Lumford Mill, Riverside Business Park, Bakewell, Derbyshire

Historic Building Recording

General view of the eastern façade of the former mule spinning shed and two chimneys at Riverside Business Park, Bakewell, Derbyshire.

ARS Ltd Report 2018/42
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ARS Ltd Report 2018/42

Archaeological Research Services Ltd

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EXECUTIVE SUMMARY

Archaeological Research Services Ltd was commissioned in 2018 by Litton Properties Ltd to undertake a Level 2/ 3 historic building recording in order to discharge conditions of the planning permissions for a demolition of former mill buildings, associated structures and other buildings for the hotel development, improvements to existing site access, parking, landscaping and other associated works at Riverside Business Park, Bakewell Derbyshire: NGR SK 21236905.

The cartographic records show that the site was originally occupied by one of Arkwright's water powered mills from 1777. However, the mill suffered a devastating fire in 1868 which gutted the interior and caused extensive damage. Later in the 19th century a new cotton mill was constructed on a smaller scale than the previous building but within part of the footprint of the 18th century structure and incorporating some of the stone work from the earlier mill. The site was expanded to the south in 1881 but by 1896 the production of cotton here was proving unsuccessful resulting in operations ceasing. In 1898 the site was bought by DP Battery Company and alterations were made to the building and new structures were erected mainly to the west of the mill.

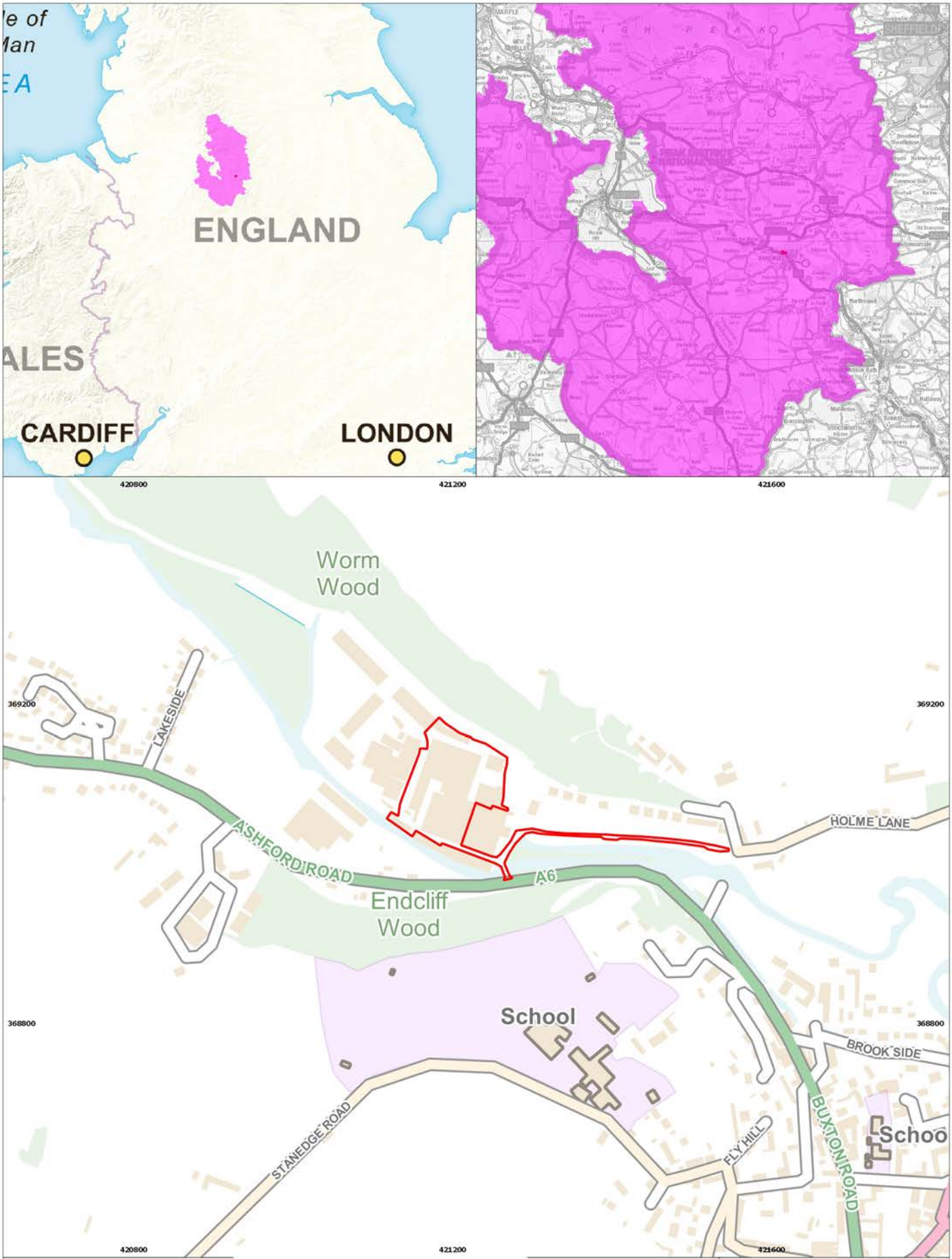
This document is a report that outlines and discusses the on-site historic building recording work carried out on the former mule spinning shed, the retort house and two chimneys. This report includes background documentary and cartographic research, a photographic survey record and measured drawings. The historic building recording provides a comprehensive preservation by record of the former mule spinning shed, Retort House, stone chimney and brick chimney prior to the development.

1 INTRODUCTION

1.1 Archaeological Research Services Ltd (ARS Ltd) was commissioned in 2018 by Litton Properties Ltd (the client) to undertake a historic building recording at the former Lumford Mill, Riverside Business Park, Bakewell, Derbyshire (centred NGR: SK 21236905, Fig. 1). The historic building recording was undertaken to discharge condition 4 of the planning consent for the demolition of former mill buildings, associated structures and other buildings for a hotel development, improvements to existing site access, parking, landscaping and other associated works (planning ref no. APP/M9496/W/16/3144163)and conditions for the planning consent for the demolition of former mill buildings, associated structures and other buildings and construction of employment units, retention of retort house, improvements to existing site access, car parking, landscaping and other works (planning ref no. NP/DDD/1017/1119).

1.2 Natalie Ward, the Peak District National Park Authority (PDNPA)'s Senior Conservation Archaeologist, advised that a Level 2/3 standard building recording was required. A level 3 historic building recording has been undertaken – as outlined in Historic England (HE) *Understanding Historic Buildings. A Guide to Good Recording Practice* (2016) – of the former mule spinning shed, retort house, stone chimney and brick chimney at Riverside Business Park, Bakewell, Derbyshire. This approch is supported by the National Planning Policy Framework (NPPF) paragraph 189 to record and enhance understanding of the significance of any heritage assests to be lost during the proposed development in a maner proportionate to their importance, and to make this evidence (and any archive generated) publically accessible (MHCLG 2018, 56).

1.3 This work was carried out by a suitably experienced archaeologist working to the Chartered Institute for Archaeologists' *Code of Conduct* and *Standard and Guidance for archaeological investigation and recording of standing buildings or structures* (CIfA 2014a and 2014b).



Site name: Central Area, Riverside Business Park, Bakewell
Date: October 2018
Drawn by: EG
Scale: Varies

Site boundary

Peak District National Park Authority

Figure 1:
Site location

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2 SITE DESCRIPTION AND GEOLOGY

2. 1 The proposed development area (PDA) is located *c*.700m to the north west of Bakewell town centre and is centred at NGR SK 21236905.

2.2 The underlying geology of the PDA is the Monsal Dale Limestone formation with the area curving around the PDA consists of basaltic lava of the Conksbury Bridge Lava Member formation. The PDA is overlain with superficial river deposits of clay, silt, sand and gravel alluvium (BGS 2018).

2.3 The soils of the PDA belong to the MALHAM-2 Soil Association (541p), and are typical brown earths (SSEW 1983a). These soils from over Aeolian silty drifts over Carboniferous limestone and Triassic limestone breccia, and are characterised as '*well drained often stoneless silty soils over limestone, shallow in places especially on crests and steep slopes. Bare rock locally'* (SSEW 1983b).

3 AIMS AND OBJECTIVES

3.1 The overarching aim of the project was to carry out a Level 2/3standard photographic, written and drawn survey of Lumford Mill, Bakewell Riverside Business Park, Derbyshire as outlined in the Historic England's (HE) *Understanding Historic Buildings. A Guide to Good Recording Practice* (2016).

3.2 Research topics identified in the East Midlands Heritage: An Updated Research Agenda and Strategy for the Historic Environment of the East Midlands (Knight *et al*. 2012, 122-3) for the modern (1750 to present) period applicable to this site include 9.7.5 'how did the wool, cotton, hosiery and lace mills and their water management systems develop and interrelate, and how did the relationship between home and factory production vary?' The programme of archaeological works outlined in this WSI could assist in addressing research objective 9D: 'investigate the use of rivers for transport and power and their relationship to other communications networks' (Knight *et al.* 2012, 127).

3.3 A full account of specific objectives is provided within two Written Schemes of Investigation (WSI) prepared by ARS Ltd which was subsequently approved by the Peak District National Park Authority (PDNPA) (Appendix III and IV).

4 METHODOLOGY

4.1 The historic building recording was carried out in January and November 2018 by Emma Grange (BA Hons, MA) and in September 2019 by Dr. Ian Wyre of ARS Ltd.

4.2 The historic building recording was conducted in line with the two aforementioned WSIs (Appendix III and Appendix IV) as well as the relevant guidance (i.e. CIfA 2014a and 2014b; HE 2016). The records produced were used in order to create an interpretative discussion of the form, function and phasing of the structures concerned. The records consisted of the following.

- A written record of the building was carried out by annotating plans and elevations and by completing ARS Ltd pro-forma building recording sheets. Descriptions and terms used follow Brunskill (2000), Curl (1997) and Lynch (1994) wherever possible.
- A photographic survey, composed of high resolution digital format (16 megapixels), was undertaken including detailed and general shots of the buildings being recorded, fixtures, fittings and phase change evidence and general shots of the context and outlook. Where possible, photographs included a graduated scale and cameras were mounted on tripods for extra stability. Details of the photographs were recorded on pro-forma index sheets, which included location, subject and orientation. The location and direction of the photographs were plotted on scaled plans.
- The accompanying drawn record consisted of plans and elevations.

4.3 A risk assessment was undertaken before commencement of the work and health and safety regulations were adhered to at all times.

5 HISTORICAL BACKGROUND

5.1 A comprehensive archaeological desk-based assessment was produced on the Lumford Mill site giving a detailed historical background (Burpoe and Mora-Ottomano 2015). The historical background section in this report has been derived from the aforementioned report.

5.2 The land the PDA occupies was formerly arable fields prior to 1777 when Arkwright leased the land adjacent to the River Wye in Bakewell from Philip Gell and built Lumford Mill. Lumford Mill was a long, narrow, water powered four-storey cotton-spinning mill. Originally one reservoir was used to power the mill, but later a further two were installed and the River Wye had three alterations to its natural course in order to divert water to power the mill and enable the single water wheel to rotate. In 1827 a Wren and Hughes water wheel was installed which allowed the mill to maintain operation with its seventy buckets. By 1840, a millrace was constructed in order to feed the water wheel resulting in the in-fill of the reservoirs and the installation of a second water wheel in 1852.

5.3 The mill suffered a fire in 1868 and only the two water-wheels, the workshop, some ancillary riverside buildings and one early 19th century chimney survived intact. Historic photographs illustrate the extent of the fire and the damage to the mule spinning shed. A new mule spinning shed was built within part of the footprint of the original building. The mill continued to produce cotton but in a reduced form by 1875, but this venture was unsuccessful and operations were halted in 1896. Two years later, in 1898 the site was bought by DP Battery Company. This acquisition saw changes to the site with the alterations to the existing buildings and the erection of new structures. The site was extended resulting in the infill of the former mill ponds. W. Fearnehough Ltd purchased the site in 1970.

6 BUILDING RECORDING

6.1 This report is concerned with the former mule spinning shed, the Retort House, the stone chimney and the Brick chimney located at Riverside Business Park, Bakewell. All these structures, with the exception of the brick chimney, are of 19th century date and the mule spinning shed incorporates some earlier 18th century fabric. The former workshop to the south of site is outside the development area and structures which were of 19th century date to the north of the mule spinning shed have been demolished and replaced by later mid-20th century to early 21st century structures. As such, these buildings have not been described within this historic building recording but are detailed in earlier reports (Burpoe and Mora-Ottomano 2015).

The former mule spinning shed

6.2 As aforementioned in the historic background section (Section 5), the former mule spinning shed is a later 19th century construction built within part of the footprint of the former 1777 Arkwright mill. The former mule spinning shed currently on-site is a single-storey structure composed of coursed sandstone squared blocks with chevron markings and a saw-toothed roof which is concealed from view along the east and west elevations by a parapet. This 19th century structure was extended southwards in 1881 and a single-storey structure was constructed along the central section of the eastern façade in the 1950s, currently known as Fearnehough House (Figs. 2-4).

6.3 It is worth noting that the interior is in a poor state of disrepair and the roof has deteriorated, allowing water to penetrate the building and creating an optimal environment for the growth of vegetation. Furthermore, in areas of the building lichen and smaller vegetation are present which may relate to the backfilled mill pond (Burpoe and Mora-Ottomano 2015, 20).

Exterior

6.4 The eastern façade is being retained and consists of coursed local sandstone squared blocks with chevron markings. A moulded cornice delineates the height of the internal walls from which a parapet extends upwards decorated with squared blinded recess niches and blue moulded dentilled brick verges, the latter of which support copping stones. The parapet slopes down on the corners of the building to meet the eaves. The façade contains equal fenestration in the form of large windows. The middle section of this elevation is concealed behind the 1950s single storey extension known as Fearnehough House. Furthermore, the eastern elevation has possible elements of the original mill incorporated into the northern section. This section is likely to have formed part of the chimney as evidenced by the cartographic records and soot stains on the stone created by the fumes inside the former chimney stack. Historical photographs illustrate that the 1777 mill was gutted by the fire; however, elements of the structure were still left standing, segments of which were incorporated into the current build (Figs. 5-12).

6.5 The southern façade which fronts the access road to the south of the Riverside Business Park, as aforementioned (in section 5), is a later elevation as the mule spinning

shed was extended southwards in 1881. It contains larger sandstone blocks in comparison to its northern counterpart with more defined tooling marks. The elevation is punctured by five apertures unequally distributed. These consist of two doorways which would have originally provided access into the interior of the mule spinning shed and three windows. Two of the windows have been inserted which are associated with a steel weighing bridge which is located on the ground adjacent to the southern elevation. Similarly to the eastern elevation, the façade contains blue moulded dentilled brick verges. The overall condition of the structure can be described as run-down and the southern elevation is bowing (Figs. 13-20).

6.6 The northern elevation is earlier in date than its southern counterpart as evidenced by cartographic records in conjunction with the darker and more weathered sandstone blocks forming this elevation (Figs. 22-22).

6.7 The western elevation has been incorporated into a later unit which has concealed the façade from external view, with the exception of the northernmost section of this elevation which is externally exposed. The western elevation has a similar construction to the southern façade except it is absent of windows and instead contains three blocked doorways. The lower stone section of this elevation differs from the upper section, suggesting that the bottom segment is from an earlier wall, cartographic records depict a boundary wall in this location prior to the elevation being constructed, suggesting that this elevation has incorporated this earlier wall. The northernmost section contains a blocked window with a wooden lintel which has been modified from a doorway, an inserted square hole allowing cables to run from the interior to the exterior, quoins delineating the corner and a sloping parapet (Figs. 23-30).

Interior

6.8 The interior of the mule spinning shed primarily consists of a concrete floor, stone walls and a saw-toothed roof which is supported by numerous rows of cast-iron columns. The cast-iron columns are indicative of an industrial structure and contain a decorative capital, some columns have been designed in order to incorporate shafts in addition to providing internal support. The building consists of a large rectangular area which fills the space to the south, east and west walls. However, before the northern perimeter wall there are a series of rooms (plant/utility rooms) and a passageway which are separated from the main area of the mule spinning shed by an interior northern wall around 2m from the external wall (these elements will be discussed in further detail in the paragraphs below).

6.9 In the main internal space of the former mule spinning shed are four later inserted walls which have divided the space into sections. The first is composed of concrete breeze-block and runs from the south wall to the internal northern wall and has divided the area into a western and eastern section. It is punctured with two apertures in order to connect the two interior sections. The second inserted wall runs perpendicular to the southern wall and parallel to the southern section of the inserted concrete breeze-block wall. This wall creates a passageway into the former mule spinning shed, accessed via a large opening on the southern façade. The third inserted wall is located towards the northern wall and runs perpendicular to the western wall, but is only extends a few meters; it does not reach the wall dividing the east from the west section. It is composed of concrete breeze-block and

contains an aperture. The fourth inserted wall runs perpendicular to the southern wall and parallel to the western wall, it only extends a few meters and it is covered in glazed tiles and contains a single aperture. Outlines along the western wall suggest that originally there would have been a room in the south west corner (Figs. 31-49).

6.10 As aforementioned (in paragraph 6.8), there are a series of rooms to the north of the main area of the former mule spinning shed, in addition to a passageway which allows access to the exterior of the building at the northern side. These rooms contain the former plant room, a later office cell, a possible boiler room and utility rooms. The passageway is located centrally and three of the rooms are located to the west of this and two are located to the east. The two westernmost rooms are interconnected and accessed via a doorway in the internal northern wall. It would appear that these two rooms, along with the adjacent eastern room and passageway may have originally been a single space as the interconnecting walls are composed of brick and concrete breeze-block. Furthermore, these rooms would have originally been accessed either via a currently blocked doorway along the western elevation or via a blocked doorway along the northern elevation. The easternmost room is the former plant room and contains a blocked oculus along the eastern wall which would have housed the turbine (described in detail in paragraphs 6.15 – 6.16). This room also contains a pitched roof with rooflights and two later inserted RSJ beams, a doorway along the northern wall which provides access to the exterior of the building and a western wall composed of concrete breeze-block containing a doorway: evidently a later insertion. The room to the west of the plant room contains a concrete breeze-block structure, a concrete breeze-block eastern wall and a brick northern wall. These two easternmost rooms are interconnected and are accessed via an inserted doorway along the northern internal wall. To the immediate south of the former plant room is a long narrow room which has been divided from the main area of the former mule spinning shed with an inserted stud wall. Originally, these rooms to the north of the building would have been accessed via different doorways as indicated by the northern internal wall (discussed in detail in paragraphs 6.12 and 6.13)(Figs. 50-58).

6.11 The eastern portion of the building was formerly occupied by the original mill, but currently consists of later inserted offices which have been constructed from glazed stud partitions and contain a timber floor. However, deterioration within the building has resulted in many of these timbers rotting, creating areas of unstable flooring. Along the southern wall of the eastern section is a scale which is likely associated with the weighing bridge which is positioned adjacent to the southern elevation. Before the plant room to the immediate north of the eastern section a stud wall has been inserted creating a long narrow room to the north of the eastern section of the former mule spinning shed (described in paragraph 6.10) (Figs. 59-67). The eastern wall is remaining and will be incorporated in the new development. It consists of 1777 material, as indicated by the weathered and soot stained state of the stone and later 19th century sandstone blocks. It contains a series of equally-sized and positioned windows. A doorway has been inserted along this wall in order to allow access into Fearnehough House which disrupts the equal fenestration.

6.12 The internal northern wall of the main former mule spinning shed in the western section contains a series of both blocked and open apertures which lead to a series of smaller rooms (as described in paragraph 6.10). This wall appears to have undergone

numerous modifications, although some aspects are hidden beneath a layer of plaster and are not possible to see or describe; the removal of the plaster will allow for a greater understanding of the phasing of the wall. Nonetheless, from the visible wall there are three blocked and modified segmental arched doorways, an open doorway towards the western side of the wall providing access into westernmost rooms, an opening which provides a passageway between the interior and the external north and a large opening providing access into the easternmost rooms. There are four phases of development discernible in the internal northern wall, as follows.

Phase 1: The wall appears to have been constructed of sandstone blocks with chevron markings, some may have been reused from the former 1777 Lumford Mill, but the wall would have been constructed in 1875 after the fire. It appears it would have originally been accessed via a doorway along the western elevation; however this was modified into a window at a later date.
Phase 2: A series of segmental arched apertures composed of brick which have interrupted the stone work but would have provided access into the series of northern rooms. These apertures were possibly inserted after the external access doorway was modified into a window.
Phase 3: These segmental arched doorways have later been modified into doorways with straight lintels composed of wood. The gap between the segmental arched lintel and straight lintel has been infilled with brick.
Phase 4: The doorways have been blocked with rubble sandstone and plastered over resulting in other doors being installed in order to gain access into the small northern rooms. Furthermore, sections of the northern wall are composed of different sandstone with none or less pronounced tooling marks. Areas of the wall may have been rebuilt in order to accommodate the installation of the RSJ beams supporting the ceiling. The most westerly of the former doorways along the northern wall was later modified to create a window between the former mule spinning shed and a small room to the north (Figs. 68-74).

