



**MILL HILL  
RESOURCE  
CENTRE,  
WATSON STREET,  
BLACKBURN**

**Archaeological  
Investigation Report**



**Oxford Archaeology North**

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Southdale  
Planning Application 10/14/1156

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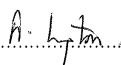
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## SUMMARY

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Southdale has obtained planning permission (Planning Application 10/14/1156) for the erection of 23 dwellings at Watson Street, in the Mill Hill area of Blackburn (centred on NGR SD 66882 26817), on the site of the former Mill Hill Resource Centre. The proposed development will necessitate considerable earth-moving works with a potential to have a negative impact on any buried archaeological remains.

The development site was occupied from *c* 1780 by a calico printworks, which remained in use until 1843, when the site was redeveloped as a cotton mill. Alterations to the mill building were carried out subsequently, as shown on Ordnance Survey mapping published in 1892, with ancillary buildings being erected to the north-east. The mill changed ownership on a number of occasions between the late nineteenth century and its closure in 1929-30, and its eventual demolition in 1934-35.

In the light of the historical and archaeological interest in the site, the Lancashire County Archaeology Service, in their capacity as advisors to Blackburn with Darwen Council, recommended that a programme of intrusive archaeological investigation of the site was merited in advance of development, in accordance with the National Planning Policy Framework, Paragraph 141. Oxford Archaeology North was commissioned by Southdale to undertake the required scheme of works, which was carried out in April 2015. This comprised the mechanical excavation of two targeted areas.

Trench 1 revealed the fragmentary remains of the original eighteenth-century printworks building and the engine house for the mid-nineteenth-century cotton mill. The engine house appeared to contain the foundation bed for a vertical steam engine and a flywheel pit, and was then extended to the south-west with a later phase of engine beds replacing and overlying the earlier bed. A third phase then expanded to engine house to the south-east. The main body of the earlier building was then demolished and a raised reservoir built in its place.

Trench 2 uncovered evidence of a series of ancillary buildings associated with Woodfield Mill. The materials used in the fabric of the structural elements of the buildings suggested an initial date of the 1880s or early 1890s for these buildings, with many repairs and alterations throughout the late nineteenth and early twentieth centuries.

The excavation of the two targeted areas has enabled an adequate record of the archaeological remains on the site to be recorded. It is not anticipated that any further archaeological investigation will be required in advance of, or during, the proposed construction programme.

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## ACKNOWLEDGEMENTS

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Oxford Archaeology North (OA North) would like to thank Southdale for commissioning and supporting the project, and particularly Neil Hughes and Andrew Bolton for their help and support. Thanks are also expressed to Doug Moir of the Lancashire County Archaeology Service (LCAS) for his advice and guidance.

The excavation was undertaken by Graham Mottershead and Lewis Stitt. The report was compiled by Graham Mottershead and Sarah Mottershead, with the documentary research carried out by Ian Miller, and the illustrations were prepared by Mark Tidmarsh. The report was edited by Ian Miller, who was also responsible for project management.

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## 1. INTRODUCTION

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### 1.1 CIRCUMSTANCES OF THE PROJECT

1.1.1 Southdale has obtained planning permission (Planning Application 10/14/1156) for the erection of 23 dwellings on Watson Street, in the Mill Hill area of Blackburn, on the site of the former Mill Hill Resource Centre (Fig 1). The proposed development will necessitate considerable earth-moving works with a potential to have a negative impact on any buried archaeological remains.

1.1.1 In order to secure archaeological interests, the Lancashire County Archaeology Service (LCAS), in their capacity as archaeological advisor to Blackburn with Darwen Borough Council, provided a consultation response to the planning application that recommended a condition was attached to consent. This allowed for an appropriate scheme of archaeological investigation to be carried out in conjunction with the development works, in accordance with the National Planning Policy Framework, paragraph 141:

‘No development shall take place until the applicant, or their agent or successors in title, has secured the implementation of a programme of archaeological work in accordance with a written scheme of investigation which has been submitted to and approved in writing by the Local Planning Authority.’

REASON: To ensure and safeguard the recording of any archaeological deposits in accordance with saved Policy HD18 of the Blackburn with Darwen Borough Local Plan.

1.1.2 Oxford Archaeology North (OA North) was commissioned by Southdale to undertake the required scheme of works. This comprised the mechanical excavation of two targeted areas within the study area, which was carried out in April 2015.

### 1.2 SITE LOCATION

1.2.1 The site (centred on NGR SD 66882 26817) lies within the grounds of the former Mill Hill Resource Centre, situated on Watson Street in the Mill Hill area of Blackburn (Fig 1). It is bounded to the south-west by Watson Street, to the north-west by an alleyway at the rear of Lindley Street, to the south-east by Mill Hill Street and to the north-east by an alleyway to the rear of properties along Queen Victoria Street, with the north-eastern corner of the area extending out to Queen Victoria Street (Plate 1). Two areas were excavated: Trench 1 was located over the car park area to the south-west of the resource centre, alongside Watson Street, and extending to the fence beside Mill Hill Street; and Trench 2 was located within a grassed area in the north-eastern corner of the site, at the corner of Queen Victoria Street and Mill Hill Street (Fig 2).

- 1.2.2 The study area mainly comprises a relatively level plot of land dominated by the Mill Hill Resource Centre. The area of Trench 1 comprised a raised tarmac car park with a hedge bordering Watson Street to the south-west, the Resource Centre to the north-west, a grassy landscaped bank to the north-east, and a further landscaped grassy bank to the south-east. The area of Trench 2 comprised a grassed area with a gradual slope on the north-eastern, south-eastern and north-western sides.
- 1.2.3 The superficial geology comprises boulder clay overlying Permo-Triassic Sherwood Sandstones.



*Plate 1: Site location (boundary in red)*

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## 2. METHODOLOGY

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### 2.1 EVALUATION TRENCHING

- 2.1.1 Two areas were excavated mechanically, followed by manual cleaning of the exposed surface to establish the presence or absence of buried remains of archaeological interest. Trench 1 was located across the footprint of a late eighteenth-century printworks, as depicted on the Ordnance Survey map of 1848. Trench 2 was located across the footprint of ancillary buildings associated with the mid-nineteenth-century Woodfield Mill, and depicted on Ordnance Survey mapping of 1892.
- 2.1.2 Excavation of the modern ground surface was undertaken by a tracked excavator using a toothless ditching bucket to the top of the first significant archaeological level. The work was supervised closely by a suitably experienced archaeologist. Thereafter, all archaeological deposits were cleaned manually to define their extent, nature, form and, where possible, date. The trenches were recorded following the methodology set out in the approved Written Scheme of Investigation (*Appendix 1*).

### 2.2 ARCHIVE

- 2.2.1 A full archive of the work has been prepared to a professional standard in accordance with current English Heritage guidelines (1991) and the *Guidelines for the Preparation of Excavation Archives for Long Term Storage* (UKIC 1990). The archive will be deposited with Blackburn Museum on completion of the project. In addition, a digital copy of the report will be forwarded to the Lancashire Historic Environment Record (HER).



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## 3. BACKGROUND

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### 3.1 HISTORICAL BACKGROUND

- 3.1.1 Blackburn and Darwen had strong associations with the textile industry for hundreds of years prior to their industrial growth after the late eighteenth century. Blackburn had established a national reputation as a centre of fustian ‘checks’ by 1650. The basis for the dramatic expansion of industrial activity in Blackburn was the introduction of calico printing to the area in the last quarter of the eighteenth century (Turnbull 1951). This branch of the textile industry was introduced to the area by relatives of the Peel family, and was coupled with the development of large bleaching crofts along the banks of the rivers Blakewater and Darwen.
- 3.1.2 The earliest cotton ‘factories’ in Blackburn were water-powered carding and jenny mills, such as Lower Darwen Mill, which was established in *c* 1774 (Rothwell 1985, 15). The first water-powered cotton-spinning mill in the town was built in *c* 1775 at Wensley Fold (Abram 1877, 230), with a second mill being established at Mill Hill in *c* 1790. Several textile-finishing works were also established in Blackburn during this period, including Derriken’s Bleachworks at Brookhouse (*c* 1775), Ewood Printworks (*c* 1780), and Whitebirk Bleachworks of 1793 (Rothwell 1985, 13).
- 3.1.3 A major expansion of Blackburn’s textile industry commenced in the 1820s, which coincided with the introduction of power-loom weaving. This led to the development of several large integrated spinning and weaving factories during the 1830s. The following decade brought the introduction of separate weaving concerns, which erected purpose-built weaving sheds. This bolstered Blackburn’s reputation as an emerging centre of Lancashire’s power-loom weaving trade.
- 3.1.4 The town’s textile industry experienced a further boost in the 1850s, not least as a consequence of a growth in the national railway network. The second half of the nineteenth century, however, brought an increasing specialisation in the weaving trade, and many enterprises which had originated as spinning mills either closed in the late nineteenth century or were converted to textile weaving (Beattie 1992, 15-6).
- 3.1.5 Following a final period of growth during the early Edwardian era, the textile industry in Blackburn fell into chronic decline in the 1920s. Wholesale closures became common during the 1930s, and again in the 1950s. Of the 101 textile mills which survived in Blackburn in 1951, only four were still operational in 1991 (OA North 2012).

