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Sheffield + Oxford

ASHFORD-IN-THE-WATER MILL

Derbyshire



Historic Building Appraisal

September 2014

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SUMMARY OF PROJECT DETAILS

OASIS ID:	Thejesso1-188996
TJC Project Code:	AWM14
Project Type(s):	Historic Building Appraisal
National Grid Reference:	SK 19834 69515 (centered); DE45 1QQ
County:	Derbyshire
Parish:	Ashford in the Water
Local Authority:	Peak District National Park Authority
Planning Reference:	n/a
Designation Status(s):	The Mill – LB II; EH No: 1158750 Ashford-in-the-Water Conservation Area
HER Record No:	Derbyshire No. 436
Prepared by:	Oliver Jessop MifA, BA, MA (Archaeology); Adam Bench RIBA (Research) Ian Atkins MifA, BA, MA (Illustrations)
Reviewed by:	Karen Walker MifA FSA
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NON-TECHNICAL SUMMARY

An archaeological building assessment of the former corn mill in Ashford-in-the-Water in North Derbyshire, has been undertaken by The JESSOP Consultancy in conjunction with Bench Architects, to provide a detailed understanding of the development of the building that will inform plans for consolidation of the structural fabric and the conversion of the interior to residential use. The building is has a Grade II listing and is located within the Ashford-in-the-Water Conservation Area; NGR SK 19834 69515 (centered).

The building has been divided into two wings: the south and west. At least ten phases of structural change have been identified in the external fabric, and the building has a very complex development. The historic mapping as far back as the late 17th century has confirmed aspects of the former appearance of the mill and its associated leats, as well as the addition of the existing kiln and bothy.

The earliest fabric appears to be at the north end of the west wing (**Appendix 5.4**) where there was a rectangular structure. When compared with the William Senior's plan of 1616 that depicts the mill as being a square structure with water wheels on either side, it is suggested that this part of the building may be a remnant of this 17th century phase.

Subsequent alterations to the south of the west range incorporated a second set of mill wheels, and the internal layout was radically altered in the later 19th century. The field survey has confirmed that the majority of the openings into the building are insertions, including windows and doors.

The proposed adaptation of the building to residential use has been identified as a means to ensure the long-term preservation of the surviving historic elements. The works will involve the reinstatement of a new flooring system throughout the ground floor, improved access around the building and the introduction of bedrooms and bathrooms on the first floor. It is recommended that mitigation against any impact of such works to the historic fabric, would be a black and white photographic record and an archaeological watching brief during any ground works, or structural alterations.

1 INTRODUCTION

BACKGROUND

This document describes the results of a historic building appraisal of a Mill, in Ashford-in-the-Water, Derbyshire (**Figure 1**). The recording has been undertaken to support a planning application to the Peak District National Park Authority to repair parts of the interior fabric of the building and to undertake a sympathetic conversion to residential use.

The fabric of the building, which is Grade II listed (EH No: 1158750) largely dates to the 18th-19th centuries, however, its origins are considerably earlier. The building was re-roofed in the 1990s, and in 2011 and a new water turbine for the generation of electricity was installed.

AIMS OF THE FIELDWORK

The aim of this archaeological appraisal has been to make an inspection of the building to understand its historical development, and to identify the extent of historic fixtures and fittings. This report is intended to provide evidence to inform the preparation of proposals for the repair, and consolidation and adaptation of the internal spaces to new uses.

PRINCIPAL DELIVERABLES DERIVING FROM THIS WORK:

- The production of a series of annotated floor plans, accompanied by a descriptive account of the surviving historic fabric and a digital photographic record;
- The preparation of an interpretative report;
- Recommendations for further investigation and analysis;
- The issue of bound reports to the Peak District National Park Authority and Derbyshire Historic Environment Record, and the uploading a summary as a digital version to the Archaeology Data Service OASIS database (reference number **thejesso1-188996**).

ACKNOWLEDGEMENTS

This report has been prepared by Oliver Jessop MIfA, with archive research undertaken by Adam Bench RIBA of Bench Architects, and illustrations produced by Ian Atkins MIfA. Preliminary editing has been undertaken by Karen E Walker MIfA, FSA. The Client and staff at the PDNPA are acknowledged for their help during the preparation of this report.

2 SITE LOCATION AND GEOLOGY

LOCATION OF SITE

The building is located on a tributary of the River Wye in North Derbyshire, on an island on the east side of the settlement of Ashford-in-the-Water (**Figure 1**). It is centered on NGR SK 19834 69515 and is c.134m above sea level. The building has an L-shaped plan, and for ease of reference has been divided into a South Range and West Range (**Figure 2**).

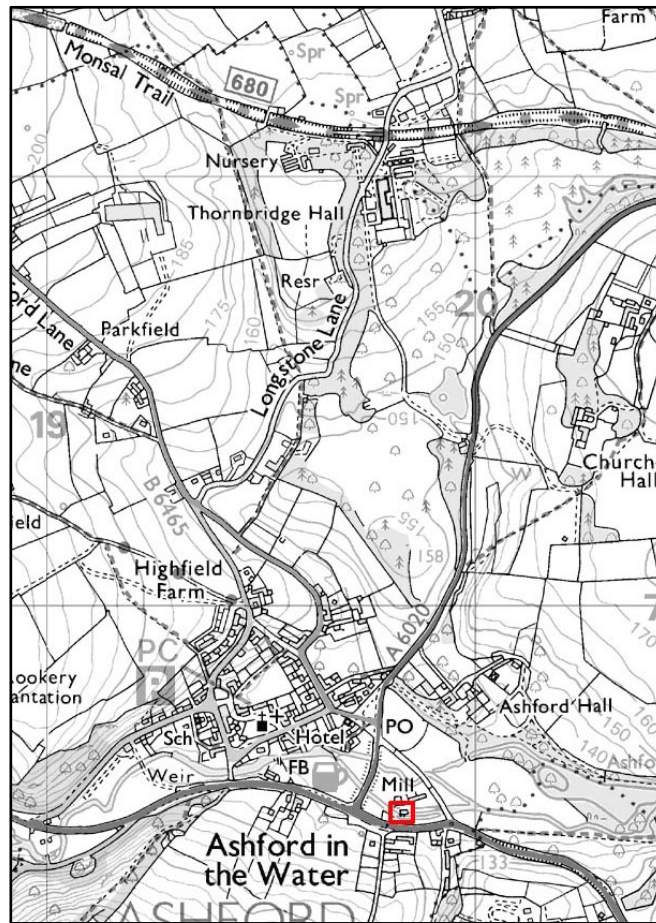


Figure 1: Location of the mill in Ashford-in-the-Water (marked with a red square).

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GEOLOGY

The superficial deposits along the river corridor comprise of Alluvium – Clay, Silt, Sand and Gravel. The underlying bedrock geology is, however, Mudstone from the Bowland Shale Formation (BGS 2014).

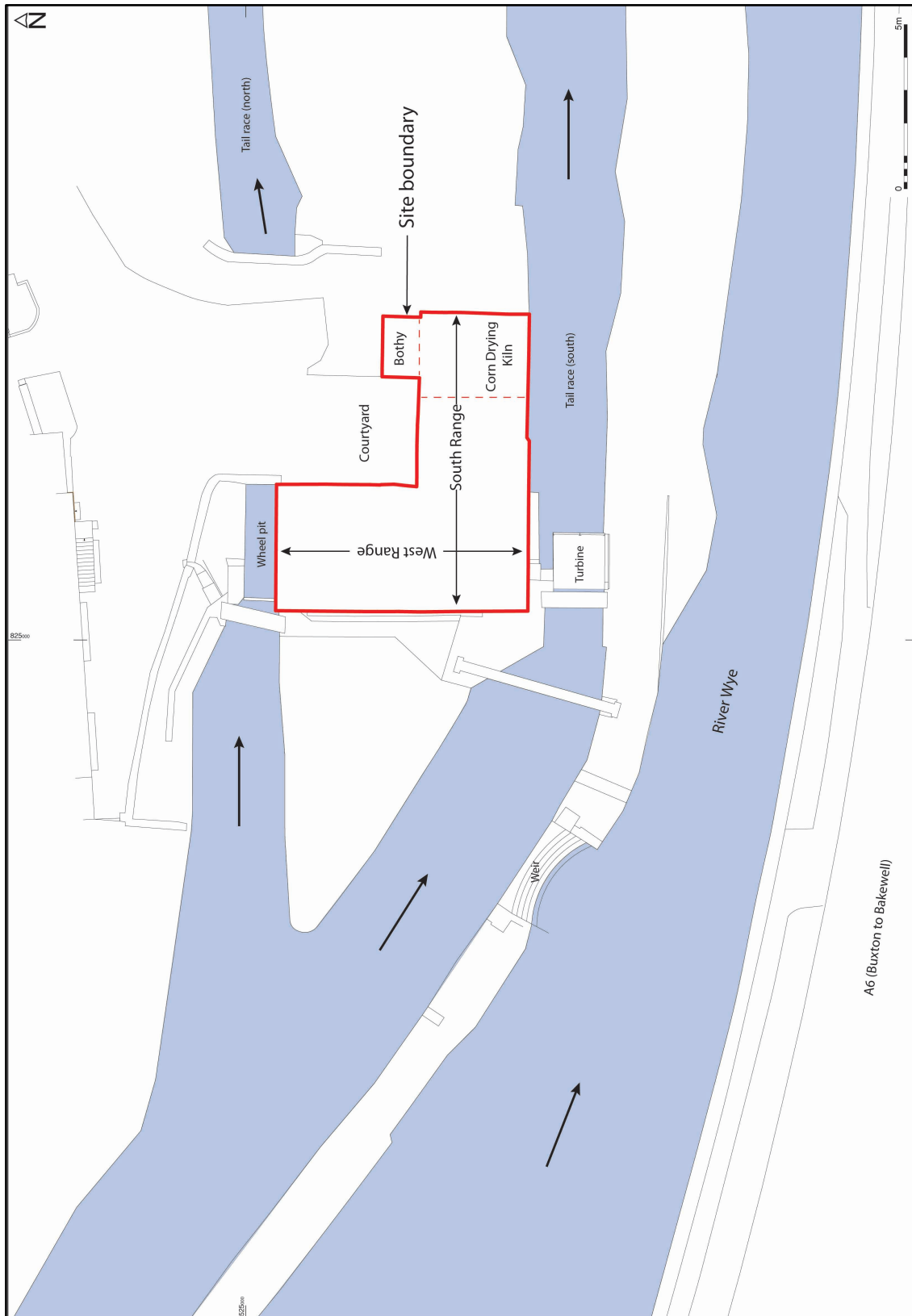


Figure 2: Layout plan of the Mill and surrounding features.

DESIGNATIONS

The following designations are applicable to the Mill:

- It is a **Grade II** listed building;
- It sits within the **Ashford-in-the-Water Conservation Area**;
- It is within the boundary of the **Peak District National Park**.

NOMENCLATURE

The terminology used throughout this document has been derived from existing names and descriptions associated with the site and its surrounding area. Additional descriptions are based upon an assessment of the current and historic character of the site, however, it should be noted that future research may identify alternative descriptions for these areas, or spaces.

A numerical system has been used to identify each room, or discrete space, as follows: ground floor (**G1**), first floor (**F1**), and second floor (**S1**). It should be noted that the number sequence primarily relates to the proposed alterations within the building and the potential subdivision of existing spaces, and thus as this survey describes the building as it appears today, some of the numbers in the report are not sequential.

3 HISTORICAL BACKGROUND

INTRODUCTION

This section of this document summarises the historical development of the mill and is derived from a detailed account prepared by Bench Architects (2014), prepared as part of a Conservation Plan for the Site. It incorporates evidence from archive papers, historic mapping, written accounts and photographs associated with the construction and development of the building.

A summary of the historical sources is presented first, followed by an analysis of historic mapping (**Appendix 1**).

SOURCES CONSULTED

The following sources have been consulted during the preparation of this document:

- *Chatsworth House Archives;*
- *Derbyshire Historic Environment Record;*
- *Derbyshire Record Office – Matlock;*
- *South Yorkshire Sites and Monuments Record;*
- *The PDNPA cultural heritage archive;*
- *Sheffield Local Studies Library;*
- *Sheffield Archives;*
- *English Heritage Archive;*
- *Place name evidence;*
- *Relevant archaeological reports and published accounts;*
- *Historic mapping, pictures and photographs (including aerials);*
- *Business and trade journals;*
- *Listed Building Records.*

HISTORICAL SUMMARY (AFTER BENCH 2014)

The earliest reference to a mill at Ashford-in-the-Water is in the Domesday Survey of 1086, which rendered a fee of twelve pence.