6.13 The internal western wall is predominately concealed with plaster and glazed tiles. However, three apertures are apparent from the interior. All are later insertions into the western wall. It is likely that the most northerly of the three was installed by 1970 in order to connect/ provide access between the former mule spinning shed and the building which had been constructed to the immediate west as evidenced on the cartographic records. All three apertures have been blocked with concrete breeze-block. The western elevation, as aforementioned (in paragraph 6.7), has a construction join indicating that the former mule spinning shed incorporated an earlier wall composed of random rubble stonework. According to cartographic records it is likely that the lower half of the wall relates to a boundary wall which was present at the site on the 1879 OS map. In addition, where the plaster has deteriorated stonework can be viewed beneath (Figs. 75-80).

6.14 The southern wall is composed of sandstone blocks, built by 1898. It dates to 1881 when the former mule spinning shed was extended southwards. The wall contains a large, roughly central opening providing access to the southern access road. An inserted wall runs perpendicular to the opening, forming a passageway into the building. The western portion of this wall has been plastered, with the lower section covered in glazed tiles and a

series of concrete breeze block pilaster-like structures have been inserted. The easternmost section of this wall forms part of a later inserted office unit (Figs. 81-83).

The former plant room

6.15 The plant room can be accessed via a doorway in the northern wall of the western section of the former mule spinning shed. This is a single room with a pitched roof supported by the walls and a column, in addition to later added RSJ beams. The internal walls have been plastered. A circular hole is present in the east wall indicating the presence of a turbine. This room would have initially been longer in length; however, a concrete breeze block wall has been inserted as the western wall with a passageway leading to a second room (Fig. 84).

6.16 The second, more westerly room contains an inserted office, concrete-breeze block structure. The western wall of this room is composed of brick and is a later insertion. This is evident from the machine brick and the fact it partially obscures a rooflight.

Fearnehough House

6.17 Fearnehough House is a 1950s single storey, stone-built construction which adjoins the central section of the eastern elevation of the former mule spinning shed. A doorway has been inserted to interconnect the former mule spinning shed and Fearnehough House. This structure has been built with similar characteristics and architectural motifs as the mule spinning shed but also has dissimilar elements, making it apparent the two are different structures. The windows are of the same size and height, relative to the elevations. The elevations consist of a stone which extend beyond the roofline, forming a parapet, similar to that of the mule spinning shed. However, the dentilled verge element and the squared niche decoration are not present on the Fearnehough House (Figs. 85).

6.18 Internally, Fearnehough House consists of a central corridor and a series of doorways to the south and north leading into offices and a kitchen.

Figure 2: General view of the former mule spinning shed.

Figure 3: View of the roofline of the former mule spinning shed, facing south.

Figure 4: View of the chimney with the edge of the roofline in the background.

Figure 5: View of where the 1950s extension adjoins the eastern elevation of the former mule spinning shed.

Figure 6: View of the parapet decoration along the eastern elevation.

Figure 7: View of the southern side of the eastern elevation, 2m scale.

Figure 8: General view of the south eastern side of the former mule shed, facing north west.

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Figure 38: General view of the interior of the former mule spinning shed.

Figure 39: View of the interior of the former mule spinning shed, facing north east.

Figure 40: View of the former mule spinning shed facing north.

Figure 41: View of the former mule spinning shed, facing north.

Figure 42: View of the deteriorating roof of the former mule spinning shed.

Figure 43: View of the deteriorating roof structure.

Figure 44: View of one of the cast-iron columns in the former mule spinning shed, 2m scale.

Figure 45: View of a capital of one of the cast-iron columns.

Figure 46: View of two inserted walls projecting from the southern wall to form a passageway, 2m scale.

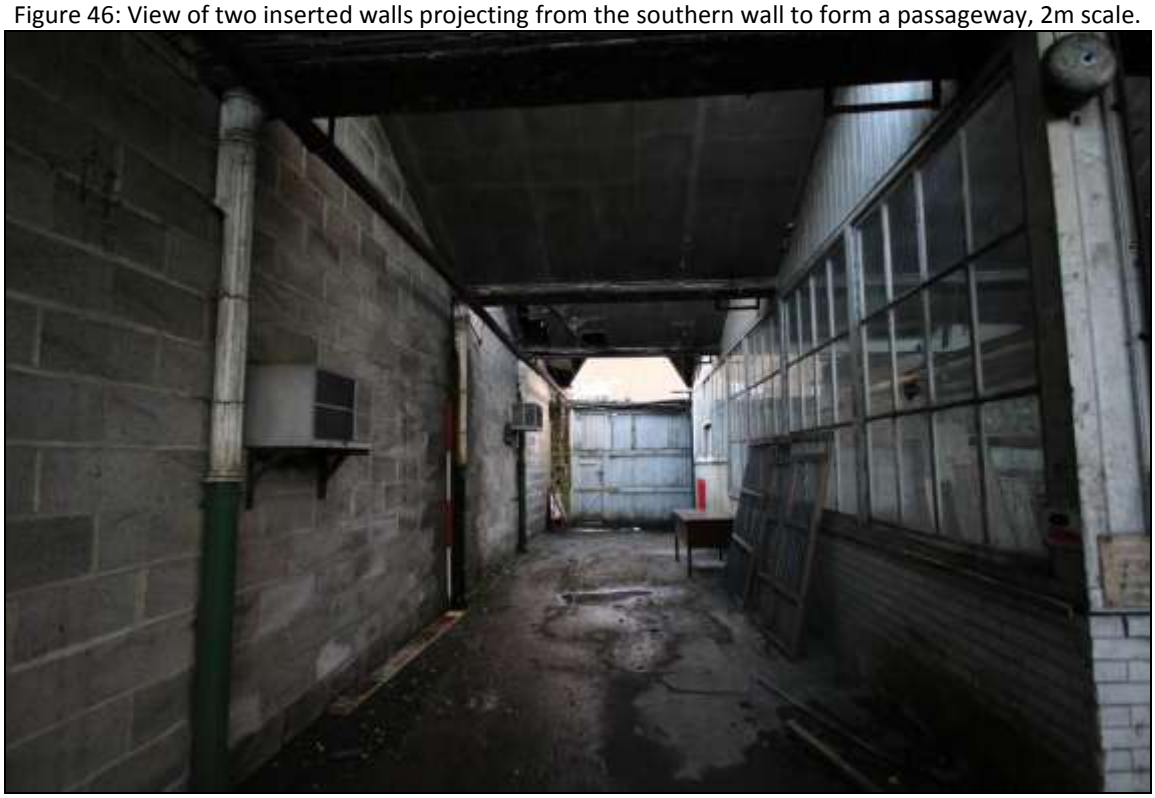

Figure 47: View of the passageway, 2m scale.

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Figure 50: View of a room to the north of the main interior of the former mule spinning shed.

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Figure 67: The insertion of a concrete breeze block wall has provided a separate room in the north east corner of the former mule spinning shed, 2m scale.

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Figure 85: View of the Fearnehough House, a 1950s extension, 2m scale.

The retort house

6.19 The retort house is located to the south east of the site and to the immediate east of the former mule spinning shed. The building has been described in both the desk based assessment (Burpoe and Mora- Ottomano 2015) and in a previous survey undertaken for the site (Strange 2006). The retort house is first shown on the 1875 OS map and is associated with the late-19th century Lumford Mill Gas plant. Strange (2006) suggested that it may have accommodated a steam engine providing additional power for the mule spinning shed in 1852. Drawings in Appendix I show the size and scale of the retort house and associated chimney in addition to how it has been modified during the 20th century.

Exterior

6.20 The retort house is constructed of local sandstone with a pitched slate roof with glazed lantern. Along the northern elevation are two stone blocked windows with stone surrounds, half concealed by the later constructed metal lean-to unit. There is also an oculus window located in the eaves of the gable. The eastern elevation is built into the embankment and has three round-arched blocked windows discernible through the brick arches. The western elevation has been heavily modified with the insertion of large openings supported by metal stanchions and RSJ lintels. This alteration has removed a large proportion of earlier fabric. A stone blocked segmental arched doorway is apparent in the remaining fabric of this façade in addition to another infilled feature which is only discernible through a series of bricks (Figs. 86-96).

Interior

6.21 The interior has been modified with the insertion of two later partitions dividing the ground floor space into three areas. This is apparent from the photographs and the measured drawings of the building. The building opens into the interior of an adjoining structure. The southerly room has an inserted mezzanine floor (Figs. 103-104). The building retains its original roof structure which comprises a series of king-post trusses, although some are concealed by a later installed false ceiling. RSJ beams have been inserted, presumably to provide additional support. There are no features or fixtures relating to the gas works or the steam engine which Strange (2006) suggested may have been added in the late 19th century. It is currently used for storage. The building is still of aesthetic value having been built in the traditional vernacular style from local materials (Figs. 97-105).

Figure 86: General view of the retort house and two chimneys in context to the rest of the complex.

Figure 87: General view of the retort house, facing south west, 2m scale.

Figure 88: General view of the eastern elevation of the retort house, facing north west, 2m scale.

Figure 89: View of the eastern elevation of the retort house set into the embankment, 2m scale.

Figure 90: View of the eastern elevation with rounded brick arch, 2m scale.

Figure 91: View of the brick rounded arch, 2m scale.

Figure 92: View of the northern elevation with a later lean-to addition, 2m scale.

Figure 93: View of the heavily modified western elevation of the retort house.

Figure 94: General view of the heavily modified western elevation of the retort house, 2m scale.

Figure 95: View of the modified western elevation, 2m scale.

Figure 96: View of the segmental arched stone blocked doorway along the western elevation of the retort house, 2m scale.

Figure 97: View of the internal roof structure of the retort house.

Figure 98: General view of the interior of the modified retort house, facing east.

Figure 99: View of a blocked window along the eastern wall of the retort house, 2m scale.

Figure 100: View of a fixture along the eastern elevation of the retort house.

Figure 101: View of the northernmost later created room in the retort house, 2m scale.

Figure 102: General view of the 'central' modified area of the Retort House, facing east, 2m scale.

Figure 103: General view of the southernmost later created room in the retort house, facing east.

Figure 104: View of the southerly later created room of the Retort House, 2m scale.

Figure 105: View of a later inserted large opening in the western wall of the retort house, 2m scale.

Stone chimney

6.22 The stone square chimney stack is situated to the southeast of the retort house and reaches approximately 20m in height. It is composed of sandstone with a stone string course, later wrought-iron straps have been installed probably to provide additional support to the masonry. In an earlier report it has been suggested that the chimney may have been heightened due to two indicators (Burpoe and Mora-Ottomano 2015, 22). Firstly, the lower half of the chimney is more weathered than the upper half and, secondly, the projecting stone band dividing the stack vertically has a close resemblance to a former crown coping (Burpoe and Mora-Ottomano 2015, 22). If this interpretation is correct the crown will likely be of mid-late 19th century, although, as with the rest of the chimney stack, it has a later wrought-iron strap above the crown to provide additional support. The projecting stone crown ensured that water was directed away from the stone chimney stack, thus protecting the masonry. Along the northern elevation of the chimney is a flue opening and a blocked opening is present along the southern elevation. The chimney could be considered a local landmark as it is evocative of the former industrial nature of the site (Figs. 106-127).

6.23 The chimney (at least the lower half) is likely to be contemporary with the adjoining retort house, both built in 1844 and associated with the gas plant which was installed in the mid-19th century.

Figure 106: General view of the northern elevation of the stone chimney.

The following photographs show the northern, eastern, southern and western elevations in sequence.

Figure 107: View of the northern elevation of the chimney.

Figure 108: View of the northern elevation of the chimney.

Figure 109: View of the northern elevation of the chimney.

Figure 110: View of the northern elevation of the chimney.

Figure 111: View of the northern elevation of the chimney.

Figure 112: View of the northern elevation of the chimney.

Figure 113: View of the eastern elevation of the chimney.

Figure 114: View of the eastern elevation of the chimney.

Figure 115: View of the eastern elevation of the chimney.

Figure 116: View of the eastern elevation of the chimney.

Figure 117: View of the eastern elevation of the chimney.

Figure 118: View of the eastern elevation of the chimney.

Figure 119: View of the eastern elevation of the chimney.

Figure 120: View of the southern elevation of the chimney, 2m scale.

Figure 121: View of the southern elevation of the chimney.

Figure 122: View of the southern elevation of the chimney.

Figure 123: View of the southern elevation of the chimney.

Figure 124: View of the southern elevation of the chimney.

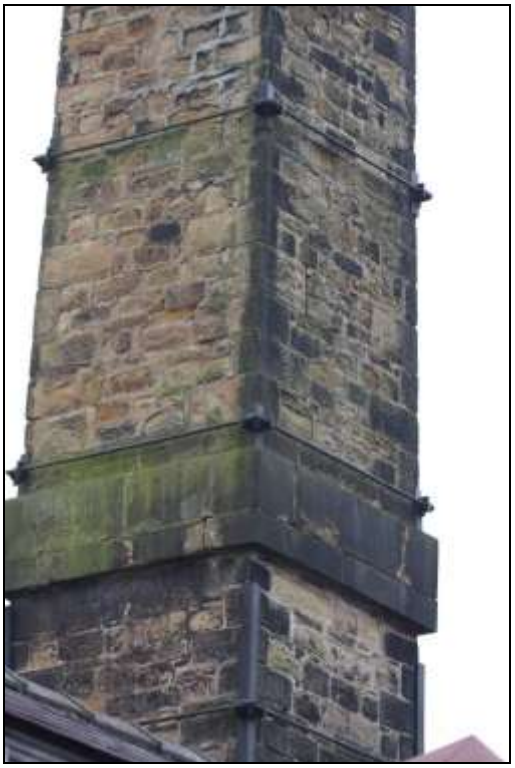

Figure 125: View of the western elevation of the chimney.

Figure 126: View of the western elevation of the chimney.

Figure 127: View of the western elevation of the chimney.

Brick chimney

6.24 The brick chimney is composed of blue engineering bricks laid in an English Garden Wall Bond. It is first depicted on D.P. Battery Co. Ltd workings 1960 survey of the site, along with a structure which was later demolished. It has been suggested in the desk-based assessment (Burpoe and Mora-Ottomano 2015) that the chimney stack may have served this demolished structure. The precise function of this former structure is unclear and it can only be commented that the chimney relates to earlier industrial functions at the site (Figs. 128-147).

6.25 Currently, the chimney is surrounded by units/ buildings which are referred to as units 16b, 16c and 16d in the desk-based assessment (Burpoe and Mora-Ottomano 2015). None of these buildings have any relation to the chimney and are of a later date (mid-20th century to early 21st century). However, unit 16d has enclosed the lower section of the brick chimney in the interior of its structure. As such, the lower half of the chimney is concealed and the flue could only be observed through small gaps in the elevations.

6.26 The exposed chimney, similarly to the stone chimney, has had wrought-iron straps installed at regular intervals along the stack, presumably for additional support. The chimney also retains its crown which appears to be constructed from stone and would have ensured water is directed away from the brickwork forming the chimney.

The following photographs show all elevations of the brick chimney.

Figure 128: General view of the brick chimney.

Figure 129: View of the west and south elevations of the brick chimney.

Figure 130: View of the brick chimney.

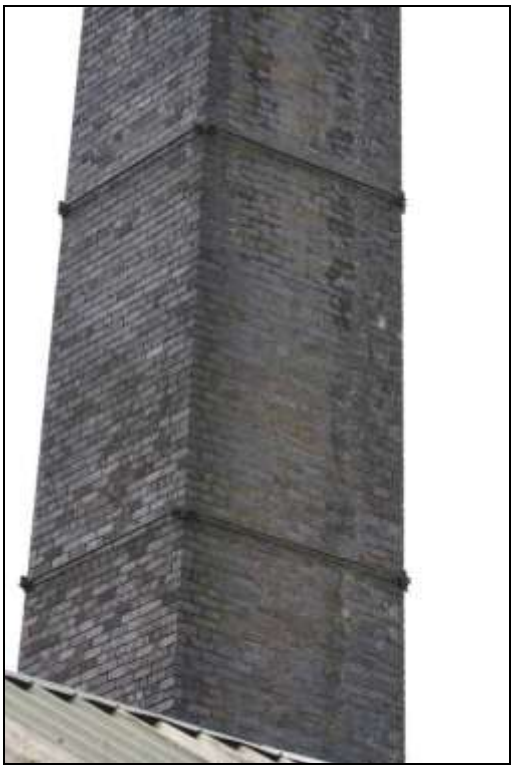

Figure 131: View of the north and east elevations of the brick chimney.

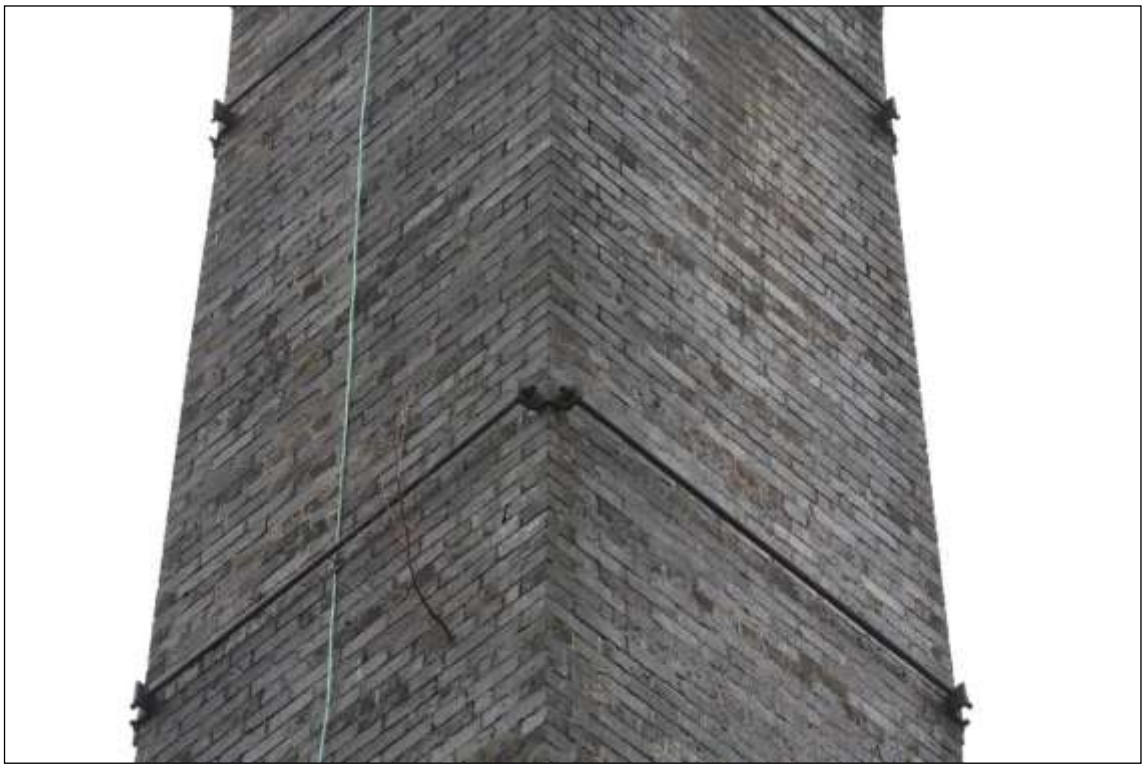

Figure 132: View of the west and south elevations of the brick chimney.

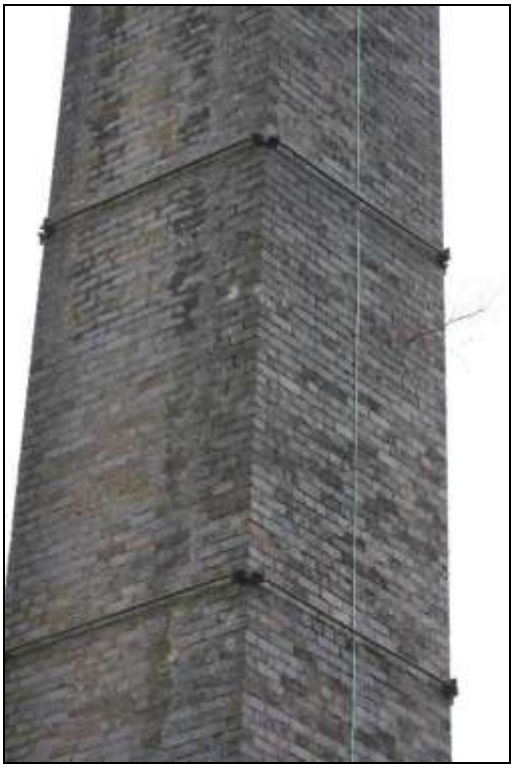

Figure 133: View of the west and north elevations of the brick chimney.