## 3.2 THE DEVELOPMENT OF THE SITE

- 3.2.1 The Mill Hill Print Works was established in c 1780 by Jonathan Howarth, a partner of Haworth, Peel, Yates & Co. In 1786, Jonathan Howarth died, leaving the business to his sons Edmund, John and Jonathan, who diversified into cotton spinning. By the 1790s, the Mill Hill Works included a three-storey, water-powered spinning mill with two waterwheels, powering 26 spinning frames with 1788 spindles (Aspin 2003, 277-9), although the site of this early factory lies beyond the boundary of the present study area. The works also incorporated printshops and workers' cottages (Rothwell 1985, 13).
- 3.2.2 In 1795, Edmund Howarth, John Howarth and Josephus Smith, cotton printer, cotton spinners and merchants, insured their property at Mill Hill for £17,200 (Sun Insurance 11937/7/434). However, Edmund Howarth, calico printer of Mill Hill, Blackburn, was registered as bankrupt in 1799 (*Bell's Weekly Messenger*, 28 April 1799). The works was advertised for sale by auction in 1800 (*Manchester Mercury*, 7 January 1800), and was sold to William and Robert Turner and John Noble. Robert Turner listed as a calico printer at Mill Hill in a trade directory for 1828-9 (Pigot 1828-9, 218). In the early 1830s, Messrs Robert Turner & Co took out an insurance policy with the Manchester Fire & Life Offices (Blackburn Agency, Policy No 19694) for their large print works at Mill Hill, near Blackburn (LRO DDX1849/2/1). By the early 1840s, the print works housed 184 short tables for block printers and nine printing machines (Turnbull 1951, 424), although spinning had seemingly ended.
- 3.2.3 In December 1842, on the instructions of the executors of the late W Turner esq, 'a general assortment of choice drugs, dry-salteries, etc of a superior quality' was offered for sale by auction at Mill Hill and Ewood printing works. This included some 16 chests of indigo, 108cwt gum Senigal, 50cwt Dutch madder, 32cwt French madder, 26cwt dark and pale British gum, 13cwt sulphate of zinc, 12cwt farina starch, 13cwt of ground alum, 2cwt gum dragon, 3cwt gum substitute, and other materials (*Preston Chronicle*, 31 December 1842). The works closed in 1843, and many of the buildings were demolished subsequently. Other parts of the works were converted to the Mill Hill Cotton Works and Woodfield Cotton Mill by Joseph Eccles in 1844-45. The form of the mid-1840s cotton mills can be seen on the Ordnance Survey first edition mapping of 1848, which appears to show the disused printworks (Plate 2).
- 3.2.4 According to John Graham in 1846, the 'once flourishing Mill Hill Print Works are now become extinct and are all converted into cotton mills for spinning and power loom weaving. Not a vestige of printing is left. William Turner was the active man of Shepley Hall. In this small district there were at one time more than 500 block printers and now all are gone' (Graham 1846, 406).



Plate 2: Extract from the Ordnance Survey first edition map of 1848

- 3.2.5 Woodfield Mill was first called Printshop Mill. It was leased in 1856 by Joseph Eccles to Pearson & Walkden for cotton spinning. It contained 6248 mule spindles in early 1860s. In 1864-5 James Woods & John Neville added a weaving shed (c 300 looms) to the three-storey building. Various masters owned the mill during the nineteenth century, among them Marsden Brothers, running 288 looms to produce shirtings and dhooties in 1891 (Worrall 1891, 61).
- 3.2.6 The Ordnance Survey 25": 1 mile map of 1892 depicts the alterations and additions made to the complex by this time (Plate 3). Codling & Hodgkinson took over the mill in 1898, working the shed in connection with Mill Hill Cotton Works. Electrical plant was introduced in c 1922 (Rothwell 1985, 38). The Burley Mill Co Ltd, which succeeded Codling & Hodgkinson 1927, was ruined by the Indian boycott, and the mill closed in 1929-30 (Pope 1989, 29) with complete demolition occurring during 1934-5.

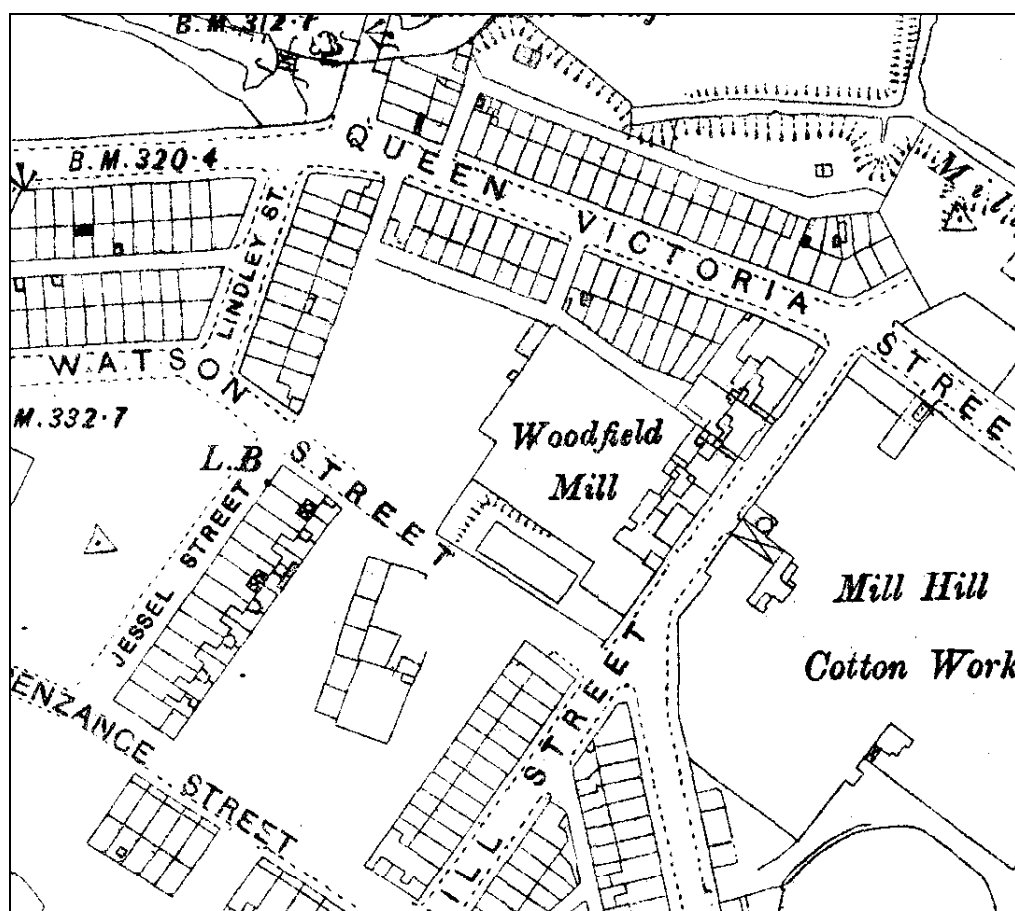


Plate 3: Extract from the Ordnance Survey 25": 1 mile map of 1892

- 3.2.7 The Mill Hill Cotton Works (beyond the present study area) made use of the former printworks water supply, and was powered by a 50 hp waterwheel and two beam engines. By 1851 George Whiteley of Halifax had taken the works on lease, with about 450 employees in 1851. Whiteley & Co left in 1856 following the erection of Albion Cotton Works, and the mill was sold to Hodgkinson, Swain and Codling in 1862. Additions were made to both weaving and spinning departments.
- 3.2.8 By the 1880s, the mill contained 39,180 mule spindles, 8896 throstle spindles and 934 looms, employing 600 workpeople. Products comprised medium to coarse yarns, shirtings and madapollams. The weaving shed was driven by a 400hp cross-compound engine supplied by Ashton, Frost & Co. Ltd. The firm of Codling & Hodgkinson Ltd was formed in 1915, and electric power plant (1635 hp, 38 motors) by Metropolitan Vickers Electric Co replaced steam in 1922; ring frames had partially replaced mule spindles by the same date. A receiver and manager was appointed in 1925, with Burley Mill Co Ltd being formed by the old directors to run the mill, but operations were limited. The property was sold in 1933, and demolition of weaving sheds followed. The four-storey spinning block was used for storage and footwear manufacture until a fire of 1965. The vestiges of the mill were eventually demolished in 1970 (Rothwell 1985, 25).



*Plate 4: Aerial view across Mill Hill in 1950, showing the Mill Hill Cotton Works and Waterfall Mill to the rear. Part of the present study area is visible in the bottom left corner*

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## 4. SUMMARY OF RESULTS

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### 4.1 INTRODUCTION

4.1.1 The evaluation comprised the excavation of two targeted areas. Trench 1 was located over a rectangular building shown on the 1848 mapping, and Trench 2 over ancillary buildings depicted on the mapping of 1892 (Fig 3). The following section provides a summary of the results obtained from the excavation of the two areas.

### 4.2 TRENCH 1

4.2.1 Trench 1 measured 39.4 x 12.4m, and was excavated to a maximum depth of 1.6m. It was aligned north-west/south-east, and was placed across the Mill Hill Resource Centre car park and landscaped banking to the south-east. The trench was not extended to the hedge at the south-west due to the presence of live services along that edge of the site. The trench was intended to investigate a rectangular structure depicted on the Ordnance Survey map of 1848 mapping, which is likely to represent, at least in part, the original eighteenth-century printing works (Fig 4).

4.2.2 The trench was overlain with tarmac across most of its area, with turf overlying the banking at its south-eastern end. Below both the tarmac and the banking was a homogenous levelling layer of mixed demolition rubble (**100**). A layer of yellow boulder clay (**104**), clearly representing the natural geology, was encountered at a depth of 1.5m to 1.6m across much of the excavated trench (Plate 5). Two parallel stone-capped brick drains (**102** and **103**) were aligned north-west/south-east across the trench. These were *c* 0.5m wide and cut clay **104**.

4.2.3 Running parallel to the north-east of drains **102** and **103** were the footings of a stone wall (**101**). This was 0.9m wide, and constructed from irregularly shaped and sized stones (Plate 6). Only the very bottom slabs of the footings had survived within the excavated area.

4.2.4 The edge of a large feature (**105**), cut into the natural clay, was observed along the central south-eastern side of the trench (Plate 7). This was 17.3m long, with 1.75m of its width within the excavated trench. It was filled with sticky black sandy silt, and may have been part of an infilled reservoir to the south-west of the eighteenth-century printing works. The feature was not bottomed, as the sides of the trench were unstable. No artefacts were recovered from the feature.

4.2.5 Wall **101** was cut by a 60mm-diameter metal pipe (**106**), aligned north-east/south-west across the trench. The pipe gave off a live signal when scanned, and so a 2.5m wide bund was left unexcavated over it across the south-western half of its length.