A second reference is from an Inquisition in Derby in 1275 that documents that the vill of Scheladon was part of the Manor of Ashford, and Griffin fil Wenowyn gave it to Galf Pichford together with eighteen marks to be received annually from the Mill of Ashford. During the period, the mill was owned by the manorial lord (Cavendish) whose tenants ran and operated it on his behalf. The mill also paid rent in the form of tithes to the Bakewell Chancery as part of the Diocese of Litchfield. It is suggested that although the exact location of this original mill is unknown, the adaptation of the river into leats appears to have been fairly established by the time of the 1616 survey of Ashford by William Senior (**Appendix 1.1**), and that the current Site may also be the same location for the medieval mill.

The millers and their families who are known to have operated the mill at Ashford are:

- 17th century – Brownell family
- early 18th century – Joseph Rotherham
- mid 18th century until the mid 19th century – the Cooke/Cooper/Green family
- 1869 to 1906 - the Wallwin family
- 1906 to c.1970s - the Flewitts (known as Flewitts Mill).

The lack of surviving accounts for the mill during the 17th to 18th centuries is not unusual, however, the Devonshire archives retain a very detailed records for a comprehensive rebuilding of the structure between 1866-1872; see below (after Bench Architects 2014):

1866-1906 Ashford Corn Mill - Accounts Inventories L/109/3

Valuation of estates at Ashford, Sheldon, Holme, Bakewell, Over Haddon - By John Bromley, Derby.

Surveyed by Edward Campbell and valued by John Bromley

HIS GRACE THE DUKE OF DEVONSHIRE To Matthew Thorpe

1865 Work done by Contract Ashford Mill

78 Cube foot of Ashlar, marking & setting lime etc at 10½ per foot inside mill} £3.8.3.

222 Cube foot of Ashlar, marking & setting lime etc at 10½ per foot. Overflow for Goit] £9.14.3.

25 Cube yards of Rubble walling lime etc for ditto @ 2/9} £3.8.9.

94 Cube foot of Ashlar walling setting lime etc @ 10½ for Shuttle in Goit} £4.2.3.

120 foot cube of old ashlar working setting lime for Culvert to shuttle @ 4^d per foot} £2.0.0.

165 cube yds Rubble Walling for Embankment to Goit @ 2/9 per yd} £22.13.9.

417 Cube foot of Ashlar working setting lime etc @ 10½ for Wheel Race} £18.4.10.

£63.12.1

£33.1.1

£45.3.4

£142.2.11

HIS GRACE THE DUKE OF DEVONSHIRE To Matthew Thorpe

1865 Alterations at Ashford Corn Mill

To mason 125 days @ 4/0 - Rebuilding Portions of Mill, Inserting Windows & Doors & working stone for Jambs, Building Sleeper Walls & Walls under Hurst framing} £25.0.0.

Labour 82¾ days @ 2/6 at £10.6.10½ .

Boy 17 days @ 1/6 at “ } £1.5.6.

Mason 17 days @ 4/0 making & fixing Breaching under Water Wheel} £3.8.0.

Lab^r 13 days @ 2/6 at ditto} £1.12.6.

Mason 4 days @ 4/0 fixing Shuttle & Letting Cramps in top of Weir} £~.16.0.

Lab^r 2 days @ 2/6 at ditto} £~.5.0.

Mason 7 days paring stone Weir & letting Bolts in for Millwright} £1.8.0.

44 feet of ‘Palleriso’ stone for window in gable @ /3} £~11.0.

21 loads of sand to above named alterations @ 6^d} £~11.6.

£45.3.4 ½

HIS GRACE THE DUKE OF DEVONSHIRE To Matthew Thorpe

To Mason 119 days @ 4/0 assisting Millwright & making alterations at Ashford Corn Mill} £23.16.0.

To lab^r 65 days at ditto @ 2/6} £8.2.6.

To 5 load of lime} £1.5.0.

To 8 load of sand} £~.4.0.

£33.7.6

Bought of Tho^s Kirkland - Millwright. June 19th 1866

“For 1 Best Ham^r Iron first motion shaft 7’ 2” long - 6”/4, 7”/2 & 8” dim inc turning grooves fitting & turning key seats & turn } 8” 1” 9 34/ - £14.3.3.

1 cast iron spur-wheel (into clefts) 4’ 5” 3/8 dia by teeth, 2/2” inch 7”[xx] inc xxxxxx 10.020 12/} - £6.2.2.

Boring, grooving, fitting, & keying same on first motion shaft with 1inc from wheel key 4/4lbs inc key seating, fitting & keying Old Big Wheel 87 teeth (in 357 on sauce with 4 wheel keys 12/4lbs & painting the whole} - £3.12.11.

2[no] 6” cast iron Pt Blks & caps with 4 grease covers cups first motⁿ shaft 3’ 2” 4 12/ } - £4.14.6.

4[no] 6” Brass Bearings to same 70/2 lbs @ ¼} - £4.14.6.

8[no] 7/8” Cap Bolts 14/2” long with keep lock nuts & 4 1” [Sq?]head [HD?] Bolts 6” long to same 51¼ lbs. 6} - £1.5.8.

Boring, turning, drilling & fitting up complete inc. alts. patterns to suit situation} £3.11.3.

2[no] cast-iron bed plates & straps cups; 6” Pt Blks with 6 washer plates to same 10”2”3”10/} - £5.5.3/

5[no] ¼” club-bolts 9” long & washers (to bed plates) & 4[no] 1’/8” Bolts 2’ 8” long & washers (to strap) 72 ¾.ob} - £1.16.5.

Fitting up & painting inc. making & prepg. patts. to suit situation} - £1.2.1.

1 length 4”/4 deal confer[?] shaft 16’.10” long; 1 ditto 9’.10” long turned, grooved, & polished;

1 cast-iron face coupling to same in 2 pairs bored, turned, faced, grooved, keyed + fitted with 3[no] 7/8” Bolts 4”/4 long, 3[no] 7/8” Dowels + 2 wro^t Keys - 12”3”7”.34/”

Carr^d forward £65.11.1

Bought of Tho^s Kirkland - Millwright. Engineer. Iron and Brass Founder. BAR IRON MERCHANT ACCENTS DUE. March 31. June 30. September 30. December 31.

Ashford Mill

"To One Water Wheel made wholly of cast and wrought Iron 14 feet diameter by 12feet wide on Bucket and including one spur segment-wheel 12feet 3incs diameter yew wood on tooth attached to shrouding of water wheel. Also one Pentrough-shuttle* with circular cast-iron Grating, Indian rubber apron 8feet by 4ft 10ins, Racks, Pinions, Shafts and apparatus and gearing connection conveyed inside mill.

The whole fitted complete fixed and set to work at Ashford Mill as per Tender of 28 March 1860 = £275 less Grate not furnished £10 = £265

Additional cost of adding Improved Ventilators to 36 Buckets 12 feet wide }@35/ £63 →
TOTAL £328

*[Pentrough by Smeaton - ref The Operative Mechanic and British Machinist by John Nicholson Vol 1 1826].

Bought of Tho^s Kirkland - Millwright. Engineer. Iron and Brass Founder. BAR IRON MERCHANT

Ashford Mill

"For Water Wheel and Machinery as per detailed and tendered } £785.2.2"

Cr.[edit] By old metal - £3.15

TOTAL £781.6.5

18th June 1866 - M. Thorpe - Masons work; Ashford Mill - £142.2.11.

£1323:3:6

18th June 1866 - Anthony Gyte - Carpenters work - £156.7.7.

1866 - Anthony Gyte - Carpenters work - £112.17.9

Detailed invoice of joinery works [with quantities] to roofs / trusses / flooring / Hurst Framing / Framed & Boarded doors to Floor / Door Case / Lugged doors / Door Case / Rebated door case / D Pair & hinges, 2Bolts & Latch / Deal for Shute to Kiln ' Deal for Stairs / Ceiling joists (& studding to walls of office) / Grooved and Tongued boarding to front of Garners [Granary].

1866 - Anthony Gyte - Carpenters work - CONTINUED - TOTAL £156.7.7

Step ladders / Grooved and Tongued boarding to front of Machinery Garners / Beams & fixing machinery to / Frame to Wheel / Joists under Garners / Crown Posts / Oak Posts / Wide Brags for old floor / Nails for Garners and Boarding in Front of Machinery / 4 Pair T hinges / 5 Battens to doors in front of Machinery / Locks / 4 loads old Gray Slate / 7lbs paint to Windows & doors / slaters boards to roof / ditto Dormers / Materials for 4 Trusses / Attending on Millwright, Boarding up Machinery, Laying old floor Boards & joists taking old roof & fitting up Garners etc etc. / Carpenter 96 days @ 4/- Apprentice 37 days @ 2/6.

Thom^s Kirkland - £781.6.5

June 31st 1868 - Oliver & Co

His Grace the Duke of Devonshire - Ashford Mill - £9.~.10

Oliver & Comp - Metalwork: Ashford Mill - £9:0:10

Jan 25th – To new Bevil Wheel, Turned, Baud & fitted on Shaft. Carriage of ditto -

Evans, Oliver, 1755-1819; Jones, Thomas P., 1774-1848, ed; Evans, Cadwallader; Ellicott, Thomas, 1738-1799: The young mill-wright and miller's guide; (1850) Philadelphia, Lea & Blanchard.

Ashford Mill Receipts 1866-1871

20 Feb 1870 - Oliver & Co.	£10.16.09 [METALWORKERS]
7 Mar 1871 Ditto	£10.6.4

10 Sept 1868	Ditto	£9.0.10
7 th Mar 1871	J. Sellors	£46.7.10
20 May 1871	M Thorpe	£144.0.4 [MASON and BUILDER]
18 June 1866	Ditto	£142.2.11
Ditto	A Gyte	£156.7.7 + £32.9.9 [CARPENTER]
19 May 1871	Ditto	£199.19.8
16 July 1866	Thomas Kirkland	£781.6.5 [MILLWRIGHT]
8 Mar 1867	Ditto	£50.12.0
3 Mar 1871	John Winter	£115.0.0 [MILLWRIGHT]
9 Oct 1869	Ditto	£126.15.6

His Grace the Duke of Devonshire to Geo Sellors - Messers. Wallwin Ashford Corn Mill.
Repairs to Sky Lights - Slater 1 day = 4s/6d. Nail & Pins = 5s".

Dec 31st 1869 - Oliver & Co

His Grace the Duke of Devonshire - Ashford Mill - £6.6.3/3. P00

"To 2 Bearers [42.22.8/]} £1.16.09

To Prepare Pattern for Ditto } £1.2.5

To 1 plate [8.22.8/]} £3.5.7

To Prepare Pattern for Ditto } £~.18.8 -

SUB TOTAL = £7.4.3

By old Burnt metal 8 cuit@1/- } £~.8.~ }

By old Burnt metal 4 cuit@2/6 } £~.10.~ } £~.18.~

TOTAL = £6.6.3

[Jos^h Sellors] Bulls Road-Bakewell

His Grace the Duke of Devonshire

Dr. to Joseph Sellors.

For Slat^{er} Wk done at Mes^{rs} Wallwins, Ashford Mill

Slate new Kitchen with Old Gray Slates & inch Laths, Nails, Pins, Brads, Lime & Hair - £22.2.0
(42sq yds at 1/d per sq yard).

Slate Stables, Cart House etc with Ringinlow Slates & inch all materials [wiefat] Carriage of
Slate - £27.2.8

(203½ sq yds at 2/8 per sq yd). [SK2783 Brown Edge old quarries-Hathersage/Sheffield]. 19½
yds of Ridgestone at 1/9 per yard - £1.14.1½.

Slate Pigeries Coal House with Gray Slates & inch Laths, Nails, Pins, Brads, Lime & Hair -
£3.8.6 (68½ sq yds at 1/d per sq yard).