Figure 134: View of the northern elevation of the brick chimney.

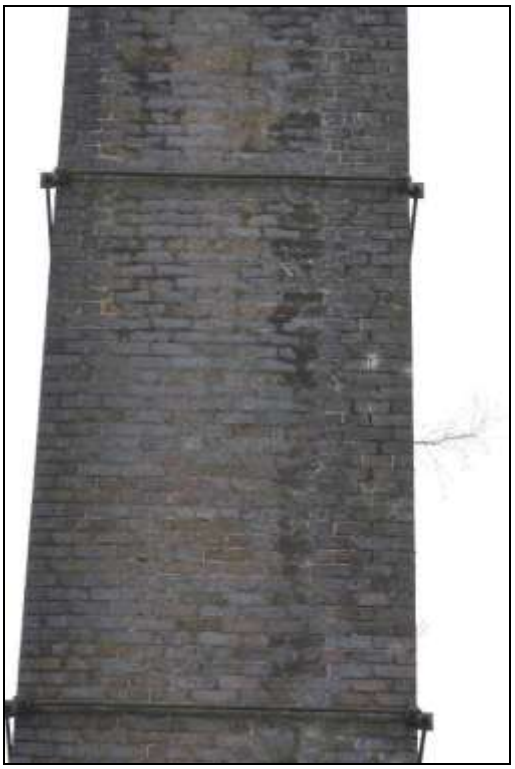

Figure 135: View of the northern elevations of the brick chimney at Riverside Business Park, Bakewell.

Figure 136: View of the western and southern elevations of the brick chimney.

Figure 137: View of the western and northern elevations of the brick chimney.

Figure 138: View of the north and east elevations of the brick chimney.

Figure 139: View of the north and west elevations of the brick chimney.

Figure 140: View of the brick chimney at Riverside Business Park, Bakewell.

Figure 141: View of the lower section of the west elevation of the brick chimney from inside the surrounding buildings, 2m scale.

Figure 142: Detail of arch at the base of the brick chimney's west elevation, 2m scale.

Figure 143: View of the lower north and west elevations of the brick chimney.

Figure 144: View of a connecting flue in lower north elevation of the brick chimney (right).

Figure 145: View of the lower section of the south elevation of the brick chimney, 2m scale.

Figure 146: View of exposed lower section of east elevation of the brick chimney, 2m scale.

Figure 147: Detail view of the exposed brickwork to the lower section of the chimney east elevation.

7 DISCUSSION AND CONCLUSION

Arkwright's Mills and invention

7.1 As aforementioned (in section 5), the site was originally occupied by a four-storey Arkwright Mill, powered by water. Arkwright was famed for his invention in 1769 of the Water Frame which has been accredited to enabling the creation of the modern factory system. His invention allowed for the warp and the woof of cloth to both be created from cotton as opposed to the warp being formed from linen, resulting in a decrease in manufacture costs. Furthermore, the Water Frame produced mechanically-spun thread, powered by water. This resulted in cotton spinning moving away from being a cottage industry to being undertaken in factories that required a close water source/ river for power. The invention proved successful enough to run the mills through the night on many occasions. *'The profits arising from the machinery of Sir Richard Arkwright were so considerable, that it frequently happened, in different parts of the country, that the machinery was employed for the whole four-and-twenty hours, according to Sir Robert Peel in 1816…'* (Trinder 2013, 396).

7.2 The first Arkwright Mill powered by a river was built in Cromford, Derbyshire and still survives today. He went on to build further mills, including that of Lumford Mill in Bakewell, Derbyshire. It has been stated that Arkwright's mills *'were imposing buildings with single power sources in which large numbers of closely managed operatives worked for fixed hours; the various phases of production took place in different parts of the building, and materials flowed efficiently and logically from one stage of manufacture to the next…'* (Trinder 2013, 11). Lumford Mill, as discussed in the historic background section (section 5), was powered by the River Wye, which had been modified in three places and operated, originally, by one water wheel and later by three water wheels (Anon. u.d.). Lumford Mill, prior to its devastating fire, would have housed Water Frames powered by the adjacent River Wye.

7.3 However, as aforementioned (in section 5), Lumford Mill was gutted in 1868 by fire and a new mill was constructed which was smaller in stature.

7.4 Arkwright's invention was superseded by Samuel Crompton's spinning 'mule' which was invented and patented in 1779. This enabled yarn to be spun fine enough for weaving muslin. Prior to Crompton's invention muslin was imported from India (Bachman 2006). The mule was the most common spinning machine from 1790 until about 1900 (Bachman 2006).

7.5 The site which is the subject of this report is a former mule spinning shed built in 1875 on a smaller scale than the 1777 Arkwright Mill as it consisted of a single-storey structure as opposed to a four-storey structure. Originally, it would have been lined with spinning mules. The retort house is also depicted on the 1875 OS map.

7.6 Any indication of former equipment associated with the production of cotton has been removed. This is due to the changing functions of the former mule spinning shed as the cotton industry declined and the building was used for alternative purposes. The

changes in function also resulted in adaptations being made to the former mule spinning shed. Many have been noted in the building description section (section 6) and include, but are not limited to, the insertion of concrete breeze-block walls and a series of glazed stud offices. The mule spinning shed is in a poor condition and the overall range has lost part of its integrity as a result of later alterations and neglect.

7.7 The roof consists of a saw-toothed roof. These were used and are indicative of an industrial unit. The saw-tooth roof indicates a former industrial use as *'the vernacular style of saw-tooth roofs first emerged in the 19th century, before the days of artificial light, when the dual-pitched ridges with angle-glazed apertures allowed sun to shine evenly into industrial-scale spaces…'* (Arsenault 2014). This would have allowed the interior to have been lit by artificial light. Although this element of the building is in a poor state of repair, with deterioration allowing for water ingress and shrubbery growth, it would have originally been a beneficial element of the structure.

Development of the mill, the gasworks and the DP Battery Company

7.8 As the historic background section (section 5) and building description section (section 6) have indicated, the site has undergone many phases of development and alterations. Later phases have incorporated earlier phases resulting in heavily modified apertures and several building materials.

7.9 Lumford Mill was constructed in 1777. The site consisted of a long, narrow, four-storey tall building, powered by a water-wheel. The mill was owned by various people within the Arkwright family, including Robert and Peter Arkwright who decided to sell the mill Horace Mason in the early 19th century. However, his insolvency resulted in the Arkwright's receiving the mill back. After a period of vacancy the mill was sold by another Arkwright to the Duke of Devonshire (Burpoe and Mora-Ottomano 2015).

7.10 The building was gutted by a fire in 1868 which caused extensive damage, although elements of walls survived in places, which appear to have been incorporated into the later structure. As aforementioned (in section 6), certain walls within the mule spinning shed appear to have used the material from the original 1777 mill. This includes the eastern elevation and an internal northern wall.

7.11 A new mill was built with reduced capacity within part of the footprint of the Arkwright Mill. This comprised a single storey mule spinning shed, which was extended southwards in 1881. In 1844, following the lease of the premises to Simpson, Herbet & Co, a gas plant was installed at Lumford Mill and is depicted on the 1875 OS map. The gas works would have allowed for the 'gassing' process of the cotton to be undertaken and for gas to be supplied to the town of Bakewell for lighting purposes. 'Gassing' was a process undertaken in the cotton making process 'in which the finer spun threads were rapidly passed through a series of gas jets. The resultant singing cleared the thread of loose fibres and helped to produce a finer count a rounder form…' (Strange 2006, 3). The 'Retort House' is depicted on the 1875 OS map and was interpreted by Strange (2001) as a 'Retort House' with associated and contemporary chimney which would have allowed for the 'gassing' of cotton. However, Strange's subsequent report (2006) on the building suggested a that it may have 'housed a steam engine installed about 1852 to provide

additional power when the River Wye was affected by drought' (Strange 2006). However, evidence of how this would have worked and linked to the mule spinning shed is not apparent. However, it is noted in the DP survey of 1960 that the retort house had a diesel generator located in its interior. The stone chimney is contemporary with the retort house, although, it may have been heightened in the later 19th century. Wrought-iron straps have been installed along the elevations of the chimney to provide additional support. This chimney is associated with the gas works.

7.12 The building was bought by DP Battery Company in 1898 and cotton manufacture ceased. In the 20th century additional buildings were constructed to the west of the site. Furthermore, a brick chimney was built to the north of the mule spinning shed which was likely associated with an earlier building depicted on the 1960s survey undertaken by DP Battery Company. However, this structure was demolished and later replaced by a later building (referred to as unit 16d in the desk-based assessment by Burpoe and Mora-Ottomano 20150. The buildings currently surrounding the brick chimney have no relation or link to the chimney. DP Battery Company was closed in 1970 by the Electric Power Storage Ltd. Internal modifications have occurred to the building including to the Retort House. The building is currently owned by Litton Properties Ltd and the former mule spinning shed remains vacant (Burpoe and Mora-Ottomano 2015).

Conclusion and recommendations

7.13 The historic building recording provides a comprehensive record of the former mule spinning shed, retort house and chimneys prior to their demolition and redevelopment.

8 PUBLICITY, CONFIDENTIALITY AND COPYRIGHT

8.1 Any publicity will be handled by the client.

8.2 Archaeological Research Services Ltd will retain the copyright of all documentary and photographic material under the Copyright, Designs and Patent Act (1988).

8 STATEMENT OF INDEMNITY

9.1 All statements and opinions contained within this report arising from the works undertaken are offered in good faith and compiled according to professional standards. No responsibility can be accepted by the author/s of the report for any errors of fact or opinion resulting from data supplied by any third party, or for loss or other consequence arising from decisions or actions made upon the basis of facts or opinions expressed in any such report(s), howsoever such facts and opinions may have been derived.

10 ARCHIVE

10.1 A paper archive, which will consist of all primary written documents, plans, sections and photographs, will be prepared by ARS Ltd and submitted to the suitable repository, in

this instance Derbyshire Record Office, in a format agreed in discussion with the PDNPA's Senior Conservation Archaeologist and the Archivist.

10.2 High resolution digital photographs would, in discussion with the PDNPA's Senior Conservation Archaeologist, be submitted to the Archaeological Data Service (ADS) digital archive repository with the associated photographic registers and metadata. The digital archive will be prepared in line with current best practice outlined in *Archaeology Data Service/Digital Antiquity Guides to Good Practice* (ADS/Digital Antiquity 2011).

10.3 Copyright on the deposited material will either be assigned to the archive, or the archive will be licensed to use the material, in perpetuity; this licence would allow the archive to reproduce material, including for use by third parties, with the copyright owner suitably acknowledged.

10.4 One bound copy of the final report with a digital copy of the report in PDF/A format on disk will be deposited with the Derbyshire HER and the PDNPA HBSMR. A copy of the report will be uploaded as part of the OASIS record (see below) for online access via the Archaeological Data Service.

10.5 All parts of the OASIS online form were completed for submission to the HER/SMR. Including an uploaded .pdf version of the entire report.

11 ACKNOWLEDGEMENTS

11.1 ARS Ltd would like to thank all those involved with the archaeological project, especially David Neath of Litton Properties Ltd who commissioned the project and arranged access; Natalie Ward, the PDNPA's Senior Conservation Archaeologist, for her advice; and Eastwood and Partners for providing a copy of their Structural Survey report on the chimneys.

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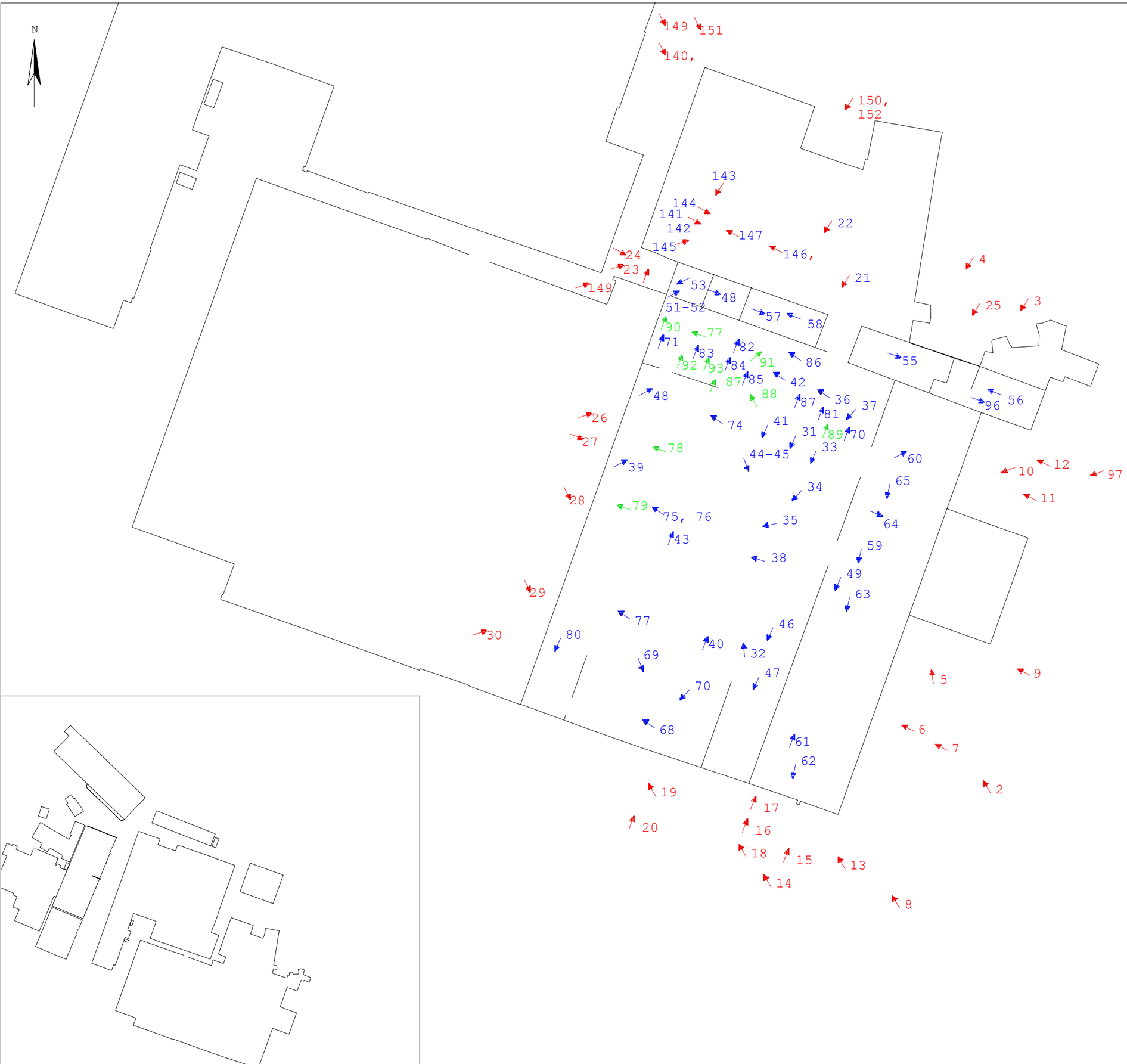
APPENDIX I: SURVEY RECORDS



Archaeological Research Services Ltd
Angel House
Portland Square
Bakewell
Derbyshire
DE45 1HB

Site Code: LBD'18

Date: 19/03/2018

Drawn: EG

Photographic plan of the former mule spinning shed and brick chimney at the Riverside Business Park, Bakewell.

Key:

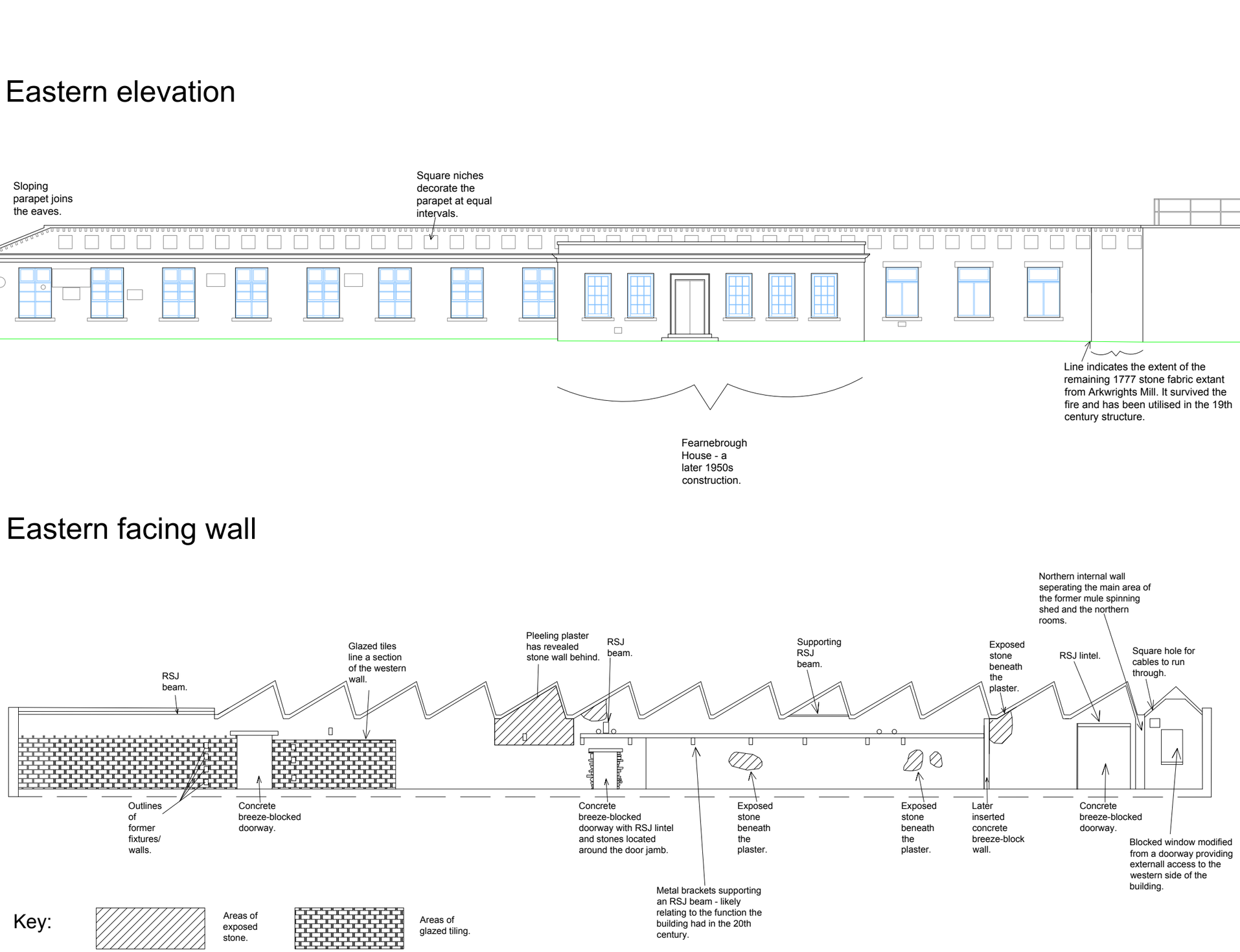
Exterior

Interior

Photographs taken after the intra-demolition watching brief.