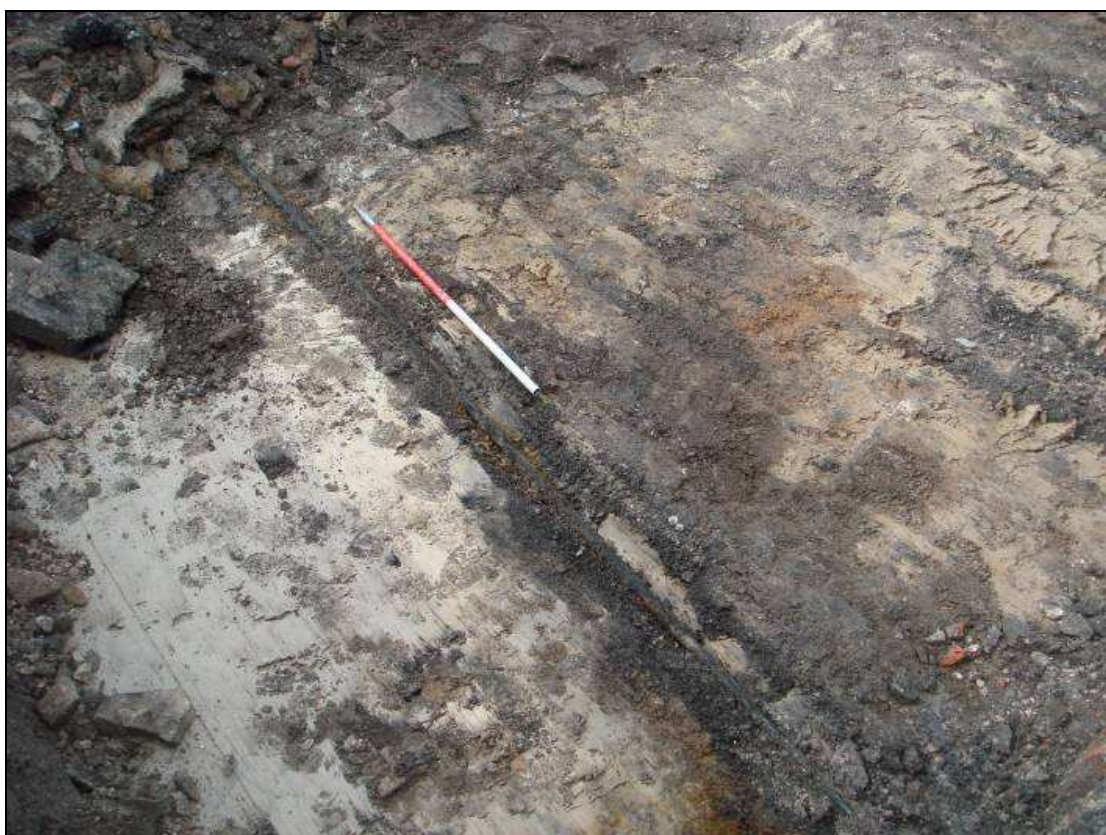
*Plate 5: Natural clay in Trench 1, with drains 102 and 103, looking west*



*Plate 6: Wall 101, looking south-east*



*Plate 7: Cut feature 105, looking south-west*



*Plate 8: Live service connection 106, looking east*



- 4.2.6 The south-eastern end of stone wall **101** abutted another stone wall (**108**), which was aligned north-east/south-west. The foundation course for another stone wall (**107**) continued north-eastwards from wall **101**, at a distance of 7.6m to the north-west of its south-eastern end (Fig 6). This formed a 7.6m wide room, the north-eastern side of which extended beyond the edge of the excavated trench. The room was floored with flagstones **108** (Plate 9).



*Plate 9: Flagged floor surface 108 with wall 109, looking east*

- 4.2.7 Buried structural remains exposed at the south-eastern end of the trench, below the landscaped banking, were better preserved than those elsewhere in the excavated trench. A series of walls formed three rooms, two of which represented part of an engine house. Stone wall **109** continued south-westwards from the trench edge for a distance of 6.3m before turning south-east for 3.7m where it terminated at engine bed **113** (Fig 6). The wall was 0.75m wide, and comprised substantial stone blocks with a stone rubble core bonded with lime-based mortar (Plate 10). The footings for the engine bed stepped out a further 0.2m along its north-western edge.
- 4.2.8 The foundations for another substantial stone wall (**110**) were exposed parallel and some 5.1m to the south-east of wall **109** (Plate 11). This incorporated a right-angle return at its south-western end, with a further return back to the north-east at the western end (Fig 6). A 1.29m gap in the wall was revealed at the north-eastern end of the second return section, which was likely to represent the position of an entrance. The corner of wall **109** on the opposite side of this gap survived to a greater height, and had incorporated a rusticated corner block (Plate 12), further suggesting that this had been an entrance. These walls formed a room that measured some 4.8 x 3.1m in the south-western corner (Plate 13), and a second room that measured 4.8m wide to the north-east (Fig 6).



*Plate 10: Wall 109 and engine bed 113, looking south-east*



*Plate 11: Wall 110, looking south-west*



*Plate 12: Rusticated block at entrance corner of wall 109, looking east*



*Plate 13: South-western part of the engine room, showing the entrance through walls 109 and 110, looking south-east*

- 4.2.9 Within the south-western room of the engine house was a 2.36 x 1.38m engine bed (**II3**), comprising a block composed of hand-made bricks set onto a foundation of large stone blocks (Plate 14). The engine bed survived to a height of 1.25m, and had two 36mm diameter cast-iron bolts set into its upper surface, situated to the south-west of the centre. These had almost certainly contained iron rods for restraining the steam engine.



*Plate 14: Engine bed II3, looking north-east*

- 4.2.10 Engine bed **II3** was set into the natural clay geology, with no evidence for an associated floor surface, suggesting that this had been removed during demolition. The natural clay was also observed within the entranceway, but it was not fully exposed in the north-western half of the room as a cast-iron pipe exiting from the base of the engine bed was wrapped in what appeared to be tarred fibrous material, possibly asbestos cloth.
- 4.2.11 The north-eastern room of the engine house appeared to contain two phases of engine beds (Plates 15 and 16). The later bed (**II2**) only survived partially, and consisted of a series of stone blocks on the south-western side of the room. In the centre of the lower blocks was a 0.55m-wide channel aligned north-east/south-west, which would have run below the blocks above it (Plate 15). The channel contained stone rubble, and what appeared to be possible tarred asbestos cloth and was thus not fully excavated. The large stone blocks at either side of this channel each had two 165mm holes drilled into them, each containing a 38mm round cast-iron bolt with lead sealing. The north-western block also had round grooves in its north-eastern face, probably one half of round bolt holes shared with the block that formerly sat next to it.



*Plate 15: North-eastern room of the engine house, showing later engine bed 112 to the left, and earlier bed 111 to the right, looking north-west*



*Plate 16: Engine bed 112, with bed 113 to rear, looking south-west*

- 4.2.12 Below the later engine bed **112** was an earlier phase of stone bed (**111**). This comprised two large flat stone blocks spanning the width of the room with a 0.55m channel aligned north-west/south-east between them (Plate 17). The south-western block had a drilled 140mm diameter hole in its upper surface, which was partially overlain by later engine bed **112** (Plate 18).



*Plate 17: Earlier engine bed 111, looking south*

- 4.2.13 The north-eastern block of stone engine bed **111** had two pairs of two 180mm holes drilled into its upper surface, each containing a 40mm round cast-iron bolt, and a shallow chamfer for a component of the engine mechanism. The channel between the two blocks was rounded at its north-western end, where it abutted wall **109**, and had cast-iron plates at its sides at either end, attached to the stone blocks (Plate 19). The plates at the north-western end each had two 28mm round threaded cast-iron bolts with square nuts, and the south-eastern plates each had two 22mm threaded cast-iron bolts.
- 4.2.14 The channel contained stone rubble and timbers wrapped in tarred cloth, possibly asbestos. For this reason the channel was not excavated, but a machine-dug sondage against its north-western end revealed that it was 1.25m deep below the upper surface of engine bed **111**. This suggests that it is likely to have been a flywheel pit. The sondage also revealed that wall **109** continued to a depth of 1m below the engine bed level, and wall **101** to a depth of 0.6m below the level of flagstone floor **108**.
- 4.2.15 A concrete floor surface (**115**) was revealed along the south-eastern side of wall **110** (Plate 20). A wall of machine-made bricks (**114**) continued to the south-east from the southern corner of wall **110**. Both the brick wall and the concrete floor appeared to represent a later extension to the engine house.



*Plate 18: Drill hole in early engine bed 111, overlain by blocks of later engine bed 112, looking south-west*



*Plate 19: Cast-iron plates and rounded north-western end of possible flywheel pit, looking north-west*



Plate 20: Brick wall 114 and concrete floor surface 115, looking north-east

### 4.3 TRENCH 2

- 4.3.1 Trench 2 measured 30 x 10.5m, and was excavated to a maximum depth of 1.65m. It was aligned north-east/south-west across the north-eastern corner of the site, within the mounded grassy area at the corner of Mill Hill Street and Queen Victoria Street (Fig 2). It was intended to investigate a series of ancillary buildings associated with the former Woodfield Mill depicted on the Ordnance Survey map of 1892 and 1911 (Fig 3).
- 4.3.2 The surface of the trench comprised poor-quality turf overlying a homogenous deposit of mixed demolition rubble (200) that had been bulldozed into a low mound before being turfed. A series of recent cuts were visible, all containing modern refuse such as crisp packets, drinks cans and plastic. At least three of these cuts could be attributed to recent ground-investigation trial pits. These cuts had removed all archaeologically significant structures and features within their immediate vicinity.
- 4.3.3 Below the demolition rubble, much of the area was covered with a levelling layer of mixed brick fragments, stone fragments and cinders (202). It was onto this layer that the surviving structures had been laid or cut. Levelling material 202 overlay natural boulder clay (203) at a depth of c 1.65m below the current ground level.