2 Had of Ringinlow Slate at 16/per yd - £1.12.0

2 Loads of Free Birch at 10/6 per load - £1.1.0

£37.0.3½ Settled with thanks March 7th 1871.

Jos^h Sellors. Slater: - Wallwins, Ashford £9.2.1

September 1870 - M.Thorpe: Labour: Ashford Corn Mill - £4.0.0.

"To Taking Old Buildings down at Ashford Corn Mill as P^r Tender - £4.0.0."

Received this account 21 Oct 1870 M. Thorpe

21st Oct 1870 - M.Thorpe: Labour: Ashford Corn Mill - £4.0.0.

Payment/invoice slip - £4.0.0 + £129.14.2 + £10.6.2 = £144.0.4.

[Jos^h Sellors] Bulls Road-Bakewell

His Grace the Duke of Devonshire

Dr. to Joseph Sellors.

For Slating Wk done at J.& G. Wallwin's, Ashford . ~~Corn Mill~~. The House and Buildings at the Corn Mill

Slater & 2 labourers 1 day Striping. Front side of House Roofs & Back side of Stable & Cowhouse Roofs - 9s/6d.

Slater & lab^r 1 day Dressing Old Grey Slate & Leading Dt from Stables. Dito House- 7s/.

Slater & lab^r 2 Days Striping Old Grey Slate of Bank side of House & front side of Stable, fr leveling Walls of House 7s.

2 Barrows of lime at 10p per Barrow - 1s/8d.

Slating House & Cellar Roofs with Old Gray Slate & inch Laths, , Nails, Pins, Brads, Lime & Hair - £7.1.9 (141¾ sq yds at 1/d per sq yard).

£9.2.7 Settled Augst 25/70.

[Jos^h Sellors] Bulls Road-Bakewell

His Grace the Duke of Devonshire

Dr. to Joseph Sellors.

For Slat^{er} Wk done at Mesr^{rs} Wallwins, Ashford Mill

Slate new Kitchen with Old Gray Slates & inch Laths, Nails, Pins, Brads, Lime & Hair - £2.2.0 (42sq yds at 1/d per sq yard).

Slate Stables, Cart House etc with Ringinlow Slates & inch all materials [wiefat] Carriage of Slate - £27.2.8

(203½ sq yds at 2/8 per sq yd). [SK2783 Brown Edge old quarries-Hathersage/Sheffield]. 19½ yds of Ridgestone at 1/9 per yard - £1.14.1½.

Slate Pigeries Coal House with Gray Slates & inch Laths, Nails, Pins, Brads, Lime & Hair - £3.8.6 (68½ sq yds at 1/d per sq yard).

2 Had of Ringinlow Slate at 16/per yd - £1.12.0

2 Loads of Free Birch at 10/6 per load - £1.1.0

£37.0.3½ Settled with thanks March 7th 1871.

OLIVER and Company Limited - VICTORIA FOUNDRY - CHESTERFIELD

Engineers, Iron & Brass Founders (Turning. Boring. Planning & Screw Cutting of every Description)

1870 Nov 19th. 1no 6-7in Square Grates; 1no 2-9in Dish Grates; 1no 2-9in Dish Grates.

ASHFORD, Jan 7 1871 DR to MATTHEW THORP, MASON AND BUILDER

Ashford Corn Mill

"For Mason 29 days Building Walls for Hurst framing, Repairing gable, Building part of Mill side up, Making Window stones, & assisting Carpentry & Millwrights} 4/6 - £6.10.6.

Lab. 25 ½ days at ditto} 2/8- £3.8.0.

23 feet supr of stone for Windows} £0.7.8".

Received this account - 1 april 1871 M. Thorpe.

G. Sellors - Slater's work:- Ashford Corn Mill 5/-

Plus - account summary "£9.2.7 + £34.0.3 + £0.5.0 = £46.7.10"

Jos^h Sellors. Slater: - Wallwins, Ashford £37.0.3

3 March 1871 - John Winter Millwrights. Ashford Corn Mill £115 -

Oliver & ^{Co}. Metal Grates: - Ashford Mill 6/4.

Ashford March 24, 1871

1st April 1871 - M.Thorpe: Mason: Ashford Corn Mill - £10.6.2.

HIS GRACE THE DUKE OF DEVONSHIRE To Matthew Thorpe

Day Account at Ashford Corn Mill from 21 June 1870 to 6 March 1871

To Mason 54 days Repairing chimneys, Relaying floors, Working old Cills, Bricking Partitions, Resetting fire places, Boilers & Bakestone, Inserting Doorways, Cutting & Pointing flashings, fixing Cisterns & Pointing Walls & Windows etc. @ 4/5 = £12.3.0.

Relaying floor in fodder Room, Repairing Cow house floors, Cutting Holes for Granary Floor & Building Piers under same & fixing kerb stones. To lab^r 108 days assisting at the above & cutting foundations, making Drains, Pulling Old Kitchen down & cleaning debris @ 2/8 = £14.8.0.

To Mortar to ditto = £~.19.6.

2 Peeks of Cement @ 1/2 = £~.2.4.

36 fire Bricks @ 1 1/2 = £~.1.6.

6 feet sup^r of stone to chimney @ /3 = £~.1.6.

3 Gate Posts @ 2/6 = £~.7.6.

6 feet sup^r of Boasted Paving Freebirch Cill @ /5 = £~.2.6.

2 Cast-Iron water grates @ 1/0 = £~.2.0.

8 loads of Gravel = £~.4.0.

Total £28.14.10

20th May 1871 - M.Thorpe: Mason work at Ashford Corn Mill (cott^e & Buildings)- £129.14.2.

HIS GRACE THE DUKE OF DEVONSHIRE To Matthew Thorpe

Masons work at Ashford Corn Mill Cottage, & Buildings - 1871

74 roods, 6 yds of Rubble walling, lime & Labour @ 10/6 = £39.6. ~

58 yds of 9 in brick wall, ditto @ 1/- = £2.18. ~

17 1/2 do of 4 1/2 . do . . do . @ 6^d = ~ 8s/9d

5 roods of random walling, material & labour @ 14/6 = £3.12.6.

219ft 4in Manger bottoms, steps etc - - do - - @ 7^d = £6.7.11.

178 yds of paving fom^d & laid - - do - - @ 2/6 = £22.5. ~

31 2/3 do of Threebirch paving - - do - - do - - @ 3/~ = £4.14.~

57 ft of boasted Threebirch cills - - do - - do - - @ 5^d = £1.3.9.

421 ft of boasted chimney, heads, cills etc - - do - - do - - @ 8^d = £14.~.8.

97ft 9in of 6in ashlar walls - - do - - do - - @ 5^d = £2.~.8.

120ft 10in of Stanton Stone only - - do - - do - - @ 3^d = £1.10.2.

19 quoins @ 3^d - 19 quoins @ 3^d - - do - - do - - = £~.14.3.

38 beds @ 2^d each, 1 chimney pipe 2/9 - - do - - do - - = £~.9.1.

81ft 6" lin of rabbetting to manger front & Channel Gullies @ 2^d = £~.13.7.

Clearing ground & cutting foundations for shed, - labourers 1 1/2 @ 2/8 = £~.4.~.

Grouting foundations of stables & ----- = £~.10.~.

Day a/e as per bill annexed ----- = £28.14.10.

Total £129.14.2

June 30th Feb 1871 - Oliver & Co

Metal pipes: - Wallwins, Ashford - £4.10.3.

1871 Plumbers Acct for Corn Mill House

20th Feb 1872 - Oliver & Co

Metal pipes: - Wallwins, Ashford - £4.10.8.

20th Feb 1872 - Oliver & Co

Metalwork; - Ashford Mill - £6.6.3/3. P00

These records are invaluable in understanding the extent to which the mill was refurbished during this period and with further analysis of the historic fabric, it may be possible to accurately locate each structural element that was either repaired, or altered.

HISTORIC MAPPING

The earliest illustration that survives of the mill at Ashford-in-the-Water is on a plan drawn by William Senior in 1616 (**Appendix 1.1**). Senior illustrates a long island within the centre of the main channel of the River Wye, which has leat channels on either side, that converge before they flow beneath the pack horse bridge to the east. At the west end of the island is a square structure with a red roof, presumably indicating tiles. On either side of this building, and extending over the leats, are circles with internal spokes representing two independent water wheels. The land to the north of the bridge and mill is labelled as 'waste', with the appearance of a yard.

The land ownership and layout of the village had developed by the 18th century, however, the next illustration of the mill in 1752 by Brailsford (**Appendix 1.2**), is perhaps more schematic than an accurate representation, as the individual layout of the leats is not included. He does however, depict that the building has two distinct built elements, and unlike other buildings in the village, is clearly an important structure.

The 1766 Ashford and Sheldon Tithe map (**Appendix 1.3**) is the first depiction of the mill, which appears to correspond with the form of the building that survives today. It has an L-shaped plan and the sluices, leats and weirs associated with the control of water to each wheel are carefully drawn.

Three maps from the first half of the 19th century, 1824, 1847 and 1848 (**Appendices 1.4 to 1.6**), all depict that the overall layout of the Site was relatively unchanged since 1766 apart from a small extension at the north end of the west range. The maps also depict the arrangement of leats and weirs, with an access bridge from the north. The next plan of the Site by Campbell that is dated 1857 (**Appendix 1.7**), does indicate that some changes had occurred. The south range appears to be longer than previously, possibly providing a date for the construction of the corn drying kiln. In addition, the map has additional lines drawn between the islands downstream of the mill, suggestive that it was being proposed that they should be connected

together and treated as a new land parcel. The mill building also appears to project across the leat to the north, which may indicate that there was a roof over the water wheel. The plan does, however, omit features such as the small extension on the west side of the west range, which reappears again on the 1879 OS map and therefore some details on the 1857 drawing may be inaccurate.

The small bothy had been built against the northeast section of the south range by 1898 (**Appendix 1.9**) and both water wheels appear to be still *in-situ*.

The subsequent editions of the OS throughout the 20th century (**Appendices 1.10** to **1.12**), depict minimal change to the footprint of the building, apart from the removal of the west extension by the 1950s.

4 METHODOLOGY

METHODOLOGY

This archaeological appraisal has been undertaken in accordance with the guidelines issued by English Heritage (2006), the Institute for Archaeologists (IfA 2008), and a specification prepared by the PDNPA (2014). It comprising of photography, written notes and measured drawings, accompanied by historical research.

Whilst this survey should not be regarded as a detailed archaeological record, each photograph includes a metric survey scale of an appropriate scale where practicable, positioned in suitable locations within each frame.

No geotechnical data in the form of borehole logs, test pit reports, or previous mineral extraction studies were available for this Site.

The field survey has comprised of a detailed examination of the accessible areas of the exterior and interior of the building. This has included an assessment of each floor, although it should be noted that the interior contains storage boxes and other items of furniture and not all of the interior surfaces and floors were accessible for inspection.

The phased analysis of the building has been derived from a consideration of the historic mapping (**Appendix 1**), documentary accounts and in conjunction with a visual examination of the historic fabric.

5 HISTORIC BUILDING SURVEY

INTRODUCTION

This section of the report details the results of the analysis of the standing fabric of the Mill which can be sub-divided in to at least ten phases of structural change and alteration. Floor plans of the mill have been marked up with historic and archeological features, including the locations of breaks in the walling fabric (**Appendices 3.1, 3.2**).

As it has only been possible to make observations where the historic fabric is accessible, once the contents of the building have been removed future investigations may enable a more in depth interpretation and analysis to be formulated.

SUMMARY OF PHASED DEVELOPMENT

The archaeological analysis has indicated that the earliest section of Ashford Mill is the north half of the west range (see blue outline on **Appendix 3.1**). This part of the building measures 6.8m x 7.6m (**Appendix 5.3**), with the southeast corner being defined by a remnant section of quoins that are exposed in the east wall (**Appendix 5.4**). A structure of this size would be comparable to the depiction of the mill drawn by William Senior in 1616 (**Appendix 1.1**), and raises the possibility that there is potential for a second wheel pit to survive beneath the concrete flooring of **G2B**.