Eastern elevation

Eastern facing wall



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Site Code: LBD'18

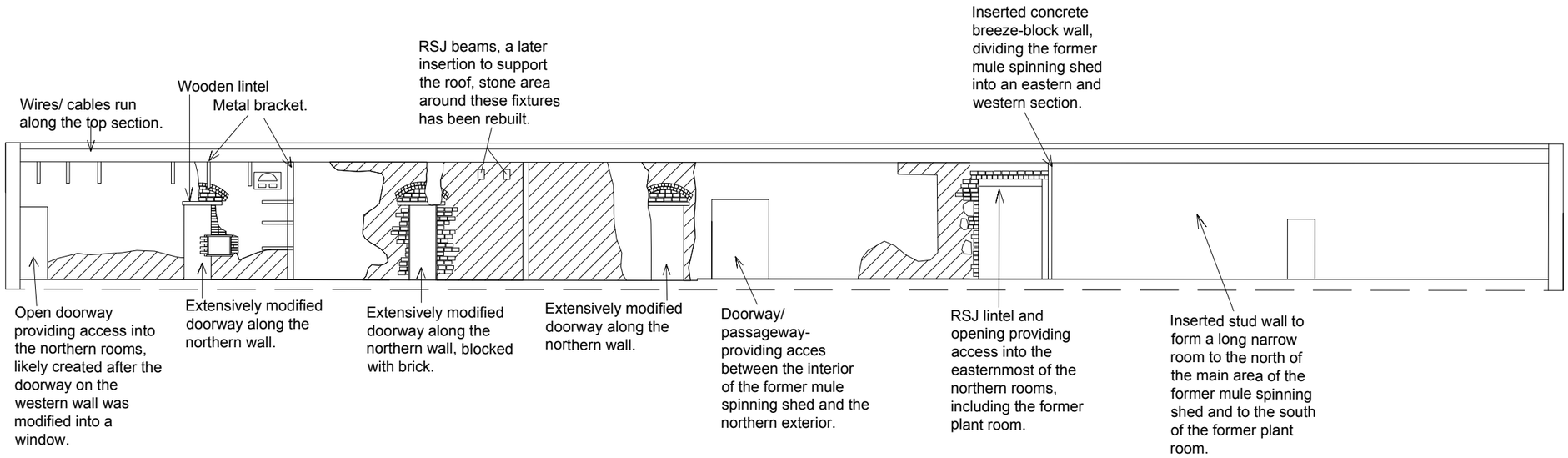
Date: 12/03/2018

Drawn: EG

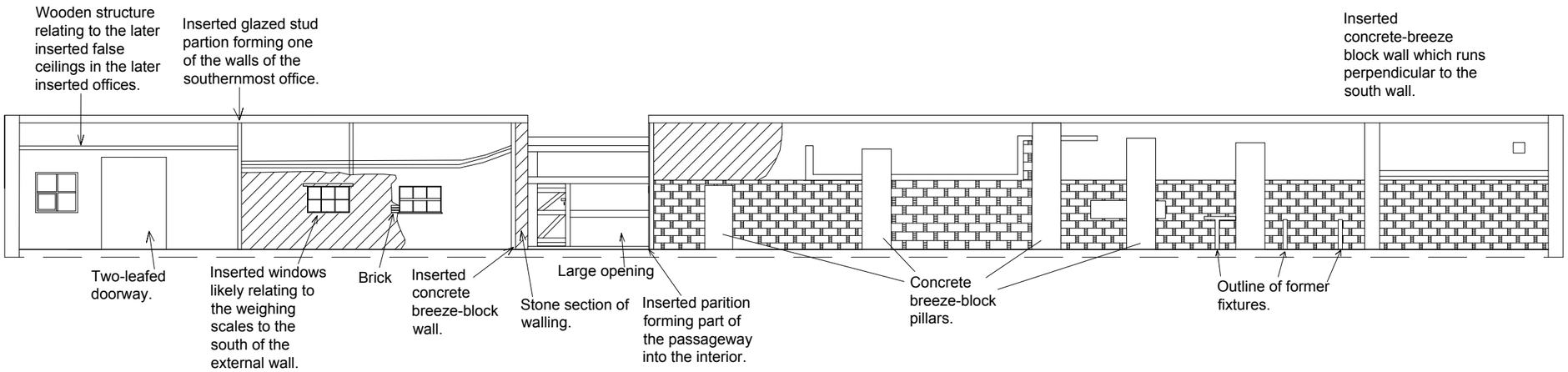
Scale: 1:200@ A3

Long sections of the former mule spinning shed at Riverside Business Park, Derbyshire.

Internal southern facing wall



Northern facing wall



Key:

Areas of exposed stone.

Areas of glazed tiling.

0m 5m 10m

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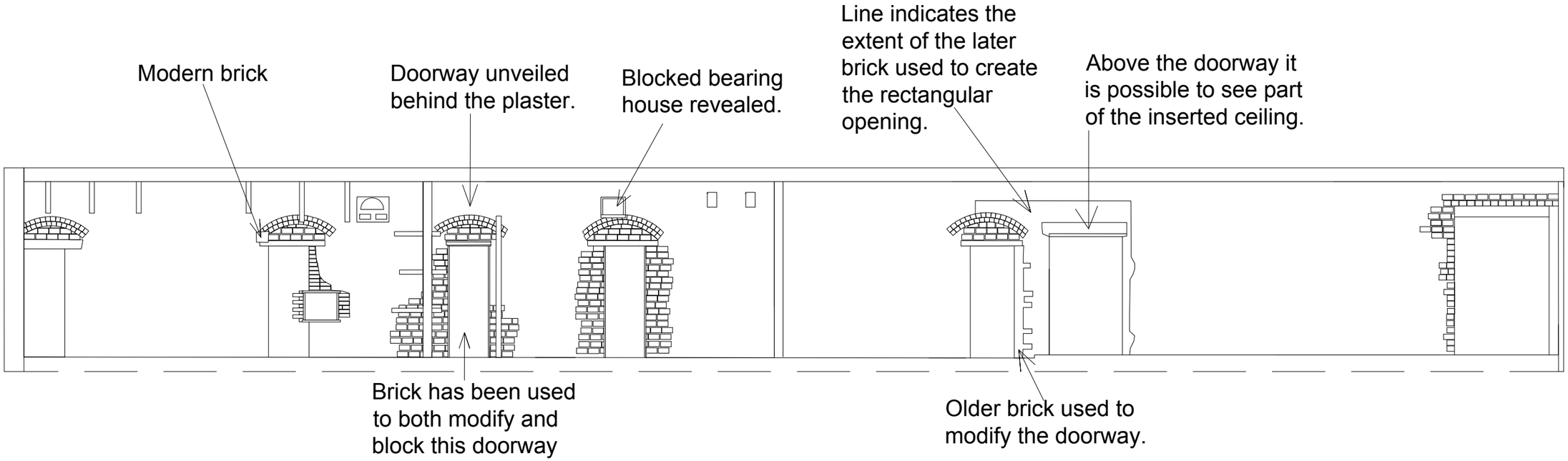
Scale: 1:150@ A3

Long sections of the former mule spinning shed at Lumford Mill, Riverside Business Park, Bakewell, Derbyshire



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Site Code: LMD'19
Date: 07/03/2019
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Scale: 1:100 @A3

Southern facing wall after the plaster had been stripped from the walls.

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DE45 1HB

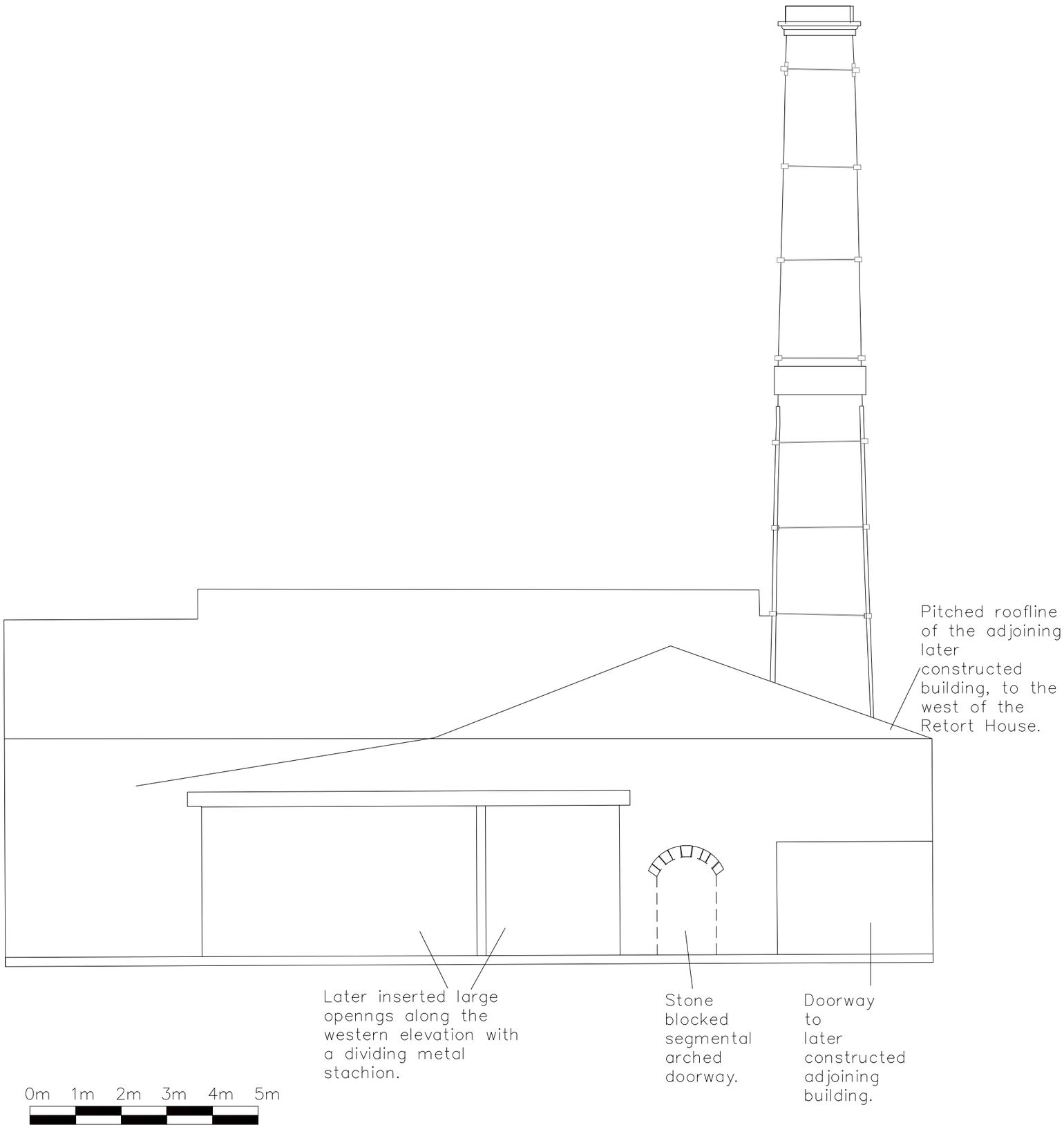
Site Code: LBD'18

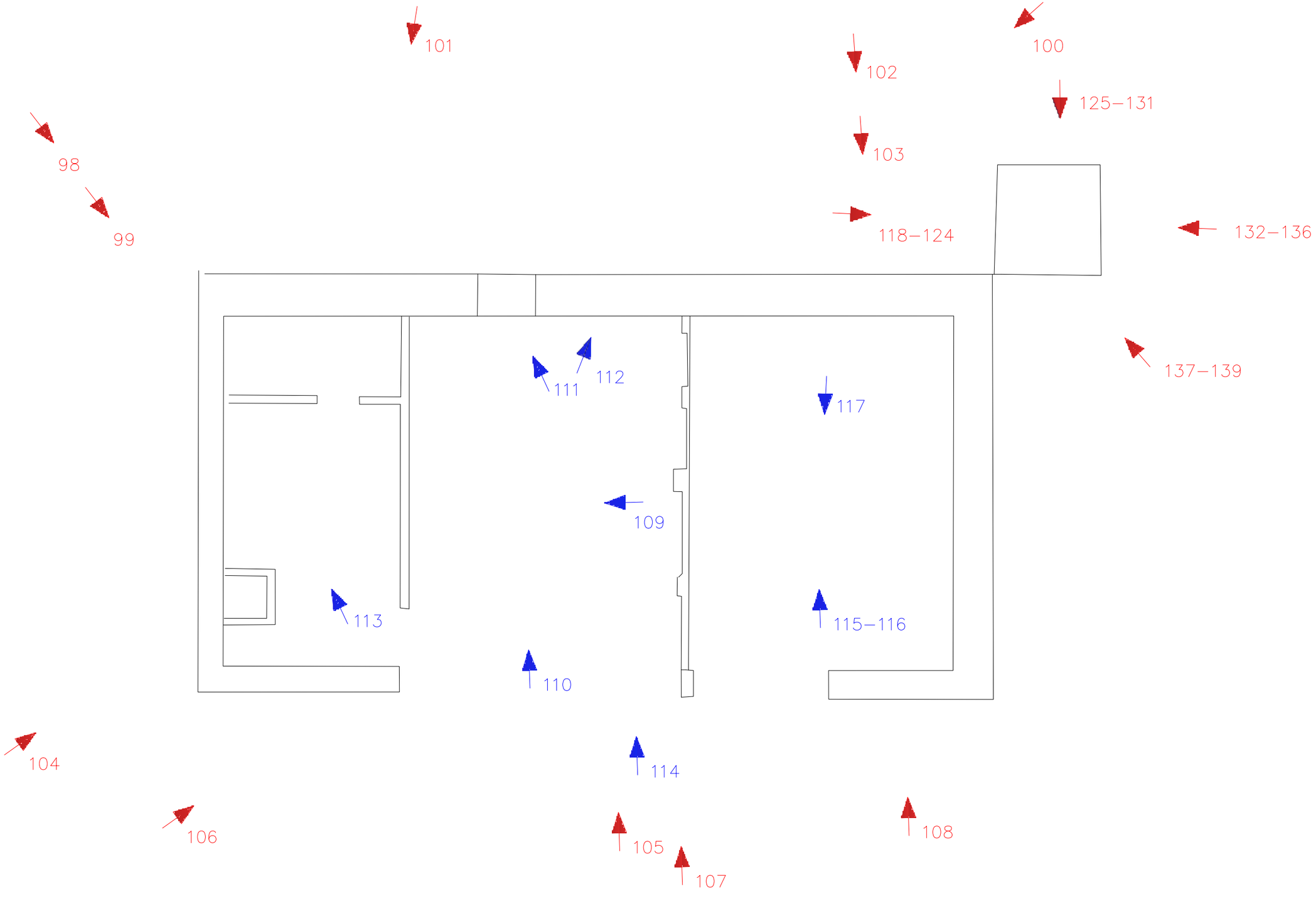
Date: 28/11/2018

Drawn: EG

Scale: 1:100 @A3

Elevation drawing of the western facade of the Retort House.





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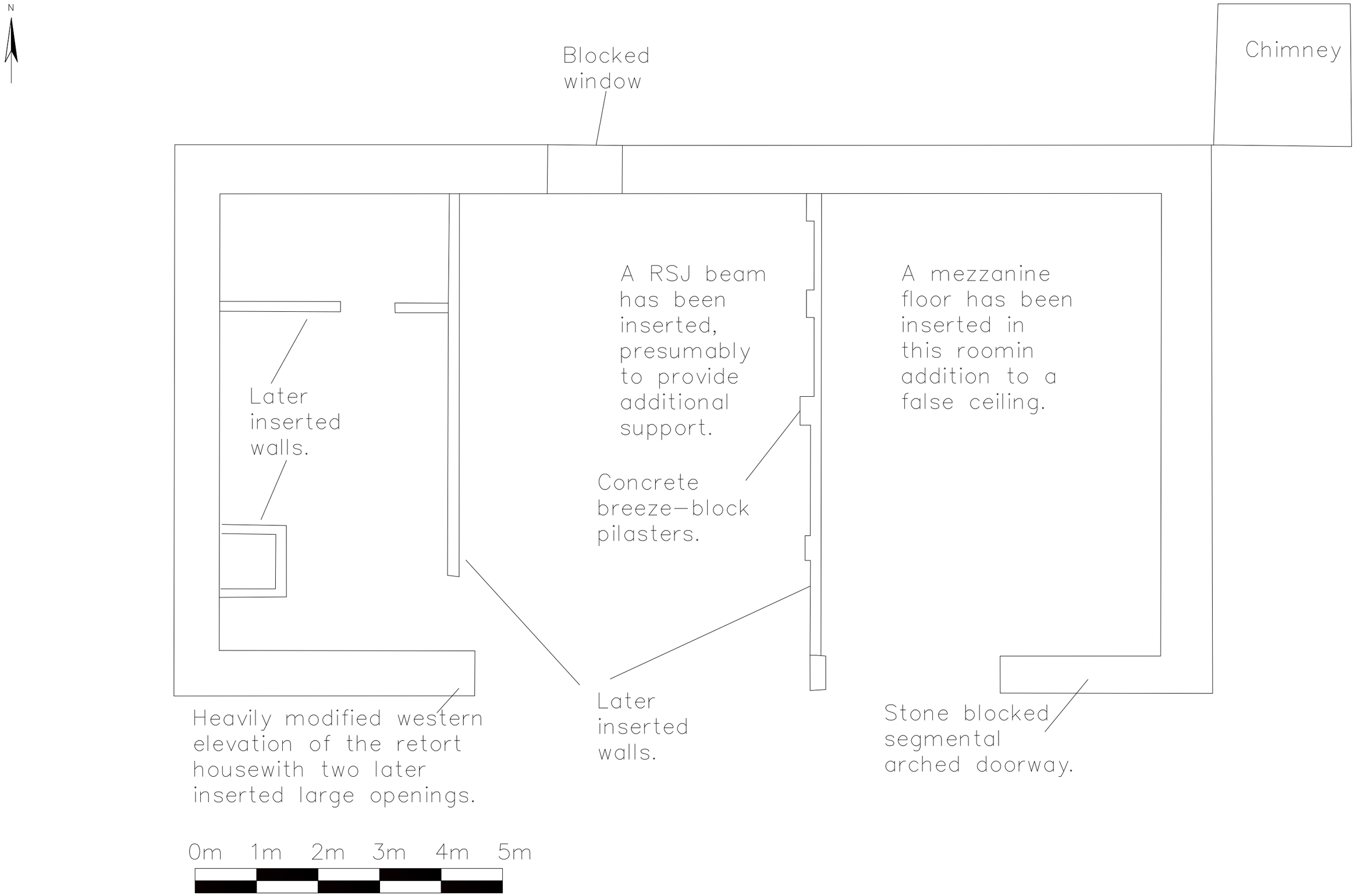
Photographic plan of the Retort House and stone chimney.

Exterior

Interior



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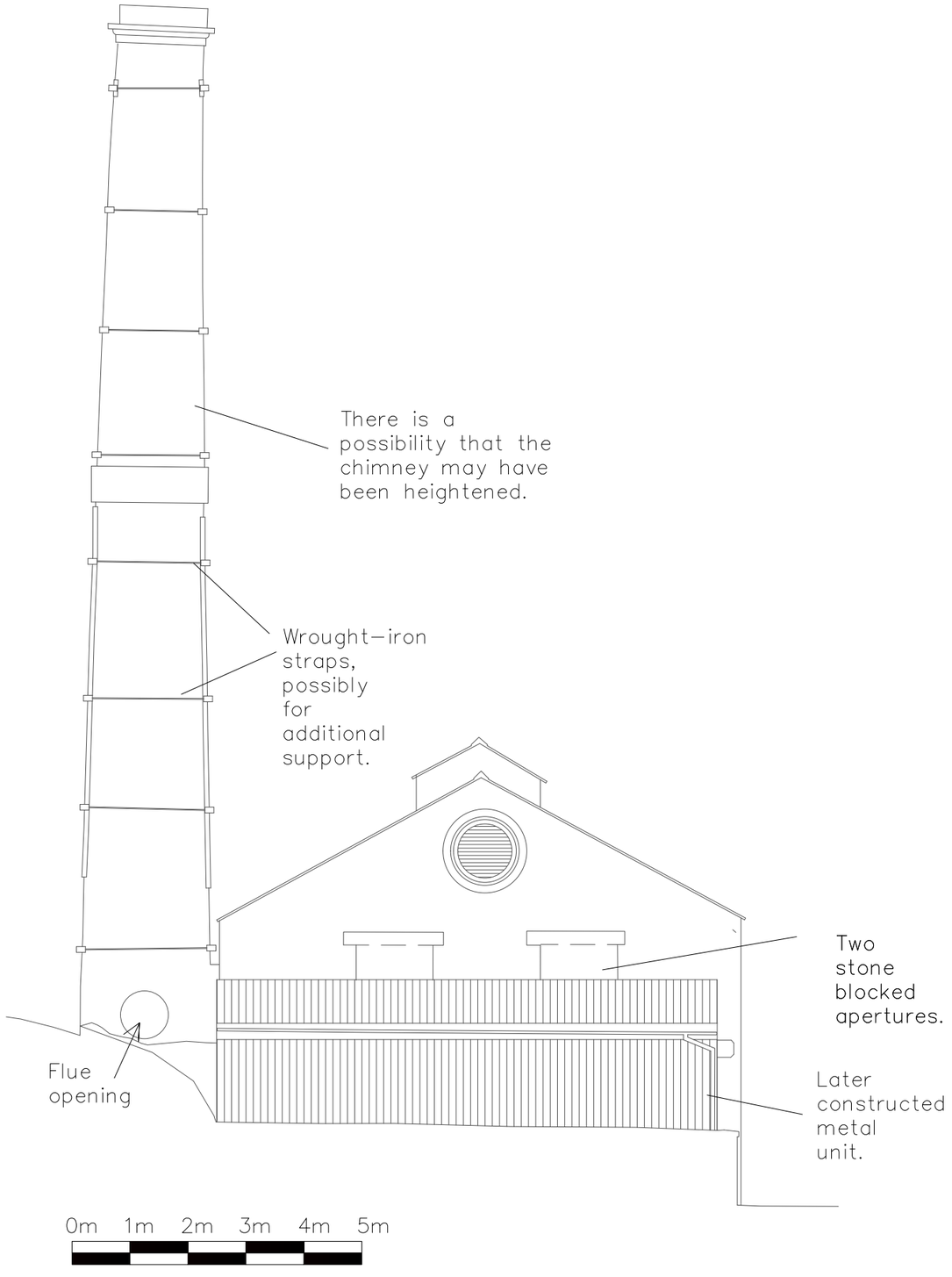
Date: 28/11/2018

Drawn: EG

Scale: 1:100 @A3

Annotated plan of the Retort House.