- 4.3.4 A length of stone wall (**201**) was observed at the north-eastern end of the trench (Plate 22). This was aligned south-westwards from the edge of the excavated trench edge for a distance of 1.6m before turning south-east for 1.4m, beyond which it had been removed by demolition or modern disturbance. A modern pit around this wall had removed most archaeological remains in the north-eastern part of the trench (Plate 21).
- 4.3.5 A north-east/south-west-aligned wall (**204**) was revealed along the trench, comprising a 1.1m deep footing of irregularly sized stone blocks, with machine-made brick surviving on top in places (Plates 23 and 24). The north-western side of the wall had smoothed concrete chamfer.



*Plate 21: General view across Trench 2, looking north, showing depth of the natural clay*



*Plate 22: Section of stone wall 201, looking east*



*Plate 23: Stone wall 204, looking north-west*



*Plate 24: Stone wall 204, with bricks on top and concrete chamfer, looking south*

- 4.3.6 The trench was divided into two halves by a wall **215**, which was aligned north-west/south-east across the centre of the excavated area. This wall similarly comprised a 1.1m-deep stone footing, with some stretches of surviving machine-made brick above.



Plate 25: Stone wall **215**, looking south

- 4.3.7 The north-eastern quadrant of the north-western side of the trench comprised a single 9.8m-long room, the north-western wall of which lay beyond the edge of the excavated area. The room was formed by walls **204**, **215** and a machine-made brick wall (**206**), which continued to the north-west from the north-eastern end of wall **204** (Fig 7). The south-western two thirds of this room had been truncated, and were excavated mechanically down to the natural clay at a depth 1.65m below the modern ground surface, which revealed a ceramic drain (**212**) extending across the trench from north to south (Plate 26). This cut through the junction of walls **204** and **215**, which appeared to have been partially rebuilt to accommodate the drain.
- 4.3.8 The north-eastern third of the room appeared to have been partitioned off at a later date by wall **207**, which extended to the south-west of wall **206** (Fig 7), and was clearly of a twentieth-century date. The area enclosed by these walls was floored with flagstones (**208**), laid onto levelling deposit **202** (Plate 27), and had two ceramic drains in its corners with a roughly built stone and brick drainage channel between them.
- 4.3.9 Situated parallel to and 3.1m to the south-east of wall **204** was wall **205**. The south-western end of this wall had been removed by a modern trial pit, and may have continued beyond as wall **217**. An area measuring 12 x 3.1m was formed by walls **204**, **205** and **215**. The north-eastern half of this area had been truncated by modern intrusions, and natural clay **203** was observed at 1.2m below the current ground level. The stone wall footings were 0.8m deep, and the clay was cut by a cast-iron pipe (**211**) that was aligned north-east/south-west, before turning south-east below wall **205**.



Plate 26: Natural clay 203 at the north-western side of the trench with drain 212, looking west



Plate 27: Flagstone floor 208 with brick walls 206 and 207 and stone and brick wall 204, looking east

4.3.10 The south-western half of this area was surfaced with flagstones **213** (Plate 28). Two wall stubs of machine-made brick continued south-eastwards from wall **204**, creating a small 1.13 x 0.62m chamber. This was also flagged, but a ceramic drain set into concrete beside it suggests it may have been a privy. A third brick wall stub ran north-eastwards from wall **215**, creating what appeared to be a small entranceway from a 0.9m-wide ginnel formed by wall **215** and a parallel stone wall (**214**), running south-east. As the later intrusions had removed all the structures in the north-eastern half of this area, it was not possible to tell whether this was an interior room or an exterior yard.



Plate 28: Flagged area **213**, with walls **204**, **205** and **215**. Entranceway bottom right and possible privy centre left, looking north

4.3.11 A small stone wall (**210**) continued south-eastwards from wall **205**, parallel to wall **214**, forming a 5.9m wide room, the south-eastern wall of which was beyond the edge of the excavated area. Beyond this, wall **205** continued north-eastwards for 4.4m, turning south-east for 1.86m and then south-west for 0.68m (Fig 7). From this point, a later brick wall (**209**) had been added to the end of the return of wall **205** and continuing back to the south-west, where it abutted stone wall **210**. This created a 4 x 1.1m rectangular room, possibly a storeroom (Plate 29).

4.3.12 The ground had been disturbed to the south-west of wall **205**. On the other side of this, a stone wall (**217**), possibly a continuation of wall **205**, extended to the south-west for 9m, and then returned to the south-east into the trench edge. A stone wall footing (**216**), similar to walls **204** and **205**, extended north-west from this wall. This abutted wall **204**, creating a 3.3m wide rectangular area, possibly an exterior yard. A 1.9m long section of brick walling extending south-west from wall **216** created a small storeroom or privy in the area's eastern corner. The north-eastern part of the area had a flagstone floor (**218**), with a ceramic drain at its north-eastern end (Plate 30).



*Plate 29: Possible storeroom in eastern corner of Trench 2, with walls 205, 209 and 210, looking north-east*



*Plate 30: Flagstones 218, looking west*

- 4.3.13 The central and south-western parts of this south-western central area had been heavily disturbed, with much of the flagstone surface removed. A 2.2m long stretch of stone wall footings (**221**) ran north-west/south-east to the south-west of the return of wall **217**. This had been truncated by a trial pit at its south-eastern end, but appeared to be running parallel to the return of wall **217**, forming a 1.2m wide ginnel. This led to a brick cross wall (**219**), aligned north-eastwards from the north-west end of wall **221**, seemingly forming an entranceway from the south-east.
- 4.3.14 A small section of flagstones (**220**) survived within this disturbed entrance (Plate 31). Wall **221** appeared to end at the north-west, rather than be truncated, forming a 1.4m entrance between the north-eastern and south-western halves of the area. The gap seemed slightly too wide for a normal doorway, and so may have been for loading or some kind of machine or vehicle access. A section of brick walling (**222**) continued to the south-west from wall **221** for 1.8m before being truncated. This is likely to have been an internal partition wall, but the area was so disturbed it was impossible to tell its exact layout. A further section of flagstone floor (**223**) also survived next to this wall.



*Plate 31: Flagstone 220, walls 219, 221 and 222, looking north*

- 4.3.15 The area to the south-west of wall **215** was heavily disturbed by modern intrusions (Plate 32). The north-eastern part of this area had been disturbed down to natural clay **203** at a depth of *c* 1.65m below the current ground level. The south-western part had a large modern trial pit cutting across its western corner, and had much of the former flagstone floor removed beyond this. A small section of flagstones (**225**) survived immediately next to wall **204**, with a short stretch of a single-course wide wall (**224**) of machine-made bricks running north-east/south-west at its north-western side (Fig 7).



*Plate 32: Truncated area in south-western part of the area, showing the depth of clay natural and the south-western section of wall 215, looking north-east*

- 4.3.16 Given that this wall was only a single-course wide, it seems probable that it was an internal non-load bearing structure, and may have been an internal corridor leading to the entrance through wall 204 to its north-east. Another small section of flagstone floor (226) survived just outside this entranceway.
- 4.3.17 A roughly square brick structure (228), measuring 1.7 x 1.25m, also survived in this area (Plate 33). It was built from machine-made engineering brick with hard grey cement, and had a 0.85 x 0.58m central shaft containing two 35mm diameter cast-iron pipes and covered by a stone slab. This was filled with rubble, and so its full depth was not known, but it was observed to a depth over 0.7m. A narrow flagged section at its south-western side seemed to give access to the shaft and a brick drain had been built at the south-eastern side of the shaft. A stone wall footing (227), truncated at both ends, was aligned north-east/south-west along the structure's south-eastern side. A section of flagstones (229) also survived to its north and north-east.





*Plate 33: Brick structure 228 and stone wall 227 with flagstones 229, looking north*

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## 5. DISCUSSION

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### 5.1 INTRODUCTION

5.1.1 The archaeological investigation has provided a valuable opportunity to examine the site of an eighteenth-century printing works, and the steam-power plant for a mid-nineteenth-century cotton mill. Both of the excavated trenches were overlain by a homogenous deposit of mixed demolition rubble, which almost certainly from the final demolition of the former Woodfield Mill, and had been bulldozed into a levelling layer across the site.

### 5.2 MILL HILL PRINT WORKS AND WOODFIELD MILL

5.2.1 The remains uncovered in Trench 1 correspond to the footprint of Woodfield Mill shown on historical mapping (Figs 3-5). The position of long wall (**101**) corresponds exactly with the south-western exterior wall of the mill, and the drainage running parallel to that appear to be contemporary. The engine house overlays perfectly the square structure at the southern corner of the mill. This may be the engine house for the building shown on the Ordnance Survey of 1848 map, with the rest of the building demolished by 1892 and the engine house incorporated into Woodfield Mill.

5.2.2 The two phases of engine bed suggest that an earlier, smaller, engine with a flywheel of up to 5m in diameter was built onto engine bed **111**. This is likely to have been a vertical beam engine, which may have become obsolete and underpowered when the old mill building was demolished and the new Woodfield Mill built, and been replaced with engine beds **112** and **113** accommodating a larger more powerful engine. The surviving blocks for engine bed **112** clearly overlie the drill hole within bed **111**, and may have overlain the flywheel pit as well. The concrete floor surface at the south-eastern end of the trench with the southern brick wall appeared to be a later modification, possibly replacing a boiler room when the mill was converted to electrical power during the 1920s. On the 1892 Ordnance Survey map, the older building is shown as being replaced with a raised reservoir. This may be represented by feature **105** as the remains of part of the reservoir and the large amount of stone rubble in the area, with demolition material from the earlier building being used to make up the banks of the reservoir.

### 5.3 WOODFIELD MILL ANCILLARY BUILDINGS

5.3.1 The ancillary buildings targeted by Trench 2 first appear on the Ordnance Survey of 1892, and the remains support a late date for these structures. Although the principal walls had a deep stone foundation, this may be due to the availability of the material. The upper, above ground, walls were all built from machine-made, often frogged, bricks with hard grey cement rather than a lime mortar suggesting a construction date in the 1880s or 1890s.