The expansion of the mill in the 18th century as is evident from the 1766 (**Appendix 1.3**) Tithe map, into an L-Shaped structure (**Appendix 5.7**) that broadly correlates with the form of the building that survives (excluding the east section of the south range and kiln). Regrettably, as a result of subsequent alterations and episodes of repointing, it has not been possible during this appraisal to establish for certain which sections of the mill are from the 18th century. The construction of the south leat is, however, consistent with the historic mapping and sections of the south elevation are likely to be contemporary (**Appendix 5.8**) with this period.

The mapping indicates that a small extension was built against the north end of the west elevation of the west range, but was removed by c.1950. The exposed wall fabric (**Appendix 5.12**) in this part of the building is noticeably thicker than the adjacent section of walling, probably indicating the junction of the removed 18th century extension.

Between 1848 (**Appendix 1.6**) and 1857 (**Appendix 1.7**), the eastern end of the south range was extended, a development that incorporated a corn drying kiln (**Figure 3.2**). This kiln had a

louvered roof (**Appendix 5.6**) and a floor structure comprising of perforated clay tiles (**Appendix 5.28**).

The documentary accounts in the Devonshire archives confirm in extensive detail that there was a radical re-ordering of the mill in the 1860s-70s, which involved work to all aspects of the building. This survey has confirmed that much of these alterations survive, which made extensive reuse of existing timbers and sections of building fabric.

Between 1879 (**Appendix 1.8**) and 1898 (**Appendix 1.9**) a small extension, 'the bothy', was added to the northeast corner of the south range (**Appendix 5.5**). This was essentially a single storey room with a pitched slate roof and a fireplace in the north gable, measuring 2.2m x 3.6m. It would have provided temporary living accommodation to either the miller during grinding, or when the operation of the kiln required continuous 24 hour periods of use during wet harvests.

The southern water wheel appears to have been removed in the 1920s and replaced with a water powered turbine, which would have involved some adjustment to the internal machinery and operation of the mill. It is unknown, but it may have been at this date that the first floor taking-in door (**Appendix 5.5**) was added to the north elevation of the courtyard.

Additional changes during the 20th century included the demolition of the northwest extension in the c.1950s, and the re-roofing of the building in the 1990s. The most recent alteration was in c.2011, when the 1920s turbine was replaced with a modern system that feeds power back into the National Grid.

DESCRIPTION OF FABRIC – EXTERIOR

Ashford corn mill is an L-shaped building (**Figure 2**), that is 1½ storeys in height (**Appendix 5.1**). It has a small courtyard to the north (**Appendix 5.2**), and is built on an island (**Appendix 5.11**) on a tributary of the River Wye. It is predominately constructed from locally quarried limestone, interspaced with sandstone blocks of either pink, or yellow colour. The building has been subdivided into two ranges - the southern measures 6.6m x 18m, and the west range measures 7.6m x 15.2m. The roof has been repaired, but retains its original sandstone tiles, apart from above the southeast section, which has clay pantiles and a louver (**Appendix 5.6**).

The east elevation of the west range has a central square opening (**Appendix 5.3**), which appears to have primarily functioned as a loading doorway. The southern section of this elevation has been rebuilt and retains four sandstone quoins from the earliest part of the mill

(**Appendix 5.4**). The north gable of the west range has a steeply pitched roof (**Appendix 5.1**) which has been raised, possibly during the re-roofing in the 1990s. The upper part of the gable has a large two light widow, with sandstone detailing and cast-iron diamond patterned quarries. The lower section of the elevation represents one of the former wheel pits, although the water wheel and associated axels and transmission drives have all been removed (**Appendix 5.13**).

The west elevation of the west range (**Appendix 5.12**) has undergone various stages of rebuilding, and the internal ground level is c.1.4m lower than the exterior. There are three window openings of different designs. The oldest is towards the north, however, the lintel has been raised and it may not be in its original location. The south gable of the west range is largely obscured by the new water turbine (**Appendix 5.7**), but there is a large double light window in the upper section similar in appearance to the one in the north gable at the opposite end of the building.

The south elevation of the west range comprise of at least three phases of construction, largely built in limestone (**Appendix 5.8**). There is a small step in the alignment of the wall, which represents the end of the 18th century building prior to the construction of the corn drying kiln. There is a semi-circular window that has been inserted at eaves level in the center of the elevation, and a small window at first floor level above the kiln (**Appendix 5.9**). The east gable of the west range appears to have been built as a blank elevation (**Appendix 5.10**), although two windows and a doorway have subsequently inserted on the ground floor to adapt the internal circulation routes within this part of the mill.

The north elevation of the south range that fronts onto the courtyard (**Appendix 5.2**), has a large inserted doorway with a depressed segmental arch and double-light window on the ground floor. Built across the eaves is a taking-in door at first floor level and there is a small window into the upper floor of the kiln (**Appendix 5.5**), which is contemporary with the window on the south elevation. The bothy extension, (**Appendices 5.5, 5.10**) has yellow sandstone quoins, with a single doorway in the north gable. The chimney stack is built with sandstone masonry.

The setting of the mill to the west (**Appendix 5.11**) is defined by the north and south leats, which directed water to each of the former water wheels. These artificial water channels are positioned above the southern course of the River Wye (**Figure 2**, and **Appendix 5.14**).

DESCRIPTION OF FABRIC – INTERIOR

GROUND FLOOR

The ground floor comprises of a single large L-shaped room **G2A (Appendices 5.17, 5.18)**, that encompasses 75% of the footprint of the mill. The floor is a mixture of concrete and areas of flagstones, although at the time of survey boxes and furniture restricted access around the space. The underside of the first floor, however, was fully exposed. The beams and joists were orientated in different directions within the west and south ranges, reflecting different stages of development and alteration. Two trap doors survive in the ceiling (**Appendices 5.16, 5.22**), one located in each range. The one in the south range has deep grooves on the underside of the frame produced as a result of years of hauling sacks up to the first floor (**Appendix 5.22**). Many of the timbers had redundant features, again, indicative of change and re-modeling of the layout. Perhaps, the most unexpected timber was a section from a 17th century carved frieze (**Appendix 5.21**), presumably originating from a building within the locality of the Site, rather than from the mill itself.

Along the south wall of the south range is a timber partition that encloses an area 1.8m deep and 9.4m in length (**Appendix 5.17**). This feature screens the drive shafts (**Appendix 5.24**) that would have powered the grinding wheels on the first floor. This machinery was largely inaccessible (**Appendix 5.23**) but the partition would have restricted access for general maintenance and may be a secondary insertion.

At the north end of the west range the machinery for the first floor grinding stones has been removed, although a scar in the north wall (**Appendix 5.15**) marks the former position of the axel which would have linked to the water wheel on the other side of the wall.

At the east end of the ground floor was the lower part of the corn drying kiln. This comprised of a continuous vaulted passageway **G5**, around a central brick core (**Appendix 5.25**) that contained a firebox accessed from the west. A narrow passage **G4** to the north of **G5** (**Appendix 3.1**), gave access to the small extension (the Bothy) **G7** to the northeast.

FIRST FLOOR

The first floor comprises of a large open room **F1** within the south range (**Appendices 5.26, 5.27**), with a row of four grinding wheels along the south wall. The grinding wheels and their timber housing are in good condition, and the pivoting crane for maneuvering the stones is still *in-situ* (**Appendices 5.30, 5.31**). Most of the floor was obscured with storage boxes at the time of survey, and only an overview of this space was possible. In the northeast corner is an inserted taking-in door overlooking the courtyard, interestingly no evidence for a pulley was noted for raising sacks to this level. In the east wall is a doorway with a step down to **F2** (**Appendix 5.27**).

The west range is defined by a narrow corridor **F4 (Appendix 5.33)**, which runs between large timber grain storage bins (**Appendix 3.2**). These are crudely constructed and are of varying sizes, presumably to allow flexibility for different types of grain, or crops that was being stored and processed. Halfway along the east side of the corridor is a belt drive mechanism (**Appendix 5.34**) that provided motive power from the ground floor to the winch on the second floor above. At the north end of **F4** the room opens out into **F7**. Here are two further grindstones (**Appendix 5.32**), which would have been powered from below by the water wheel against the north gable.

The final room on the first floor is the kiln drying floor, **F2**. This is located at the east end of the south range (**Appendix 3.2**) and comprises of a suspended floor of perforated clay tiles (**Appendix 5.29**), positioned on steel girders on a north-south orientation (**Appendix 5.28**).

SECOND FLOOR

Access to the second floor was very restricted, and largely comprises of a narrow walkway in upper part of the roof (**Appendix 5.38**). Associated with this walkway is the winch that operated the sack hoist down to the ground floor (**Appendix 5.36**) and a series of timber hoppers (**Appendix 5.35**) for tipping grain down to the lower levels. It is here that once the sacks had been raised to this level within the building via the vertical trapdoors, the grain storage bins on the floor below were filled from above (**Appendix 5.37**).

OPERATION OF THE MILL

The mill operated in accordance with standard arrangements adopted within post-medieval water mills, essentially with power being provided by a rotating wheel and then gravity was used to maximize the ease to which the grain and resultant flour was transported throughout the building. The process involved the delivery of grain to the mill, which could then be hoisted to second floor, via a winch and vertically arranged trap doors, or taken to the kiln to dry. The grain would then be transported to the second floor.

The dry grain would have been cleaned then fed down chutes at the north end of the building to a pair of grinding wheels powered by the northern water wheel, or to a second row of grinding wheels powered by the southern water wheel. Once ground the flour was directed down wooden chutes to the ground floor where it would be bagged and then sent away from the mill, or either transferred back up to storage bins, or warehousing space on the first floor.

ASSESSMENT OF MILL MACHINERY (AFTER GRAEME WALKER OF THE ARKWRIGHT SOCIETY)

The mill had two undershot wheels, one wooden and one made of iron, which have both been removed and the southern one has been replaced by a later turbine (c.1920s), now replaced. The 1920s turbine was manufactured by Gilbert Gilkes and Gordon Ltd (James M.Gordon & Co), who were one of the leading suppliers of water powered turbines (see **Appendix 2.2**). The turbine believed to have been supplied to Ashford Mill was an 'Open Case Francis Turbine (a Wall Plate)' model, with a serial number of 2607. It had a speed of 130rpm and an output of 26hp.

The horizontal drive from the turbine would have been taken into the mill via spur gears. Once inside the building, bevel gears allowed it to power a lineshaft which drove four pairs of millstones and an iron upright shaft, which would have driven ancillary machinery. Also driven from the turbine is a large belt pulley for an ancillary processing machine. At the other end of the building is no surviving evidence for the axel from the water wheel, or drive machinery, powered from the northern waterwheel. The motive power from the wheels was transferred throughout the mill via lineshafting and belt drives, which included the operation of the hoist on the second floor.

Secondary machinery to assist with the weighing, bagging and processing of flour and other animal foodstuffs has unfortunately been removed from the building. One surviving timber hopper (**Appendices 5.19-5.20**) manufactured by Bamford's, was for a rapid grinding machine that could have been either belt driven or hand operated (**Appendix 2.1**).

6 CONCLUSION

SUMMARY OF RESULTS

No previous detailed archaeological survey of the mill building and its associated infrastructure have been identified prior to this survey. A series of black and white photographs were taken before it was re-roofed in the 1990s, and then the operation of the various surviving items of machinery were assessed in 2007 by Graeme Walker of the Arkwright Society.

This archaeological survey has identified at least ten phases of change and alteration, although, the extensive rebuilding towards the end of the 19th century and subsequent repairs have partially obscured the overall complexity of the development of the building and future survey during any construction works will no doubt refine the sequence. The earliest fabric appears to be at the north end of the west wing (**Appendix 5.4**) where there was a rectangular structure. When compared with the William Senior's plan of 1616 (**Appendix 1.1**), that depicts the mill as being a square structure with water wheels on either side, it is suggested that this part of the building may be a remnant of this 17th century phase.

Much of the timberwork in the building appears to have been reused and further analysis is likely to provide new evidence for the earlier arrangement and operation of the building, which may have included a timber framed upper storey. Of particular significance is a section of carved decoration with a 17th century design, however, such detail would not usually be found in an industrial structure and is likely to have originated from another building in the locality.

The internal survival of not only elements of the 19th century grinding machinery, including the stones, vertical and horizontal line shafting, hopper chutes, grain storage bins and hoist mechanism is unusual, and represents an important example within the region for such elements to remain *in-situ*. The current condition, however, of much of the timberwork does require repair and consolidation, which will entail the exposure of new sections of historic fabric and thus provide new opportunities to record and interpret the building in greater detail.

