Partner

Signed: [Redacted]

CHECKED BY:

[Redacted]
B.Eng.(Hons). M.Eng. C.Eng. M.I.Struct.E.

Partner

Signed: [Redacted]



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