- 5.3.2 The position of the excavated structures correspond with a series of three buildings appearing on the historical mapping from 1892 to until 1937, with the long wall **204** appearing to be the rear wall of the properties.
- 5.3.3 The area of the buildings had been heavily disturbed by modern activity, and no particular function could be attributed to these buildings. The walls exhibited repairs and rebuilds using materials spanning through into the early twentieth century, and so it appears that these buildings were undergoing constant alterations until the closure of the mill in 1929-30. The mapping suggests that the ancillary survived somewhat later than the demolished main mill.

#### **5.4 CONCLUSIONS**

- 5.4.1 The excavation of the two targeted areas has enabled an adequate record of the archaeological remains on the site to be recorded. It is not anticipated that any further archaeological investigation will be required in advance of, or during, the proposed construction programme.

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APPENDIX 1: WRITTEN SCHEME OF INVESTIGATION

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March 2015

Oxford  
Archaeology  
North

MILL HILL RESOURCE CENTRE,  
WATSON STREET,  
BLACKBURN

ARCHAEOLOGICAL WRITTEN SCHEME  
OF INVESTIGATION

Planning Application 10/14/1156

***Proposals***

*The following Written Scheme of Investigation is offered in response to a request from Southdale for an archaeological investigation in advance of a proposed redevelopment of the former Mill Hill Resource Centre on Watson Street in Blackburn.*

# 1. INTRODUCTION

## 1.1 PROJECT BACKGROUND

1.1.2 The Great Houses Places Group has obtained planning consent for the erection of 23 dwellings, together with associated landscaping, parking and the provision of vehicular and pedestrian access, on a site in the Mill Hill area of Blackburn (Planning Application 10/14/1156). The site is occupied currently by a modern building, which was used recently as the Mill Hill Resource Centre (Figure 1), although it is shown on the first edition Ordnance Survey map of 1848 as a textile-printing works. This was built in c 1780, but was replaced by Woodfield Mill in the mid-1850s, which was in turn demolished in the 1930s.



*Figure 1: Recent aerial view of the development site*

1.1.3 The development proposals will inevitably necessitate earth-moving works, with potential to impact on below-ground archaeological remains. In order to secure archaeological interests, the Lancashire County Archaeology Service (LCAS), in their capacity as archaeological advisor to Blackburn with Darwen Council, has provided a consultation response to the planning application that recommends a condition is attached to consent. This allows for an appropriate scheme of archaeological investigation to be carried out in conjunction with the development works, in accordance with the National Planning Policy Framework, paragraph 141:

‘No development shall take place until the applicant, or their agent or successors in title, has secured the implementation of a programme of archaeological work in accordance with a written scheme of investigation which has been submitted to and approved in writing by the Local Planning Authority.’

REASON: To ensure and safeguard the recording of any archaeological deposits in accordance with saved Policy HD18 of the Blackburn with Darwen Borough Local Plan.

- 1.1.4 This document presents the required Written Scheme of Investigation for the approval of the Local Planning Authority. It has been produced by OA North at the request of Southdale, acting on behalf of the Great Houses Places Group, and has been formulated in consultation with LCAS. In the first instance, the scheme of archaeological works allows for the mechanical stripping of two targeted areas, under close archaeological supervision, to establish whether any buried remains of interest survive *in-situ*. Pending the results obtained from this initial investigation, further archaeological excavation may be required to ensure that a complete record of any significant buried remains is compiled.

## 1.2 OXFORD ARCHAEOLOGY NORTH

- 1.2.1 OA North is the largest archaeological contractor in north-west England, with unsurpassed experience of working in the region. OA North has the professional expertise and resource to undertake the project to a high level of quality and efficiency. OA North is an Institute for Archaeologists (IfA) registered organisation, registration number 17, and all its members of staff operate subject to the IfA Code of Conduct.
- 1.2.2 OA North has established itself as one of the country’s leading practitioners in the field of industrial archaeology, and has generated an impressive portfolio of projects that include those completed at the Derwentcote Steel Furnace in County Durham (Cranstone *et al* 1997), the Carlton Alum Works in North Yorkshire (Miller 2002), the Pilkington’s Sheet Glass Works in St Helens (Krupa and Heawood 2002), Thomas Telford’s Holyhead Road in North Wales (Quartermaine *et al* 2003), and the Percival, Vickers Flint Glass Works in Manchester (Miller 2007). A large proportion of the industrial archaeology projects carried out by OA North, however, have been focused on the development of textile-manufacturing sites. In 2007, for instance, OA North completed a four-year project of conservation-based research, building survey and excavation at the Grade II Listed Murrays’ Mills spinning complex in the Ancoats area of Manchester. This project culminated in the publication of a monograph on the history, development, and fabric of Manchester’s oldest surviving steam-powered cotton mill (Miller and Wild 2007). Most recently, OA North has just completed a comprehensive archaeological study of Quarry Bank Mill in Cheshire on behalf of the National Trust, and has undertaken the investigations of Tottington Print Works near Bury (Miller 2013), Adelphi Dye Works in Salford, and the Tootill Bleach Works in Bolton.

1.2.3 All work on the project will be undertaken in accordance with relevant professional standards, including:

- IfA's *Code of Conduct*, (2012); *Code of Approved Practice for the Regulation of Contractual Arrangements in Field Archaeology*, (2010); *Standard and Guidance for Archaeological Evaluations*, (2010); *Standard and Guidance for Archaeological Watching Briefs*, (2012);
- English Heritage's *Management of Research Projects in the Historic Environment (MoRPHE)*, 2006;
- *The European Association of Archaeologists Principles of Conduct for Archaeologists Involved in Contract Archaeological Work* (1998).



## 2. AIMS AND OBJECTIVES

- 2.1 The required scheme of archaeological works comprises the intrusive investigation of two parts of the site that may contain buried archaeological remains of interest and that will be damaged or destroyed as part of the proposed development. These areas are limited to the area of car parking bounded on the west by Watson Street and the east by Mill Hill Street, and the open grassed area fronting Mill Hill Street at its junction with Victoria Street.



*Figure 2: Areas to be subject to archaeological investigation, superimposed on a recent aerial view of the development site*

- 2.2 In particular, the excavation area adjacent to Watson Street will investigate the footprint of a large rectangular building shown on the first edition Ordnance Survey map of 1848 (Figure 3) and the possible engine house for the mid-nineteenth-century cotton mill, shown on Ordnance Survey mapping published in 1892 (Figure 4). The second area, adjacent to Mill Hill Street, is shown to have been occupied by one of the reservoirs associated with the textile printing works on the Ordnance Survey map of 1848, but was developed for ancillary buildings associated with the mid-nineteenth-century cotton mill subsequently.
- 2.3 The main research aim of the investigation, in the first instance, will be to assess the presence or absence of any archaeological remains pertaining to the former printing works and the power plant for the later textile mill, and establish whether any further archaeological investigation of the site is merited.

2.4 The required stages to achieve these ends are as follows:

- **Strip, Map and Record:** the initial stage of the works will comprise the mechanical removal of modern hard-standing and grassed areas, followed by manual excavation, to determine the presence or absence of any buried remains of archaeological interest. The strip and record is also intended to establish the extent of any further work, if any, which will be required in advance of the groundworks associated with the proposed development. Where significant buried remains are found to survive, and will be destroyed during the proposed development, further excavation will be required. This will aim to provide a detailed record of the remains of the steam-power plant;
- **Post-excavation Assessment and Reporting:** a programme of post-excavation work, leading to the production of a fully illustrated report and project archive will be carried out on completion of the fieldwork. The report will provide an assessment of the significance of any buried archaeological remains that are found to survive beneath the modern ground surface.



Figure 3: Areas to be subject to archaeological investigation, superimposed on the Ordnance Survey map of 1848