PROPOSED DEVELOPMENT IMPACTS

The proposed adaptation of the building to residential use has been identified as a means to ensure the long-term preservation of the surviving historic elements of the mill, which require repair and are at risk of further decay unless a new use for the building can be found. The works will involve the excavation and, subsequent reinstatement of a new flooring system throughout the ground floor. Such an intervention will potentially reveal evidence for earlier wall alignments, floor surfaces and structural elements.

External works may include re-laying areas of paving, or hardstanding and the introduction of new services runs, all activities that have the potential to impact upon archaeological remains associated with earlier periods of use of the mill.

The internal alterations are concentrated upon improving the access around the building, including a glazed lobby from the courtyard, a new staircase up to the first floor and increasing the visibility of the *in-situ* machinery behind the partition along the south wall. It is suggested therefore, that one way to mitigate against these changes is a detailed photographic record once the interior has been cleared of boxes and furniture.

On the first floor, the principal alterations that are proposed involve the introduction of bedrooms and new bathrooms. This will involve the reuse of the full height grain storage bins in the west range and the former drying floor above the kiln. Discrete openings and doorways are to be inserted, which will remove sections of historic fabric, although, the rooms will still have retain the existing character of a mill. It is again suggested that, to mitigate against this impact to the historic fabric, that a photographic record would be an appropriate method to document the existing structural elements.

RECOMMENDATIONS

Resulting from this archaeological appraisal of the standing fabric of the Mill, the following recommendations will help increase our understanding of the use of the building, its overall historic significance and allow for a reconstruction of the internal layout:

- Any further archaeological survey is undertaken in accordance with a written scheme of investigation approved by the PDNPA;
- A detailed black and white photographic record would be appropriate to document the existing character of the interior of the building;
- An archaeological watching brief should be maintained during any structural, or ground works.

7 REFERENCES CONSULTED AND BIBLIOGRAPHY

PRIMARY SOURCES CONSULTED: MAPPING

- 1616 - *William Senior's survey of Ashford*
- 1752 - *map of Ashford by Samuel Brailsford*
- 1766 - *tithe map of Sheldon and Ashford*
- 1824 - *map of Ashford by George Unwin*
- 1847 - *plan of Ashford*
- 1848 - *Ashford tithe plan*
- 1857 - *plan of Ashford by Campbell*
- 1879 - *Ordnance Survey Map, 1:2,500*
- 1898 - *Ordnance Survey Map, 1:2,500*
- 1922 - *Ordnance Survey Map, 1:2,500*
- 1970-73 - *Ordnance Survey Map, 1:10,000*
- 2014 - *Ordnance Survey Mastermap, 1:1,250*
- 2014 - *British Geological Map of Britain (digital data)*

SECONDARY SOURCES: PUBLISHED WORKS AND GREY LITERATURE

English Heritage. 2006. *Understanding Historic Buildings: a guide to good recording practice*. English Heritage: London

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Gifford, A. 1999. *Derbyshire Watermills: Corn Mills*

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INTERNET RESOURCES

- ADS: www.archaeologydataservice.ac.uk
- British Geological Survey: www.bgs.ac.uk
- Graces Guide: www.gracesguide.co.uk
- Heritage Gateway: www.heritagegateway.org.uk
- National Heritage List: <http://www.english-heritage.org.uk/professional/protection/process/national-heritage-list-for-england/>

8 APPENDICES

Appendix 1: Historic mapping

Appendix 2: Historic advert

Appendix 3: Building plans

Appendix 4: Location of photographic viewpoints

Appendix 5: Record photographs

Appendix 1:
Historic mapping



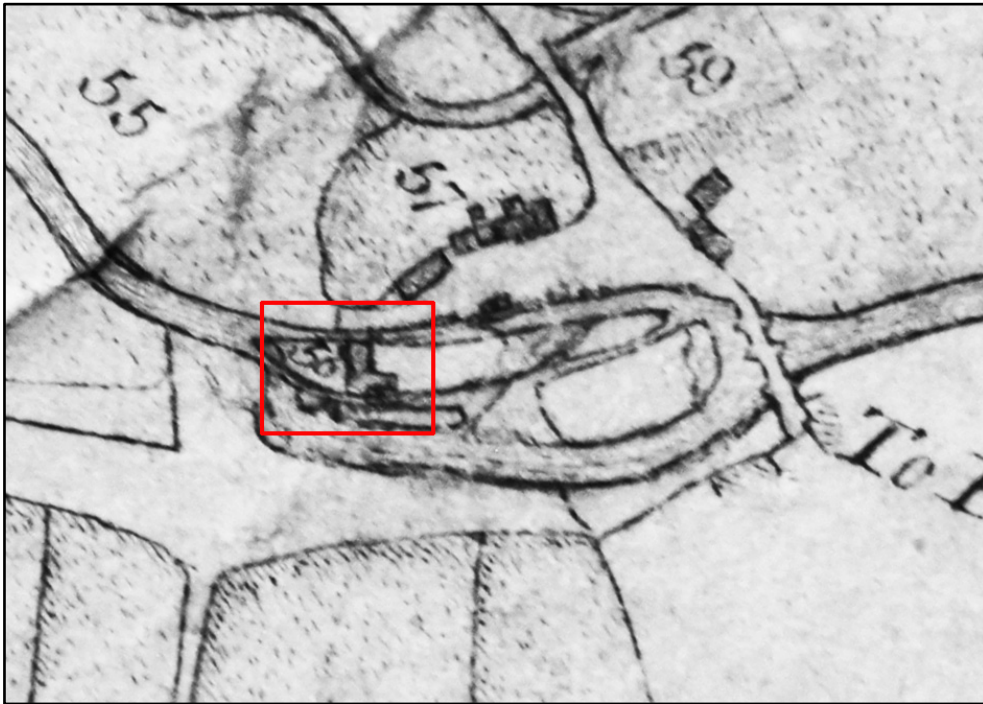
Appendix 1.1: Extract from 1616 survey of Ashford by William Senior

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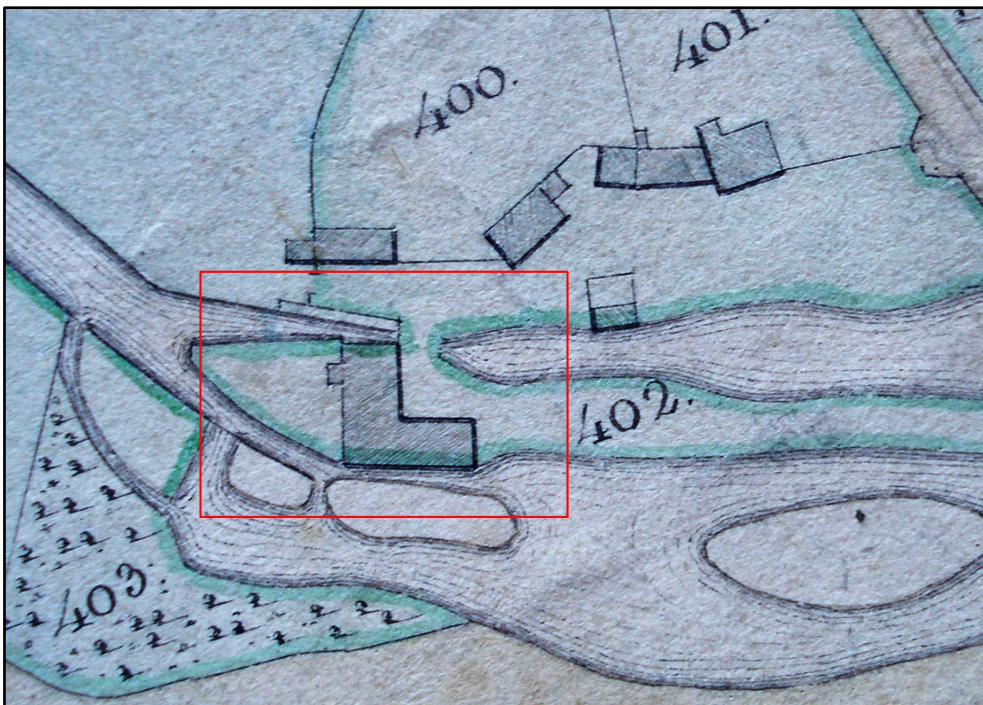
Appendix 1.2: Extract from 1752 map of Ashford by Samuel Brailsford

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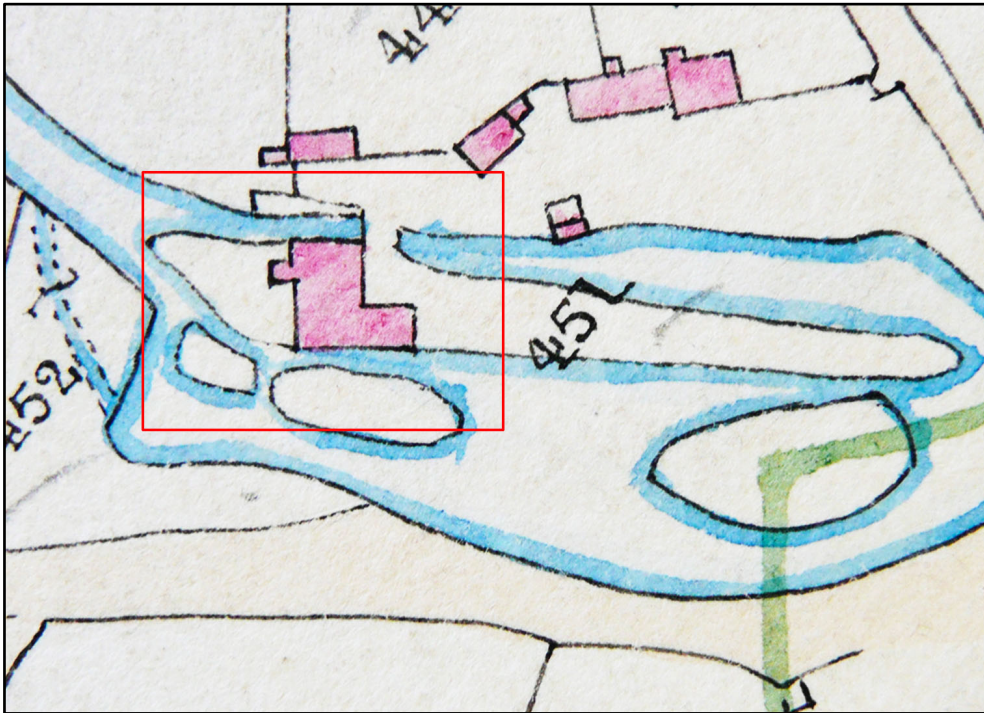
Appendix 1.3: Extract from 1766 map of Ashford

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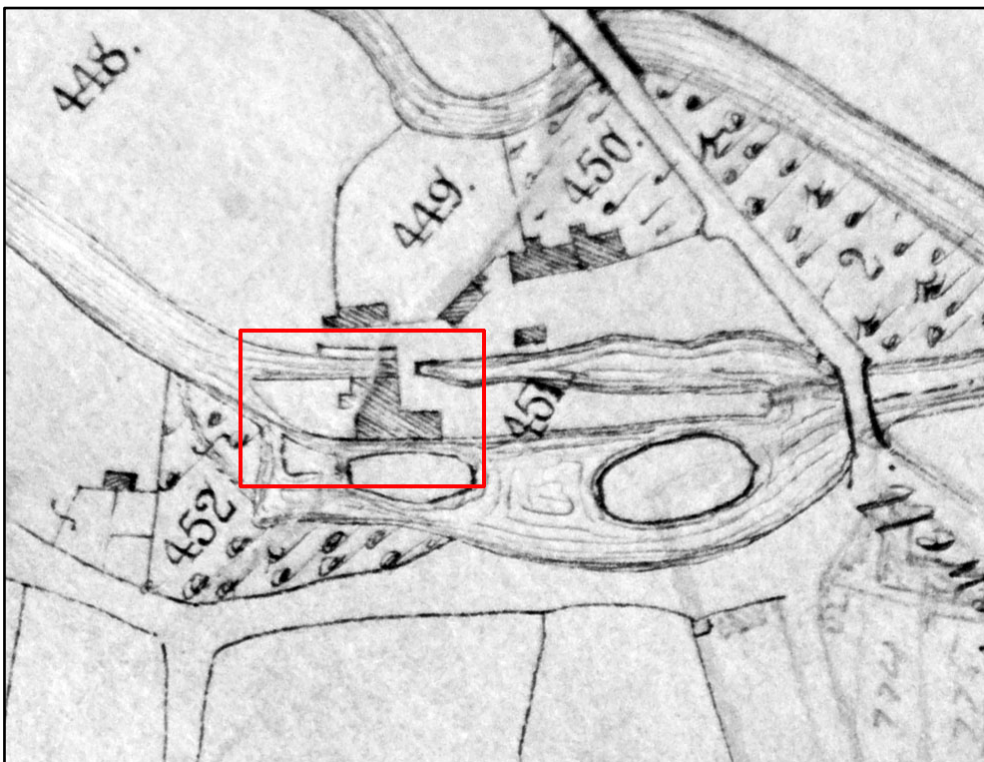
Appendix 1.4: Extract from 1824 plan of Ashford by George Unwin