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Date: 28/11/2018

Drawn: EG

Scale: 1:100 @A3

Northern elevation drawing of the Retort House and chimney.

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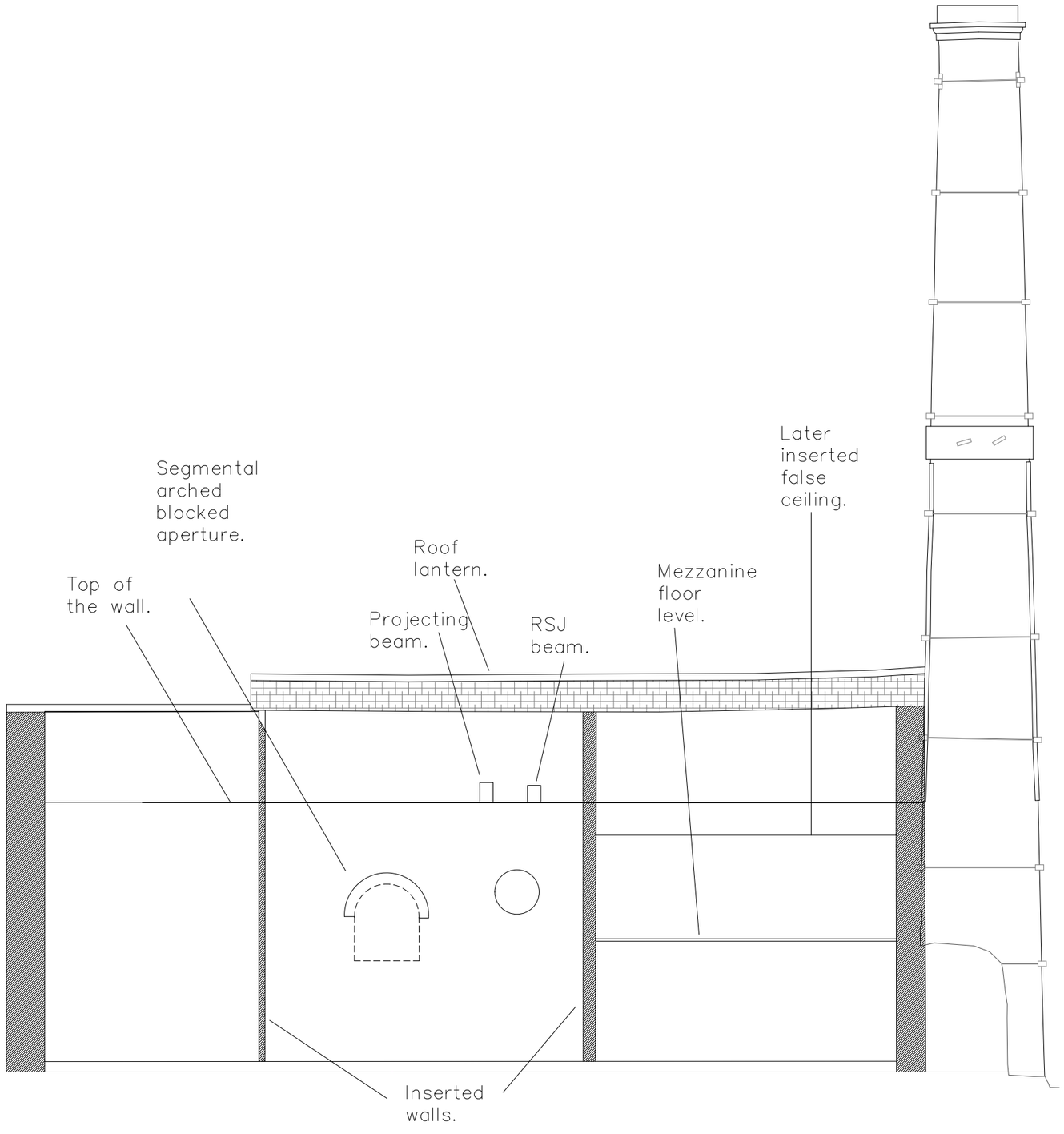
Site Code: LBD'18

Date: 30/11/2018

Drawn: EG

Scale: 1:100 @A3

Long section of the eastern wall of the retort house and associated chimney.



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Derbyshire
DE45 1HB

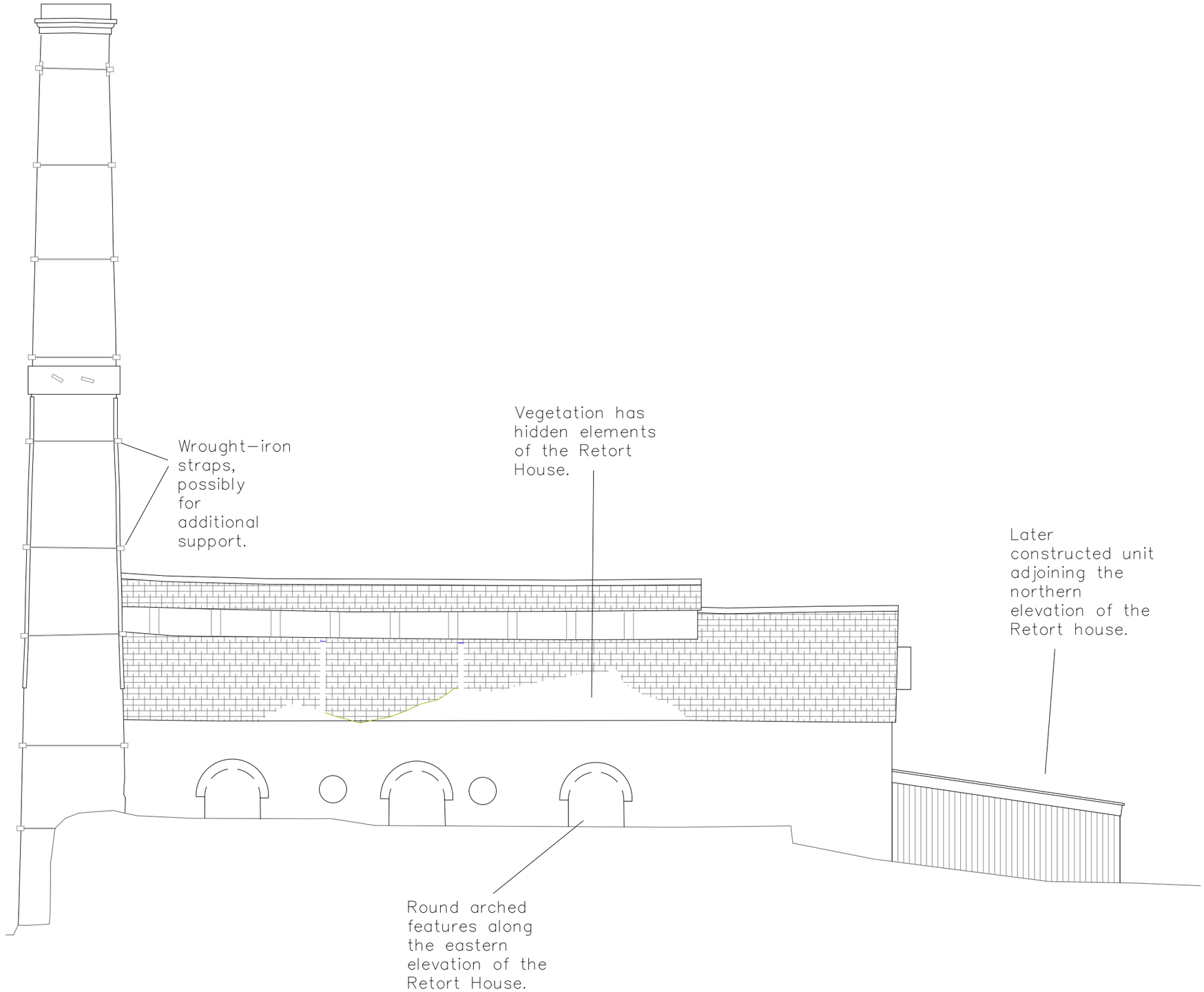
Site Code: LBD'18

Date:28/11/2018

Drawn: EG

Scale: 1:100 @A3

Elevation drawing of the eastern facade of the Retort House and the adjoining chimney.



Archaeological Research Services Ltd
Angel House
Portland Square
Bakewell
Derbyshire
DE45 1HB

Site Code: LBD'18

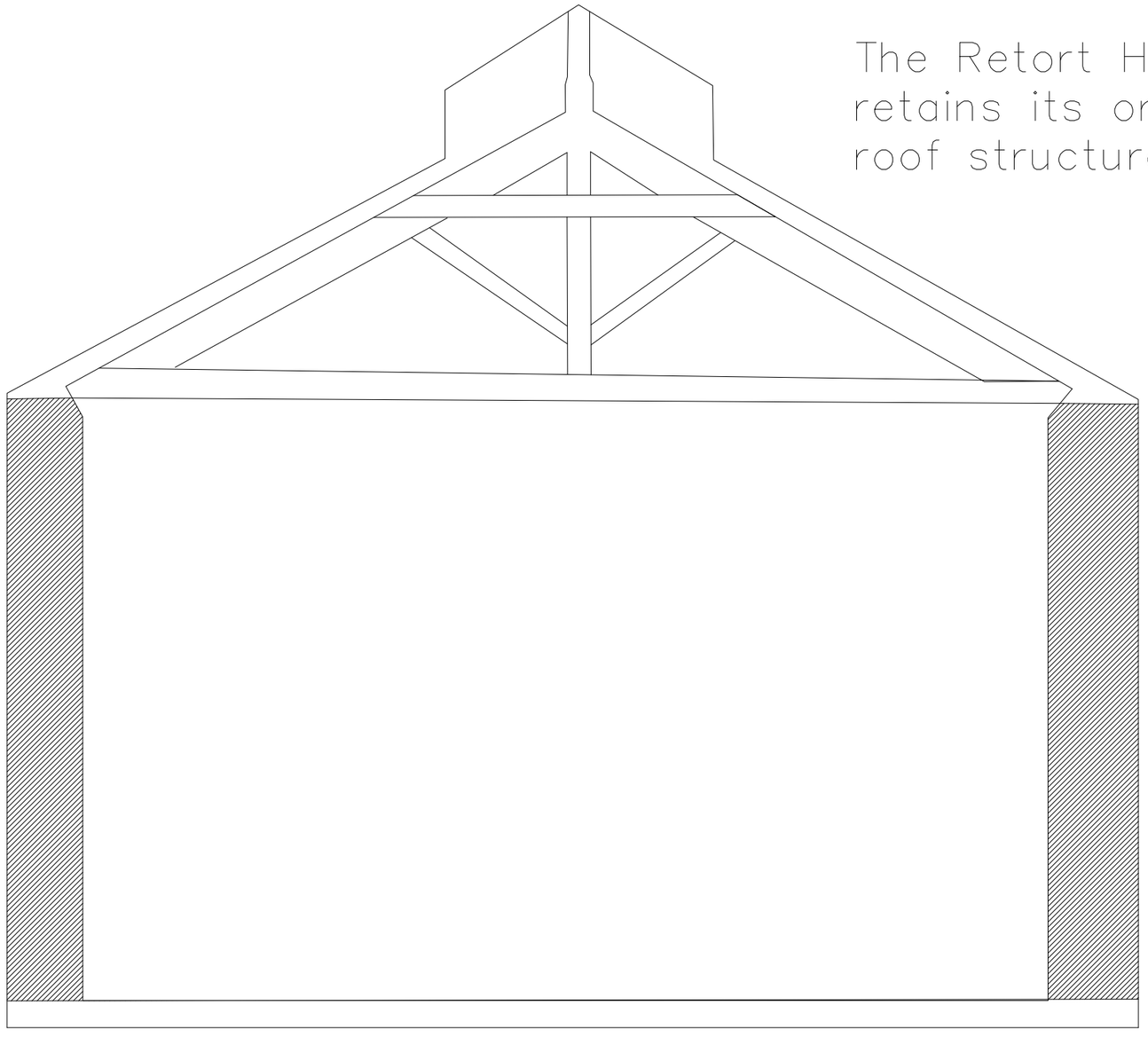
Date: 28/11/2018

Drawn: EG

Scale: 1:50@A3

A cross section of the Retort House.

The Retort House retains its original roof structure.



APPENDIX II: PHOTOGRAPHIC REGISTER

SITE NAME: Lumford Mill, Bakewell Business Park, Derbyshire				NGR: SK 21236905	
Format	Digital	Photographer	EG	Date	01-2018
Frame	Description			Direction	
1	Site Location plan.			NA	
2	General view of the former mule spinning shed.			NW	
3	View of the roofline of the former mule spinning shed, facing south.			SW	
4	View of the chimney with the edge of the roofline in the background.			S	
5	View of where the 1950s extension adjoins the eastern elevation of the former mule spinning shed.			NW	
6	View of the parapet decoration along the eastern elevation.			W	
7	View of the southern side of the eastern elevation, 2m scale.			W	
8	General view of the south eastern side of the former mule shed, facing north west.			NW	
9	General view of the southern section of the eastern facade, 2m scale.			W	
10	Detail of the squared blind recessed niches and blue dentilled brick verges.			SW	
11	View of the northern section of the eastern elevation of the former mule spinning shed, 2m scale.			W	
12	View of the 19th century sandstone blocks incorporated with the earlier 1777 structure, 2m scale.			W	
13	View of the former mule spinning shed, south east corner, 2m scale.			NW	
14	View of the southern elevation of the mule spinning shed, 2m scale.			NW	
15	View of the easternmost section of the south elevation of the mule spinning shed, 2m scale.			N	
16	View of the weighing bridge adjacent to the south elevation of the former mule spinning shed, 2m scale.			N	
17	View of a later inserted window along the southern elevation of the former mule spinning shed, 2m scale.			N	
18	View of the southern elevation of the mule spinning shed, facing north west, 2m scale.			NW	
19	View of the dentilled verge along the southern elevation of the former mule spinning shed.			NW	
20	View of the coursed sandstone south elevation, 2m scale.			N	
21	View of the northern elevation.			S	
22	View of a blocked aperture along the northern elevation.			S	
23	View of a segment of the western elevation of the former mule spinning shed with sloped parapet edge, 2m scale.			E	
24	View of a segment of the western elevation of the former mule spinning shed with sloped parapet edge, 2m scale.			E	
25	View of the roofline of the former mule spinning shed and parapet of the western elevation.			SW	
26	View of the western wall, facing north east, 2m scale.			NE	
27	View of a blocked aperture along the western elevation, 2m scale.				
28	View of a blocked doorway along the former western elevation, 2m scale.			SE	
29	View of the southern section of the western elevation.			SE	
30	General view of the unit the western elevation has been incorporated into.			NE	
31	General view of the interior of the former mule spinning shed, facing south west, 2m scale.			SW	
32	View of the former mule spinning shed, facing north west.			NW	
33	General view of the interior of the western section of the former mule spinning shed, facing south west.			S	

SITE NAME: Lumford Mill, Bakewell Business Park, Derbyshire				NGR: SK 21236905	
Format	Digital	Photographer	EG	Date	01-2018
Frame	Description			Direction	
34	View of the cast-iron columns in the former mule spinning shed.			S	
35	View of the interior of the former mule spinning shed, facing south west.			SW	
36	View of the northern portion of the former mule spinning shed, facing west.			W	
37	View of the former mule spinning shed, facing south west.			SW	
38	General view of the interior of the former mule spinning shed.			SW	
39	View of the interior of the former mule spinning shed, facing north east.			NW	
40	View of the former mule spinning shed facing north.			N	
41	View of the former mule spinning shed, facing north.			S	
42	View of the deteriorating roof of the former mule spinning shed.			W	
43	View of the deteriorating roof structure.			W	
44	View of one of the cast-iron columns in the former mule spinning shed, 2m scale.			SE	
45	View of a capital of one of the cast-iron columns.			SE	
46	View of two inserted walls projecting from the southern wall to form a passageway, 2m scale.			S	
47	View of the passageway, 2m scale.			S	
48	View of an inserted concrete breeze block wall running perpendicular to the western wall.			NE	
49	View of the later inserted concrete breeze block wall, facing south west.			SW	
50	View of a room to the north of the main interior of the former mule spinning shed.			SE	
51	View of a utilities room to the north of the main mule spinning shed, 2m scale.			N	
52	View of a utilities room to the north of the main mule spinning shed, 2m scale.			NE	
53	View of a utilities room to the north of the main mule spinning shed, 2m scale.			SW	
54	View of the later inserted passageway connecting the former mule spinning shed to the adjacent northern building, 2m scale.			S	
55	View of an inserted office block to the north of the mule spinning shed.			E	
56	View of the former plant room with an inserted concrete breeze block western wall, 2m scale.			W	
57	View of a room situated to the west of the former mule spinning shed.			E	
58	View of a western room adjacent to the mule spinning shed.			W	
59	View of the eastern section of the former mule spinning shed with inserted stud offices.			S	
60	View of the northern area of the eastern section of the former mule spinning shed, facing north east.			NE	
61	View of the eastern section of the former mule spinning shed, facing north.			N	
62	View of a scale associated with the weighing bridge.			S	
63	General view of the eastern section of the former mule spinning shed with a series of inserted offices.			S	
64	View of the inserted doorway allowing access between the former mule spinning shed and Fearnehough House.			E	
65	View of the eastern section of the former mule spinning shed, facing south.			S	
66	The insertion of a concrete breeze block wall has provided a separate			E	

SITE NAME: Lumford Mill, Bakewell Business Park, Derbyshire				NGR: SK 21236905	
Format	Digital	Photographer	EG	Date	01-2018
Frame	Description			Direction	
	room in the north east corner of the former mule spinning shed, 2m scale.				
67	The insertion of a concrete breeze block wall has provided a separate room in the north east corner of the former mule spinning shed, 2m scale.			W	
68	View of the southern section of the former mule spinning shed, facing west, 2m scale.			W	
69	View of the southern wall, facing south east, 2m scale.			SE	
70	View of a section of the southern wall consisting of stone and a layer of glazed tiles, 2m scale.			SW	
71	View of a section of the southern wall consisting of stone and a layer of glazed tiles, 2m scale.			SW	
72	View of a section of the western wall covered in plaster, facing west, 2m scale.			W	
73	View of blocked aperture along the west wall of the former mule spinning shed, 2m scale.			W	
74	View of a section of the west wall of the former mule spinning shed, 2m scale.			NW	
75	View of a later inserted aperture along the west wall of the former mule spinning shed, 2m scale.			W	
76	View of the western wall without plaster.			W	
77	View of the western wall without plaster.			W	
78	View of the western wall without plaster.			W	
79	View of the modified northern wall of the former mule spinning shed, 2m scale.			N	
80	Numerously modified aperture along the northern wall of the former mule spinning shed, 2m scale.			N	
81	View of a modified aperture along the northern wall of the western section of the former mule spinning shed, 2m scale.			N	
82	View of the northern wall of the western section of the northern wall of the former mule spinning shed.			N	
83	View of later inserted doorway leading into the former plan room, 2m scale.			N	
84	View of modified apertures along the northern wall, 2m scale.			N	
85	View of the modified northern wall of the former mule spinning shed, 2m scale.			N	
86	View of the modified northern wall of the former mule spinning shed, 2m scale.			N	
87	View of the northern wall without plaster.			N	
88	View of the northern wall without plaster.			N	
89	View of the northern wall without plaster.			N	
90	View of the northern wall without plaster.			N	
91	View of the northern wall without plaster.			N	
92	View of the northern wall without plaster.			N	
93	View of the northern wall without plaster.			N	