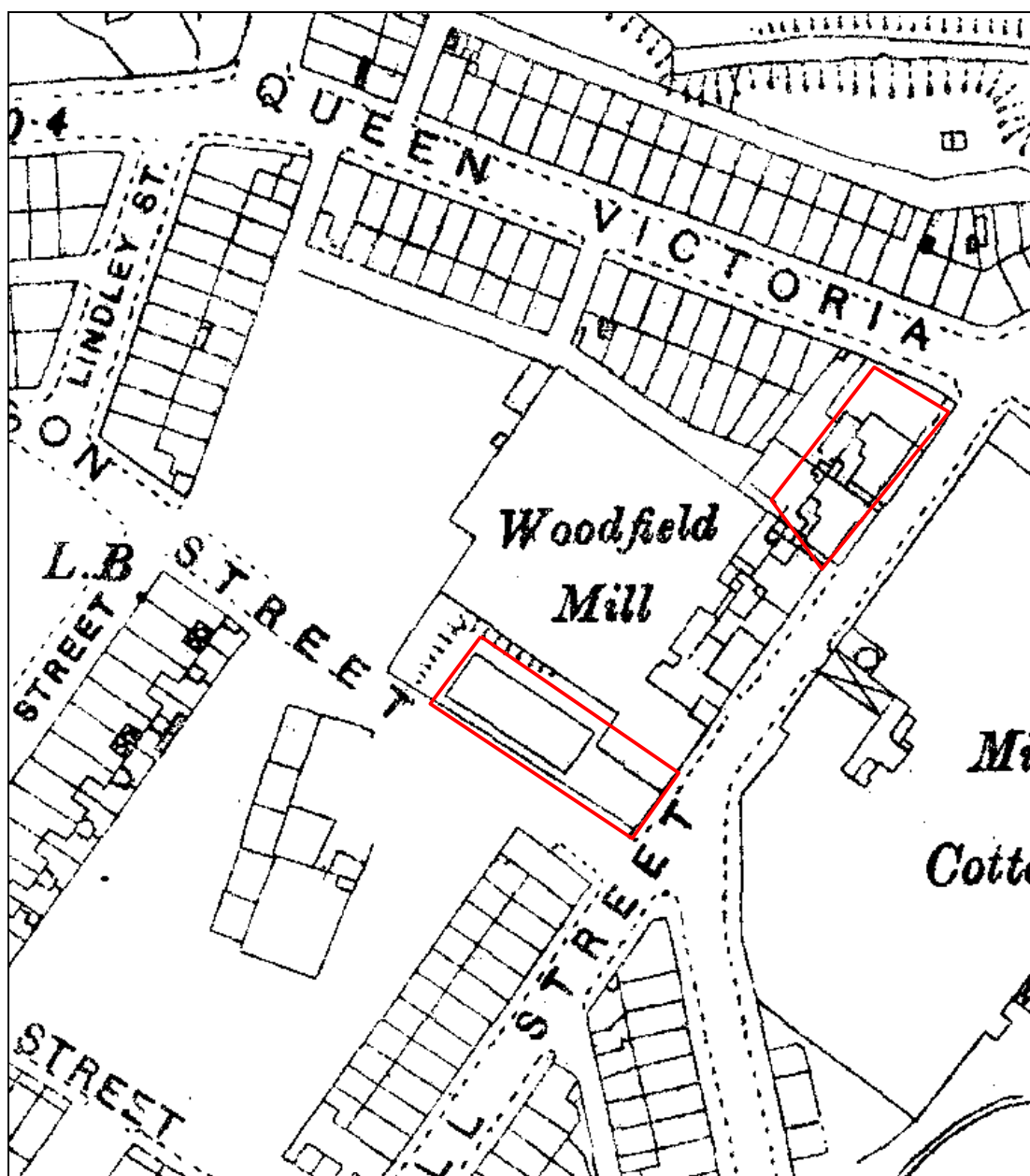


Figure 4: Areas to be subject to archaeological investigation, superimposed on the Ordnance Survey map of 1892

### 3. METHOD STATEMENT

#### 3.1 STRIP, MAP AND RECORD

- 3.2.1 The two targeted areas will be subject to intrusive archaeological investigation. This will comprise the stripping of modern surfacing, followed by the manual cleaning of any exposed remains and archaeological recording. This will be intended to establish the presence or absence of any buried remains of interest, and, if established, will then test their date, nature, depth and quality of preservation, enabling a mitigation strategy to be formulated in consultation with LCAS. It is not anticipated that other parts of the development site will retain buried remains of archaeological significance, and thus do not merit intrusive investigation.
- 3.2.2 In the first instance, the excavations area will be marked out precisely on the ground, according to Ordnance Survey (OS) co-ordinates. The modern surfacing will then be excavated by a mechanical excavator of appropriate power using a toothless ditching bucket, and operating under constant and close archaeological supervision. Mechanical stripping, with selective excavation to determine depth and character of features and deposits, will be followed by the rapid manual cleaning to allow a basic record to be compiled of any exposed remains of archaeological interest.
- 3.2.3 Where significant buried remains are found to survive, and will be destroyed during the construction works, further archaeological investigation will be required. This is likely to involve detailed excavation of targeted features.
- 3.2.4 **Recording:** machine excavation will be used to define carefully the extent of any surviving walls, foundations, and other remains. Thereafter, structural remains will be cleaned manually to define their extent, nature, form and, where possible, date. If the excavation is to proceed below a depth of 1.2m, then the trench will be widened sufficiently to allow the sides to be stepped in or battered back to a safe angle of repose.
- 3.2.5 All information identified in the course of the site works will be recorded stratigraphically, using a system adapted from that used by the Centre for Archaeology Service of English Heritage. Results of the evaluation will be recorded on *pro-forma* context sheets, and will be accompanied with sufficient pictorial record (plans, sections and photographs) to identify and illustrate individual features. Primary records will be available for inspection at all times.
- 3.2.6 A full and detailed photographic record of individual contexts will be maintained and similarly general views from standard view points of the overall site at all stages of the evaluation will be generated. Photographs records will be maintained on special photographic *pro-forma* sheets. Accurate large-scale plans and sections will also be produced at an appropriate scale (1:50, 1:20 and 1:10).

3.2.7 **Human remains:** human remains are not expected to be present, but if they are found they will, if possible, be left *in-situ* covered and protected. If removal is necessary, then the relevant Home Office permission will be sought, and the removal of such remains will be carried out with due care and sensitivity as required by the *Burials Act 1857*.

3.2.8 Any gold and silver artefacts recovered during the course of the excavation will be removed to a safe place and reported to the local Coroner according to the procedures relating to the Treasure Act, 1996.

### 3.3 POST-EXCAVATION

3.3.1 **Report:** the content of the fully illustrated report will comprise the following:

- (i) a title page detailing site address, NGR, author/originating body, client's name and address a site location plan related to the national grid;
- (ii) full content's listing;
- (iii) a summary account of the results;
- (iv) an explanation to any agreed variations to this Written Scheme of Investigation, including any justification for any analyses not undertaken;
- (v) a description of the methodology employed, work undertaken and results obtained;
- (vi) a description of the archaeological background, and an account of the historical development of the site;
- (vii) copies of plans, photographs, and other illustrations as appropriate;
- (viii) plans of each of the stripped trench showing the archaeological features exposed;
- (ix) an overall phased plan with sections of the excavated archaeological features;
- (x) a consideration of the importance of the archaeological remains present on the site in local, regional and national terms;
- (xi) recommendations for further archaeological investigation where appropriate;
- (xii) a complete bibliography of sources from which data has been derived.

3.2.2 The report will be in the same basic format as this written scheme of investigation; a copy of the report can be provided on CD, if required. Copies of the report will be supplied to the client as requested, and further digital copies will go to the appropriate repository.

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- 3.2.3 **Archive:** the results of all archaeological work carried out will form the basis for a full archive to professional standards, in accordance with current English Heritage guidelines. The project archive represents the collation and indexing of all the data and material gathered during the course of the project.
- 3.2.4 The deposition of a properly ordered and indexed project archive in an appropriate repository is considered an essential and integral element of all archaeological projects by the IfA in that organisation's code of conduct. OA North conforms to best practice in the preparation of project archives for long-term storage. OA North practice is to deposit the original record archive of projects with the appropriate County Record Office.
- 3.2.5 The Arts and Humanities Data Service (AHDS) online database project *Online Access to index of Archaeological Investigations* (OASIS) will be completed as part of the archiving phase of the project.
- 3.2.6 **Confidentiality:** all internal reports to the client are designed as documents for the specific use of the Client, for the particular purpose as defined in the project brief and project design, and should be treated as such. They are not suitable for publication as academic documents or otherwise without amendment or revision.

## 4. OTHER MATTERS

- 4.1 **Health and Safety:** archaeological staff and visitors will respect Health and Safety provisions and site-specific safety regulations. It is the policy of OA North ('the Employer') to conform fully with the requirements of the Health and Safety at Work Act (1974), and all site procedures will be in accordance with the guidance set out in the Health and Safety Manual compiled by the Standing Conference of Archaeological Unit Managers (1997). Attention will also be paid to the requirements of more recent legislation, including the provision and use of Work Equipment Regulations (1992), the Management of Health and Safety at Work Regulations (1992), and the Construction (Design and Management) Regulations (1994).
- 4.2 In furtherance of the duty of care imposed by the Health and Safety at Work Act (1974), the Employer shall make available to his employees whatever reasonable facilities are required by particular circumstances, *eg* appropriate protective clothing, safety equipment, rest breaks for specialised tasks, etc. A written risk assessment will be undertaken in advance of project commencement, and copies will be made available on request.
- 4.3 **Insurance:** evidence of Public Liability Insurance to the minimum value of £5m, and Professional Indemnity Insurance to the minimum of £2m, will be provided prior to the commencement of the archaeological works.
- 4.4 **Project Monitoring:** the aims of monitoring are to ensure that the archaeological works are undertaken within the limits set by the Written Scheme of Investigation, and to the satisfaction of the curatorial archaeologist at the Lancashire County Archaeology Service (LCAS). The curatorial archaeologist will be given at least five days' notice of when work is due to commence, and will be free to visit the site by prior arrangement with the project director. It is anticipated that there will be at least one formal monitoring meeting during the course of the archaeological works, which should also be attended by the Client or his representative.
- 4.5 **Contingencies:** if there are more complex or generally deeper deposits than can be anticipated from the evidence available, there may need to be a corresponding increase in costs, which will be subject to agreement with the Client and the archaeological curator. These contingency costs are in accordance with the Institute for Archaeologists' guidance.
- 4.6 **Confidentiality:** the report is designed as a document for the specific use of the Client, for the particular purpose as defined in the project design, and should be treated as such; it is not suitable for publication as an academic report, or otherwise, without amendment or revision. Any requirement to revise or reorder the material for submission or presentation to third parties beyond the project design, or for any other explicit purpose can be fulfilled, but will require separate discussion and funding.

## 5. WORK TIMETABLE

- 5.1.1 **Strip, Map and Record:** a ten-day period should be allowed to carry out the initial strip and record exercise. The time required for any additional excavation cannot be determined until the results of the strip and record are known.
- 5.1.2 **Report/Archive:** the report and archive will be produced within six weeks of completion of the fieldwork. OA North can execute projects at very short notice once a formal written agreement has been received from the client.

## 6. STAFFING

- 6.1 The project will be under the overall charge of **Ian Miller BA FSA** (OA North Senior Project Manager) to whom all correspondence should be addressed. Ian has considerable experience and particular research interests in Lancashire's textile industries. Ian managed the archaeological fieldwork, analysis and ultimate publication at Murrays' Mills (Miller and Wild 2007), and has managed numerous excavations of former textile mills and textile-finishing works throughout Greater Manchester and Lancashire. He is presently managing the Lancashire Textile Mills Survey, a strategic research project funded by English Heritage.
- 6.2 The fieldwork is likely to be undertaken by **Graham Mottershead BA** (OA North Project Officer). Graham is an highly experienced field archaeologist, with over 20 years continuous experience of field archaeology. It is not possible to provide details of specific technicians that will be involved with the fieldwork at this stage, but all shall be suitably qualified archaeologists with proven relevant experience. It is anticipated that up to two technicians will be required for the initial stage of the fieldwork.