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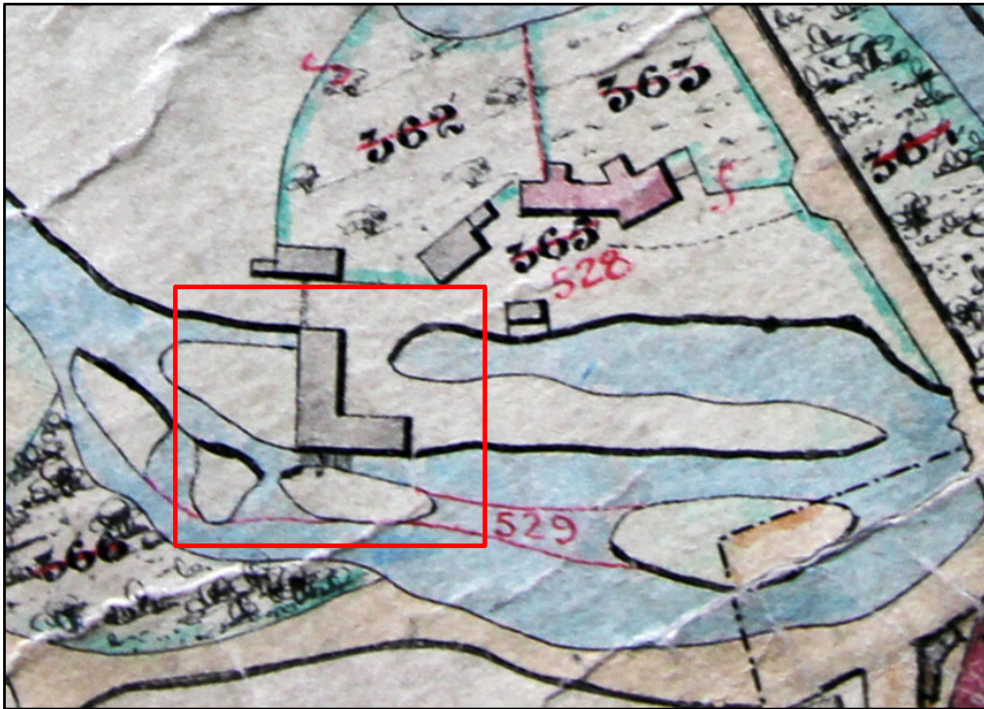
Appendix 1.5: Extract from 1847 plan of Ashford

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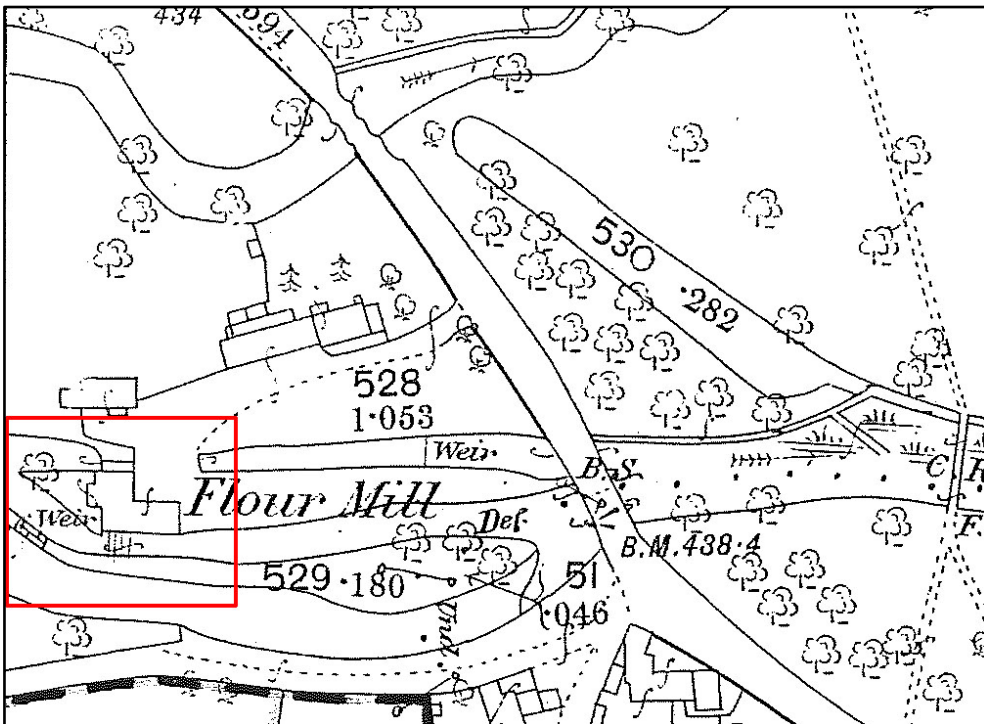
Appendix 1.6: Extract from 1848 Tithe map of Ashford

© Derbyshire Archives.



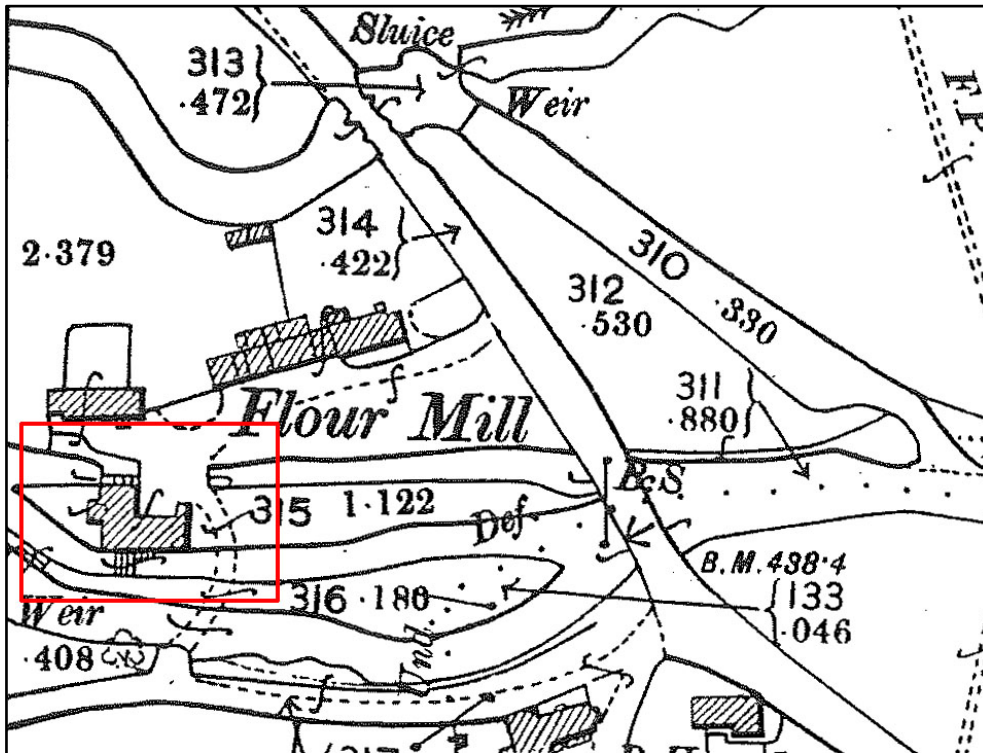
Appendix 1.7: Extract from 1857 plan of Ashford by Campbell

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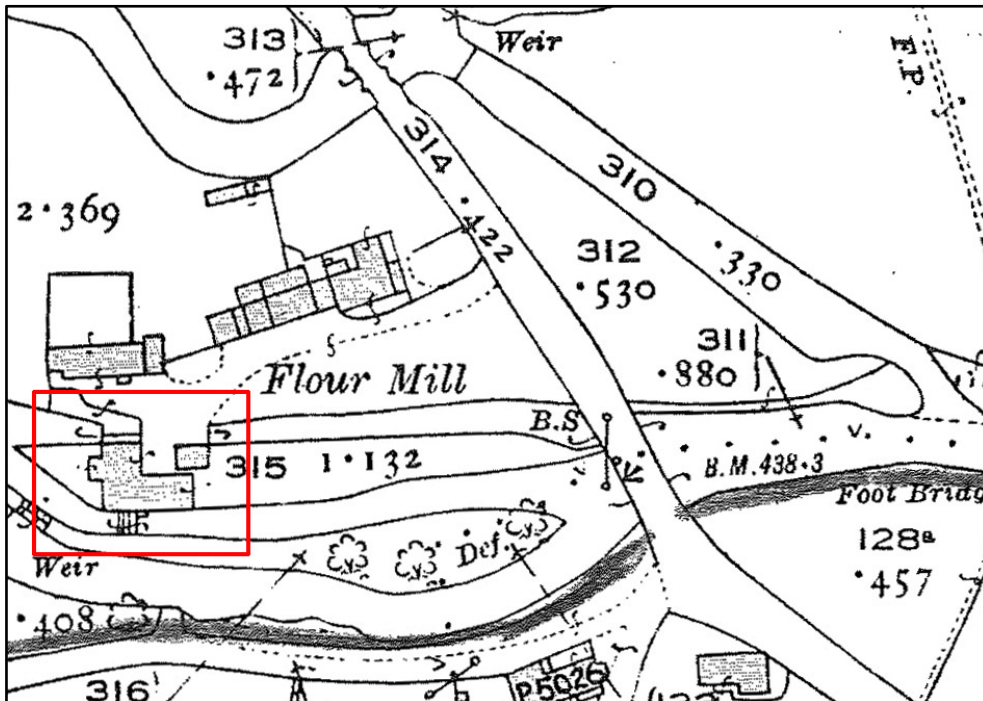