SITE NAME: Lumford Mill, Bakewell Business Park, Derbyshire				NGR: SK 21236905	
Format	Digital	Photographer	EG	Date	01-2018
Frame	Description			Direction	
94	View of the northern wall without plaster.			N	
95	View of the northern wall without plaster.			N	
96	View of a section of the southern wall consisting of stone and a layer of glazed tiles, 2m scale.			SW	
97	View of the circular hole in the eastern wall of the former plant room which would have held a turbine, 2m scale.			E	
98	General view of the Retort House and two chimneys in context to the rest of the complex.			SW	
99	General view of the Retort House, facing south west, 2m scale.			SW	
100	General view of the eastern elevation of the Retort House an, facing north west, 2m scale.			NW	
101	View of the eastern elevation of the Retort House set into the embankment, 2m scale.			W	
102	View of the eastern elevation with rounded brick arch, 2m scale.			W	
103	View of the brick rounded arch, 2m scale.			W	
104	View of the northern elevation with a later lean-to addition, 2m scale.			SE	
105	View of the heavily modified western elevation of the Retort House.			NE	
106	General view of the heavily modified western elevation of the Retort house, 2m scale.			SE	
107	View of the modified western elevation, 2m scale.			E	
108	View of the segmental arched stone blocked doorway along the western elevation of the Retort house, 2m scale.			E	
109	View of the internal roof structure of the Retort House.			N	
110	General view of the interior of the modified Retort House, facing east.			E	
111	View of a blocked window along the eastern wall of the Retort House, 2m scale.			E	
112	View of a fixture along the eastern elevation of the Retort House.			E	
113	View of the northernmost later created room in the Retort House, 2m scale.			NE	
114	General view of the 'central' modified area of the Retort House, facing east, 2m scale.			E	
115	General view of the southernmost later created room in the Retort House, facing east.			E	
116	General view of the southernmost later created room in the Retort House, facing east.			E	
117	View of a later inserted large opening in the western wall of the Retort House, 2m scale.			W	
118	General view of the northern elevation of the stone chimney.			S	

SITE NAME: Lumford Mill, Bakewell Business Park, Derbyshire				NGR: SK 21236905	
Format	Digital	Photographer	EG	Date	01-2018
Frame	Description			Direction	
119	View of the northern elevation of the chimney.			S	
120	View of the northern elevation of the chimney.			S	
121	View of the northern elevation of the chimney.			S	
122	View of the northern elevation of the chimney.			S	
123	View of the northern elevation of the chimney.			S	
124	View of the northern elevation of the chimney.			S	
125	View of the eastern elevation of the chimney.			W	
126	View of the eastern elevation of the chimney.			W	
127	View of the eastern elevation of the chimney.			W	
128	View of the eastern elevation of the chimney.			W	
129	View of the eastern elevation of the chimney.			W	
130	View of the eastern elevation of the chimney.			W	
131	View of the eastern elevation of the chimney.			W	
132	View of the southern elevation of the chimney, 2m scale.			NE	
133	View of the southern elevation of the chimney.			N	
134	View of the southern elevation of the chimney.			N	
135	View of the southern elevation of the chimney.			N	
136	View of the southern elevation of the chimney.			N	
137	View of the western elevation of the chimney.			NE	
138	View of the western elevation of the chimney.			NE	
139	View of the western elevation of the chimney.			NE	
140	General view of the brick chimney.			SW	
141	View of the brick chimney at Riverside Business Park, Bakewell.			SE	
142	View of the brick chimney at Riverside Business Park, Bakewell.			N	
143	View of the brick chimney at Riverside Business Park, Bakewell.			SW	
144	View of the brick chimney at Riverside Business Park, Bakewell.			NE	
145	View of the brick chimney at Riverside Business Park, Bakewell.			SE	
146	View of the brick chimney at Riverside Business Park, Bakewell.			N	
147	View of the brick chimney at Riverside Business Park, Bakewell.			N	

APPENDIX III: ARCHIVE

Lumford Mill, Riverside Business Park, Bakewell, Derbyshire – Historic Building Recording
Archive Index

Record type	Quantification
Context Register	0
Evaluation Trench Register	0
Drawings Register	0
Drawing Sheet Register	0
Drawing Sheet	0
Drawing	0
Digital Photograph Register	1
Environmental Sample Register	0
Context Sheets	0
Evaluation Trench Recording Sheet	0
Written Report	1
WSI	1
Digital Photographs	147

APPENDIX IV: SPECIFICATION AND OASIS FORM

Central Area, Riverside Business Park, Bakewell, Derbyshire

Written Scheme of Investigation

2018

Angel House, Portland Square, Bakewell, Derbyshire, DE45 1HB

www.archaeologicalresearchservices.com

Prepared on behalf of:	Riverside Business Park Limited
Date of compilation:	October 2018
Compiled by:	Emma Grange and Robin Holgate MCIfA
Planning Reference:	NP/DDD/1017/1119 & NP/GDO/0918/0845
Local Authority:	Peak District National Park
Site central NGR:	SK 21210 69089

1 INTRODUCTION

1.1 This scheme of works relates to the proposed Central Area development at Riverside Business Park, Bakewell, Derbyshire, which consists of the demolition of former mill buildings, associated structures and other buildings and construction of employment units (B1/B2/B8), retention of existing Retort House, improvements to existing site access, car parking, landscaping and other associated works.

1.2 Planning permission has been granted for the proposed development (Application Ref. No. NP/DDD/1017/1119). Conditions 19, 20 and 21 of the planning permission require the following.

19 (a) No development shall take place until a Written Scheme of Investigation for a programme of historic building recording, the equivalent of a level 2 building survey, has been submitted to and approved by the National Park Authority in writing. The scheme shall include an assessment of significance and research questions; and

1. The programme and methodology of site investigation and recording

2. The programme for post-investigation analysis and reporting

3. Provision to be made for publication and dissemination of the analysis and records of the site investigation

4. Provision to be made for archive deposition of the analysis and records of the site investigation

5. Nomination of a competent person or persons/organization to undertake the works set out within the Written Scheme of Investigation.

(b) No development shall take place until all on-site elements of the approved scheme have been completed to the written satisfaction of the local planning authority.

(c) The development shall not be occupied until the site investigation and post investigation assessment has been completed in accordance with the programme set out in the archaeological Written Scheme of Investigation approved under condition (a) and the provision to be made for analysis and publication of results and archive deposition has been secured.

20 (a) No development shall take place until a Written Scheme of Investigation for archaeological work has been submitted to and approved by the National Park Authority in writing in accordance with a brief for the works issued by this Authority, and until any pre-start element of the approved scheme has been completed to the written satisfaction of the local planning authority, this includes the programme of building recording. The scheme shall include an assessment of significance and research questions; and

1. The programme and methodology of site investigation and recording;

2. The programme for post investigation assessment;

3. Provision to be made for analysis of the site investigation and recording;

4. Provision to be made for publication and dissemination of the analysis and records of the site investigation;

5. Provision to be made for archive deposition of the analysis and records of the site investigation;

6. Nomination of a competent person or persons/organization to undertake the works set out within the Written Scheme of Investigation.

(b) No development shall take place other than in accordance with the archaeological Written Scheme of Investigation approved under condition (a).

(c) The development shall not be occupied until the site investigation and post investigation assessment has been completed in accordance with the programme set out in the archaeological Written Scheme of Investigation approved under condition (a) and the provision to be made for analysis and publication of results and archive deposition has been secured.

21 Should archaeological remains of national importance be identified within the development area, then development work shall cease in the relevant area until a written method statement for preservation in situ of the relevant remains has been submitted by the applicant and approved in writing by the National Park Authority. No development work shall then proceed other than in accordance with the approved method statement so as to ensure that relevant remains are preserved in situ.

1.3 Guidance has been provided by Natalie Ward, Senior Conservation Archaeologist with the Peak District National Park Authority (PDNPA), on the programme of historic building recording and archaeological work required. This will need to be a staged approach with, to some extent, the results of each stage informing the works required by the next. The likely stages are as follows.

- A programme of building recording on the affected built heritage assets, to include the production of a formal record, of the Retort House and its Chimney, the Brick Chimney and the affected areas of the 19th century extension to the mill building that are not covered in the scheme of work for the Premier Inn development at Historic England (2016)'s Level 2 or 3.
- A scheme of archaeological work. This should begin with trial trenching evaluation following demolition of the buildings to be demolished to slab level. Depending on the results of the evaluation a mitigation strategy (potentially taking the form of archaeological monitoring and/or areas of a strip, map and sample excavation) and, where required, a strategy for preservation *in situ* will be developed.
- The preservation in situ of nationally-significant archaeological remains.

1.4 This document comprises a Written Scheme of Investigation (WSI) confirming the nature of the building recording and archaeological work to be undertaken by Archaeological Research Services Ltd (ARS Ltd) at Riverside Business Park, Bakewell,

Derbyshire, in accordance with guidance provided by the Natalie Ward, Senior Conservation Archaeologist with the Peak District National Park Authority (PDNPA).

1.5 The aim of the programme of works is, in line with the *National Planning Policy Framework (NPPF)* paragraph 199 (MHCLG 2018, 56) to record and enhance understanding of the significance of any heritage assets to be lost during the proposed development in a manner proportionate to their importance, and to make this evidence (and any archived generated) publically accessible.

2 BACKGROUND

2.1 Site Location and Geology

2.1.1 The proposed development area (hereafter PDA) is located *c.*700m to the north-west of Bakewell town centre and is centred at NGR SK 21210 69089 (Figure 1).

2.1.2 The underlying geology of the PDA is the Monsal Dale Limestone formation with the area curving around the PDA consists of basaltic lava of the Conksbury Bridge Lava Member formation. The PDA is overlain with superficial river deposits of clay, silt, sand and gravel alluvium (BGS 2018).

2.1.3 The soils of the PDA belong to the MALHAM-2 Soil Association (541p), and are typical brown earths (SSEW 1983a). These soils form over Aeolian silty drifts over Carboniferous limestone and Triassic limestone breccia, and are characterised as *'well drained often stoneless silty soils over limestone, shallow in places especially on crests and steep slopes. Bare rock locally'* (SSEW 1983b).

2.2 Historical and Archaeological Background

2.2.1 Riverside Business Park includes the existing Lumford Mill complex, which was built on the site of Sir Richard Arkwright's third mill. Arkwright built the first cotton spinning mill and mill pond here in the late 18th century, through parts of the complex were extended and strengthened during the 19th century. The surviving water management features associated with this scheme, particularly modifications which were made in 1820 (involving the building of a retaining embankment and enlarged waterwheel), now comprise a designated Scheduled Monument (NHLE 1012436).

2.2.2 The site has been the subject of archaeological research to inform various past planning applications. A desk-based assessment was produced in 2001 by Dr Pat Strange (Strange 2001), with Dr Strange later opening a small trench alongside the mill east wall in 2004 (Strange 2004). During this excavation the line of the wall of the 1785 extension of the mill was identified, though most of the stone from this section had been robbed. It is suggested that this occurred between 1868, the year of the fire which destroyed the original mill and 1875 when the major culvert serving the roof of the new mill was constructed. In 2006, Dr Strange produced an appraisal of the surviving gas retort house on the site (Strange 2006).

2.2.3 Recently, an archaeological desk-based assessment and walkover survey of the PDA was undertaken by ARS Ltd to accompany the planning application for both the Premier Inn and the Central Area developments (Burpoe and Mora-Ottomano 2015). This identified that the PDA falls to the east of Arkwright's original mill building, within the area of his 'Great Reservoir' and the original meander of the River Wye (before the river was re-routed). Previous investigations to the west of the PDA have demonstrated that remains of the mill's water management features, including millponds, survive as sub-surface features in this area. Although the PDA has been previously developed and is currently occupied by industrial buildings it is possible that the remains of the earlier millponds and their associated water management features (dams, slices, outlets) may survive below the present buildings, albeit damaged or truncated. The Retort House and associated chimney of the former gasworks, as well as the brick chimney associated with the operations of the DP Battery Company, also fall within the PDA. Below-ground archaeological remains associated with the 1844 gas plant may also survive in the area of the Retort House and its chimney. In addition, the PDA includes the area of the 19th century extension to the mill building, including parts of the extant Mule Spinning Shed's rear (western most) wall, with the potential for associated below-ground archaeological features to survive (although most of this area forms part of the Premier Inn development and is thus the subject of the approved scheme of archaeological works associated with this development (Grange 2018; Halton 2018).

3 AIMS AND OBJECTIVES

3.1 Regional Research Aims and Objectives

3.1.1 Research topics identified in the *East Midlands Heritage: An Updated Research Agenda and Strategy for the Historic Environment of the East Midlands* (Knight *et al.* 2012, 122-3) for the modern (1750 to present) period applicable to this site include 9.7.5 'how did the wool, cotton, hosiery and lace mills and their water management systems develop and interrelate, and how did the relationship between home and factory production vary?' The programme of archaeological works outlined in this WSI could assist in addressing research objective 9D: 'investigate the use of rivers for transport and power and their relationship to other communications networks' (Knight *et al*. 2012, 127).

3.2 Historic Building Recording Objectives

3.2.1 The aim of the building recording is to provide an analytical record which provides a systematic account of the building's origins, development and use.

3.2.2 The objectives of the building recording are as follows.

- To produce a formal description of the Retort House and its Chimney, the Brick Chimney and the affected areas of the 19th century extension to the mill building that are not covered in the scheme of work for the Premier Inn development at the site, including floor plans, elevations, roof structures,

flooring, internal layout and spaces, detailing, form and fabric, and evidence for phasing and development.

- To produce a full visual photographic record with photographic scales with all photographs descriptively captioned and cross referenced to a plan, plans and/or elevations clearly showing the viewing position, direction and photographic image reference.
- To produce measured and annotated survey drawings showing the location of features of historic interest, including marking the coursing on the eastern wall which belongs to the earlier mill.
- To produce an historic context account for the building to outline it's historic significance.
- To produce an analytical account of the building's origins, development and use.

3.3 Intra-demolition Watching Brief Aim and Objective

3.3.1 The aim of the intra-demolition watching brief, if required, is to monitor the demolition of any structures, or parts of these structures, within the PDA which may contain hidden structural building elements which may be of historic architectural significance in order to record these elements.

3.3.2 The following objective will contribute towards accomplishing this aim.

- To record hidden structural building elements that will be exposed during the demolition process relating to the history, sequence, function or other aspect of the building prior to its removal during demolition.

3.4 Evaluation Fieldwork Aim and Objectives

3.4.1 The aim of the archaeological evaluation is to identify and record the possible presence/absence, location, nature, extent, survival, quality, significance and date of post-medieval archaeological deposits that may exist on the proposed development site.

3.4.2 The objectives of the archaeological evaluation are as follows.

- To identify the presence/ absence of archaeological features and deposits within the site, particularly in relation to features associated with the 1777 Arkwright Mill, notably the water management system, and the 1844 gas plant.
- To record all archaeological features and deposits encountered.
- To sample sufficient of the archaeological features and deposits to establish relative sequence, likely dating and quality of preservation.
- To gather sufficient information to establish the character, extent, form, function and likely status of any surviving archaeological deposits with a view to evaluating their significance.

4 HISTORICAL BUILDING RECORDING

4.1 Coverage

4.1.1 The exterior and interior of the Retort House and its Chimney (to Level 3 standard), the Brick Chimney (to Level 2 standard) and the affected areas of the 19th century extension to the mill building, including parts of the extant Mule Spinning Shed's rear (western most) wall, that are not covered in the scheme of work for the Premier Inn development at the site (to Level 2/3 standard) will be recorded in line with Historic England's (2016) *Understanding Historic Buildings – A guide to good recording practice*.

4.2 Methodology

4.2.1 All aspects of the building recording will be conducted according to the guidelines in *Understanding Historic Buildings – A guide to good recording practice* by Historic England (2016) and the Chartered Institute for Archaeologist (ClfA) *Code of Conduct* (2014a) and *The Standards and Guidance for Archaeological Building Recording* (2014b).

4.2.2 The archaeologist on-site will carefully examine all parts of the buildings prior to the commencement of the photographic and drawn recording in order to identify all features relevant to original and later use. As part of this exercise, the archaeologist on site will produce written observations (e.g. on phasing; on detailing, on building function), sufficient to permit the preparation of a report on the structures identified. Each external wall or internal space should be examined individually and the results of that examination noted in a systematic fashion. These site records will be adequate to allow a full architectural and archaeological description of the building to be included in the subsequent report, as a walk around and through each building, starting with setting, then progressing to all sides of the structures in sequence, and finally to the interior from the ground floor up. An aerial work platform ("cherry picker") will be used to examine and record the parts of the chimneys that are inaccessible from the ground.

4.2.3 The archaeologist on-site will also look for and identify opportunities for hidden structural evidence to be exposed during the proposed development with the potential to understand the history, sequence, function or other aspect of the buildings and site by hidden evidence, in order to recommend if an intra-demolition watching brief should be undertaken (see section 6 below).

4.2.4 The photographic record will cover the following as a minimum:

- Photographs of the interior (where accessible), exterior and setting of the buildings. A two metre ranging rod will be included in a selection of general shots in order that the scale of all elements of the building can be sufficiently established.
- The buildings' external appearance is to be recorded. Typically a series of oblique views will show all external elevations of the structure and give an overall impression of size and shape. Where an individual elevation

embodies complex historical information or has been conceived as formal compositions, views at right angles to the plane of the elevation may also be appropriate.

- Photographs of any internal or external detail, structural or decorative, which is relevant to the buildings' design, development or use over time and which does not show adequately on general views.
- Photographs of any internal or external fixtures, fittings or machinery or evidence of its former existence relevant to the building's use or development.
- Copies of any dates, decorative detail, masons' marks, historic graffiti or inscriptions present in the building and illustrating its development/use.

4.2.5 High resolution digital photography a high-resolution digital photographs will be taken using a Nikon L810 (16 megapixels). Where possible, photographs will include a graduated scale and cameras will be mounted on tripods for extra stability. Details of the photographs will be recorded on pro-forma index sheets, which include location, subject and orientation.

4.2.6 The building recording drawn record will include, where appropriate, the following.

- Site location plan at a suitable scale (preferably indicating the position of the site within the country, within the county and a clear plan of the precise location/outline of the building i.e. 1:50).
- A plan indicating the position and orientation of photographs/images included in the report.
- A set of detailed measured survey drawings including a floor plan as existing, a plan showing the location of features of historic significance, and elevations with annotations and conventions following Historic England's Level 3 standard (2016).
- Phased plan(s) showing the development of the building.

4.3 Completion of the Building Recording

4.3.1 Development work may not commence until a formal application for discharge of the pre-start element of the scheme has been made supported by a report on the historic building recording.

4.4 Report

4.4.1 Within two months of the completion of the building recording, ARS Ltd will produce a report which will include the following as a minimum.

- Non-technical executive summary.
- Introductory statement.
- Aims and purpose of the project.

- Methodology.
- Precise location of buildings, by name or street number, civil parish, town and National Grid reference.
- The date when the record was made, the names of the recorders and the archive content/character and location.
- A note of any relevant statutory designations.
- A discussion of the buildings' form, function, date, and sequence of development and significance. Together with a discussion of the names of architects, builders, patrons and owners if known. This will include a note of any evidence for demolished structures or removed plant associated with the building.
- An architectural and archaeological description of the buildings will be produced.
- A discussion of published sources relating to the building, an account of its history and an analysis of historic map evidence.
- An analytical account of past and present uses of the buildings and areas of the buildings.
- Discussion and conclusions.
- References.
- Statement of intent regarding publication.
- Supporting data – tabulated or in appendices.
- A register of photographs taken.
- Confirmation of archive transfer arrangements.
- A copy of the WSI and OASIS form.

4.4.2 The report illustrations will contain the following as a minimum.

- A location map at not less than 1:2500.
- A site plan at not less than 1:500.
- Photographs used to illustrate all key points and a complete set of site drawings, at an appropriate scale, executed to publication standard.
- Extracts from relevant historic maps, subject to reproduction rights, will also be included within the report with the building of interest clearly visible.
- The photographic record plan will also be included.
- In addition to those photographs used as illustrations, a complete set of all photographs, excluding duplications, will be included with the digital copy of the report and referenced as necessary.

4.4.3 Depending on the outcome of the evaluation fieldwork (see section 6 below), and in consultation with the PDNPA's Senior Conservation Archaeologist, the 'historical building recording' report might incorporate the 'evaluation fieldwork' report.

4.5 Archive Deposition

4.5.1 A paper archive, which will consist of all primary written documents, plans, sections and photographs, will be prepared by ARS Ltd and submitted to the suitable repository, in this instance Derbyshire Record Office, in a format agreed in discussion with the PDNPA's Senior Conservation Archaeologist and the Archivist. This is in line with the Museums of Derbyshire (2016a) *Procedures for the Transfer of Archaeological Archives from Derbyshire at Derbyshire Record Office.*

4.5.2 High resolution digital photographs would, in discussion with the PDNPA's Senior Conservation Archaeologist, be submitted to the Archaeological Data Service (ADS) digital archive repository with the associated photographic registers and metadata. The digital archive will be prepared in line with current best practice outlined in *Archaeology Data Service/Digital Antiquity Guides to Good Practice* (ADS/Digital Antiquity 2011).