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## ILLUSTRATIONS

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### LIST OF FIGURES

- Figure 1: Site location
- Figure 2: Trench location plan
- Figure 3: Trenches superimposed on the Ordnance Survey 25": 1 mile map of 1911
- Figure 4: Trenches superimposed on the Ordnance Survey 25": 1 mile map of 1931
- Figure 5: Trenches superimposed on the Ordnance Survey 25": 1 mile map of 1937
- Figure 6: Detail plan of Trench 1
- Figure 7: Detail of Trench 2



Figure 1: Site location

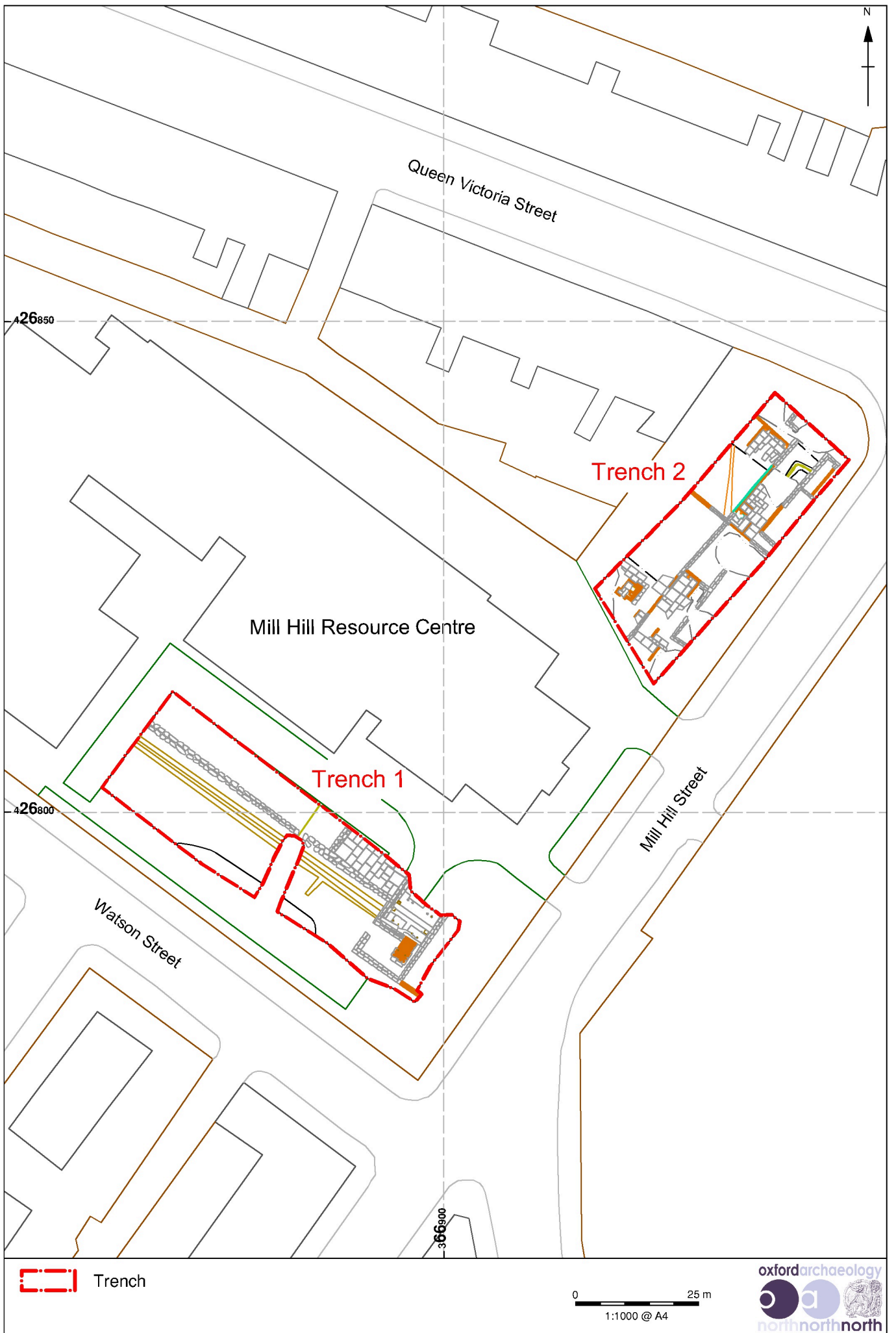


Figure 2: Trench location plan

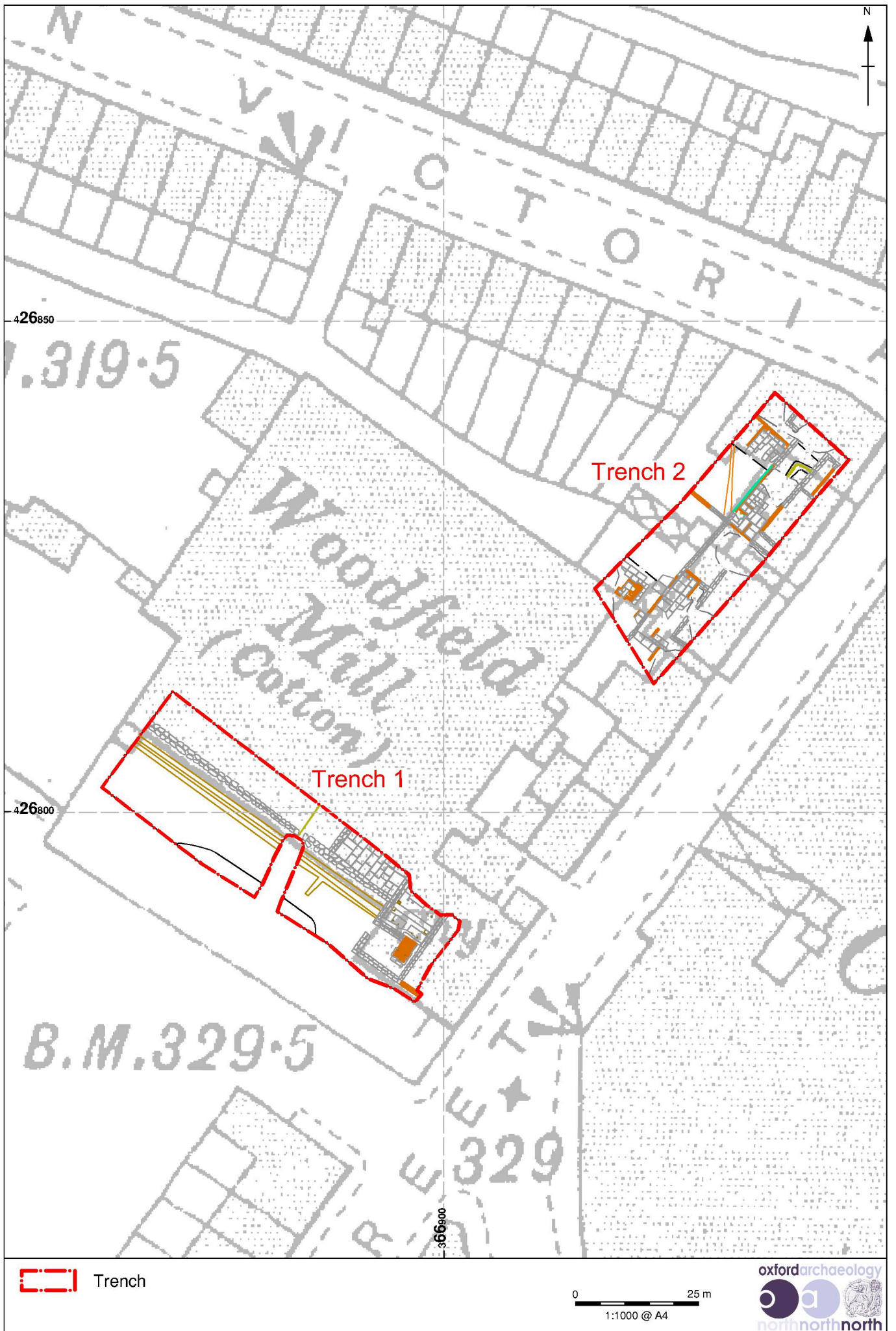


Figure 3: Trenches superimposed on the Ordnance Survey 25":1 mile map of 1911



Figure 4: Trenches superimposed on the Ordnance Survey 25":1 mile map of 1931

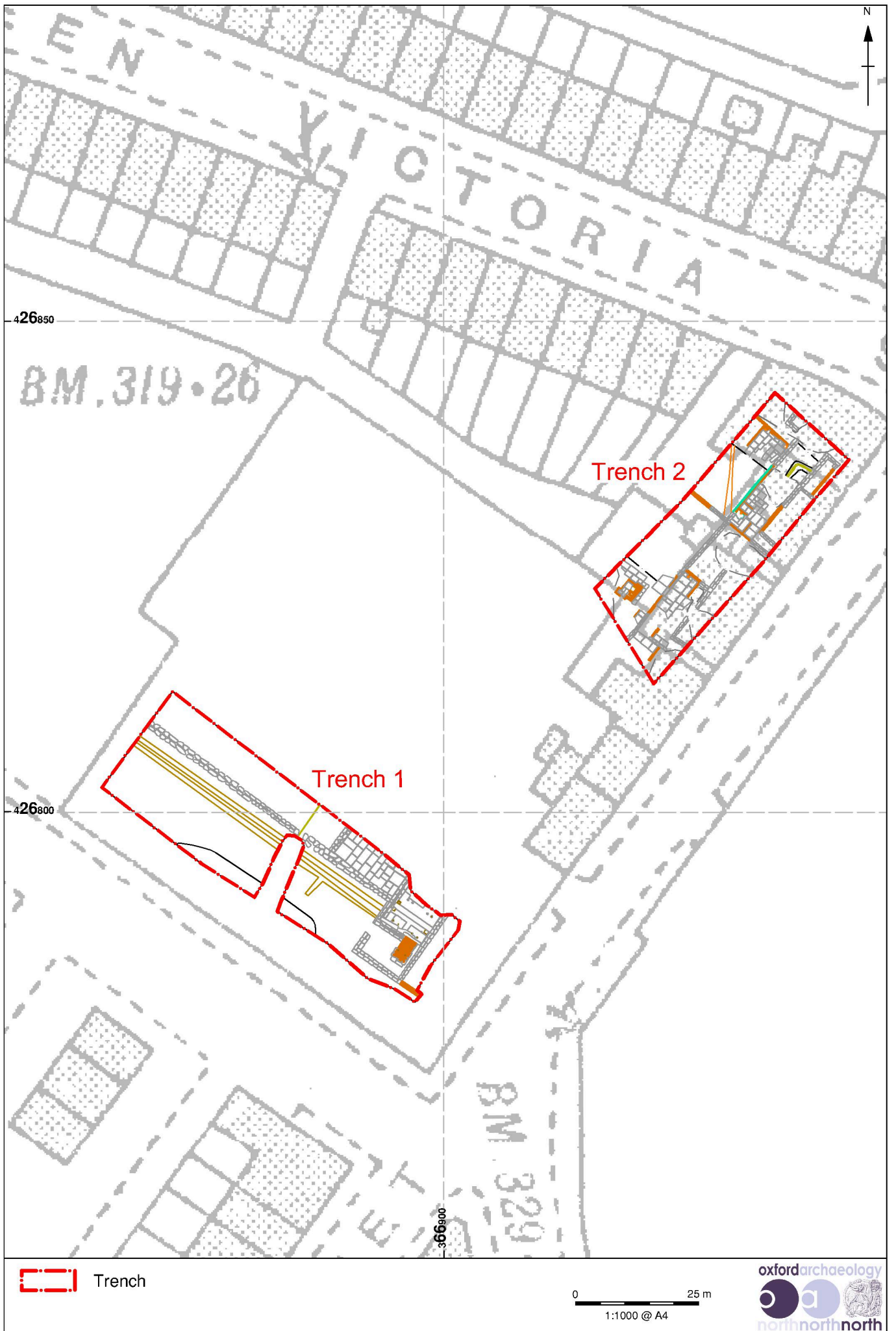


Figure 5: Trenches superimposed on the Ordnance Survey 25":1 mile map of 1937

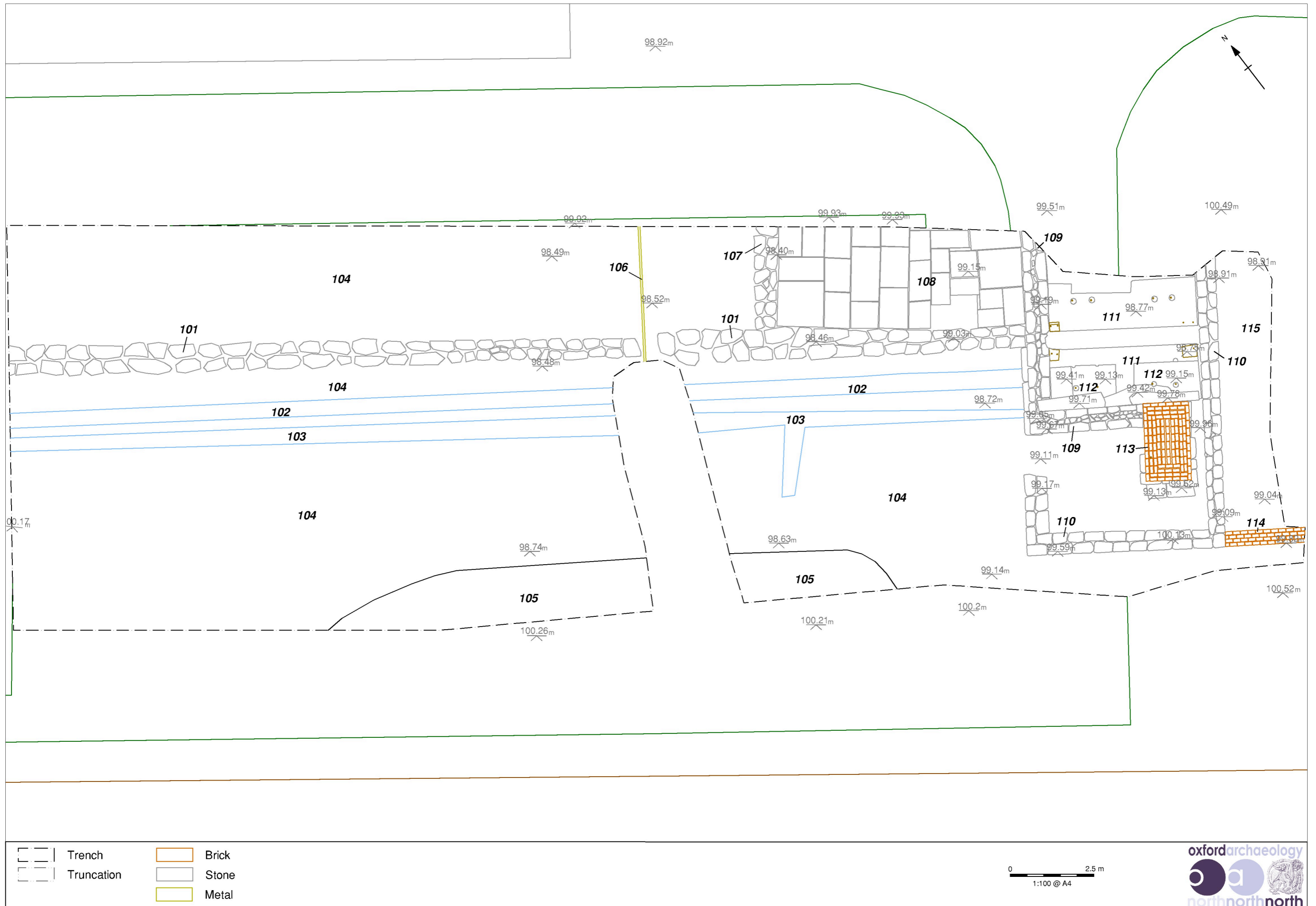


Figure 6: Detail plan of Trench 1

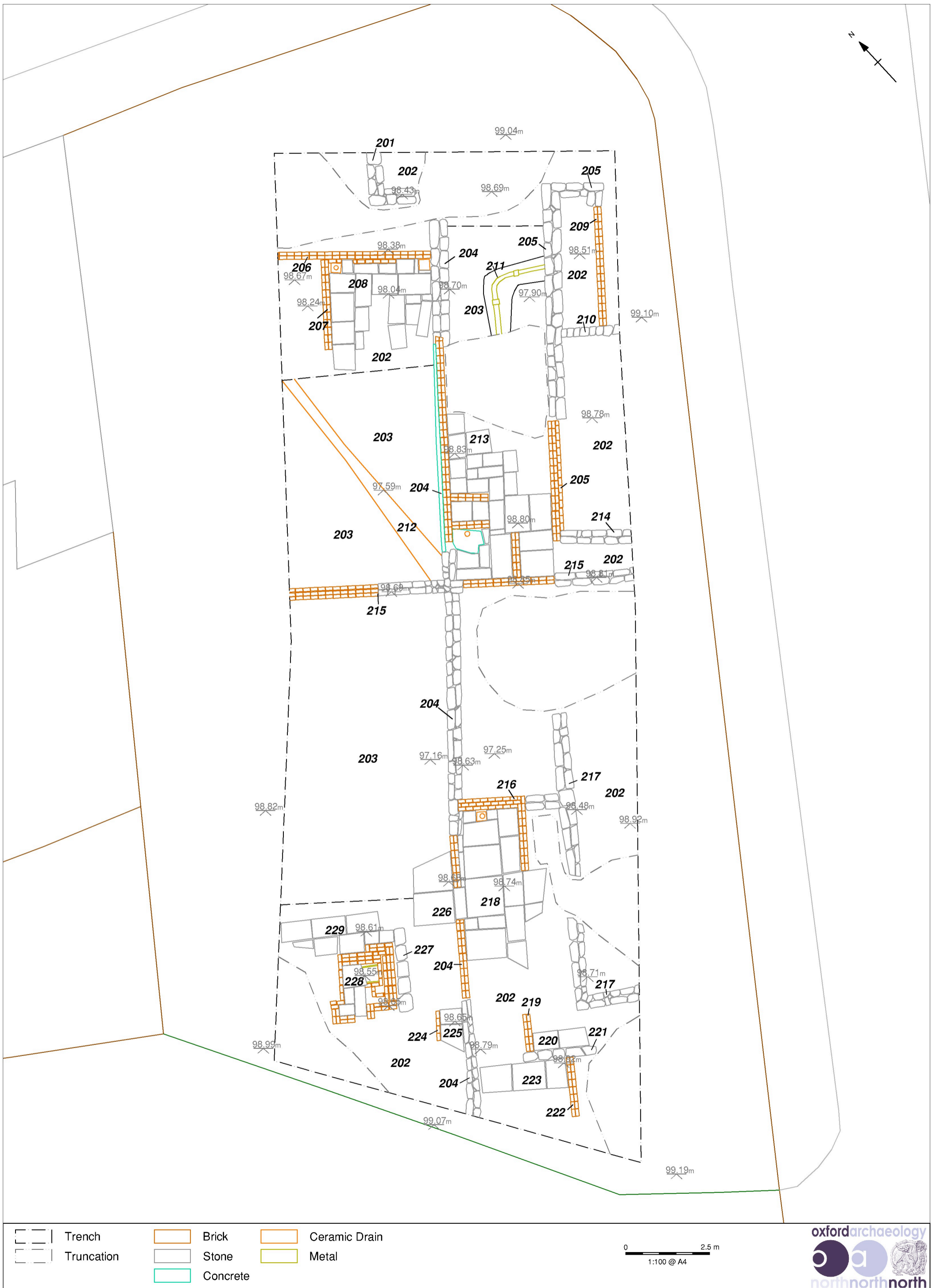


Figure 7: Detail plan of Trench 2