Appendix 1.8: Extract from 1879 Ordnance map

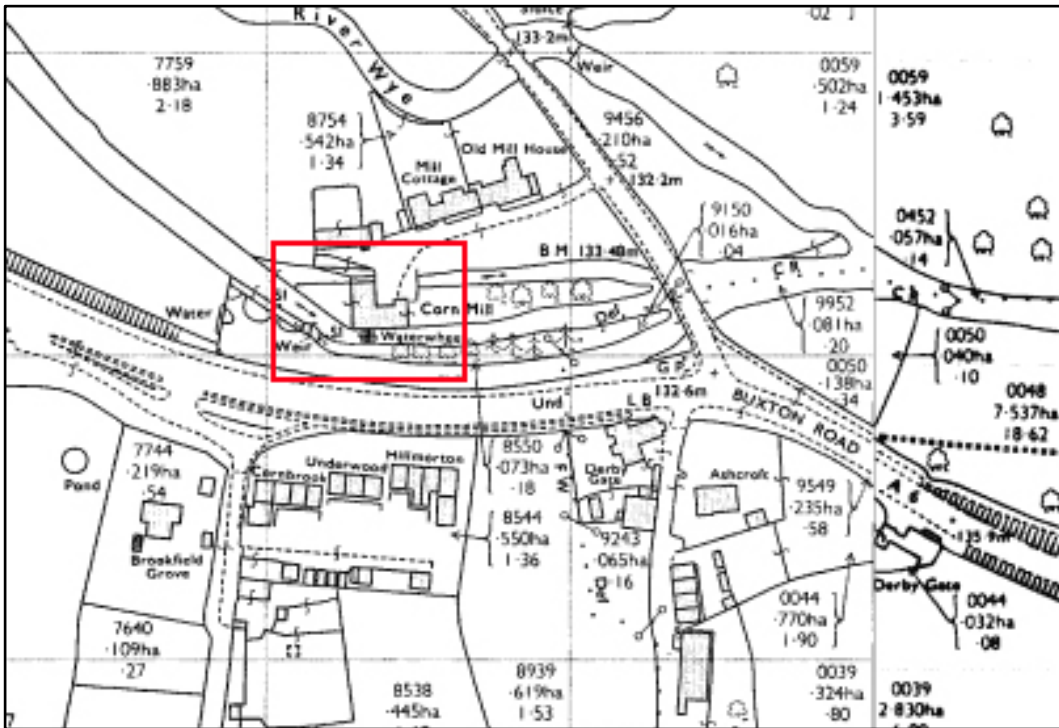
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Appendix 1.9: Extract from 1898 Ordnance map
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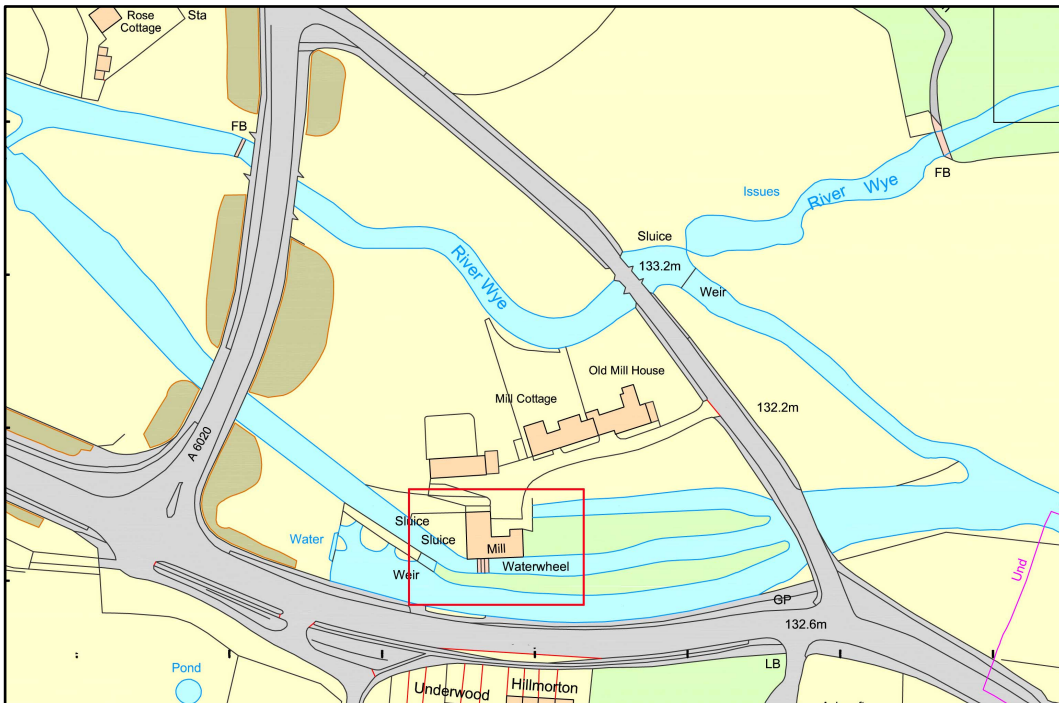


Appendix 1.10: Extract from 1922 Ordnance map
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Appendix 1.11: Extract from 1970-73 Ordnance map

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Appendix 1.12: Extract from 2014 Ordnance map

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Appendix 2:
Historic adverts

Bamfords' "RAPID" GRINDING MILLS
AND COMBINED
CRUSHERS, KIBBLERS & GRINDERS.

THE BEST
THE
WORLD
HAS EVER
PRODUCED.

**A
MONTH'S
FREE
TRIAL.**

Every Mill guaranteed to give satisfaction.

BAMFORD & SONS, LEIGHTON IRON WORKS, UTTOXETER.

The advertisement features two detailed illustrations of industrial grinding mills. Each machine has a large hopper at the top for material input, a central grinding mechanism with rollers, and a large flywheel on the side. The machines are supported by a sturdy, four-legged cast-iron frame. The text is arranged in a classic, bold, serif font, with the brand name 'Bamfords' being the largest and most prominent. The overall design is clean and professional, typical of early 20th-century trade advertising.

Appendix 2.1: Trade advert for Bamfords' rapid grinding machine, c.1902.

WATER-POWER PLANTS
For any Fall or Power.



High-Pressure Pelton Wheel with Combined Deflector and Spear Regulation.
For details of regulation see description on page 964.

JAMES M. GORDON & CO.
Queen's House, 28 Kingsway,
LONDON, W.C. 2

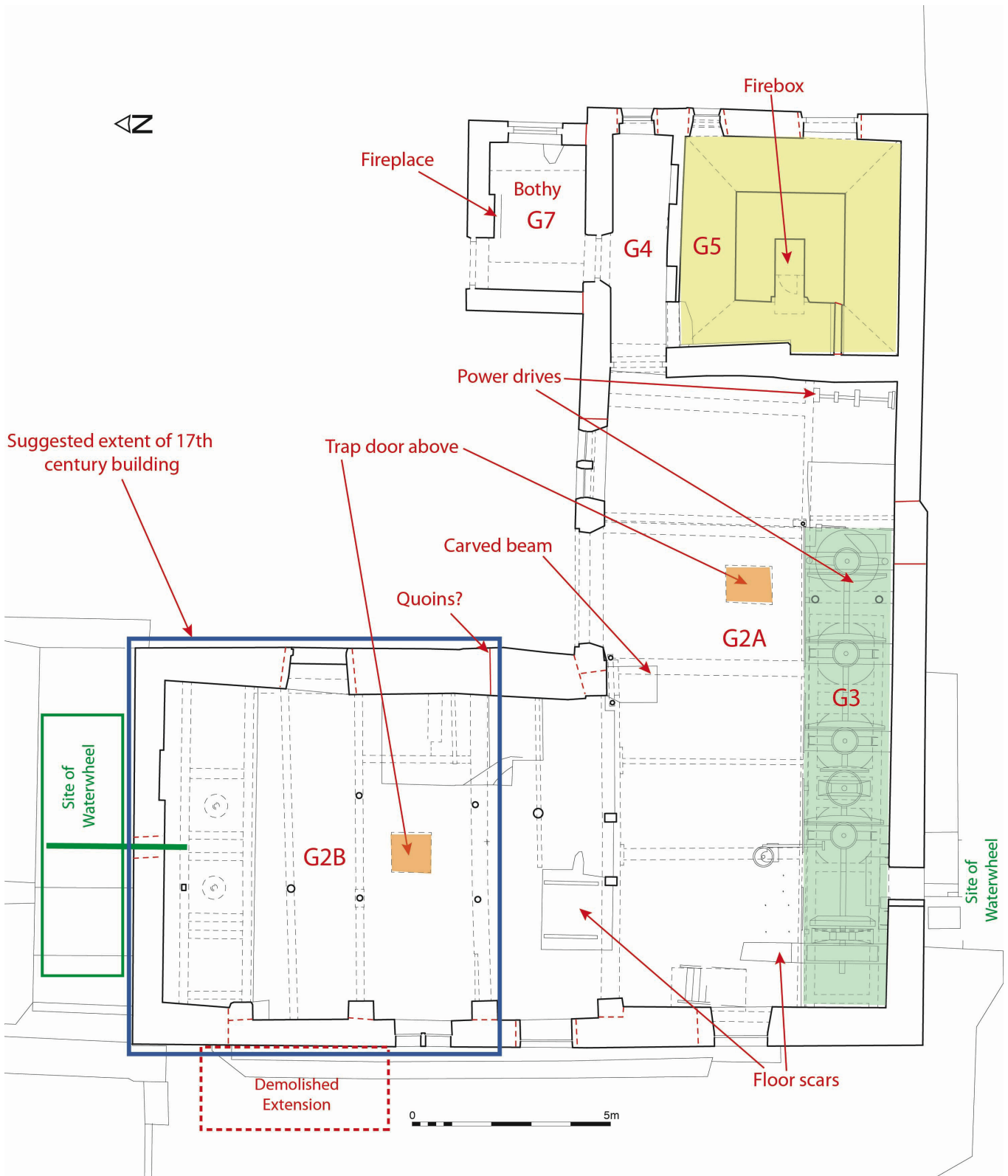
Telegrams: 'GORDOLOBO, LONDON.' Codes: A B C, 5th, Lieber's and Private.

See also Advertisements facing pages 946, 947.

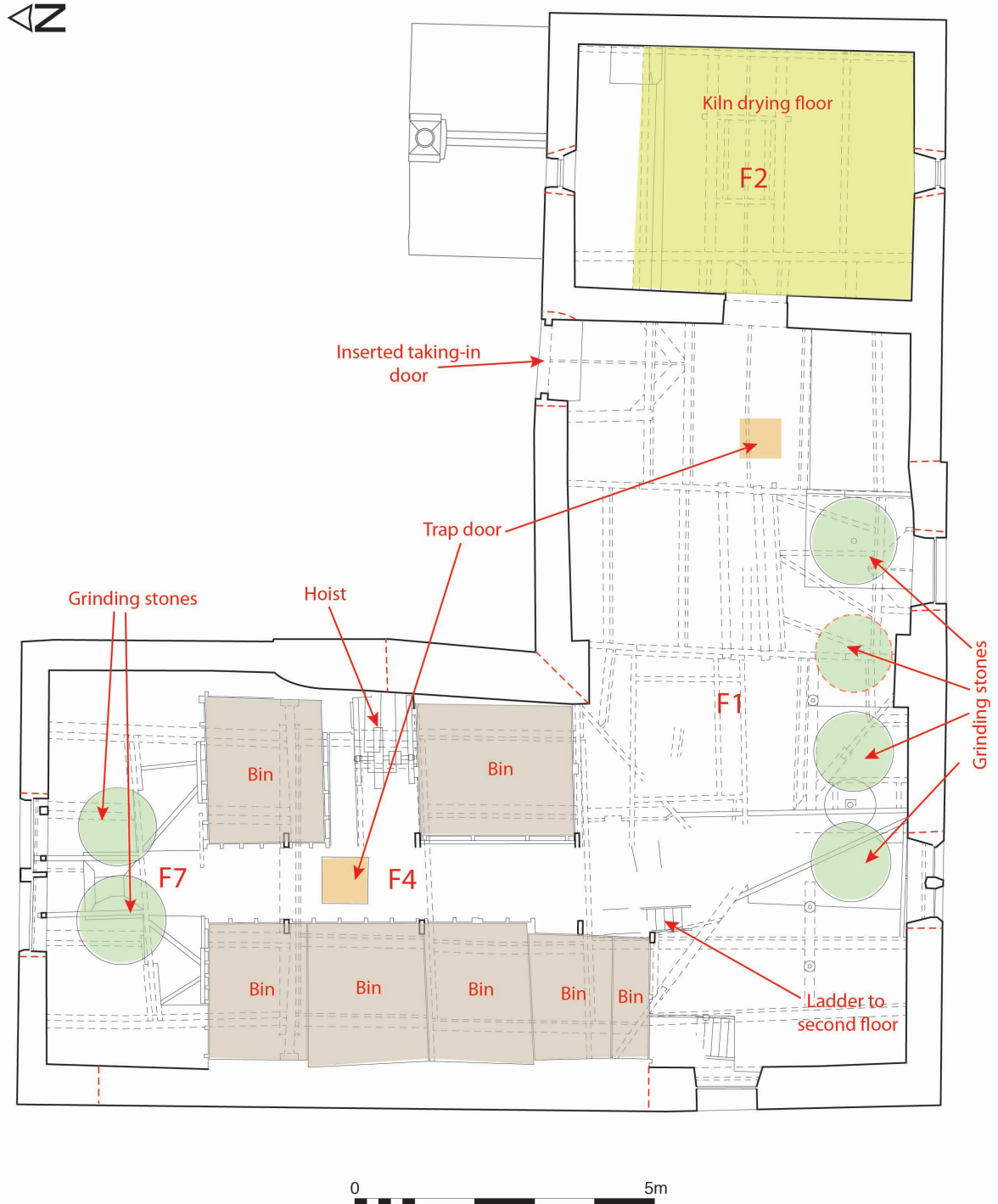
Appendix 2.2: Trade advert for James Gordon & Co, c.1918.