4.5.3 Copyright on the deposited material will either be assigned to the archive, or the archive will be licensed to use the material, in perpetuity; this licence would allow the archive to reproduce material, including for use by third parties, with the copyright owner suitably acknowledged.

4.5.4 One bound copy of the final report with a digital copy of the report in PDF/A format on disk will be deposited with the Derbyshire HER and to the PDNPA for HBSMR. A copy of the report will be uploaded as part of the OASIS record (see below) for online access via the Archaeological Data Service.

4.5.5 At the start of work (immediately before fieldwork commences) an OASIS online record http://ads.ahds.ac.uk/project/oasis/ will be initiated and key fields completed on Details, Location and Creators forms. All parts of the OASIS online form will be completed for submission to the HER. This will include an uploaded .pdf version of the entire report (a paper copy will also be included within the archive).

4.5.6 Written confirmation of the archive transfer arrangements, including a date (confirmed or projected) for the transfer, will be included as part of the final report.

4.5.7 The PDNPA's Senior Conservation Archaeologist will be notified of the final deposition of the archive.

5 Intra-Demolition Watching Brief

5.1 Coverage

5.1.1 Where the building survey identifies opportunities for hidden structural evidence to be exposed during the demolition process relating to the development, history, sequence, function or other aspect of the building and site that may be

resolved by hidden evidence, and following consultation with PDNPA's Senior Conservation Archaeologist, an intra-demolition watching brief will be undertaken.

5.2 General Statement of Practice

5.2.1 All elements of the intra-demolition watching brief will be carried out in accordance with the CIfA *Code of Conduct* (2014a) and *Standards and Guidelines for Archaeological Watching Briefs* (2014c).

5.2.2 All staff employed on the project will be suitably qualified for their respective project roles and have substantial experience of historic building recording.

5.2.3 All staff will be made aware of the archaeological importance of the area surrounding the site and will be fully briefed on the work required by this specification.

5.2.4 Regular contact will be ensured between ARS Ltd and the site project manager to ensure that ARS Ltd is kept up to date with site works and given the chance to respond appropriately and in line with the PDNPA's Senior Conservation Archaeologist requirements.

5.2.5 All site operations will be carried out in a safe manner in accordance with ARS Ltd's health and safety policy. A risk assessment will be prepared before commencement on site.

5.3 Methodology

5.3.1 The duration of the works will be dictated by the length and scope of the demolition works as well as the nature of the potential structural building elements to be recorded. Consultation between the client, ARS Ltd and PDNPA's Senior Conservation Archaeologist will be required on completion of the demolition works to ensure that any archaeological remains affected by development works have been adequately recorded.

5.3.2 The on-site archaeologist will be given the opportunity to stop demolition work in order to investigate potential structural building elements and adequate time will be allowed for recording any such features.

5.3.3 A written, drawn and photographic record will be maintained during the watching brief plus all significant structural building elements will be recorded. A photographic survey of the building will be conducted using high resolution digital photography (minimum of 16 megapixels). Where possible, photographs will include a graduated scale and cameras will be mounted on tripods for extra stability. Details of the photographs will be recorded on pro-forma index sheets, which include location, subject and orientation.

5.3.4 For brick structures, the record will include details of brick dimensions and type (handmade/machine-made, plain/frogged), mortar (colour, composition, hardness) and the extent of structures (number of courses, thickness in skins). Brick samples will be taken for structures likely to pre-date the mid-19th century.

5.4 Report

5.4.1 Within two months of the completion of the intra-demolition building recording, ARS Ltd will produce a report which will include the following as a minimum.

- Non-technical executive summary.
- Introductory statement.
- Aims and purpose of the project.
- Methodology.
- Precise location of buildings, by name or street number, civil parish, town and National Grid reference.
- The date when the record was made, the names of the recorders and the archive content/character and location.
- A note of any relevant statutory designations.
- A discussion of the building's form, function, date, and sequence of development and significance. Together with a discussion of the names of architects, builders, patrons and owners if known. This will include a note of any evidence for demolished structures or removed plant associated with the building.
- An architectural and archaeological description of the buildings will be produced.
- A discussion of published sources relating to the building, an account of its history and an analysis of historic map evidence.
- An analytical account of past and present uses of the buildings and areas of the buildings.
- Discussion and conclusions.
- References.
- Statement of intent regarding publication.
- Supporting data – tabulated or in appendices.
- A register of photographs taken.
- Confirmation of archive transfer arrangements.
- A copy of the WSI and OASIS form.

5.4.2 The report illustrations will contain the following as a minimum.

- A location map at not less than 1:2500.
- A site plan at not less than 1:500.

- Photographs used to illustrate all key points and a complete set of site drawings, at an appropriate scale, executed to publication standard.
- Extracts from relevant historic maps, subject to reproduction rights, will also be included within the report with the building of interest clearly visible.
- The photographic record plan will also be included.
- In addition to those photographs used as illustrations, a complete set of all photographs, excluding duplications, will be included with the digital copy of the report and referenced as necessary.

5.4.3 Depending on the outcome of the intra-demolition watching brief, and in consultation with the PDNPA's Senior Conservation Archaeologist, the 'intra-demolition watching brief' report might be incorporated into the 'historical building recording' report (see section 4 above).

5.5 Archive Deposition

5.5.1 A paper archive, which will consist of all primary written documents, plans, sections and photographs, will be prepared by ARS Ltd and submitted to the suitable repository, in this instance Derbyshire Record Office, in a format agreed in discussion with the PDNPA's Senior Conservation Archaeologist and the Archivist. This is in line with the Museums of Derbyshire (2016a) *Procedures for the Transfer of Archaeological Archives from Derbyshire at Derbyshire Record Office.*

5.5.2 High resolution digital photographs would, in discussion with the PDNPA's Senior Conservation Archaeologist, be submitted to the Archaeological Data Service (ADS) digital archive repository with the associated photographic registers and metadata. The digital archive will be prepared in line with current best practice outlined in *Archaeology Data Service/Digital Antiquity Guides to Good Practice* (ADS/Digital Antiquity 2011).

5.5.3 Copyright on the deposited material will either be assigned to the archive, or the archive will be licensed to use the material, in perpetuity; this licence would allow the archive to reproduce material, including for use by third parties, with the copyright owner suitably acknowledged.

5.5.4 One bound copy of the final report with a digital copy of the report in PDF/A format on disk will be deposited with the Derbyshire HER and to the PDNPA for HBSMR. A copy of the report will be uploaded as part of the OASIS record (see below) for online access via the Archaeological Data Service.

5.5.5 At the start of work (immediately before fieldwork commences) an OASIS online record http://ads.ahds.ac.uk/project/oasis/ will be initiated and key fields completed on Details, Location and Creators forms. All parts of the OASIS online form will be completed for submission to the HER. This will include an uploaded .pdf version of the entire report (a paper copy will also be included within the archive).

5.5.6 Written confirmation of the archive transfer arrangements, including a date (confirmed or projected) for the transfer, will be included as part of the final report.

5.5.7 The PDNPA's Senior Conservation Archaeologist will be notified of the final deposition of the archive.

6 EVALUATION FIELDWORK

6.1 Coverage

6.1.1 Following demolition of the buildings to be demolished to slab level a series of trial trenches will be excavated. A total of six trenches will be excavated (Figures 2-4). The trench measurements are as follows:

- Trench 1: 7m x 2m.
- Trench 2: 10m x 2m.
- Trench 3: 10m x 2m.
- Trench 4: 10m x 2m.
- Trench 5: 10m x 2m.
- Trench 6: 5m x 2m.

6.1.2 Any proposed changes to the trench locations previously agreed upon will be discussed with the PDNPA's Senior Conservation Archaeologist prior to implementation.

6.1.3 Depending on the results of the trenching, strip, map and sample excavation and/or an archaeological watching brief during ground works may also be requested by the PDNPA's Senior Conservation Archaeologist, which would be the subject of an Addendum to this WSI or a fresh WSI.

6.1.4 All site operations will be carried out in a safe manner in accordance with ARS Ltd's Health and Safety Policy. Deep sections, such as those across ditches or pits, will be shored as necessary. A risk assessment will be prepared before commencement on site and health and safety regulations will be adhered to at all times.

6.2 Methodology

6.2.1 The evaluation fieldwork will be carried out in accordance to the guidance laid out in Chartered Institute for Archaeologists' *Code of Conduct* (2014a) and *Standards and Guidance for Archaeological Excavation* (2014d). The site will be recorded in accordance with the ARS Ltd's field recording manual and single context recording system, and will include as a minimum context record sheets, an accurate site plan and record photography where no archaeological features are present.

6.2.2 The trenches will be opened mechanically by a machine using a wide toothless ditching bucket to the first significant archaeological horizon to an initial depth of *c*.1.2m.

6.2.3 The evaluation trenches will be excavated and cleaned appropriately to expose the full nature and extent of archaeological features and deposits.

6.2.4 Should archaeological features and deposits continue at a depth below *c.*1.2m, and following consultation with PDNPA's Senior Conservation Archaeologist, sondage(s) may be excavated within the trench(es) in order to establish the depth of these features/deposits and to determine if window sleeve boreholes are required to supplement the ensuing site investigation works. Any window sleeve borehole investigations that take place will be monitored archaeologically.

6.2.5 All spoil removed during groundworks will be scanned visually to recover small finds. Any finds so recovered will be recorded and their location noted on a site plan at a relevant scale. The finds will be retained and recorded.

6.2.6 All archaeological features will be planned and sectioned as a minimum objective.

6.2.7 Isolated, discrete features such as pits and postholes not belonging to structure or industrial activities will be 50% sampled, although if they produce artefacts then provision is made for full excavation.

6.2.8 Sampling of linear features such as ditches or gullies will be sufficient to determine the character, stratigraphy and relationship to other features and attempts made to obtain dating evidence.

6.2.9 Any deposits relating to funerary/ritual activities, such as burials and cremation deposits will be 100% excavated. Domestic/industrial activity (such as walls, postholes, floors, hearths) will be sufficiently excavated to understand their form and function and to recover potential dating evidence and artefact and ecofact assemblages.

6.2.10 Area deposits, such as buried soils, or middens, will be hand excavated at a minimum 10%. Subsequent excavation by machine will be considered. Large intrusions, such as reservoirs, will be sufficiently excavated by machine, within safe limits, to provide information on their character.

6.2.11 Limited representative samples of bricks from brick-built structures, and selective products of the brick working proves will be retained for specialist analysis where appropriate.

6.2.12 Any human remains discovered will initially be left *in-situ* and, if removal is deemed necessary, this will be undertaken in accordance with the relevant Ministry of Justice regulations and in discussion with the PDNPA's Senior Conservation Archaeologist.

6.2.13 Finds of "treasure" will be reported to the Coroner in accordance with the Treasure Act (DCMS 2008). The PDNPA's Senior Planning Archaeologist and the Portable Antiquities Finds Liaison Officer will also be notified.

HM Coroner:
Dr Robert Hunter
St Katherine's House,
St. Mary's Wharf
Mansfield Road

Finds Liaison Officer:
Alastair Willis
Museum and Art Gallery
The Strand
Derby

Derby	DE1 1BS
DE1 3TQ	
Tel: 01332 613014	Tel: 01332 641 903

6.2.14 A site meeting may need to be arranged with the PDNPA's Senior Planning Archaeologist and the Portable Antiquities Liaison Officer to determine if further investigation in the vicinity of the findspot is required.

6.2.15 For deposits that have potential for providing environmental or dating evidence, a minimum of 40 litres of sample will be taken, or 100% if the sample is smaller. This material will be floated and passed through graduated sieves, the smallest being a 500µ mesh. Should other types of environmental deposits be encountered, appropriate specialist advice will be sought and an appropriate sampling strategy devised. Samples will be assessed by a suitable specialist with provision for further analysis as required. Advice from the Historic England Scientific Advisor will be taken as appropriate.

6.2.16 All staff employed on the project will be suitably qualified and experienced for their respective project roles and have practical experience of archaeological excavation and recording. All staff will be made aware of the archaeological importance of the area surrounding the site and will be fully briefed on the work required by this specification. Each member of staff will be fully conversant with the aims and methodologies of the evaluation and will be given a copy of this WSI to read.

6.3 Recording

6.3.1 The site will be accurately tied into the National Grid and located on a 1:2500 or 1:1250 map of the area. The site will be recorded using a single context planning system in accordance with the ARS Ltd field recording manual.

6.3.2 A full and proper record (written, graphic and photographic as appropriate) will be made for all work, using pro-forma record sheets and text descriptions appropriate to the work. Accurate scale plans and section drawings will be drawn where required at 1:50, 1:20 and 1:10 scales, as appropriate. In addition to relevant illustrations, provision for rectified photographic recording shall be made, if deemed necessary.

6.3.3 The stratigraphy of the site will be recorded even where no archaeological deposits have been identified.

6.3.4 All archaeological deposits and features will be recorded with above ordnance datum (AOD) levels.

6.3.5 A photographic record of all contexts will be taken using a digital camera, and will include a clearly visible, graduated metric scale. A register of all photographs will be kept. A selection of working shots will be taken to demonstrate how the site was investigated and what the prevailing conditions were like during excavation.

6.3.6 Where stratified deposits are encountered, a 'Harris' matrix will be compiled.

6.4 Finds Processing and Storage

6.4.1 All finds processing, conservation work and storage of finds will be carried out in accordance with the Chartered Institute for Archaeologists' (2014e) *Standard and Guidance for the collection, documentation, conservation and research of archaeological materials* and the UKIC (1990) *Guidelines for the Preparation of Archives for Long-Term Storage.*

6.4.2 Artefact collection and discard policies will be appropriate for the defined purpose.

6.4.3 Bulk finds which are not discarded will be washed and, with the exception of animal bone, marked. Marking and labelling will be indelible and irremovable by abrasion. Bulk finds will be appropriately bagged, boxed and recorded. This process will be carried out no later than two months after the end of the excavation.

6.4.4 All small finds will be recorded as individual items and appropriately packaged (e.g. lithics in self-sealing plastic bags and ceramic in acid-free tissue paper). Vulnerable objects will be specially packaged and textile, painted glass and coins stored in appropriate specialist systems. This process will be carried out within two days of the small find being excavated.

6.4.5 During and after the excavation all objects will be stored in appropriate materials and storage conditions to ensure minimal deterioration and loss of information (including controlled storage, correct packaging, and regular monitoring, immediate selection for conservation of vulnerable material). All storage will have appropriate security provision.

6.4.6 The deposition and disposal of artefacts will be agreed with the legal owner and the recipient museum prior to the work taking place. All finds except treasure trove are the property of the landowner.

6.4.7 All retained artefacts and ecofacts will be cleaned and packaged in accordance with the requirements of the recipient museum.

6.5 Report

6.5.1 A report shall be produced to include background information, a summary of the works carried out and a description and interpretation of the findings. The report will also include the following.

- A non-technical summary
- Introduction
- Geological and topographical setting
- Methodology
- Discussion of archaeological and historical background
- Discussion on the results of the evaluation

- Specialist descriptions of artefacts or ecofacts
- An indication of potential archaeological deposits not disturbed by the present development
- Conclusions and recommendations
- Sources
- Copy of the WSI and OASIS form.
- A location plan showing all excavated areas with respect to nearby fixed structures and roads
- Illustrations of all archaeological features with appropriately scaled hachured plans and sections

6.5.2 One bound copy of the final report with a digital copy of the report in PDF/A format on disk will be deposited with the Derbyshire HER and PDNPA HBSMR. A copy of the report will be uploaded as part of the OASIS record (see below) for online access via the Archaeological Data Service.

6.5.3 Depending on the outcome of the evaluation fieldwork, and in consultation with the PDNPA's Senior Conservation Archaeologist, the 'evaluation fieldwork' report might be incorporated into the 'historical building recording' report (see section 4 above).

6.6 Archive Deposition

6.6.1 Should the project produce no archaeologically significant finds, then it is not necessary to deposit an archive with the repository museum, which in this case is the Buxton Museum & Art Gallery. This is in line with the Museums of Derbyshire (2016b) *Procedures for the Transfer of Archaeological Archives.*

6.6.2 If the project produces archaeologically significant finds, then the PDNPA's Senior Conservation Archaeologist and Museum Curator will be notified at the earliest opportunity, and an accession number will be produced for the site. In addition, a paper and artefactual archive and any appropriate digital archive will be prepared by ARS Ltd, consisting of all primary written documents, plans, sections, photographs and electronic data (in a format to be agreed by the Buxton Museum & Art Gallery). High resolution digital photographs would, in discussion with the PDNPA's Senior Conservation Archaeologist, be submitted to the Archaeological Data Service (ADS) digital archive repository with the associated photographic registers and metadata. The digital archive will be prepared in line with current best practice outlined in *Archaeology Data Service/Digital Antiquity Guides to Good Practice* (ADS/Digital Antiquity 2011). The archive will be deposited in line with the CIfA (2014c) *Standard and Guidance for the creation, compilation, transfer and deposition of archaeological archives*, Society of Museum Archaeologists (1993) *Selection, Retention and Dispersal of Archaeological Collections*. *Guidelines for use in England, Wales and Northern Ireland* and Museums of Derbyshire (2016) *Procedures for the Transfer of Archaeological Archives* and will be deposited within two months of the

completion of the report. The PDNPA's Senior Conservation Archaeologist and Museum Curator will be notified in writing on completion of the fieldwork with projected dates for the completion of the report and deposition of the archive. The date for deposition of the archive will be confirmed in the report and the PDNPA's Senior Conservation Archaeologist informed in writing on final deposition of the archive.

6.6.3 All artefacts and associated material will be cleaned, recorded, properly stored and deposited in the archive (see section 5.4 above).

6.6.4 A full set of annotated, illustrative pictures of the site, excavation, features, layers and selected artefacts will be deposited with the archive as digital images on a CD ROM.

6.6.5 At the start of work (immediately before fieldwork commences) an OASIS online record http://ads.ahds.ac.uk/project/oasis/ will be initiated and key fields completed on Details, Location and Creators forms. All parts of the OASIS online form will be completed for submission to the HER. This will include an uploaded .pdf version of the entire report (a paper copy will also be included within the archive).

6.6.6 Written confirmation of the archive transfer arrangements, including a date (confirmed or projected) for the transfer, will be included as part of the final report.

6.6.7 The PDNPA's Senior Conservation Archaeologist will be notified of the final deposition of the archive.

7 MONITORING ARRANGEMENTS

7.1 The PDNPA's Senior Conservation Archaeologist will be responsible for monitoring the historic building recording and evaluation trenching. Ideally, 7 days' notice of the commencement of fieldwork will be given by ARS Ltd to the PDNPA's Senior Conservation Archaeologist in order that arrangements for monitoring the work may be made.

Natalie Ward
Senior Conservation Archaeologist
Peak District National Park Authority
Aldern House
Baslow Road
Bakewell
DE45 1AE
Tel: 01629 816243

7.2 The client will afford reasonable access to PDNPA's Senior Conservation Archaeologist, or their representative, for the purpose of monitoring the archaeological works. ARS Ltd will liaise with PDNPA at regular intervals throughout the course of the work.

8 TIMETABLE, STAFFING AND RESOURCES

8.1 The outline timetable for the works is as follows. This will be updated by email as the project progresses.

Proposed Commencement Date	**Task**
Late October 2018	Historical building recording
Late October 2018	Historical Building report and archive
After January 2019	Intra-demolition watching brief, if required
After January 2019	Intra-demolition watching brief report and archive
After April 2020	Evaluation fieldwork
After April 2020	Evaluation fieldwork report and archive

8.2 The Project Manager for the archaeological works will be Robin Holgate MCIfA, General Manager at ARS Ltd. The building recording and intra-demolition watching brief, if required, will be carried out by Emma Grange (BA Hons, MA) of ARS Ltd. The Fieldwork Project Officer will be Tom Parker PCIfA, Caitlin Halton or Tim Cobbold, Project Officers at ARS Ltd. Additional ARS Ltd Archaeological Officers will be allotted to the project as necessary and required.