Appendix 3:

Building plans



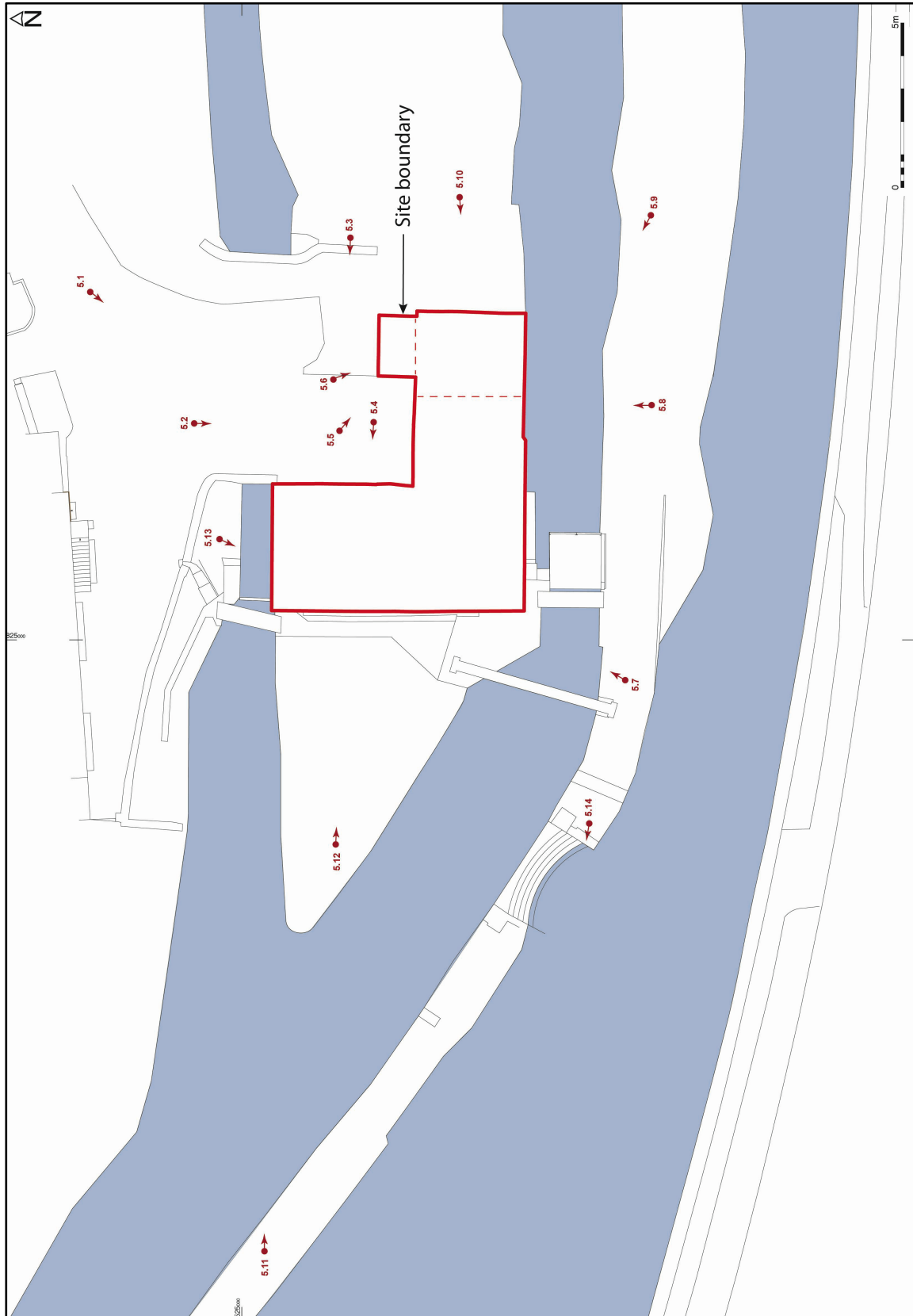
Appendix 3.1: Ground floor plan



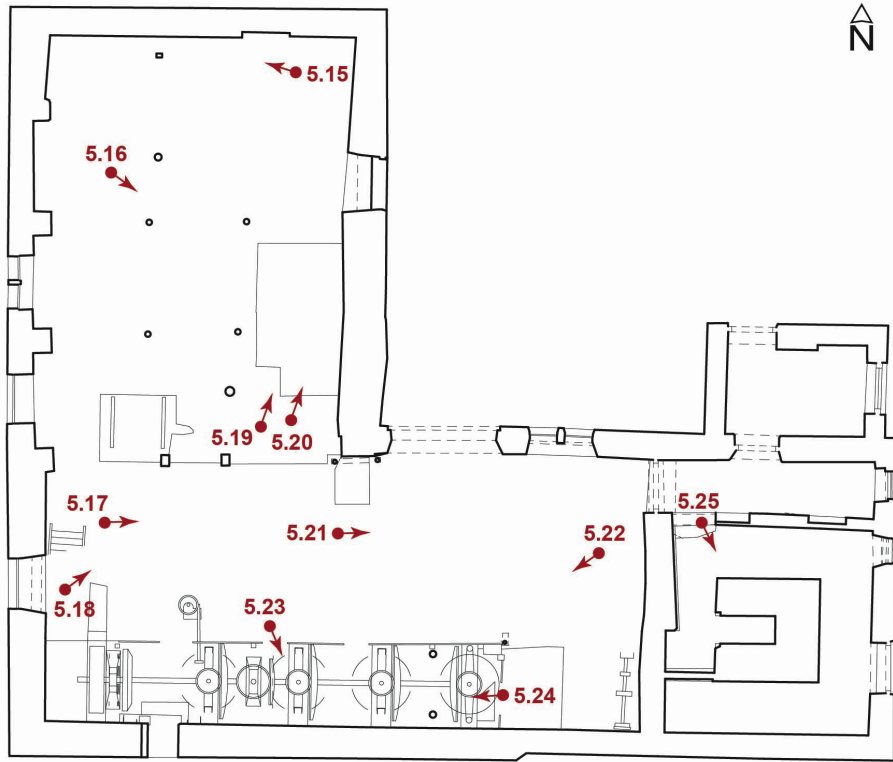
Appendix 3.2: First floor plan

Appendix 4:

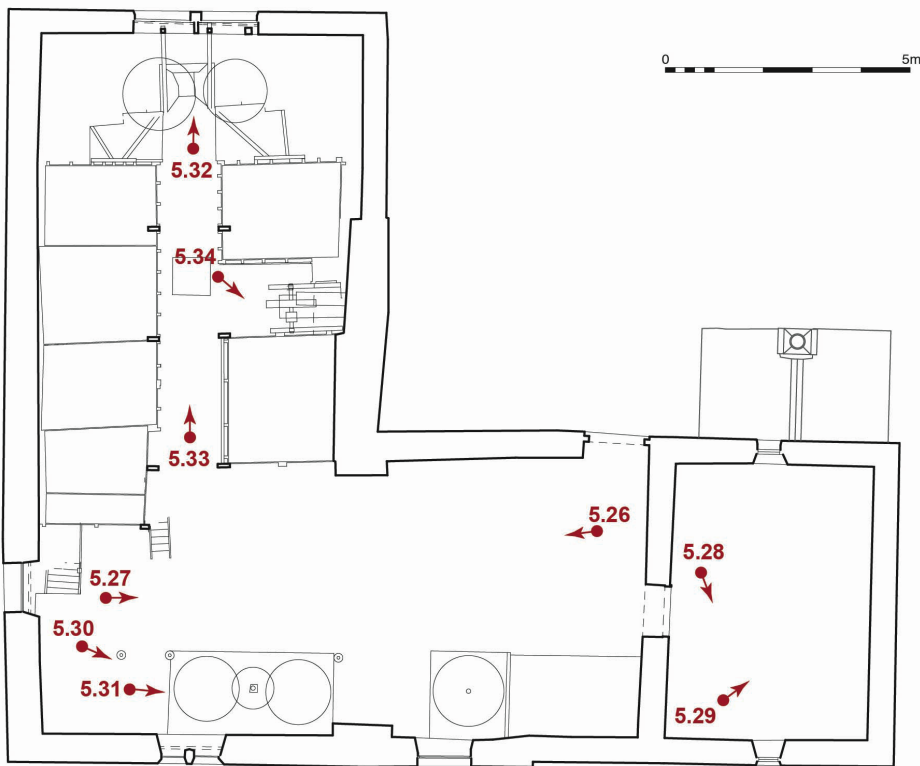
Location of photographic viewpoints



Appendix 4.1: Location of external photographs



Ground Floor



First Floor

Appendix 4.2: Location of internal photographs

Appendix 5:
Record Photographs



Appendix 5.1: General view of north elevation, looking southwest (2m scale).



Appendix 5.2: Detail view of north elevation, looking south; note inserted taking-in door (2m scale).



Appendix 5.3: General view of east elevation of courtyard, looking west (2m scale).



Appendix 5.4: Detail view of east elevation of courtyard, looking west; note quoins from earlier building (2m scale).



Appendix 5.5: Detail of southeast section of courtyard; note single storey extension – the bothy (2m scale).



Appendix 5.6: Detail of louvered vent above kiln in east end of the building.



Appendix 5.7: General view of southwest corner of mill, looking northeast (3m scale).



Appendix 5.8: Detail of south elevation alongside the river; note changes in stonework.



Appendix 5.9: View looking northwest along the south elevation; note kiln in foreground.



Appendix 5.10: General view of east elevation of south range, looking west (2m scale).



Appendix 5.11: General view of west elevation of mill; note headrace channels on each side of building (2m scale).



Appendix 5.12: Detail of west elevation of west range; note different styles of window (2m scale).



Appendix 5.13: Detail of wheel-pit against north elevation of west range.



Appendix 5.14: Detail of stepped horseshoe weir between the south head race and the River Wye.



Appendix 5.15: Detail of internal north wall of west range, looking northwest; note blocking (2m scale).



Appendix 5.16: General view of ground floor of west range, looking northeast; note trapdoor in ceiling (2m scale).



Appendix 5.17: General view of ground floor of south range, looking east (2m scale).



Appendix 5.18: General view of ground floor of west range, looking north; note redundant mortices (2m scale).



Appendix 5.19: Detail of weighing trays and wooden hopper on ground floor of west range (1m scale).



Appendix 5.20: Detail of makes stamp on wooden hopper; Bamford's Patent Rapid grinding Mill, Uttoxeter.



Appendix 5.21: Detail of reused timber beam to support first floor ceiling of south range (20cm scale).



Appendix 5.22: Detail of trap door to first floor of the south range; note wear marks from pulley ropes.



Appendix 5.23: Detail of *in-situ* machinery along south wall of south range.



Appendix 5.24: Detail of *in-situ* machinery along south wall of south range, looking west.



Appendix 5.25: Detail of vaulting supporting superstructure of corn drying kiln at east end of the south range.



Appendix 5.26: General view of first floor of south range, looking west (2m scale).



Appendix 5.27: General view of first floor of south range, looking west; note door to the kiln at the rear (2m scale).



Appendix 5.28: General view of tiled floor of corn drying kiln, looking south; note metal girders.



Appendix 5.29: Detail of perforated floor tiles from corn drying kiln on first floor.



Appendix 5.30: Detail of *in-situ* mill wheel, hopper and crane on first floor, looking southeast (20cm/1m scale).



Appendix 5.31: Detail of central hub of grinding wheel on first floor, looking east (20cm scale).



Appendix 5.32: Detail of *in-situ* mill wheels at north end of west range on first floor (1m scale).



Appendix 5.33: View of looking north between grain storage bins on first floor of west range (2m scale).



Appendix 5.34: Detail of belt driven transmission drives for trap door hoist on first floor of west range (2m scale).



Appendix 5.35: General view of timber hopper on second floor walkway at north end of west range.



Appendix 5.36: Detail of hoist machinery on second floor walkway above the west range.



Appendix 5.37: View looking down into timber grain storage bin on first floor of west range.



Appendix 5.38: General view looking south along second floor walkway above west range.