8.3 Specialist analyses will be carried out by appropriately qualified specialists as detailed subject to availability.

- Flint and prehistoric pottery: Dr Robin Holgate MCIfA
- Romano-British pottery: Dr Phil Mills MCIfA
- Samian Ware: Dr Gwladys Monteil
- Romano-British small finds: Alex Croom
- Medieval and post-medieval pottery: Dr Chris Cumberpatch or Dr Robin Holgate MCIfA
- Medieval and post-medieval clay pipes, glass and metalwork: Mike Wood MCIfA
- Plant macrofossils and charcoals: Luke Parker
- Human and animal bone: Milena Grzybowska
- Radiocarbon dating: Prof Gordon Cook (SUERC)
- Finds conservation: Vicky Garlick (Durham University)

9 FURTHER WORKS, COMMUNITY ENGAGEMENT AND OUTREACH

9.1 Following on from the historic building recording, watching briefs and evaluation fieldwork outlined above and in consultation with the PDNPA's Senior Conservation Archaeologist, there may be a need for archaeological investigation and recording during any further ground investigation work, preservation *in situ* and/or further archaeological mitigation in the form of strip, map and sample excavation and/or open area excavation and/or archaeological monitoring and recording. An addendum to this WSI or an additional WSI may then be required to outline the coverage and methodology for further agreed archaeological mitigation.

9.2 At the outset of any programme of further archaeological mitigation, a programme of community/schools engagement will be devised. This may include opportunities for participation in archaeological excavation and recording, a site open day with guided tours of the excavations and/or updates of the progress of excavations and the dissemination of information via ARS Ltd's website and local media (e.g. Derbyshire Times, Pure Bakewell) and talks (e.g. at Derbyshire Archaeology Day).

9.3 In addition, there may be the opportunity to deliver presentation on the archaeological work to local societies (e.g. the Bakewell and District Historical Society and/or the annual Derbyshire Archaeology Day in Chesterfield.

10 GENERAL ITEMS

10.1 Health and Safety

10.1.1 All work will be carried out in accordance with The Health and Safety at Work Act 1974. Specific health and safety policies exist for all our workplaces and all staff employed will be made aware of the policy and any relevant issues. The particular risks involved with this project will be assessed, recorded and relevant mitigation measures put in place as part of a full risk assessment, which will be compiled in advance of fieldwork and will be read and signed by all on-site operatives. ARS Ltd retains Citation as its expert health and safety consultants and the appointed Health and Safety Officer for the company is Tony Brennan.

10.2 Insurance Cover

10.2.1 ARS Ltd has full insurance cover for employee liability (£10 million) public liability (£5 million), professional indemnity (£5 million) and all-risks cover.

10.3 Publication and dissemination

10.3.1 If significant archaeological remains are recorded, a summary of the project with, if appropriate, selected drawings, illustrations and photographs will be submitted within 2 years of the completion of the project to Derbyshire Archaeological Journal for publication and, potentially, other appropriate publications (e.g. Archaeology Conservation in Derbyshire).

10.4 Changes to the Written Scheme of Investigation

10.4.1 Changes to the approved methodology or programme of works will only be made with prior written approval of the PDNPA Senior Conservation Archaeologist.

10.5 Publicity and Copyright

10.5.1 Any publicity will be handled by the client. ARS Ltd will retain the copyright of all documentary and photographic material under the Copyright, Designs and Patent Act (1988).

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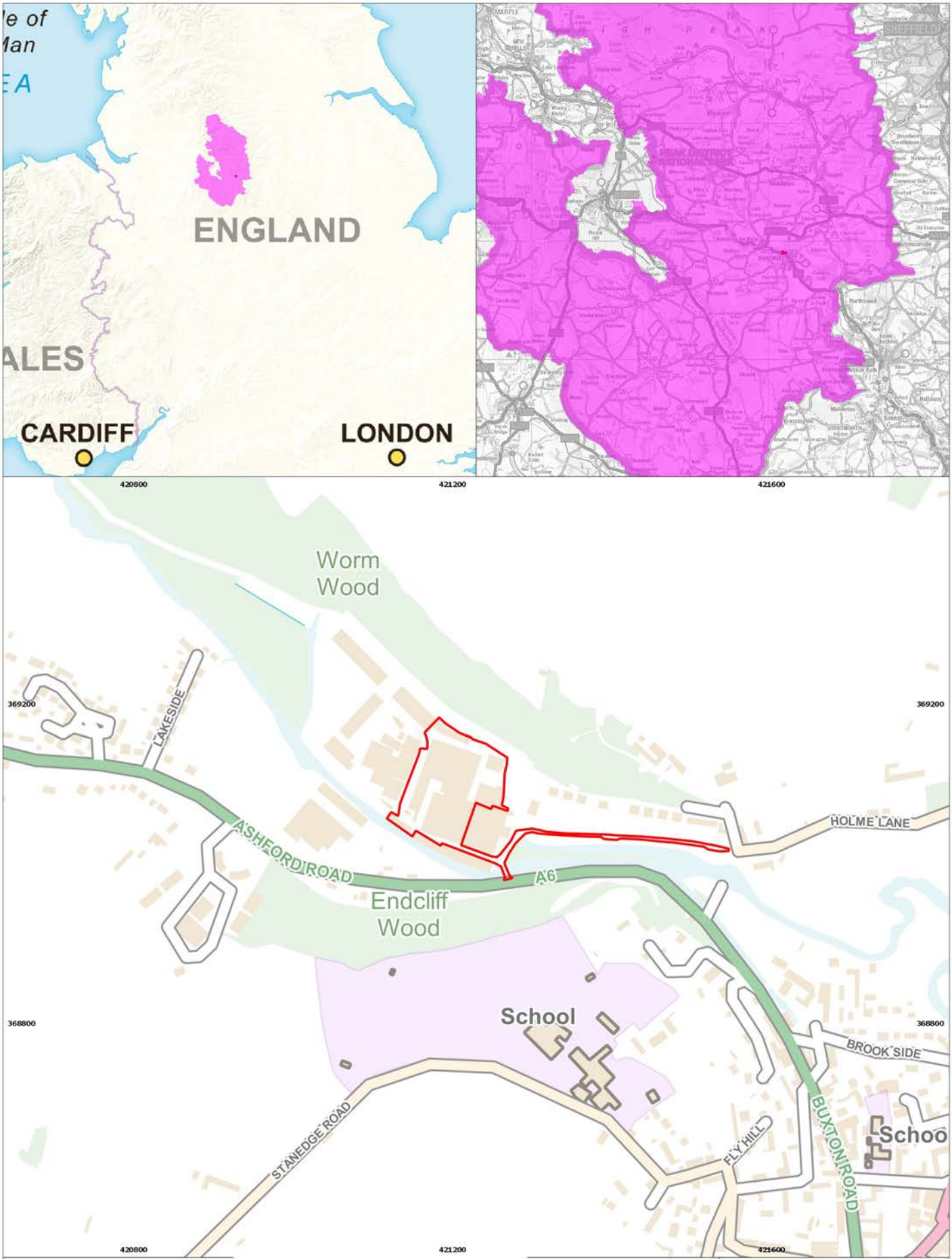
FIGURES



Site name: Central Area, Riverside Business Park, Bakewell
Date: October 2018
Drawn by: EG
Scale: Varies

Site boundary

Peak District National Park Authority

Figure 1:
Site location

Archaeological Research Services Ltd

Angel House
Portland Square
Bakewell
Derbyshire
DE45 1HB

Tel: 01629 814540

www.archaeologicalresearchservices.com

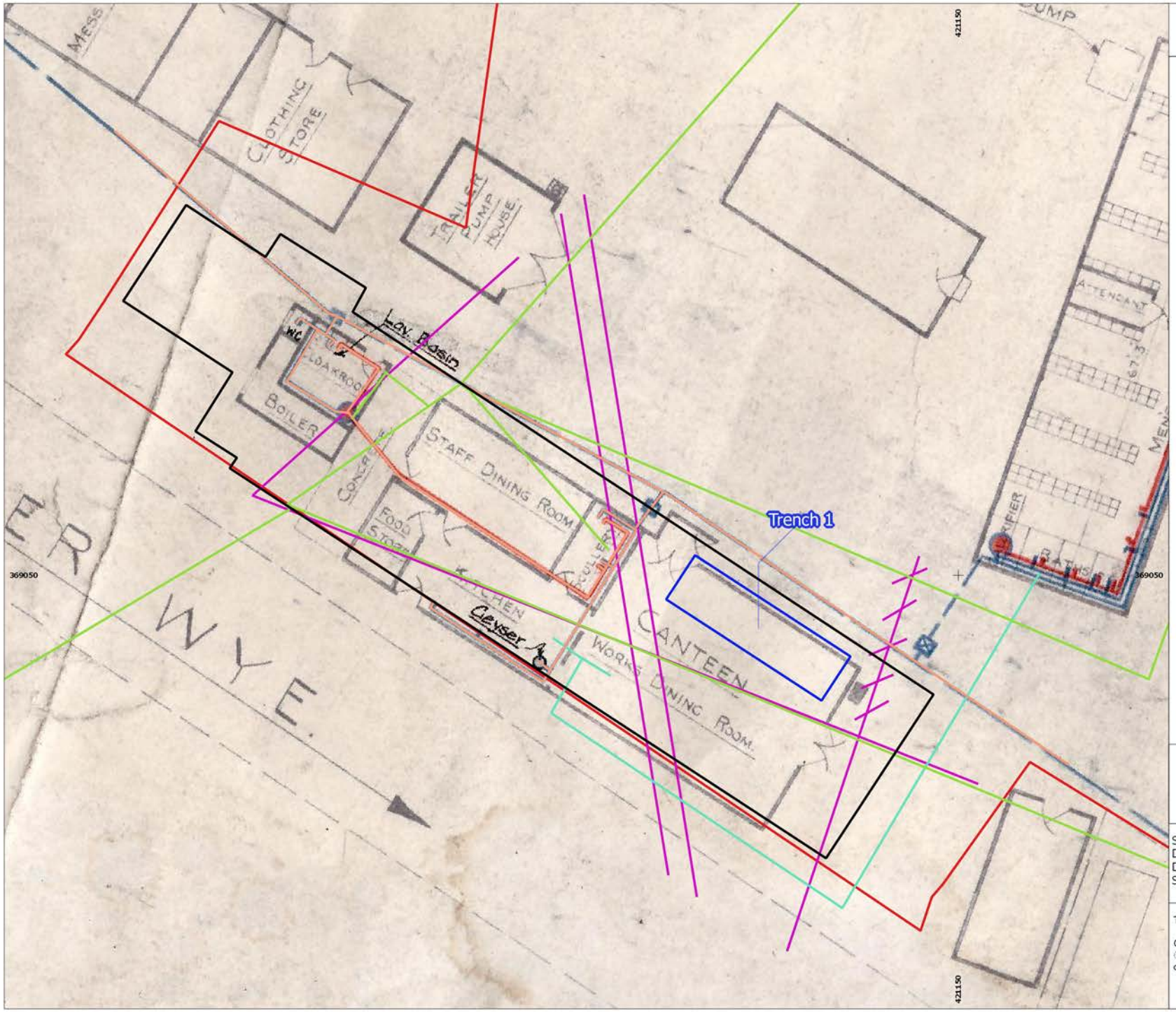


Figure 2: Trench Location Plan overlayed on utilities plans

Site Boundary

Evaluation Trenches

Trench 1: 7m x 2m

Utilities

Drainage

Gas

Sewers

Water

0 2 4 6 8 m

N

Site name: Lumford Mill, Riverside Business Park
Date: October 2018
Drawn by: MB
Scale: 1:200 @ A4

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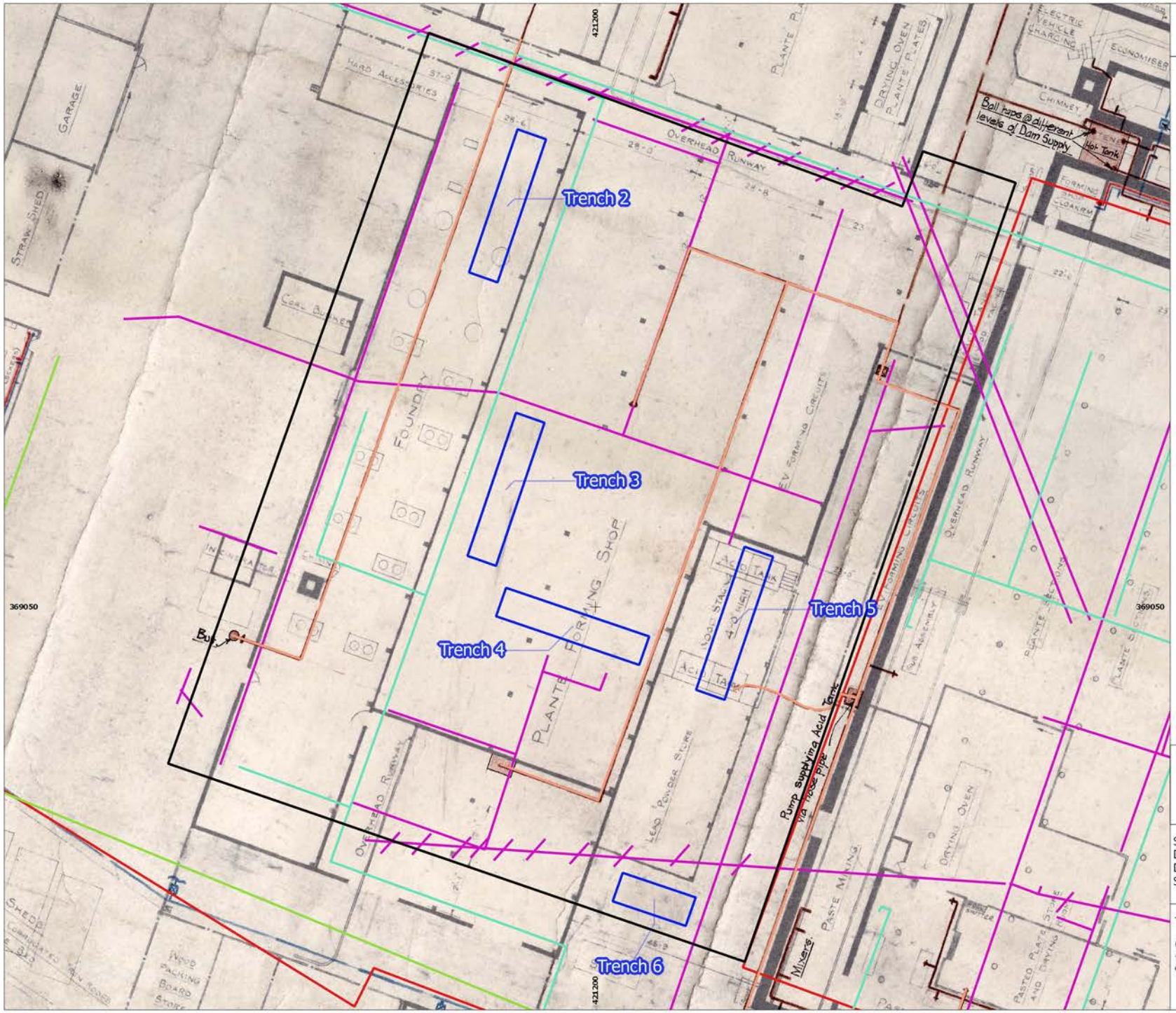

Figure 3: Trench Location Plan overlayed on utilities plans

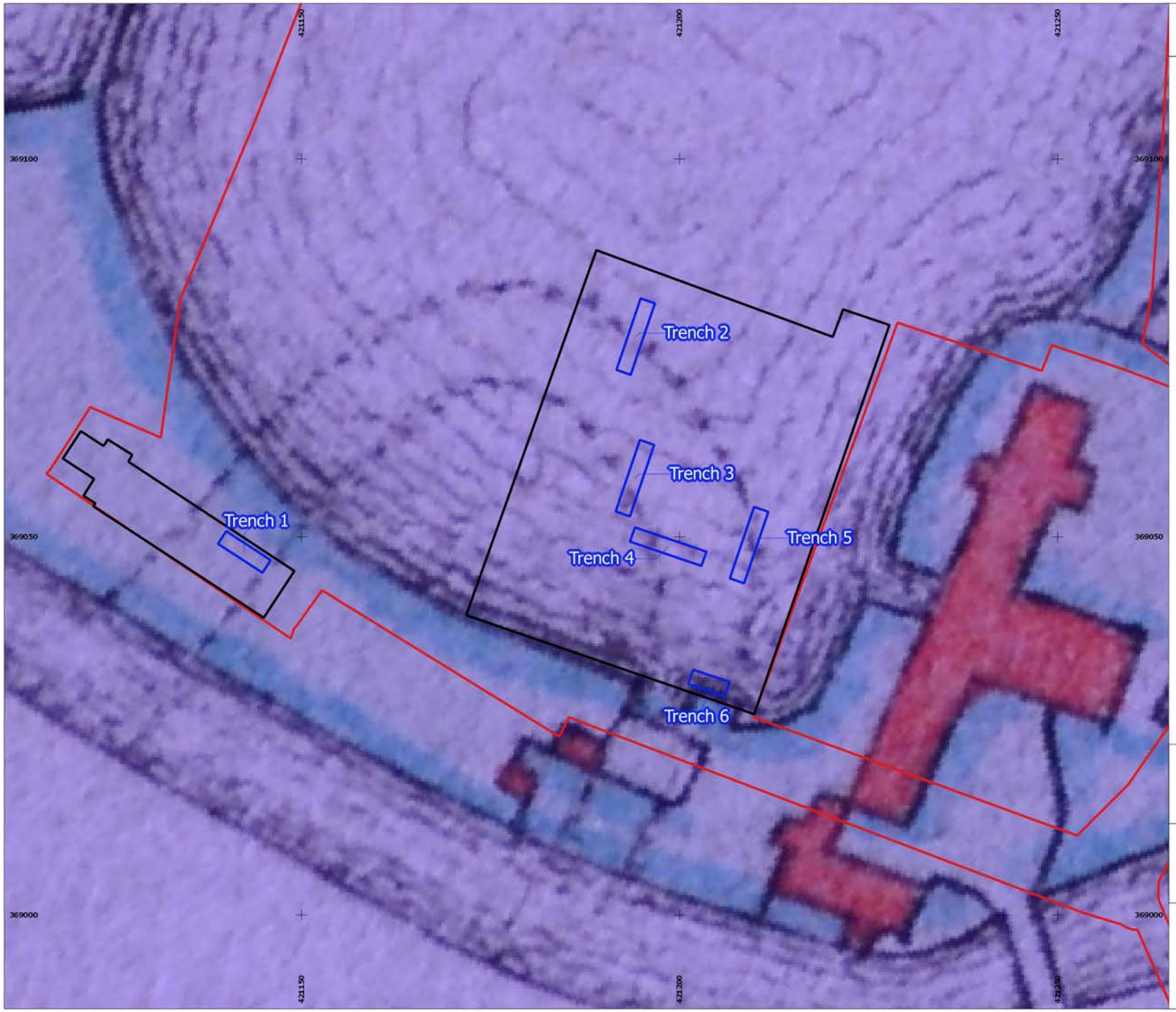

Figure 4; Evaluation Trench Plan overlaid on Enclosure Map

Site Boundary

Evaluation Trenches

- Trench 1: 7m x 2m
- Trench 2: 10m x 2m
- Trench 3: 10m x 2m
- Trench 4: 10m x 2m
- Trench 5: 10m x 2m
- Trench 6: 5m x 2m

0 5 10 15 20 25 m

N

Site name: Lumford Mill, Riverside Business Park
Date: October 2018
Drawn by: MB
Scale: 1:700 @ A4

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OASIS DATA COLLECTION FORM: England

Printable version

OASIS ID: archaeol5-311171

Project details

Project name	Lumford Mill, Bakewell Business Park, Derbyshire
Short description of the project	A level 2/3 survey of the former mule spinning shed, retort house, stone chimney and brick chimney at Bakewell Business Park, Derbyshire.
Project dates	Start: 10-01-2018 End: 14-12-2018
Previous/future work	Not known / Not known
Type of project	Building Recording
Monument type	INDUSTRIAL BUILDING Post Medieval
Significant Finds	NONE Post Medieval
Methods & techniques	'"Photographic Survey"'

Project location

Country	England
Site location	DERBYSHIRE DERBYSHIRE DALES BAKEWELL Lumford Mill, Bakewell Business Park, Derbyshire
Site coordinates	SK 421214 369067 52.927597274419 -1.373340270161 52 55 39 N 001 22 24 W Point

Project creators

Name of Organisation	Archaeological Research Services Ltd
Project brief originator	Client
Project design originator	Archaeological Research Services Ltd
Project director/manager	Dr. Robin Holgate

Project supervisor	Emma Grange

Project archives

Digital Archive recipient	Archaeological Data Services
Digital Contents	"other"
Digital Media available	"Images vector"
Paper Archive recipient	Derbyshire Record Office
Paper Contents	"other"
Paper Media available	"Photograph"

Entered by	Emma Grange (emma@archaeologicalresearchservices.com)
Entered on	30 November 2018